

# Non-collateralised Structured Products

Issuer

**J.P. Morgan Structured Products B.V.**

*(Incorporated with limited liability in The Netherlands)*

Guarantor

**JPMorgan Chase Bank, National Association**

*(a national banking association organised under the laws of United States of America)*

Managers

**J.P. Morgan Securities plc**

**J.P. Morgan Securities (Asia Pacific) Limited**

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This document, for which the issuer and the guarantor accept full responsibility, includes particulars given in compliance with the Rules Governing the Listing of Securities on the Stock Exchange of Hong Kong Limited (the Rules) for the purpose of giving information with regard to the issuer, the guarantor and the structured products referred to in this document. The issuer and the guarantor, having made all reasonable enquiries, confirm that to the best of their knowledge and belief the information contained in this document is accurate and complete in all material respects and not misleading or deceptive, and there are no other matters the omission of which would make any statement herein or this document misleading.

We, the issuer of our structured products, are publishing this base listing document in order to obtain a listing on the Stock Exchange of our warrants, callable bull/bear contracts (the CBBCs) and other structured products. We will refer to the warrants, CBBCs and other structured products as “structured products” in this document.

We will publish a supplemental listing document for each issue of structured products to set out the terms specific to that issue. If at that point the information in this base listing document (and any applicable addendum) needs to be updated, we will either include the updated information in the relevant supplemental listing document or produce a supplemental disclosure document or an addendum to this base listing document. You should read the relevant supplemental listing document and the supplemental disclosure document (if any) together with this base listing document (including any addendum) before deciding whether to buy our structured products. Neither the delivery of this base listing document nor any sale of any structured products shall under any circumstances create any implication that there has been no change in our affairs or the affairs of the guarantor or its affiliates since the date of this base listing document. You should ask the managers if any supplemental disclosure document or any addendum to this base listing document or any later base listing document has been issued. You must not assume that our supplemental disclosure document or any addendum contains the most recent information at any time after the date of such supplemental disclosure document or addendum. You should read the guarantor’s most recent consolidated financial statements for the year ended 31 December 2015 in this base listing document.

**The structured products involve derivatives. Investors should not invest in the structured products unless they fully understand and are willing to assume the risks associated with them.**

**Investors are warned that the price of the structured products may fall in value as rapidly as it may rise and holders may sustain a total loss of their investment. Prospective purchasers should therefore ensure that they understand the nature of the structured products and carefully study the risk factors set out in this document and, where necessary, seek professional advice, before they invest in the structured products.**

**The structured products constitute general unsecured contractual obligations of the issuer and of no other person and the guarantee constitutes the general unsecured contractual obligation of the guarantor and of no other person. The structured products will rank equally among themselves and with all our other unsecured obligations and the guarantee will rank equally with all of the guarantor’s other unsecured obligations (in each case, save for obligations preferred by law) upon liquidation. If you purchase the structured products you are relying upon the creditworthiness of the issuer and the guarantor and have no rights under the structured products against (a) the company which has issued the underlying shares; (b) the trustee or the manager of the underlying trust; or (c) the index compiler of the underlying index. If the issuer becomes insolvent or defaults on its obligations under the structured products or the guarantor becomes insolvent or defaults on its obligations under the guarantee, you may not be able to recover all or even part of the amount due under the structured products (if any).**

**The guarantee of the guarantor (i) is an unsecured and unsubordinated general obligation of the guarantor and not of any of its affiliates; (ii) is not a savings account or deposit of the guarantor or any bank or non-bank subsidiary of the guarantor; and (iii) will rank *pari passu* with all other unsecured and unsubordinated obligations of the guarantor, (except obligations, including U.S. domestic deposits of the guarantor, that are subject to any priorities or preferences by law. The guarantee is not a deposit insured by the U.S. Federal Deposit Insurance Corporation, the U.S. Deposit Insurance Fund or any other governmental agency or instrumentality.**

The issuer and the guarantor are part of a large global financial institution and have many financial products and contracts outstanding at any given time. When purchasing the structured products, you will be relying on the creditworthiness of the issuer and the guarantor and of no one else.

The distribution of this base listing document, any supplemental listing document, any supplemental disclosure document, any addendum and the offering, sale and delivery of structured products in certain jurisdictions may be restricted by law. You are required to inform yourselves about and to observe such restrictions. Please read Annex 3 “Purchase and Sale” in this base listing document. **The structured products have not been and will not be registered under the U.S. Securities Act of 1933, as amended (the Securities Act), and trading in the structured products has not been and will not be approved by the U.S. Commodity Futures Trading Commission under the U.S. Commodity Exchange Act. The structured products may not be offered or sold within the United States or to or for the account or benefit of U.S. Persons (as defined in Regulation S under the Securities Act). The guarantee has not been and will not be registered under the rules of the U.S. Office of the Comptroller of the Currency.**

Base Listing Document dated 5 April 2016

**J.P.Morgan**

## **IMPORTANT**

If you are in doubt as to the contents of this base listing document, you should obtain independent professional advice.

Copies of this base listing document, the relevant supplemental listing document, the supplemental disclosure document (if any) (together with a Chinese translation of each of these documents) and other documents listed under the section “Where can I read copies of the Issuer’s documentation?” under the section headed “More information about our structured products and our listing documents” in this base listing document may be inspected at the offices of J.P. Morgan Securities (Asia Pacific) Limited at 25/F, Chater House, 8 Connaught Road Central, Hong Kong.

本基本上市文件、有關補充上市文件及補充披露文件（如有）（及以上各份文件的英文版）連同本基本上市文件「有關本公司結構性產品及上市文件的更多資料」一節內「本人從何處可查閱發行人的文件？」一節所列之其餘文件，可於J.P. Morgan Securities (Asia Pacific) Limited於香港干諾道中8號遮打大廈25樓的辦事處供查閱。

We do not give you investment advice; you must decide for yourself, after reading the listing documents for the relevant structured products and, if necessary, seeking professional advice, whether our structured products meet your investment needs.

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## SUMMARY OF OUR STRUCTURED PRODUCTS

The types of structured products that we may issue include, but are not limited to: cash-settled stock warrants, cash-settled warrants over single unit trust, cash-settled index warrants, cash-settled CBBCs over single stock, cash-settled CBBCs over index, and cash-settled CBBCs over single unit trust. Each type of our structured products will be subject to a separate set of master terms and conditions (Conditions) either as set out in Annex 1 to this base listing document (for the structured products listed above) or as set out in the relevant supplemental listing document (for other types of structured products). For each issue of our structured products, we will publish a supplemental listing document setting out the specific terms. The specific terms set out in the relevant supplemental listing document supplement and amend the applicable set of Conditions to form the legally binding terms and conditions of that issue of structured products.

We describe below the main features of the different types of our structured products.

### General features of our structured products:

Issuer:	J.P. Morgan Structured Products B.V.
Guarantor:	JPMorgan Chase Bank, National Association
Current credit ratings of the Guarantor's long-term debt (as of the day immediately preceding the date of this base listing document)	<p>A+ (stable outlook) by Standard &amp; Poor's Ratings Services ("S&amp;P")</p> <p>Aa3 (stable outlook) by Moody's Investors Service, Inc. ("Moody's")</p> <p>The ratings of the guarantor are only an assessment by the rating agencies of the guarantor's overall financial capacity to pay its long-term debts.</p> <p>A+ is among the top three major credit rating categories and is the fifth highest investment-grade ranking of the ten investment-grade ratings (including + or – sub-grades) assigned by S&amp;P.</p> <p>Aa3 is the fourth highest investment-grade ranking of the ten investment-grade ratings (including 1, 2 and 3 sub-grades) assigned by Moody's.</p> <p>Please refer to the brief guide in Annex 4 to this base listing document for more information about credit ratings.</p>
Rating of the structured products:	The structured products are not rated by any credit rating agencies.
Ranking of our structured products:	Upon exercise, our structured products will become our direct, unconditional, unsecured and unsubordinated obligations ranking equally with all our other direct, unconditional, unsecured and unsubordinated obligations.

Guarantee:	The obligations of the guarantor under the guarantee are direct, unconditional, unsecured and unsubordinated, subject to the terms of the guarantee and except as specifically set forth therein. You can find the form of the guarantee in Annex 2.
Liquidity provider:	J.P. Morgan Broking (Hong Kong) Limited or such other entity appointed by us as may be specified in the relevant supplemental listing document. We will describe in each supplemental listing document whether and to what extent we are obligated to provide liquidity in our structured products.
Form:	In registered form subject to and with the benefit of a deed poll made by us and the guarantor. Each issue will be represented by a global certificate registered in the name of HKSCC Nominees Limited (or its successors) as holder and deposited within the Central Clearing and Settlement System (CCASS).  We will not issue any definitive certificates for our structured products.
Use of proceeds:	We will use the proceeds from the issue of our structured products for our general working capital or any other purposes permitted under our memorandum and articles of association, including entering into hedging transactions with our affiliates.
Further issues:	We can issue further structured products to form a single series with an existing issue of our structured products.
Delisting of the shares/units underlying our structured products:	If the shares/units of the company/trust or the shares of any of the companies underlying a particular issue of our structured products are delisted from the relevant stock exchange, we may adjust the terms of that issue as further detailed in the relevant terms and conditions of our structured products.
Adjustments upon certain events affecting the company/trust or companies, the index underlying or such other asset underlying our structured products:	If certain events occur in connection with the company/trust or any of the companies underlying our structured products, or if certain events have occurred which materially modify the underlying index or such other underlying asset, we may make adjustments to the terms of that issue to account for the effect of such events. Please see the applicable set of Conditions of our structured products for further details.  These events and the possible adjustments we may make are set out in detail in the applicable set of Conditions.
Governing law:	Our structured products and the guarantee are governed by Hong Kong law.

## SPECIFIC FEATURES OF OUR STRUCTURED PRODUCTS

### **Warrants:**

Warrants are structured financial products, the value of which is derived from the price or value of another asset. The underlying asset may be a stock, units in funds or trusts, an index, or other asset or combination of such assets.

A list of the eligible underlying assets for warrants is available on the HKEx website at <http://www.hkex.com.hk/eng/prod/secprod/dwrc/latest.htm>.

- Cash-settled stock warrants and cash-settled warrants over single unit trust:

The underlying asset of stock warrants is shares of a company and the underlying asset of warrants over single unit trust is units in a fund or a trust. The shares and units in the fund or trust may be listed in Hong Kong or overseas.

Our cash-settled stock warrants and cash-settled warrants over single unit trust provide for cash settlement only, which means that physical delivery of the underlying shares or units will not be available as a method of settlement; instead, upon the exercise of each board lot of warrants, we will pay the warrant holder a cash amount equal to:

in the case of call warrants:

$$\frac{\text{entitlement} \times (\text{average price} - \text{exercise price}) \times \text{one board lot}}{\text{number of warrant(s) per entitlement}}$$

in the case of put warrants:

$$\frac{\text{entitlement} \times (\text{exercise price} - \text{average price}) \times \text{one board lot}}{\text{number of warrant(s) per entitlement}}$$

and in each case less any exercise expenses, so long as such amount is greater than zero.

The average price of an underlying share or unit is determined by reference to the market closing price on each valuation date; please see the terms and conditions of our warrants for further details.

- Index warrants:

The underlying asset of index warrants is an index published by an index compiler.

Our index warrant gives its holders a right upon exercise of each board lot of warrants, to receive from us a cash amount equal to:

in the case of call warrants:

$$\frac{(\text{closing level} - \text{strike level}) \times \text{one board lot} \times \text{index currency amount}}{\text{divisor}}$$

in the case of put warrants:

$$\frac{(\text{strike level} - \text{closing level}) \times \text{one board lot} \times \text{index currency amount}}{\text{divisor}}$$

and in each case converting such amount into the settlement currency of our warrants if necessary, and less any exercise expenses, so long as such amount is greater than zero.

The closing level of the index on the date of exercise may be determined by reference to the official settlement price of an exchange traded contract relating to the index or some other means; please see the terms and conditions of our warrants for further details.

The supplemental listing document will set out, among others, the following terms specific to our warrants to supplement the applicable set of master terms and conditions in this base listing document:

<b>Board lot</b>	Minimum number at which our warrants trade
<b>Shares of the company</b>	Name of the underlying company (for our cash-settled stock warrants only)
<b>Trust</b>	Name of the underlying trust or fund (for our warrants over single unit trust only)
<b>Index</b>	Name of the underlying index (for our index warrants only)
<b>Index compiler</b>	Name of company that maintains the index and calculates and publishes the index levels (for our index warrants only)
<b>Exercise price</b>	Predetermined exercise price of the underlying share/unit (for our cash-settled stock warrants and warrants over single unit trust only)
<b>Strike level</b>	Predetermined level of the underlying index (for our index warrants only)
<b>Expiry date</b>	Date on which our warrants expire
<b>Entitlement</b>	Number of shares/units to which a specified number of warrants relates (for our cash-settled stock warrants and warrants over single unit trust only)
<b>Number of warrant(s) per entitlement</b>	Number of warrants to which one entitlement relates (for our cash-settled stock warrants and warrants over single unit trust only)
<b>Index currency amount</b>	An amount denominated in the currency in which the constituent stocks of the index are traded, which is used in the calculation of the cash settlement amount payable upon the exercise of a board lot of our warrants (for our index warrants only)
<b>European style</b>	European style warrants can only be exercised on the expiry date

**Listing date** The date on which our warrants are scheduled to commence trading on the Stock Exchange

***Callable bull/bear contracts (CBBCs):***

CBBCs are structured products that track the performance of an underlying asset. CBBCs can be issued on different types of underlying assets, including:

- (a) shares or units listed on the Stock Exchange;
- (b) Hang Seng Index, Hang Seng China Enterprises Index, Hang Seng China H-Financials Index or other indices; or
- (c) other assets as prescribed by the Stock Exchange from time to time.

A list of the eligible underlying assets for CBBCs is available on the HKEx website at [http://www.hkex.com.hk/eng/prod/secprod/cbbc/underlying\\_latest.htm](http://www.hkex.com.hk/eng/prod/secprod/cbbc/underlying_latest.htm).

CBBCs are issued either as callable bull contracts (bull CBBCs) or callable bear contracts (bear CBBCs). Bull CBBCs are designed for investors who have an optimistic view on the underlying asset. Bear CBBCs are designed for investors who have a pessimistic view on the underlying asset.

CBBCs have a mandatory call feature and, subject to the limited circumstances set out in the relevant conditions in which a mandatory call event (MCE) may be reversed, we must terminate the CBBCs upon the occurrence of a mandatory call event. See “What is the mandatory call feature?” below for further details.

There are two categories of CBBCs, namely (a) category N CBBCs and (b) category R CBBCs. Your entitlement following the occurrence of a mandatory call event will depend on the category of the CBBCs. See “Category R CBBCs or Category N CBBCs?” below for further details.

Our CBBCs are “European style” and, subject to no occurrence of a mandatory call event, only exercisable on the relevant expiry date. The cash settlement amount (if any) payable at expiry represents the difference between the closing price/closing level of the underlying asset on the valuation date and the strike price/strike level. If on the relevant expiry date, the cash settlement amount is zero or a negative amount, you will lose all of your investment in the CBBCs.

**What is the mandatory call feature?**

*Mandatory call event*

Subject to the limited circumstances set out in the relevant conditions in which a mandatory call event may be reversed, we must terminate the CBBCs if a mandatory call event occurs. A mandatory call event occurs when the spot price/spot level of the underlying asset is:

- (a) for bull CBBCs, at or below the call price/call level; or
- (b) for bear CBBCs, at or above the call price/call level,

at any time during the observation period.

The observation period commences from the observation commencement date specified in the relevant supplement listing document to the trading day immediately preceding the expiry date (both dates inclusive).

### *Cancellation of trades*

Subject to the limited circumstances set out in the relevant conditions in which a mandatory call event may be reversed and such modification and amendment as may be prescribed by the Stock Exchange from time to time:

- (a) all trades in the CBBCs concluded via auto-matching or manually after the time at which a mandatory call event occurs; and
- (b) if a mandatory call event occurs during a pre-opening session or closing auction session (if applicable), all auction trades in the CBBCs concluded in such session and all manual trades of the CBBCs concluded after the end of the pre-order matching period in such session,

(each, a post MCE trade) will be invalid and will be cancelled, and will not be recognised by us or the Stock Exchange.

The time at which a mandatory call event occurs will be determined by reference to:

- (a) in respect of the CBBCs over single stock or CBBCs over single unit trust, the Stock Exchange's automatic order matching and execution system time at which the spot price is at or below the call price (for a series of bull CBBCs) or is at or above the call price (for a series of bear CBBCs); or
- (b) in respect of the CBBCs over index, the time at which the spot level published by the relevant index compiler is at or below the call level (for a series of bull CBBCs) or is at or above the call level (for a series of bear CBBCs),

subject to the rules and requirements as prescribed by the Stock Exchange from time to time.

### **Category R CBBCs or Category N CBBCs?**

The supplemental listing document for the relevant series will specify whether the CBBCs are category N CBBCs or category R CBBCs.

“Category N CBBCs” refer to CBBCs for which the call price/call level is equal to their strike price/ strike level. In respect of a series of category N CBBCs, you will not receive any cash payment following the occurrence of a mandatory call event.

“Category R CBBCs” refer to CBBCs for which the call price/call level is different from their strike price/ strike level. In respect of a series of category R CBBCs, you may receive a cash payment called the residual value upon the occurrence of a mandatory call event. The residual value payable (if any) is calculated by reference to, among others:

- (a) for bull CBBCs, the difference between the minimum trade price/minimum index level of the underlying asset during a specified period called the “MCE valuation period” and the strike price/ strike level; or
- (b) for bear CBBCs, the difference between the strike price/strike level and the maximum trade price/maximum index level of the underlying asset during the MCE valuation period.

You must read the applicable conditions and the relevant supplemental listing document to obtain further information on the calculation formula of the residual value applicable to category R CBBCs. If the residual value is zero or a negative number, you will lose all of your investment.



- CBBCs over single stock or CBBCs over single unit trust: The underlying asset of CBBCs over single stock is shares of a company and the underlying asset of CBBCs over single unit trust is units in a fund or a trust.

Generally for a series of CBBCs over single stock or a series of CBBCs over single unit trust, if no mandatory call event occurs during the observation period, upon expiry, for each board lot of CBBCs, we will pay the holder a cash amount equal to:

in the case of bull CBBCs:

$$\frac{\text{entitlement} \times (\text{closing price} - \text{strike price}) \times \text{one board lot}}{\text{number of CBBC(s) per entitlement}}$$

in the case of bear CBBCs:

$$\frac{\text{entitlement} \times (\text{strike price} - \text{closing price}) \times \text{one board lot}}{\text{number of CBBC(s) per entitlement}}$$

and in each case less any exercise expenses, so long as such amount is greater than zero.

- CBBCs over index: The underlying asset of CBBCs over index is an index published by an index compiler.

Generally for a series of CBBCs over index, if no mandatory call event occurs during the observation period, upon expiry, for each board lot of CBBCs, we will pay the holder a cash amount equal to:

in the case of bull CBBCs:

$$\frac{(\text{closing level} - \text{strike level}) \times \text{one board lot} \times \text{index currency amount}}{\text{divisor}}$$

in the case of bear CBBCs:

$$\frac{(\text{strike level} - \text{closing level}) \times \text{one board lot} \times \text{index currency amount}}{\text{divisor}}$$

and in each case converting such amount into the settlement currency of our CBBCs if necessary, less any exercise expenses, so long as such amount is greater than zero.

The closing level of the index on the valuation date may be determined by reference to the official settlement price of an exchange traded contract relating to the index or some other means; please see the terms and conditions of our CBBCs for further details.

The supplemental listing document will set out, among others, the following terms specific to our CBBCs to supplement the applicable set of master terms and conditions in this base listing document:

<b>Category</b>	The category of our CBBCs: category N or category R
<b>Type</b>	The type of our CBBCs: bull or bear
<b>Board lot</b>	Minimum number at which our CBBCs trade
<b>Shares of the company</b>	Name of the underlying company (for our CBBCs over single stock only)
<b>Trust</b>	Name of the underlying trust or fund (for our CBBCs over single unit trust only)
<b>Index</b>	Name of the underlying index (for our CBBCs over index only)
<b>Index compiler</b>	Name of company that maintains the index and calculates and publishes the index levels (for our CBBCs over index only)
<b>Call price</b>	Predetermined call price of the underlying share(s)/unit (for our CBBCs over single stock or CBBCs over single unit trust only)
<b>Call level</b>	Predetermined call level of the underlying index (for our CBBCs over index only)
<b>Strike price</b>	Predetermined strike price of the underlying share(s)/unit (for our CBBCs over single stock or CBBCs over single unit trust only)
<b>Strike level</b>	Predetermined strike level of the underlying index (for our CBBCs over index only)
<b>Expiry date</b>	Date on which our CBBCs expire
<b>Valuation date</b>	Date on which the closing price or the closing level of the underlying asset is determined for calculation of the cash settlement amount upon automatic exercise on expiry
<b>Entitlement</b>	Number of shares/units to which a specified number of CBBCs relates (for our CBBCs over single stock or CBBCs over single unit trust only)
<b>Number of CBBC(s) per entitlement</b>	Number of CBBCs to which one entitlement relates (for our CBBCs over single stock or CBBCs over single unit trust only)
<b>Index currency amount</b>	An amount denominated in the currency in which the constituent stocks of the index are traded, which is used in the calculation of the cash settlement amount payable upon the occurrence of a mandatory call event or automatic exercise on expiry (for our CBBCs over index only)
<b>Listing date</b>	The date on which our CBBCs are scheduled to commence trading on the Stock Exchange

## **MORE INFORMATION ABOUT OUR STRUCTURED PRODUCTS AND OUR LISTING DOCUMENTS**

### **WHO IS RESPONSIBLE FOR THIS BASE LISTING DOCUMENT?**

We and the guarantor accept full responsibility for the accuracy of the information contained in this base listing document.

We have included references to websites to guide you to sources of freely available information. The information on these websites does not form part of our base listing document. Neither we nor the guarantor accept any responsibility for the information on these websites. Such information has not been prepared for the purposes of our structured products.

Our base listing document is accurate at the date stated on the cover. You must not assume, however, that the information in this base listing document is accurate at any time after the date of this base listing document.

The managers and the liquidity provider are not responsible in any way for ensuring the accuracy of our listing documents.

### **IS THE ISSUER OR THE GUARANTOR REGULATED BY THE HONG KONG MONETARY AUTHORITY REFERRED TO IN RULE 15A.13(2) OR THE SECURITIES AND FUTURES COMMISSION REFERRED TO IN RULE 15A.13(3)?**

We are not regulated by any of the bodies referred to in Rule 15A.13(2) or Rule 15A.13(3) of the Rules. The guarantor is a licensed bank regulated by the Hong Kong Monetary Authority. It is also a national banking association organised and subject to regulation under the laws of the United States of America, including the National Bank Act.

### **WHERE CAN I FIND MORE INFORMATION ABOUT THE ISSUER, THE GUARANTOR AND THE STRUCTURED PRODUCTS?**

Information on our structured products is described in this base listing document and the relevant supplemental listing document.

If the information in this base listing document needs to be updated at the time we issue a supplemental listing document, we will put the updated information in the supplemental listing document or a supplemental disclosure document or an addendum. Please read this base listing document together with the relevant supplemental listing document and, if applicable, the relevant supplemental disclosure document or the relevant addendum carefully before you decide whether to buy our structured products.

Additional information regarding the guarantor can be viewed at <http://www.jpwwarrants.com.hk>. You are cautioned that this information will not have been prepared exclusively for the purposes of our structured products.

We have not authorised anyone to give you any information about our structured products other than the information in this base listing document, the relevant supplemental listing document and, if applicable, the relevant supplemental disclosure document and the relevant addendum.

### **WHEN WERE THE STRUCTURED PRODUCTS AUTHORISED?**

The issue of our structured products was authorised by resolutions of our board of directors on 30 March 2016. The giving of the guarantee was authorised pursuant to resolutions of the board of directors of the guarantor adopted on 8 December 2015.

### **WHERE CAN I READ COPIES OF THE ISSUER'S DOCUMENTATION?**

You can read copies of the documents set out below by going to the offices of J.P. Morgan Securities (Asia Pacific) Limited, 25/F, Chater House, 8 Connaught Road Central, Hong Kong. These offices are open only during normal business hours and not on Saturdays, Sundays or public holidays.

These are the documents, copies of which may be inspected upon request while any of our structured products are in issue:

- our deed of incorporation;
- the guarantor's articles of association and by-laws;
- our latest audited financial statements;
- the guarantor's consolidated financial statements for the year ended 31 December 2015 comprising consolidated balance sheets at 31 December 2015 and 2014 and the related consolidated statements of income, changes in stockholder's equity, comprehensive income and cash flows for each of the three years ended 31 December 2015;
- the guarantor's unaudited semiannual consolidated financial statements, as and when they become available;
- the guarantee dated 5 April 2016;

- the letter from the guarantor’s auditor, PricewaterhouseCoopers LLP, consenting to the reproduction of its audit report on the consolidated financial statements of the guarantor for the year ended 31 December 2015 in this base listing document;
- the amended and restated instrument dated 3 May 2010 (as amended or supplemented from time to time) (“instrument”) pertaining to the issue of structured products; and
- this base listing document (including any supplemental disclosure document or addenda to this base listing document) and the relevant supplemental listing document (together with a Chinese translation of each of these documents).

A reasonable fee will be charged if you want to take photocopies of any of the documents while they are on display.

### **TRANSFER OF STRUCTURED PRODUCTS**

Settlement of transactions between members of the Stock Exchange on any business day must take place on or before the second business day thereafter. Securities executed on the Stock Exchange would normally be settled under the continuous net settlement system in CCASS. Dealings in the structured products will take place in relevant board lots in the relevant settlement currency. For further details on transfers of structured products and their exercise or settlement, see the terms and conditions of the relevant issue of structured products.

### **DO I HAVE TO PAY STAMP DUTY OR OTHER LEVIES ON THE STRUCTURED PRODUCTS?**

There is no Hong Kong stamp duty on issue of our structured products. There is also no Hong Kong stamp duty on the transfer of our cash-settled structured products. The levy for the investor compensation fund is currently suspended.

However, the SFC charges a transaction levy at the rate of 0.0027 per cent. on the value of the transaction of structured products and this amount is payable by each of the buyer and seller. Additionally, the Stock Exchange charges a trading fee on every purchase and sale of listed securities calculated at a rate of 0.005 per cent. of the amount of the transaction and is payable by each of the buyer and seller.

You should be aware that you may be required to pay stamp taxes or other documentary charges in accordance with the laws and practices of the country where the structured products are transferred. If you are in any doubt as to your tax position, you should consult your own independent

tax advisers. You should also be aware that tax regulations and their application by the relevant taxation authorities change from time to time.

### **HOW DO I HOLD MY STRUCTURED PRODUCTS?**

Our structured products will be issued in global registered form, represented by a global certificate registered in the name of HKSCC Nominees Limited (or its successors).

We have made all necessary arrangements to enable our structured products to be admitted for deposit, clearing and settlement in CCASS. We will not issue any definitive certificates for our structured products. Our structured products will be deposited within CCASS.

If you are a CCASS investor participant, you may hold your structured products in your account with CCASS. If you do not have a CCASS account, your broker or agent (as a CCASS participant) will arrange to hold your structured products for you in an account at CCASS. We or the guarantor will make all payments on our structured products to CCASS: you will have to check your CCASS account or rely on your broker or agent to ensure that payments on your structured products are credited to your account with your broker or agent. Once we have made the relevant payment in this way to CCASS, we will have no further obligations for that payment, even if CCASS or your broker/agent fails to transmit to you your share of such payment or if it was transmitted late. Any notices we and/or the guarantor give in relation to our structured products will be given in the same way: you will have to rely on CCASS and/or your broker or agent to ensure that those notices reach you.

## RISK FACTORS

**You should carefully consider the following information together with the other information contained in this base listing document and in the applicable supplemental listing document before purchasing our structured products.**

**This section highlights only some of the risks of investing in the structured products but their inclusion in this base listing document does not mean these are the only significant or relevant risks of investing in our structured products.**

**Unless otherwise specified or the context otherwise requires, references in this base listing document to:**

- (a) “JPMorgan Chase” are to JPMorgan Chase & Co. and its consolidated subsidiaries; and**
- (b) “JPMorgan Chase Bank” are to JPMorgan Chase Bank, National Association and its consolidated subsidiaries.**

### **Non-collateralised structured products**

Our structured products are not secured by any of our or the guarantor’s assets or any collateral.

**You must rely on our and the guarantor’s creditworthiness; our obligations are not deposit liabilities or other types of debt obligations.**

Our structured products are not secured on any assets. Our structured products represent our general contractual obligations and will rank equally with our other general unsecured obligations. The number of structured products outstanding at any given time may be substantial. When purchasing our structured products, you will be relying upon our and the guarantor’s creditworthiness and of the creditworthiness of no other entity. We do not intend to create upon ourselves a deposit liability or a debt obligation by issuing any structured products.

You should note that we are a non-banking subsidiary of J.P. Morgan International Finance Limited, which is a subsidiary of the guarantor, which is in turn a subsidiary of JPMorgan Chase & Co., a corporation incorporated under the laws of the State of Delaware in the United States of America. Our primary activity is the issuance of securitised derivatives, comprising notes, warrants and certificates including equity-linked, reverse convertible and market participation notes, with the proceeds of securities being used to enter into hedging arrangements with other JPMorgan Chase subsidiaries. Our ability to perform our obligations may therefore be affected by any inability or failure to perform obligations owed to us by other JPMorgan Chase subsidiaries.

Our structured products are subject to our and the guarantor’s credit risk, and our and the guarantor’s credit ratings and credit spreads may adversely affect the market value of our structured products. Investors in our structured products are dependent on our and the guarantor’s ability to pay all amounts due on our structured products, and therefore investors are subject to our and the guarantor’s credit risk and to changes in the market’s view of our and the guarantor’s creditworthiness. Any decline in our or the guarantor’s credit ratings or increase in the credit spreads charged by the market for taking our or the guarantor’s credit risk is likely to affect adversely the value of our structured products. If we or the guarantor were to default on our payment obligations, an investor may not receive any amounts owed to it under our structured products and the investor could lose its entire investment.

**There are risks associated with investing in our structured products; our structured products are volatile instruments and you may sustain a total loss in your investment.**

Our structured products are structured financial instruments, their value may fall as rapidly as they may rise and you may sustain a total loss of your investment. Your investment in our structured products involves risks. Before investing in any of our structured products, you should consider whether our structured products are suitable for you in light of your own financial circumstances and investment objectives. Not all of these risks are described in this base listing document or a supplemental listing document. You should consider taking independent professional advice prior to making an investment in our structured products.

Your investment in our structured products will be worthless if you are holding our structured products when:

- (a) in the case of category N CBBCs only, they are terminated early following the occurrence of a mandatory call event;
- (b) in the case of category R CBBCs only, they are terminated early following the occurrence of a mandatory call event and (for our bull CBBCs) the minimum trade price/minimum index level of the underlying asset is equal to or less than the strike price/level of our CBBCs or (for our bear CBBCs) the strike price/level of our CBBCs is equal to or less than the maximum trade price/maximum index level of the underlying asset; or
- (c) they expire out-of-the-money – meaning that the average/closing price or closing level of the underlying asset in respect of the relevant valuation date(s), determined in accordance with the terms and conditions of our structured products, is greater (for our put warrants or bear CBBCs) or less (for our call warrants or bull CBBCs) than the exercise/strike price or strike level of our structured products.

**Structured products are complex and volatile instruments.**

Our structured products are complex instruments and their values at any time prior to expiry are governed by a number of factors, including but not limited to the time left till expiry, the price or level of the underlying asset compared with the exercise/strike price or strike level of our structured products, the volatility of price or level of the underlying asset, market interest rate movements, our and the guarantor's financial condition and the market's view of our and the guarantor's credit quality. The values of our structured products may rise or fall rapidly over a short time due to changes in one or more factors. The interplay of these different factors also means that the effect on the value of our structured products from the change in one factor may offset or accentuate the effect from the change in another factor. The value or level of the underlying assets (and some of the other relevant factors) can also be unpredictable: it may change suddenly and in large magnitude or not change at all. You may risk losing your entire investment if the price or level of the underlying assets do not move in your anticipated direction. You should also note that, assuming all other factors are held constant, the value of structured products will decline over time.

The cash settlement amount of our structured products if calculated at any time prior to expiry may typically be less than the market price of such structured products at that time. The difference will reflect, among other things, a "time value" for the structured products which depends on a number of interrelated factors including those specified above. The value of our structured product will decrease over time. Therefore, our structured products should not be viewed as products for long term investments.

**Your ability to realise your investment in our structured products is dependent on the trading market for our structured products.**

As our structured products are not exercisable prior to the expiry date, the only way you may be able to realise the value of your investment in our structured products is to dispose of them either in the on-exchange market or over-the-counter market. If you dispose of your investment in our structured products before expiry in this way, the amount you will receive will depend on the price you are able to obtain from the market for our structured products. That price may depend on the quantity of our structured products you are trying to sell. The market price of our structured products may not be equal to the value of our structured products, and changes in the price of our structured products may not correspond (in direction and/or magnitude) with changes in the value of our structured products.

The liquidity provider appointed for our structured products will upon request provide bid and/or ask prices for our structured products on the Stock Exchange and may (but is not obliged to) provide such prices at other times too, but under certain circumstances it may not provide bid and/or ask prices even if requested. You should refer to the section regarding liquidity provider in the relevant supplemental listing document for further details. The prices provided by our liquidity provider are influenced by, among other things, the supply and demand of our structured products for a particular series in the market, and may not correspond with the values of such structured products or changes in such values.

You should note that the prices available in the market for our structured products may also come from other participants in the market, although we cannot predict if and to what extent a secondary market may develop for our structured products or whether that market will be liquid or illiquid. The fact that a particular series of structured products is listed does not necessarily lead to greater liquidity. In addition, no assurance can be given that the listing of any particular series of our structured products will be maintained. If our structured products of a particular series cease to be listed, they may not be transacted through the Stock Exchange or at all, and they may even be terminated early. Off-exchange transactions may involve greater risks than on-exchange transactions. You may be unable to find any buyer for your holdings of our structured products on the Stock Exchange if the value of the structured products falls below HK\$0.01.

Only the liquidity provider appointed for our structured products is obliged to provide bid and/or ask prices for our structured products (subject to the terms set out in the relevant supplemental listing document), and at times it may be the only source of bid and/or ask prices for our structured products.

The liquidity of any series of our structured products may also be affected by restrictions on offers and sales of our structured products in some jurisdictions including the restrictions described in Annex 3 “Purchase and Sale” to this base listing document.

If trading in the underlying asset is suspended for whatever reason in the market on which it is listed (including the Stock Exchange), trading in our structured products will also be suspended for a similar period. The value of our structured products will decrease over time as the length of the period remaining to expiration becomes shorter. You should note that in the case of a prolonged suspension period, the market price of the relevant structured products may be subject to a significant impact of time decay of such prolonged suspension period and may fluctuate significantly upon resumption of trading after the suspension period of the relevant structured products. This may adversely affect your investment in the relevant structured products.

In respect of our structured products linked to foreign underlying assets, you should note that the trading hours of the foreign underlying assets (based on Hong Kong time) on the relevant stock exchange may be different from the trading hours of the Stock Exchange. In the case where trading in the foreign underlying assets on the relevant stock exchange is suspended during non-trading hours of

the Stock Exchange, trading in the relevant structured products on the Stock Exchange will be suspended as soon as practicable afterwards. Such suspension may be lifted and trading of foreign underlying assets on the relevant stock exchange may resume during nontrading hours of the Stock Exchange, in which case, trading in the relevant structured products on the Stock Exchange will also resume as soon as practicable afterwards.

**Our structured products are not rated, you should not solely rely on the guarantor's ratings when investing in the structured products.**

Rating agencies usually receive a fee from the companies that they rate. When evaluating the guarantor's creditworthiness, you should not solely rely on the guarantor's credit ratings because:

- a credit rating is not a recommendation to buy, sell or hold the structured products;
- credit ratings of companies may involve difficult-to-quantify factors such as market competition, the success or failure of new products and markets and managerial competence;
- a high credit rating is not necessarily indicative of low risk. The guarantor's credit ratings as set out in this base listing document are for reference only. Any downgrading of the guarantor's credit ratings could result in a reduction in the value of the structured products;
- a credit rating is not an indication of the liquidity or volatility of the structured products; and
- a credit rating may be downgraded if the credit quality of the guarantor declines.

The guarantor's credit ratings are subject to change or withdrawal at any time within each rating agency's sole discretion. You should conduct your own research using publicly available sources to obtain the latest information with respect to the guarantor's ratings from time to time.

**You have no rights in the underlying assets and the market price for our structured products may fluctuate differently from that of the underlying assets.**

Our structured products are financial instruments issued by us and are separate from the underlying assets. You have no rights under our structured products against (i) any company, trust or fund which issues or comprises the underlying assets of the relevant issue of structured products or (ii) the trustee or the manager of any underlying asset that is a trust or a fund or (iii) the sponsor of any underlying asset that is an index. In addition, buying our structured products is not the same as buying the underlying assets or having a direct investment in the underlying assets. You will not be entitled to have voting rights, rights to receive dividends or distributions or any other rights under the underlying shares or units in the underlying fund or trust. As mentioned, there are many factors influencing the value and/or market price of structured products, which are leveraged instruments. For example, increases in the price or level of the underlying assets may not lead to an increase in the value and/or market price of a call warrant by a proportionate amount or even any increase at all; however, a decrease in the price or level of the underlying assets may lead to a greater than proportionate decrease in the value and/or market price of a call warrant. There is no assurance that a change in value and/or market price of our structured products will correspond in direction and/or magnitude with the change in price or level of the underlying assets. You should recognise the complexities of utilising our structured products to hedge against the market risk associated with investing in an underlying asset.

The issuer, the trustee, the manager or the sponsor of the underlying assets will have no involvement in the offer and sale of our structured products and no obligation to you as investors in our structured products. The decisions made by them on corporate actions, such as a merger or sale of assets, or adjustment of the method for calculation of an index may also have an adverse impact on the value and/or market price of our structured products.



**There could be conflicts of interest arising out of our other activities which may affect our structured products.**

We, the guarantor and its subsidiaries and affiliates may engage in transactions (whether for their accounts, including hedging, or trading for accounts under management or otherwise) involving, as well as provide investment banking and other services to, any company or to any trustee or manager of a trust or a fund underlying our structured products or their securities and may enter into transactions with the substantial shareholders of the underlying company. Those transactions may have a positive or negative impact on the price or level of the underlying asset and in turn the value and/or market price of our structured products. We, the guarantor and its subsidiaries and affiliates may have officers who serve as directors of any of the companies underlying our structured products. Our market-making activities (which include hedging of our structured products) in the underlying securities or related structured products may affect the value and/or market price of the structured products. We or the guarantor may issue other competing financial products which may affect the value and/or market price of our structured products. You should also note that potential conflicts of interest may arise from the different roles played by us, the guarantor and its subsidiaries and affiliates in connection with our structured products and the economic interests in each role may be adverse to your interests in our structured products. We or the guarantor owe no duty to you to avoid such conflicts.

**We may early terminate our structured products due to illegality or impracticability.**

We may terminate our structural products if we determine in good faith and in a commercially reasonable manner that, for reasons beyond our control, it has become or it will become illegal or impracticable: (a) for us to perform our obligations under any structured products or for the guarantor to perform its obligations under the guarantee, in whole or in part as a result of (i) the adoption of, or any change in, any relevant law or regulation (including any tax law) or (ii) the promulgation of, or any change in, the interpretation by any court, tribunal, governmental, administrative, legislative, regulatory or judicial authority or power with competent jurisdiction of any relevant law or regulation (including any tax law) (each of (i) and (ii), a “**Change in Law Event**”); or (b) for us or any of our affiliates to maintain our hedging arrangements with respect to the structured products due to a Change in Law Event. Upon the occurrence of a Change in Law Event, we will, if and to the extent permitted by the applicable law or regulation, pay to each holder of those structured products a cash amount determined by the agent in good faith and in a commercially reasonable manner to be the fair market value of the structured products immediately prior to such termination (ignoring such illegality or impracticability) less our cost of unwinding any related hedging arrangement as determined by us in our sole and absolute discretion. Such fair market value of the structured products could be substantially less than the amount you invested and can be as low as zero.

**Risks associated with structured products linked to the value of foreign underlying assets.**

You should be aware that investments in structured products linked to the value of foreign underlying assets involve particular risks. For our structured products linked to a foreign stock or an index comprising of stocks traded in equity securities markets of foreign countries, the liquidity and volatility of the relevant foreign equity securities market may be different from that of the Hong Kong equity securities market. Also, there may be less publicly available information about the underlying foreign companies than those available about Hong Kong listed companies and some of that information may or may not be available in English and/or Chinese. Foreign companies may also be subject to different accounting, auditing and financial reporting standards and requirements compared to those applicable to Hong Kong listed companies.

Prices and market value of foreign underlying assets may be subject to political, economic, financial and social factors which may differ favourably or unfavourably from those factors that apply to Hong Kong. Moreover, foreign economies may also differ favorably or unfavorably from the Hong Kong economy in important respects such as growth of gross national product, rate of inflation, capital reinvestment, resources and self-sufficiency.

Further, for our structured products linked to a foreign stock or an index comprising of stocks traded in equity securities markets of foreign countries, the trading hours and closing times of the relevant stock exchange(s) may be different to those of the Stock Exchange and the relevant stock exchange(s) may be located in a different time zone compared with the Stock Exchange. The days on which the relevant stock exchange(s) are open for trading may also be different to those of the Stock Exchange. As a result, there may be certain periods of time during the trading hours of the Stock Exchange when the price/level of the foreign underlying asset are not available. In such circumstances, the liquidity provider may not be able to provide liquidity in the market of the structured products. However, to the extent possible, the liquidity provider may be able to provide liquidity for the structured products in such circumstances using the last available closing price/level of the foreign underlying asset from the relevant stock exchange(s), adjusted where necessary to reflect the fair market value of the foreign underlying asset. In addition, any delay or disruption in the display of the price/level of the foreign underlying asset may also result in a corresponding delay or unavailability of the prices of the structured products. The supplemental listing document for our structured products linked to a foreign stock or an index comprising of stocks traded in equity securities markets of foreign countries will set out further details on the relevant stock exchange(s).

#### **Risks associated with our structured products over single unit trust.**

##### *General risks*

For our structured products over single unit trust, neither we nor any of our affiliates have the ability to control or predict the actions of the trustee or the manager of the underlying fund or trust. Neither the trustee nor the manager of the underlying fund or trust (i) is involved in the offer of any structured product in any way, or (ii) has any obligation to consider the interest of the holders of any structured product in taking any corporate actions relating to the underlying fund or trust that might affect the value of any structured product. The trustee or the manager of the underlying fund or trust is responsible for making investment and other trading decisions with respect to the management of the underlying fund or trust consistent with its investment objectives and in compliance with the investment restrictions as set out in the constitutive documents of the underlying fund or trust. The manner in which the underlying fund or trust is managed and the timing of actions may have a significant impact on the performance of the units in the underlying fund or trust. Hence, the price which is used to calculate the performance of the units in the underlying fund or trust may also be subject to these risks.

You should note that our structured products over single unit trust reference the units of the underlying fund or trust and the cash settlement amount (if any) payable upon exercise of our structured products will be calculated using the official closing prices of the units in the underlying fund or trust on the Stock Exchange on the valuation date(s). Further, our structured products do not reference any index tracked by the underlying fund or trust and changes in the level of such index may not lead to a corresponding change in the value and/or market price of our structured products over single unit trust.

### *Exchange traded funds*

In the case of our structured products linked to units of an exchange traded fund (“**ETF**”), you should note that:

- (a) an ETF is exposed to the economic, political, currency, legal and other risks of a specific sector or market related to the underlying asset pool or index or market that the ETF is designed to track;
- (b) there may be disparity between the performance of the ETF and the performance of the underlying asset pool or index or market that the ETF is designed to track as a result of, for example, failure of the tracking strategy, currency differences, fees and expenses; and
- (c) where the underlying asset pool or index or market that the ETF tracks is subject to restricted access, the efficiency in the unit creation or redemption to keep the price of the ETF in line with its net asset value may be disrupted, causing the ETF to trade at a higher premium or discount to its net asset value. Hence, the market price of our structured products will also be indirectly subject to these risks.

### *Synthetic exchange traded funds*

Additionally, where the underlying asset of our structured products comprises the units of an ETF adopting a synthetic replication investment strategy to achieve its investment objectives by investing in financial derivative instruments linked to the performance of an underlying asset pool or index that the ETF is designed to track (“**Synthetic ETF**”), you should note that:

- (a) investments in financial derivative instruments will expose the Synthetic ETF to the credit, potential contagion and concentration risks of the counterparties who issued such financial derivative instruments. As such counterparties are predominantly international financial institutions, the failure of one such counterparty may have a negative effect on other counterparties of the Synthetic ETF. Even if the Synthetic ETF has collateral to reduce the counterparty risk, there may still be a risk that the market value of the collateral has fallen substantially when the Synthetic ETF seeks to realise the collateral; and
- (b) the Synthetic ETF may be exposed to higher liquidity risk if the Synthetic ETF invests in financial derivative instruments which do not have an active secondary market.

The above risks may have a significant impact on the performance of the relevant ETF or Synthetic ETF and hence the market price of our structured products linked to such ETF or Synthetic ETF.

### *RQFII A-share ETF (“**RQFII ETF**”)*

An RQFII ETF is issued and traded outside Mainland China with direct investment in the Mainland China’s A-share markets through the Renminbi Qualified Foreign Institutional Investor (“**RQFII**”) regime. Where the underlying asset of our structured products comprises the units of an RQFII ETF, you should note that, amongst others:

- (a) the novelty and untested nature of an RQFII ETF make it riskier than traditional ETFs investing directly in more developed markets. The policy and rules for RQFII prescribed by the Mainland China government are new and subject to change, and there may be uncertainty to its implementation. The uncertainty and change of the laws and regulations in Mainland China may adversely impact on the performance of the relevant trust and the trading price of the relevant units;

- (b) as disclosed in its offering documents, an RQFII ETF primarily invests in securities traded in the Mainland China's A-share markets and is subject to concentration risk. Investment in the Mainland China's A-share markets (which are inherently stock markets with restricted access) involves certain risks and special considerations as compared with investment in more developed economies or markets, such as greater political, tax, economic, foreign exchange, liquidity and regulatory risks. The operation of an RQFII ETF may also be affected by interventions by the applicable government(s) and regulators in the financial markets; and
- (c) an RQFII ETF will utilise its manager's RQFII quota allocated to such fund under the RQFII regime. In the event that RQFII quota allocated to the RQFII ETF is reached and the manager is unable to acquire additional RQFII quota for the RQFII ETF, the manager may need to suspend creation of further units of the RQFII ETF, and therefore may affect liquidity in unit trading of the RQFII ETF. In such event, the trading price of a unit of the RQFII ETF is likely to be at a significant premium to its net asset value, and may be highly volatile.

The above risks may have a significant impact on the performance of the relevant units and the price of the structured products.

Please read the offering documents of the relevant RQFII ETF to understand its key features and risks.

#### *RQFII ETF traded through dual counters model*

Where the underlying asset of our structured products comprises the units of an RQFII ETF which adopts the dual counters model for trading its units on the Stock Exchange in Renminbi (“**RMB**”) and Hong Kong dollars (“**HKD**”) separately, the novelty and relatively untested nature of the Stock Exchange's dual counters model may bring the following additional risks:

- (a) the structured products may be linked to the HKD-traded units or the RMB-traded units. If the underlying asset is the HKD-traded units, movements in the trading prices of the RMB-traded units should not directly affect the price of the structured products. Similarly, if the underlying asset is the RMB-traded units, movements in the trading prices of the HKD-traded units should not directly affect the price of the structured products;
- (b) if there is a suspension of inter-counter transfer of such units between the HKD counter and the RMB counter for any reason, such units will only be able to be traded in the relevant currency counter on the Stock Exchange, which may affect the demand and supply of such units and have an adverse effect on the price of the structured products; and
- (c) the trading price on the Stock Exchange of the HKD-traded units and RMB-traded units may deviate significantly due to different factors, such as market liquidity, RMB conversion risk, supply and demand in each counter and the exchange rate between RMB and HKD. Changes in the trading price of the underlying asset in HKD or RMB (as the case may be) may adversely affect the price of the structured products.

#### *Real estate investment trust (“REIT”)*

Where the underlying asset of our structured products comprises the units of a REIT, you should note that the investment objective of a REIT is to invest in a real estate portfolio. Each REIT is exposed to risks relating to investments in real estate, including but not limited to (a) adverse changes in political or economic conditions; (b) changes in interest rates and the availability of debt or equity financing, which may result in an inability by the REIT to maintain or improve the real estate portfolio and finance future acquisitions; (c) changes in environmental, zoning and other governmental rules; (d) changes in market rents; (e) any required repair and maintenance of the portfolio properties; (f) breach of any

property laws or regulations; (g) the relative illiquidity of real estate investment; (h) real estate taxes; (i) any hidden interests in the portfolio properties; (j) any increase in insurance premiums and (k) any uninsurable losses.

There may also be disparity between the market price of the units of a REIT and the net asset value per unit. This is because the market price of the units of a REIT also depends on many factors, including but not limited to (a) the market value and perceived prospects of the real estate portfolio; (b) changes in economic or market conditions; (c) changes in market valuations of similar companies; (d) changes in interest rates; (e) the perceived attractiveness of the units of the REIT against those of other equity securities; (f) the future size and liquidity of the market for the units and the REIT market generally; (g) any future changes to the regulatory system, including the tax system and (h) the ability of the REIT to implement its investment and growth strategies and to retain its key personnel.

The above risks may have a significant impact on the performance of the relevant units and the price of the structured products.

**Liquidation of underlying company or termination of underlying trust or fund.**

In the event of liquidation, dissolution, winding up or termination of the company that issues the underlying shares, or termination of a trust or fund that issues the underlying units or the appointment of a receiver or administrator or analogous person to the company, trust or fund, the relevant structured products shall lapse.

**Time lag between the time of early termination/exercise and the time of determination of the settlement amount may affect the settlement amount.**

Upon early termination or exercise your structured products, there may be a time lag between the time of early termination or exercise and the time of determination of the settlement amount. Such delay could be significantly longer in the case of a market disruption event, delisting of the company that issues the underlying shares, termination of the trust or fund that issues the underlying unit or other adjustment events. This may result in the settlement amount being zero.

**We may adjust the terms and conditions of our structured products upon the occurrence of certain corporate events or extraordinary events affecting the underlying assets.**

We and/or the agent may determine that certain corporate events or extraordinary events affecting the underlying assets have occurred and may in our sole discretion make corresponding adjustments to the terms and conditions of our structured products, including adjustments to (i) the exercise/strike price or the call price (in the case of CBBCs) of the structured products; (ii) the entitlement of the structured products; (iii) the composition of the underlying assets or (iv) any other terms of the structured products. Such events and/or adjustments (if any) may have adverse impact on the value and/or market price of our structured products.

In the case of structured products which relate to an index, the level of the index may vary over time and may increase or decrease by reference to various factors which may include changes in the formula for or the method of calculating the index. A level for the index may also be published by the index compiler at a time when one or more shares comprising the index are not trading. Certain (but not all) events relating to the index underlying the structured products require or permit us to make certain adjustments or amendments to the conditions (e.g. determining the closing level).

However, we have no obligation to make an adjustment for every event that can affect the underlying asset. The value and/or market price of our structured products may be adversely affected by such events in the absence of an adjustment by us. If adjustments were made, we do not assure that such adjustments can negate any adverse impact of such events on the value and/or market price of our structured products.

**We may modify the terms and conditions of the structured products.**

We may, without your consent, effect any modification of the terms and conditions of the structured products which, in our opinion, is:

- (i) not materially prejudicial to your interests generally (without considering the circumstances of any individual holder of the structured products or the tax or other consequences of such modification in any particular jurisdiction);
- (ii) of a formal, minor or technical nature;
- (iii) made to correct a manifest error; or
- (iv) necessary in order to comply with mandatory provisions of the laws or regulations of Hong Kong.

**Our determination of the occurrence of a market or settlement disruption event may affect the value and/or market price of our structured products.**

We and/or the agent may determine that a market or settlement disruption event has occurred. Such determination may affect the value and/or market price of our structured products, and may delay settlement in respect of our structured products.

If the agent determines that a market disruption event exists, the valuation of the underlying assets for the purpose of calculating the cash settlement amount of our structured products may be postponed. Under certain circumstances, we and/or the agent may determine the good faith estimate of the value or level of the underlying assets that would have prevailed on the relevant valuation date but for such market disruption event.

**The implied volatility of our structured products may not reflect the actual volatility of the underlying asset.**

The market price of our structured products is determined among other factors by the supply and demand of the structured products. This price “implies” a level of volatility in the underlying asset in the sense that such level of volatility would give a theoretical value for the structured product which is equal to that price; but such level of volatility may not be equal to the actual level of volatility of the underlying asset in the past or future.

**Investment in our structured products may involve exchange rate risks and interest rate risks.**

An investment in our structured products may involve exchange rate risks. For example, the underlying asset may be denominated in a currency other than that of our structured products, our structured products may be denominated in a currency other than the currency of your home jurisdiction and our structured products may settle in a currency other than the currency in which you wish to receive funds. Changes in the exchange rate(s) between the currency of the underlying asset, the currency in which our structured products settle and/ or the currency of your home jurisdiction may adversely affect the return of your investment in our structured products. We cannot assure that current

exchange rates at the issue date of our structured products will be representative of the future exchange rates used in computing the value of our structured products. Fluctuations in exchange rates may therefore affect the value of our structured products.

An investment in our structured products may also involve interest rate risk as the intrinsic value of a structured product may be sensitive to fluctuations in interest rates. Fluctuations in the short term or long term interest rates of the currency in which our structured products are settled or the currency in which the underlying asset is denominated may affect the value and/or market price of our structured products.

**United States federal tax may be withheld from payments with respect to structured products that are treated as “dividend equivalents”. This may have an adverse effect on the value and liquidity of the structured products.**

A “dividend equivalent” payment generally is treated as a dividend from sources within the United States and such payments generally would be subject to a 30 per cent (30%) United States withholding tax if paid to a Non-U.S. Holder (as defined in “Taxation – United States of America”). Under U.S. Treasury regulations issued pursuant to Section 871(m) of the Internal Revenue Code of 1986, as amended (the “Code”), payments (including deemed payments) with respect to equity-linked instruments (“ELIs”) that are “specified ELIs” may be treated as dividend equivalents if such specified ELIs reference an interest in a U.S. “underlying security”, which is generally an interest in an entity taxable as a corporation for U.S. federal income tax purposes if a payment with respect to such an interest could give rise to a U.S. source dividend. While the regulations provide an exception for equity-linked instruments referencing indices that satisfy certain criteria, the scope of this exception is unclear and may not apply to structured products linked to a U.S. or non-U.S. index and the application of the exception will generally depend on a holder’s particular circumstances. The regulations impose a withholding tax on payments made (or deemed to have been made) on certain securities issued on or after 1 January 2017 to the extent the payments are treated as dividend equivalents. If any payments are treated as dividend equivalents subject to withholding, we (or any applicable withholding agent) would be entitled to withhold taxes without being required to pay any additional amounts with respect to amounts so withheld. As a result, actual payments on the structured products may be substantially less than the amounts specified in their terms.

**Payments made by us to certain holders with respect to the structured products may be subject to United States withholding tax under the United States Foreign Account Tax Compliance Act.**

The Foreign Account Tax Compliance Act (“FATCA”) generally imposes a 30 per cent (30%) United States withholding tax on certain United States source payments, including interest (and original issue discount), dividends (and “dividend equivalent” payments), or other fixed or determinable annual or periodical gain, profits, and income, and on the gross proceeds from a disposition (after 31 December 2018) of property of a type which can produce United States source interest or dividends (“Withholdable Payments”), if paid to a foreign financial institution (including amounts paid to a foreign financial institution on behalf of a holder), unless such institution enters into an agreement with the U.S. Treasury to collect and provide to the U.S. Treasury substantial information regarding United States account holders (including certain account holders that are foreign entities with United States owners) with such institution, or such institution otherwise complies with its obligations under FATCA. A structured product may constitute an account for these purposes. FATCA also generally imposes a withholding tax of 30 per cent (30%) on Withholdable Payments made to a nonfinancial foreign entity unless such entity provides the withholding agent with a certification that it does not have any substantial United States owners or a certification identifying the direct and indirect substantial United States owners of the entity, or otherwise establishes an exemption.

In addition, under FATCA, “passthru payments” made by a foreign financial institution to “recalcitrant holders” or noncompliant foreign financial institutions are subject to a 30 per cent (30%) United States withholding tax. A “recalcitrant holder” generally is a holder of an account with a foreign financial institution that fails to comply with certain requests for information that will help enable the relevant foreign financial institution to comply with its obligations under FATCA (a structured product may constitute an account for these purposes). Pursuant to U.S. Treasury regulations, a passthru payment is any Withholdable Payment and any “foreign passthru payment”, which has yet to be defined.

If we determine that withholding is appropriate with respect to the structured products, we (or an applicable withholding agent) will withhold tax at the applicable statutory rate without being required to pay any additional amounts with respect to amounts so withheld.

### **The proposed financial transaction tax (“FTT”)**

The European Commission has published a proposal for a Directive for a common FTT in Belgium, Germany, Estonia, Greece, Spain, France, Italy, Austria, Portugal, Slovenia and Slovakia. However, Estonia has since stated that it will not participate.

The proposed FTT has very broad scope and could apply to certain dealings in financial instruments (including secondary market transactions). Primary market transactions referred to in Article 5(c) of Regulation (EC) No 1287/2006 are expected to be exempt.

The FTT could apply to persons both within and outside of the participating Member States. Generally, it would apply to certain dealings in financial instruments where at least one party is a financial institution, and either (i) at least one party is established or deemed to be established in a participating Member State or (ii) the financial instruments are issued in a participating Member State.

The proposed Directive remains subject to negotiation between the participating Member States. It may therefore be altered prior to any implementation, the timing of which remains unclear. Additional EU Member States may decide to participate.

Prospective holders of the structured products are advised to seek their own professional advice in relation to the FTT.

### **Please consult your tax advisers if you are in any doubt of your tax position.**

You may be required to pay stamp taxes or other documentary charges in accordance with the laws and practices of the country where our structured products are transferred and such laws and practices may change from time to time. If you are in any doubt of your tax position, you should consult your own independent tax advisers.

### **Our structured products are issued in global registered form; you have to rely on your brokers to evidence title to your investment and to receive notices and the cash settlement amount.**

Our structured products are issued in global registered form and held on your behalf within a clearing system. This means that evidence of title to your interests, as well as the efficiency of ultimate delivery of the cash settlement amount, will be governed by the CCASS Rules.



Our structured products in global registered form will be registered in the name of HKSCC Nominees Limited (or its successors), which shall be treated by us as the holder of our structured products for all purposes. This means that you will not receive definitive certificates and the register will record at all times that our structured products are being held by HKSCC Nominees Limited (or its successors). If you are a CCASS investor participant, you may hold your structured products in your account with CCASS. If you do not have a CCASS account, you will have to rely solely upon your brokers and the statements received from your brokers to evidence title to your investments. You will also have to rely on your brokers to effectively inform you of any notices, announcements and/or meetings issued or called by us (upon receipt by those brokers as CCASS participants of the same from CCASS and ultimately from us). The Rules also provide that our obligations to deliver notices, announcements and/or meetings will be complied with by a posting on the HKEx website. Our obligations to deliver any cash settlement amount to you will be duly performed by the delivery of any such amount to HKSCC Nominees Limited (or its successors) as the holder. You will therefore have to rely on CCASS and/or your brokers for the ultimate delivery of any cash settlement amount to you as the investor.

**We and our guarantor do not give you any advice or credit analysis.**

Neither we nor the guarantor is responsible for the lawfulness of your acquisition of our structured products. We and the guarantor are not giving you any advice or credit analysis of the underlying assets. You shall be deemed to have made a representation to such effect for each purchase of our structured products of any series.

**Risks associated with CBBCs.**

*CBBCs will become volatile if trading close to the call price/call level*

Although the price changes of a CBBC tend to reflect the changes in value of the underlying asset, when the underlying asset is trading at a price/level close to the applicable call price/ call level, the CBBC tends to be more volatile and any price changes of the CBBC at such time may not be comparable and may be disproportionate with the movement in the value of the underlying asset.

*Mandatory call event is irrevocable*

A mandatory call event is irrevocable unless it is triggered by:

- (a) system malfunction or other technical errors of the HKEx (such as the setting up of wrong call price or call level and other parameters) and such event is reported by the Stock Exchange to us and the Stock Exchange and we mutually agree that such mandatory call event is to be revoked; or
- (b) manifest errors caused by the relevant third party price sources (such as any miscalculation of the index level by the index compiler) and such event is reported by us to the Stock Exchange and the Stock Exchange and we mutually agree that such mandatory call event is to be revoked.

In each of the above cases, such mutual agreement must be reached no later than 30 minutes before the commencement of trading (including pre-opening session) (Hong Kong time) on the trading day of the Stock Exchange immediately following the day on which the mandatory call event occurs, or such other timeframe as prescribed by the Stock Exchange from time to time.

In such case, the mandatory call event so triggered will be reversed and all trades cancelled (if any) will be reinstated and the trading of the CBBCs will resume as soon as practicable.

Subject to the limited circumstances described above in which a mandatory call event may be reversed, the CBBCs will be terminated following a mandatory call event and you will not be able to benefit from any movement in the underlying asset after the occurrence of the mandatory call event.

*Delay in announcement of mandatory call event*

The Stock Exchange will notify the market as soon as practicable after the CBBCs have been called upon the occurrence of a mandatory call event. You should be aware that there may be a delay in the announcement of a mandatory call event due to technical errors, system failures and other factors that are beyond our control and the control of the Stock Exchange.

*Non-recognition of post MCE trades*

You should note that after the occurrence of a mandatory call event, all post MCE trades will be invalid and will be cancelled and will not be recognised by us or the Stock Exchange.

*Disclaimers relating to mandatory call event*

The Stock Exchange and its recognised exchange controller, HKEx, will not incur any liability (whether based on contract, tort, (including, without limitation, negligence), or any other legal or equitable grounds and without regard to the circumstances giving rise to any purported claim except in the case of wilful misconduct on the part of the Stock Exchange and/or HKEx) for, any direct, consequential, special, indirect, economic, punitive, exemplary or any other loss or damage suffered or incurred by us or any other party arising from or in connection with the mandatory call event or the suspension of trading (trading suspension) or the non-recognition of trades after a mandatory call event (non-recognition of post MCE trades), including without limitation, any delay, failure, mistake or error in the trading suspension or non-recognition of post MCE trades.

We and our guarantor shall not have any responsibility for any losses suffered as a result of the trading suspension and/or non-recognition of post MCE trades in connection with the occurrence of a mandatory call event, notwithstanding that such trading suspension or non-recognition of post MCE trades may have occurred as a result of an error in the observation of the event.

*Fluctuation in the funding cost*

The issue price of the CBBCs is set by reference to the difference between the initial reference spot price/level of the underlying asset and the strike price/level, plus the applicable funding cost.

The initial funding cost applicable to the CBBCs will be specified in the relevant supplemental listing document. It will fluctuate throughout the life of the CBBCs as the funding rate changes from time to time. The funding rate is a rate determined by us based on one or more of the following factors, including, but not limited to, the strike price/level, the call price/level, the prevailing interest rate, the expected life of the CBBCs, any expected notional dividends in respect of the underlying asset (if applicable) and the margin financing provided by us.

*Residual value will not include residual funding cost*

For category R CBBCs, the residual value (if any) payable by us following the occurrence of a mandatory call event will not include the residual funding cost for the CBBCs. You will not receive any residual funding cost back from us upon early termination of a category R CBBC following a mandatory call event.

### *Our hedging activities*

Our or our affiliates' market-making and/or hedging activities and/or other financial instruments issued by us or our affiliates from time to time may have an impact on the price/level of the underlying asset and may trigger a mandatory call event.

In particular, when the price/level of the underlying asset is close to the call price/level, our unwinding activities in relation to the underlying asset may cause a fall or rise (as the case may be) in the price/level of the underlying asset leading to a mandatory call event as a result of such unwinding activities.

In respect of category N CBBCs, we or our affiliates may unwind our hedging transactions relating to the CBBCs at any time even if such unwinding activities may trigger a mandatory call event.

In respect of category R CBBCs, before the occurrence of a mandatory call event, we or our affiliates may unwind our hedging transactions relating to the CBBCs in proportion to the amount of the CBBCs we repurchase from the market from time to time. Upon the occurrence of a mandatory call event, we or our affiliates can unwind any hedging transactions relating to the CBBCs. Such unwinding activities after the occurrence of a mandatory call event may affect the price/level of the underlying asset and consequently the residual value for the CBBCs.

The market price of the CBBCs may become more sensitive to changes in the value of the underlying asset where the value is approaching the call price/call level, resulting in greater volatility of market price of the CBBCs.

### **Status of the Guarantee**

JPMorgan Chase Bank, N.A.'s guarantee of our structured products (i) is an unsecured and unsubordinated general obligation of the guarantor and not of any of its affiliates, (ii) is not a savings account or deposit of the guarantor or any bank or non-bank subsidiary or affiliate of the guarantor and (iii) will rank pari passu with all other unsecured and unsubordinated indebtedness of the guarantor, except obligations, including U.S. domestic deposits of the guarantor, that are subject to any priorities or preferences by law. JPMorgan Chase Bank, N.A.'s guarantee is not a deposit insured by the U.S. Federal Deposit Insurance Corporation (the "FDIC"), the U.S. Deposit Insurance Fund or any other governmental agency or instrumentality.

In particular, U.S. federal legislation adopted in 1993 provides for a preference in right of payment of certain claims made in the liquidation or other resolution of any FDIC-insured depository institution, which includes JPMorgan Chase Bank, N.A. The statute requires claims to be paid in the following order:

- first, administrative expenses of the receiver;
- second, any deposit liability of the institution;
- third, any other general or senior liability of the institution not described below;
- fourth, any obligation subordinated to depositors or general creditors not described below; and
- fifth, any obligation to shareholders or members (including any depository institution holding company or any shareholder or creditor of such company).

Deposit liabilities have been interpreted by the FDIC to include any deposit payable at an office of the insured depository institution in the United States, and not to include international banking facility deposits or deposits payable at an office of the insured depository institution outside the United States.

### **Limitations of the Guarantee**

JPMorgan Chase Bank, N.A.'s guarantee of our structured products is limited in scope to our payment and other obligations in respect of the structured products, and allows the guarantor to avail itself of all exclusions, exceptions and defences available to us under the terms and conditions of the structured products and at law. Further, in certain circumstances, the guarantor will not be obliged under the terms of its guarantee to satisfy our payment or other obligations in respect of the structured products, even where we have failed to perform such obligations. For example, if we are prohibited, unable, or otherwise fail to make any payment, or any portion thereof or to perform any other obligation, because or arising out of an act of war, insurrection or civil strife; an action by a government or any governmental authority or instrumentality thereof (whether de jure or de facto); legal constraint; terrorism; riots; or catastrophe, and we are thereby in default of our payment or other obligations in respect of any of our structured products, the guarantor will be under no obligation under the terms of its guarantee to satisfy our defaulted obligations. See "Form of Guarantee" below.

### **Risk factors relating to the guarantor.**

The risk factors described below as well as the other information included in this document and in any amendment or supplement to this document may be material for the purpose of assessing the business risks that may affect JPMorgan Chase Bank, National Association's business and profitability. The following risk factors are contingencies which may or may not occur and JPMorgan Chase Bank, National Association is not in a position to express a view on the likelihood of any such contingency occurring. References in these risk factors to "JPMorgan Chase" are to JPMorgan Chase & Co. and its subsidiaries, including JPMorgan Chase Bank, National Association.

### **Regulatory Risk**

#### **JPMorgan Chase operates within a highly regulated industry, and its businesses and results are significantly affected by the laws and regulations to which it is subject.**

As a global financial services firm, JPMorgan Chase is subject to extensive and comprehensive regulation under federal and state laws in the U.S. and the laws of the various jurisdictions outside the U.S. in which it does business. The financial services industry has experienced and continues to experience an unprecedented increase in regulations and supervision, both in the U.S. and globally, and the cumulative effect of all of the new and proposed legislation and regulations on JPMorgan Chase's business, operations and profitability remains uncertain.

The recent legislative and regulatory developments, as well as future legislative or regulatory actions in the U.S. and in the other countries in which JPMorgan Chase operates, and any required changes to its business or operations resulting from such developments and actions, could result in a significant loss of revenue, impose additional compliance and other costs or otherwise reduce profitability, limit the products and services that JPMorgan Chase offers or its ability to pursue business opportunities in which it might otherwise consider engaging, require JPMorgan Chase to dispose of or curtail certain businesses, affect the value of assets that JPMorgan Chase holds, require it to increase its prices and therefore reduce demand for its products, or otherwise adversely affect its businesses. In addition, to the extent that legislative or regulatory initiatives are imposed on a limited subset of financial institutions (based on size, activities, geography or other criteria), the requirements to which JPMorgan Chase may be subject under such laws and regulations could require it to restructure its

businesses, or re-price or curtail the products or services that it offers to customers, which could result in JPMorgan Chase not being able to compete effectively with other institutions that are not impacted in the same way.

In addition, there can be significant differences in the ways that similar regulatory initiatives affecting the financial services industry are implemented in the U.S. and in different countries and regions in which JPMorgan Chase does business. For example, recent legislative and regulatory initiatives within the EU, including those relating to the resolution of financial institutions, the separation of trading activities from core banking services, mandatory on-exchange trading, position limits and reporting rules for derivatives, conduct of business requirements, restrictions on compensation and governance and accountability regimes, could require JPMorgan Chase to make significant modifications to its non-U.S. business, operations and legal entity structure in order to comply with these requirements. These differences in implemented or proposed non-U.S. regulations and initiatives may be inconsistent or may conflict with current or proposed regulations in the U.S., which could subject JPMorgan Chase to increased compliance and legal costs, as well as higher operational, capital and liquidity costs, all of which could have an adverse effect on JPMorgan Chase's business, results of operations and profitability.

**Expanded regulatory and governmental oversight of JPMorgan Chase's businesses may continue to increase its costs and risks.**

JPMorgan Chase's businesses and operations are increasingly subject to heightened governmental and regulatory oversight and scrutiny. JPMorgan Chase has paid significant fines (or has provided significant monetary and other relief) to resolve a number of investigations or enforcement actions by governmental agencies. JPMorgan Chase continues to devote substantial resources to satisfying the requirements of regulatory consent orders and other settlements to which it is subject, which increases JPMorgan Chase's operational and compliance costs.

Certain regulators have taken measures in connection with specific enforcement actions against financial institutions (including JPMorgan Chase) that require admissions of wrongdoing and compliance with other conditions in connection with settling such matters. Such admissions and conditions can lead to, among other things, greater exposure in civil litigation, harm to reputation, disqualification from providing business to certain clients and in certain jurisdictions, and other direct and indirect adverse effects.

In addition, U.S. government officials have indicated and demonstrated a willingness to bring criminal actions against financial institutions, including JPMorgan Chase, and have increasingly sought, and obtained, resolutions that include criminal pleas from those institutions, such as JPMorgan Chase's agreement in May 2015 to plead guilty to a single violation of federal antitrust law in connection with its settlements with certain government authorities relating to its foreign exchange sales and trading activities and controls related to those activities. Such resolutions, whether with U.S. or non-U.S. authorities, could have significant collateral consequences for a subject financial institution, including loss of customers and business, or the inability to offer certain products or services, or losing permission to operate certain businesses, for a period of time (absent the forbearance of, or the granting of waivers by, applicable regulators).

JPMorgan Chase expects that it and the financial services industry as a whole will continue to be subject to heightened regulatory scrutiny and governmental investigations and enforcement actions and that violations of law will more frequently be met with formal and punitive enforcement action, including the imposition of significant monetary and other sanctions, rather than with informal supervisory action.

In addition, if JPMorgan Chase fails to meet the requirements of the various governmental settlements to which it is subject, or more generally, to maintain risk and control procedures and processes that meet the heightened standards established by its regulators and other government agencies, it could be required to enter into further orders and settlements, pay additional fines, penalties or judgments, or accept material regulatory restrictions on its businesses. The extent of JPMorgan Chase's exposure to legal and regulatory matters may be unpredictable and could, in some cases, substantially exceed the amount of reserves that JPMorgan Chase has established for such matters.

Requirements for the orderly resolution of JPMorgan Chase could require it to restructure or reorganize its businesses, and holders of JPMorgan Chase's debt and equity securities would be at risk of absorbing losses if JPMorgan Chase were to enter into a resolution.

Under Title I of the Dodd-Frank Act ("Title I") and Federal Reserve and FDIC rules, JPMorgan Chase is required to prepare and submit periodically to the Federal Reserve and the FDIC a detailed plan for the orderly resolution of JPMorgan Chase & Co. and certain of its subsidiaries under the U.S. Bankruptcy Code and other applicable insolvency laws in the event of future material financial distress or failure. In August 2014, the Federal Reserve and the FDIC announced the completion of their reviews of the second round of Title I resolution plans submitted by eleven large, complex banking organizations in 2013, including JPMorgan Chase. The agencies jointly identified specific shortcomings with the 2013 resolution plans, including JPMorgan Chase's 2013 plan. The FDIC's board of directors determined under Title I that the 2013 resolution plans, including JPMorgan Chase's 2013 plan, were not credible and did not facilitate an orderly resolution under the U.S. Bankruptcy Code. The Federal Reserve Board determined that the eleven banking organizations must take immediate actions to improve their resolvability and reflect those improvements in their 2015 plans. JPMorgan Chase has devoted significant resources to its resolution planning efforts, and believes that in its most recent Title I resolution plan submitted to the Federal Reserve and FDIC in July 2015, it has addressed, or has made substantial progress in addressing, each of the shortcomings previously identified by the agencies.

However, if the Federal Reserve and the FDIC were to jointly determine that JPMorgan Chase's 2015 plan, or any future update of that plan, is not credible, and JPMorgan Chase is unable to remedy the identified deficiencies in a timely manner, the regulators may jointly impose more stringent capital, leverage or liquidity requirements on JPMorgan Chase or restrictions on growth, activities or operations, and could, if such deficiencies are not remedied within two years after such a determination, require JPMorgan Chase to restructure, reorganize or divest businesses, legal entities, operational systems and/or intercompany transactions in ways that could materially and adversely affect its operations and strategy. In addition, in order to develop a Title I resolution plan that the Federal Reserve and FDIC determine is credible, JPMorgan Chase may need to make certain changes to its legal entity structure and to certain intercompany and external activities, which could result in increased funding or operational costs.

In addition to its plan for orderly resolution, JPMorgan Chase's resolution plan also recommends to the Federal Reserve and the FDIC its proposed optimal strategy to resolve JPMorgan Chase under the special resolution procedure provided in Title II of the Dodd-Frank Act ("Title II"). JPMorgan Chase's recommendation involves a "single point of entry" recapitalization model in which the FDIC would use its power to create a "bridge entity" for JPMorgan Chase; transfer the systemically important and viable parts of JPMorgan Chase's business, principally the stock of JPMorgan Chase & Co.'s main operating subsidiaries and any intercompany claims against such subsidiaries, to the bridge entity; recapitalize those subsidiaries by, among other things, converting some or all of such intercompany claims to capital; and exchange external debt claims against JPMorgan Chase & Co. for equity in the bridge entity. As discussed below, the Federal Reserve has also proposed rules regarding the minimum levels of unsecured external long-term debt and other loss-absorbing capacity that bank holding companies would be required to have issued and outstanding, as well as guidelines defining the terms of qualifying debt instruments, to ensure that adequate levels of debt are maintained at the holding company level for purposes of recapitalization of the bridge entity and operating subsidiaries ("eligible LTD"). If

JPMorgan Chase & Co. were to enter into a resolution, either in a proceeding under the U.S. Bankruptcy Code or in a receivership administered by the FDIC under Title II of the Dodd-Frank Act, holders of eligible LTD and other debt and equity securities of JPMorgan Chase would be at risk of absorbing the losses of JPMorgan Chase & Co. and its affiliates. If JPMorgan Chase & Co. commenced proceedings under the U.S. Bankruptcy Code, creditors and shareholders of JPMorgan Chase & Co. would realize value only to the extent available to JPMorgan Chase & Co. as a shareholder of JPMorgan Chase Bank, N.A. and its other subsidiaries, after the payment to the creditors of such subsidiaries. In addition, even under JPMorgan Chase's preferred resolution strategy under Title II of the Dodd-Frank Act, the value of the stock of the bridge entity that would be redistributed to holders of JPMorgan Chase's eligible LTD and other debt securities may not be sufficient to repay all or part of the principal amount and interest on such debt. It is also possible that the application of JPMorgan Chase's recommended Title II strategy could result in greater losses to security holders of JPMorgan Chase & Co. than the losses that would result from a different resolution strategy for JPMorgan Chase.

## **Market Risk**

### **JPMorgan Chase's results of operations have been, and may continue to be, adversely affected by U.S. and global financial market and economic conditions.**

JPMorgan Chase's businesses are materially affected by economic and market conditions, including the liquidity of the global financial markets; the level and volatility of debt and equity prices, interest rates, currency and commodities prices (including oil prices) and other market indices; investor, consumer and business sentiment; events that reduce confidence in the financial markets; inflation and unemployment; the availability and cost of capital and credit; the economic effects of natural disasters, health emergencies or pandemics, severe weather conditions, outbreaks of hostilities, terrorism or other geopolitical instabilities; monetary policies and actions taken by the Federal Reserve and other central banks; and the health of the U.S. and global economies. These conditions can affect JPMorgan Chase's businesses both directly and through their impact on the businesses and activities of its clients and customers.

In JPMorgan Chase's underwriting and advisory businesses, the above-mentioned factors can affect the volume of transactions that it executes for its clients and customers and, therefore, the revenue that it receives, as well as the willingness of other financial institutions and investors to participate in loan syndications or underwritings managed by JPMorgan Chase.

JPMorgan Chase generally maintains market-making positions in the fixed income, currency, commodities, credit and equity markets to facilitate client demand and provide liquidity to clients. The revenue derived from these positions is affected by many factors, including JPMorgan Chase's success in effectively hedging its market and other risks; volatility in interest rates and equity, debt and commodities markets; interest rate and credit spreads; and the availability of liquidity in the capital markets, all of which are affected by global economic and market conditions. Certain of JPMorgan Chase's market-making positions could be adversely affected by the lack of liquidity, which will be influenced by many of these factors, and which could affect its ability to realize returns from such activities and adversely affect its earnings.

JPMorgan Chase may be adversely affected by declining asset values. This is particularly true for businesses that earn fees for managing third-party assets or receive or post collateral. For example, a higher level of U.S. or non-U.S. interest rates or a downturn in financial markets could affect the valuations of the client assets that JPMorgan Chase manages or holds in custody, which, in turn, could affect its revenue. Macroeconomic or market concerns may also prompt outflows from JPMorgan Chase's funds or accounts or cause clients to invest funds in products that generate lower revenue.

Changes in interest rates will affect the level of assets and liabilities held on JPMorgan Chase's balance sheet and the revenue that it earns from net interest income. A low interest rate environment may compress net interest margins, reducing the amounts that JPMorgan Chase earns on its investment securities portfolio, or reducing the value of its mortgage servicing rights ("MSR") asset, thereby reducing its net interest income and other revenues. Conversely, increasing or high interest rates may result in increased funding costs, lower levels of commercial and residential loan originations and diminished returns on the investment securities portfolio (to the extent that JPMorgan Chase is unable to reinvest contemporaneously in higher-yielding assets), thereby adversely affecting its revenues and capital levels.

JPMorgan Chase's consumer businesses are particularly affected by U.S. domestic economic conditions, including U.S. interest rates, the rate of unemployment, housing prices, the level of consumer confidence, changes in consumer spending and the number of personal bankruptcies. If the recent positive trends in the U.S. economy are not sustained, this could diminish demand for the products and services of JPMorgan Chase's consumer businesses, or increase the cost to provide such products and services. In addition, adverse economic conditions, such as declines in home prices or persistent high levels of unemployment due to economic dislocations in certain geographies or industries caused by falling oil and gas prices or other market or economic factors, could lead to an increase in mortgage, credit card, auto, student and other loan delinquencies and higher net charge-offs, which can reduce JPMorgan Chase's earnings.

Widening of credit spreads makes it more expensive for JPMorgan Chase to borrow on both a secured and unsecured basis, and may adversely affect the credit markets and JPMorgan Chase's businesses. Credit spreads widen or narrow not only in response to Firm-specific events and circumstances, but also as a result of general economic and geopolitical events and conditions. Changes in JPMorgan Chase's credit spreads will impact, positively or negatively, its earnings on certain liabilities that are recorded at fair value.

Sudden and significant volatility in the prices of securities and other assets (including loans and derivatives) may curtail the trading markets for such securities and assets, make it difficult to sell or hedge such securities and assets, adversely affect JPMorgan Chase's profitability, capital or liquidity, or increase its funding costs. Sustained volatility in the financial markets may also negatively affect consumer or investor confidence, which could lead to lower client activity and decreased revenue.

## **Credit Risk**

### **The financial condition of JPMorgan Chase's customers, clients and counterparties, particularly other financial institutions, could adversely affect JPMorgan Chase.**

JPMorgan Chase routinely executes transactions with counterparties in the financial services industry, including brokers and dealers, commercial banks, investment banks, mutual and hedge funds, investment managers and other institutional clients. Many of these transactions expose JPMorgan Chase to credit risk and, in some cases, disputes and litigation in the event of a default by the counterparty or client. The failure of a significant market participant, or concerns about a default by such an institution, could also lead to significant liquidity problems for, or losses or defaults by, other institutions, which in turn could adversely affect JPMorgan Chase. In addition, in recent years the perceived interrelationship among financial institutions has also led to claims by other market participants and regulators that JPMorgan Chase and other financial institutions have allegedly violated anti-trust or anti-competition laws by colluding to manipulate markets, prices or indices, and there is no assurance that such allegations will not arise in the same or similar contexts in the future.



As part of providing clearing services, JPMorgan Chase is a member of a number of central counterparties (“CCPs”), and may be required to pay a portion of the losses incurred by such organizations as a result of the default of other members. As a clearing member, JPMorgan Chase is also exposed to the risk of non-performance by its clients, which it seeks to mitigate through the maintenance of adequate collateral. In addition, JPMorgan Chase can be exposed to intra-day credit risk of its clients in connection with providing cash management, clearing, custodial and other transaction services to such clients. If a client for which JPMorgan Chase provides such services becomes bankrupt or insolvent, it may suffer losses, become involved in disputes and litigation with various parties, including one or more CCPs, or the client’s bankruptcy estate and other creditors, or involved in regulatory investigations. All of such events can increase JPMorgan Chase’s operational and litigation costs and may result in losses if any collateral received by it is insufficient to cover such losses.

During periods of market stress or illiquidity, JPMorgan Chase’s credit risk also may be further increased when it cannot realize the fair value of the collateral held by it or when collateral is liquidated at prices that are not sufficient to recover the full amount of the loan, derivative or other exposure due to it. Further, disputes with obligors as to the valuation of collateral could increase in times of significant market stress, volatility or illiquidity, and JPMorgan Chase could suffer losses during such periods if it is unable to realize the fair value of collateral or manage declines in the value of collateral.

**Concentration of credit and market risk could increase the potential for significant losses.**

JPMorgan Chase has exposure to increased levels of risk when customers or counterparties are engaged in similar business activities or activities in the same geographic region, or when they have similar economic features that would cause their ability to meet contractual obligations to be similarly affected by changes in economic conditions. For example, a significant deterioration in the credit quality of one of JPMorgan Chase’s borrowers or counterparties could lead to concerns about the credit quality of other borrowers or counterparties in similar, related or dependent industries and thereby could exacerbate JPMorgan Chase’s credit risk exposure and potentially increase its losses, including mark-to-market losses in its trading businesses. Similarly, challenging economic conditions affecting a particular industry or geographic area could lead to concerns about the credit quality of JPMorgan Chase’s borrowers or counterparties, not only in that particular industry or geography but in related or dependent industries, wherever located, or about the ability of customers of its consumer businesses living in such areas or working in such affected industries or related or dependent industries to meet their obligations to JPMorgan Chase. As a result, JPMorgan Chase regularly monitors various segments of its exposures to assess potential concentration or contagion risks. JPMorgan Chase’s efforts to diversify or hedge its exposures against concentration risks may not be successful.

In addition, disruptions in the liquidity or transparency of the financial markets may result in JPMorgan Chase’s inability to sell, syndicate or realize the value of its positions, thereby leading to increased concentrations. The inability to reduce JPMorgan Chase’s positions may not only increase the market and credit risks associated with such positions, but may also increase the level of risk-weighted assets on its balance sheet, thereby increasing its capital requirements and funding costs, all of which could adversely affect the operations and profitability of its businesses.

**Liquidity Risk**

**If JPMorgan Chase does not effectively manage its liquidity, its business could suffer.**

JPMorgan Chase’s liquidity is critical to its ability to operate its businesses. Some potential conditions that could impair JPMorgan Chase’s liquidity include markets that become illiquid or are otherwise experiencing disruption, unforeseen cash or capital requirements (including, among others, commitments that may be triggered to special purpose entities (“SPEs”) or other entities), difficulty in selling or inability to sell assets, default by a CCP or other counterparty, unforeseen outflows of cash or

collateral, and lack of market or customer confidence in JPMorgan Chase or financial markets in general. These conditions may be caused by events over which JPMorgan Chase has little or no control. The widespread crisis in investor confidence and resulting liquidity crisis experienced in 2008 and into early 2009 increased JPMorgan Chase's cost of funding and limited its access to some of its traditional sources of liquidity (such as securitized debt offerings backed by mortgages, credit card receivables and other assets) during that time, and there is no assurance that these severe conditions could not occur in the future.

If JPMorgan Chase's access to stable and low cost sources of funding, such as bank deposits, is reduced, it may need to raise alternative funding which may be more expensive or of limited availability. In addition, JPMorgan Chase's cost of funding could be affected by actions that it may take in order to satisfy applicable liquidity coverage ratio and net stable funding ratio requirements, to lower its GSIB systemic risk score or to satisfy the amount of eligible LTD that JPMorgan Chase must have outstanding under the final TLAC rules.

As a holding company, JPMorgan Chase & Co. relies on the earnings of its subsidiaries for its cash flow and, consequently, its ability to pay dividends and satisfy its debt and other obligations. These payments by subsidiaries may take the form of dividends, loans or other payments. Several of JPMorgan Chase & Co.'s principal subsidiaries are subject to dividend distribution, capital adequacy or liquidity coverage requirements or other regulatory restrictions on their ability to provide such payments. Limitations in the payments that JPMorgan Chase & Co. receives from its subsidiaries could reduce its ability to pay dividends and satisfy its debt and other obligations.

Proposed banking regulations relating to liquidity, including U.S. rules relating to total loss-absorbing capacity, could require JPMorgan Chase to issue a substantial amount of new debt, and thereby significantly increase its funding costs.

On October 30, 2015, the Federal Reserve issued proposed rules (the "proposed TLAC rules") that would require the top-tier holding companies of eight U.S. global systemically important bank holding companies ("U.S. GSIB BHCs"), including JPMorgan Chase & Co., among other things, to maintain minimum amounts of eligible LTD, commencing January 1, 2019. The proposed TLAC rules would disqualify from eligible LTD, among other instruments, senior debt securities that permit acceleration for reasons other than insolvency or payment default, as well as debt securities that are not governed by U.S. law and structured notes. The currently outstanding senior long-term debt of U.S. GSIB BHCs, including JPMorgan Chase & Co., includes structured notes as well as other debt that typically permits acceleration for reasons other than insolvency or payment default and, as a result, none of such outstanding senior long-term debt or any subsequently issued senior long-term debt with similar terms would qualify as eligible LTD under the proposed TLAC rules. The Federal Reserve has requested comment on whether certain currently outstanding instruments should be allowed to count as eligible LTD "despite containing features that would be prohibited under the proposal." The steps that the U.S. GSIB BHCs, including JPMorgan Chase & Co., may need to take to come into compliance with the final TLAC rules, including the amount and form of long-term debt that must be refinanced or issued, will depend in substantial part on the ultimate eligibility requirements for senior long-term debt and any grandfathering provisions. To the extent that outstanding senior long-term debt of JPMorgan Chase & Co. is not classified as eligible LTD under the TLAC rule as finally adopted by the Federal Reserve, JPMorgan Chase could be required to issue a substantial amount of new senior long-term debt which could significantly increase its funding costs.

Authorities in some non-U.S. jurisdictions in which JPMorgan Chase has operations have enacted legislation or regulations requiring that certain of its subsidiaries operating in those countries maintain independent capital and liquidity. In addition, some non-U.S. regulators have proposed that large banks which conduct certain businesses in their jurisdictions operate through separate subsidiaries located in

those countries. These requirements, and any future laws or regulations that seek to increase capital or liquidity requirements that would be applicable to non-U.S. subsidiaries of JPMorgan Chase, could hinder JPMorgan Chase's ability to efficiently manage its funding and liquidity in a centralized manner.

**Reductions in JPMorgan Chase's credit ratings may adversely affect its liquidity and cost of funding, as well as the value of debt obligations issued by it.**

JPMorgan Chase & Co. and certain of its principal subsidiaries are currently rated by credit rating agencies. Rating agencies evaluate both general and firm- and industry-specific factors when determining their credit ratings for a particular financial institution, including economic and geopolitical trends, regulatory developments, future profitability, risk management practices, legal expenses, assumptions surrounding government support, and ratings differentials between bank holding companies and their bank and non-bank subsidiaries. Although JPMorgan Chase closely monitors and manages, to the extent it is able, factors that could influence its credit ratings, there is no assurance that its credit ratings will not be lowered in the future, or that any such downgrade would not occur at times of broader market instability when its options for responding to events may be more limited and general investor confidence is low.

Furthermore, a reduction in JPMorgan Chase's credit ratings could reduce its access to capital markets, materially increase the cost of issuing securities, trigger additional collateral or funding requirements, and decrease the number of investors and counterparties willing or permitted, contractually or otherwise, to do business with or lend to JPMorgan Chase, thereby curtailing its business operations and reducing its profitability. In addition, any such reduction in credit ratings may increase the credit spreads charged by the market for taking credit risk on JPMorgan Chase & Co. and its subsidiaries and, as a result, could adversely affect the value of debt and other obligations that JPMorgan Chase & Co. and its subsidiaries have issued or may issue in the future.

**Legal Risk**

**JPMorgan Chase faces significant legal risks, both from regulatory investigations and proceedings and from private actions brought against it.**

JPMorgan Chase is named as a defendant or is otherwise involved in various legal proceedings, including class actions and other litigation or disputes with third parties. Actions currently pending against JPMorgan Chase may result in judgments, settlements, fines, penalties or other results adverse to it, which could materially and adversely affect JPMorgan Chase's business, financial condition or results of operations, or cause serious harm to its reputation. As a participant in the financial services industry, it is likely that JPMorgan Chase will continue to experience a high level of litigation related to its businesses and operations.

In addition, and as noted above, JPMorgan Chase's businesses and operations are also subject to heightened regulatory oversight and scrutiny, which may lead to additional regulatory investigations or enforcement actions. Regulators and other government agencies examine the operations of JPMorgan Chase and its subsidiaries on both a routine- and targeted-exam basis, and there is no assurance that they will not pursue additional regulatory settlements or other enforcement actions against JPMorgan Chase in the future. A single event may give rise to numerous and overlapping investigations and proceedings, either by multiple federal and state agencies and officials in the U.S. or, in some instances, regulators and other governmental officials in non-U.S. jurisdictions. These and other initiatives from U.S. and non-U.S. governmental authorities and officials may subject JPMorgan Chase to further judgments, settlements, fines or penalties, or cause it to be required to restructure its operations and activities or to cease offering certain products or services, all of which could harm its reputation or lead to higher operational costs, thereby reducing its profitability, or result in collateral consequences as discussed above.

## **Other Business Risks**

### **JPMorgan Chase's operations are subject to risk of loss from unfavorable economic, monetary and political developments in the U.S. and around the world.**

JPMorgan Chase's businesses and earnings are affected by the fiscal and other policies that are adopted by various U.S. and non-U.S. regulatory authorities and agencies. The Federal Reserve regulates the supply of money and credit in the U.S. and its policies determine in large part the cost of funds for lending and investing in the U.S. and the return earned on those loans and investments. Changes in Federal Reserve policies (as well as the fiscal and monetary policies of non-U.S. central banks or regulatory authorities and agencies, such as "pegging" the exchange rate of their currency to the currencies of others) are beyond JPMorgan Chase's control and may be difficult to predict, and consequently, unanticipated changes in these policies could have a negative impact on its activities and results of operations.

JPMorgan Chase's businesses and revenue are also subject to risks inherent in investing and market-making in securities, loans and other obligations of companies worldwide. These risks include, among others, negative effects from slowing growth rates or recessionary economic conditions, or the risk of loss from unfavorable political, legal or other developments, including social or political instability, in the countries or regions in which such companies operate, as well as the other risks and considerations as described further below.

Several of JPMorgan Chase's businesses engage in transactions with, or trade in obligations of, U.S. and non-U.S. governmental entities, including national, state, provincial, municipal and local authorities. These activities can expose JPMorgan Chase to enhanced sovereign, credit-related, operational and reputation risks, including the risks that a governmental entity may default on or restructure its obligations or may claim that actions taken by government officials were beyond the legal authority of those officials, which could adversely affect its financial condition and results of operations.

Further, various countries or regions in which JPMorgan Chase operates or invests, or in which it may do so in the future, have in the past experienced severe economic disruptions particular to those countries or regions. Low or volatile oil prices, coupled with the slowdown in the macroeconomic prospects in China, and concerns about economic weaknesses in the Eurozone (including the permanent resolution of the Greek "bailout" program), could continue to undermine investor confidence and affect the operating environment in 2016. In some cases, concerns regarding the fiscal condition of one or more countries can cause a contraction of available credit and reduced activity among trading partners or create market volatility that could lead to "market contagion" affecting other countries in the same region or beyond the region. Accordingly, it is possible that economic disruptions in certain countries, even in countries in which JPMorgan Chase does not conduct business or have operations or engages in only limited activities, may adversely affect JPMorgan Chase.

### **JPMorgan Chase's operations in emerging markets may be hindered by local political, social and economic factors, and may be subject to additional compliance costs and risks.**

Some of the countries in which JPMorgan Chase conducts its businesses have economies or markets that are less developed and more volatile, and may have legal and regulatory regimes that are less established or predictable, than the U.S. and other developed markets in which JPMorgan Chase currently operates. Some of these countries have in the past experienced severe economic disruptions, including extreme currency fluctuations, high inflation, low or negative growth, or defaults or potential defaults on sovereign debt, among other negative conditions, or have imposed restrictive monetary policies such as currency exchange controls and other laws and restrictions that adversely affect the local and regional business environment. In addition, these countries, as well as certain more developed countries, have recently been more susceptible to unfavorable political, social or economic

developments; these development have in the past resulted in, and may in the future lead to, social unrest, general strikes and demonstrations, crime and corruption, security and personal safety issues, outbreaks of hostilities, overthrow of incumbent governments, terrorist attacks or other forms of internal discord, all of which can adversely affect JPMorgan Chase's operations or investments in such countries. Political, social or economic disruption or dislocation in certain countries or regions in which JPMorgan Chase conducts its businesses can hinder the growth and profitability of those operations.

Less developed legal and regulatory systems in certain countries can also have adverse consequences on JPMorgan Chase's operations in those countries, including, among others, the absence of a statutory or regulatory basis or guidance for engaging in specific types of business or transactions; the promulgation of conflicting or ambiguous laws and regulations or the inconsistent application or interpretation of existing laws and regulations; uncertainty as to the enforceability of contractual obligations; difficulty in competing in economies in which the government controls or protects all or a portion of the local economy or specific businesses, or where graft or corruption may be pervasive; and the threat of arbitrary regulatory investigations, civil litigations or criminal prosecutions.

Revenue from international operations and trading in non-U.S. securities and other obligations may be subject to negative fluctuations as a result of the above considerations, as well as due to governmental actions including monetary policies, expropriation, nationalization, confiscation of assets, price controls, capital controls, exchange controls, and changes in laws and regulations. The impact of these fluctuations could be accentuated as some trading markets are smaller, less liquid and more volatile than larger markets. Also, any of the above-mentioned events or circumstances in one country can affect, and in the past conditions of these types have affected, JPMorgan Chase's operations and investments in another country or countries, including its operations in the U.S. As a result, any such unfavorable conditions or developments could have an adverse impact on JPMorgan Chase's business and results of operations.

Conducting business in countries with less developed legal and regulatory regimes often requires JPMorgan Chase to devote significant additional resources to understanding, and monitoring changes in, local laws and regulations, as well as structuring its operations to comply with local laws and regulations and implementing and administering related internal policies and procedures. There can be no assurance that JPMorgan Chase will always be successful in its efforts to conduct its business in compliance with laws and regulations in countries with less predictable legal and regulatory systems or that JPMorgan Chase will be able to develop effective working relationships with local regulators. In addition, JPMorgan Chase can also incur higher costs, and face greater compliance risks, in structuring and operating its businesses outside the U.S. to comply with U.S. anti-corruption and anti-money laundering laws and regulations.

**JPMorgan Chase relies on the effectiveness and integrity of its processes, operating systems and employees, and those of third parties, and certain failures of such processes or systems or misconduct by such employees could materially and adversely affect its operations.**

JPMorgan Chase's businesses are dependent on JPMorgan Chase's ability to process, record and monitor an increasingly large number of complex transactions and to do so on a faster and more frequent basis. JPMorgan Chase's front- and back-office trading systems similarly rely on their access to, and on the functionality of, the operating systems maintained by third parties such as clearing and payment systems, central counterparties, securities exchanges and data processing and technology companies. If JPMorgan Chase's financial, accounting, trading or other data processing systems, or the operating systems of third parties on which its businesses are dependent, are unable to meet these increasingly demanding standards, or if they fail or have other significant shortcomings, JPMorgan Chase could be materially and adversely affected. Moreover, as the speed, frequency, volume and complexity of transactions (and the requirements to report such transactions on a real-time basis to clients, regulators and financial intermediaries) increases, the risk of human and/or systems error in

connection with such transactions increases, and it becomes more challenging to maintain JPMorgan Chase's operational systems and infrastructure. JPMorgan Chase is similarly dependent on its employees. JPMorgan Chase could be materially and adversely affected if one or more of its employees causes a significant operational breakdown or failure, either as a result of human error or where an individual purposefully sabotages or fraudulently manipulates JPMorgan Chase's operations or systems. In addition, when JPMorgan Chase changes processes or introduces new products and services or new connectivity solutions, it may not fully appreciate or identify new operational risks that may arise from such changes. Any of these occurrences could diminish JPMorgan Chase's ability to operate one or more of its businesses, or result in potential liability to clients and customers, increased operating expenses, higher litigation costs (including fines and sanctions), damage to reputation, impairment of liquidity, regulatory intervention or weaker competitive standing, any of which could materially and adversely affect JPMorgan Chase.

Third parties with which JPMorgan Chase does business, including retailers and other third parties with which its customers do business, can also be sources of operational risk to JPMorgan Chase, particularly where activities of customers are beyond JPMorgan Chase's security and control systems, such as through the use of the internet, personal smart phones and other mobile devices or services. As JPMorgan Chase's interconnectivity with these third parties increases, it increasingly faces the risk of operational failure with respect to their systems. Security breaches affecting JPMorgan Chase's customers, or systems breakdowns or failures, security breaches or employee misconduct affecting such other third parties, may require JPMorgan Chase to take steps to protect the integrity of its own operational systems or to safeguard confidential information of JPMorgan Chase or its customers, thereby increasing its operational costs and potentially diminishing customer satisfaction. Furthermore, the interconnectivity of multiple financial institutions with central agents, exchanges and clearing houses, and the increased importance of these entities, increases the risk that an operational failure at one institution or entity may cause an industry-wide operational failure that could materially impact JPMorgan Chase's ability to conduct business.

JPMorgan Chase's businesses are subject to complex and evolving U.S. and non-U.S. laws and regulations governing the privacy and protection of personal information of individuals (including clients, client's clients, employees of JPMorgan Chase and its suppliers and other third parties). Ensuring that JPMorgan Chase's collection, use, transfer and storage of personal information complies with all applicable laws and regulations, including where the laws of different jurisdictions are in conflict, can increase JPMorgan Chase's operating costs, impact the development of new products or services and require significant oversight by management, and may require JPMorgan Chase to structure its businesses, operations and systems in less efficient ways. Furthermore, JPMorgan Chase may not be able to ensure that all of its clients, suppliers, counterparties and other third parties have appropriate controls in place to protect the confidentiality of the information exchanged between them and JPMorgan Chase, particularly where such information is transmitted by electronic means. If personal, confidential or proprietary information of customers or clients or others were to be mishandled or misused (in situations where, for example, such information was erroneously provided to parties who are not permitted to have the information, or where such information was intercepted or otherwise compromised by third parties), JPMorgan Chase could be exposed to litigation or regulatory sanctions. Concerns regarding the effectiveness of JPMorgan Chase's measures to safeguard personal information, or even the perception that such measures are inadequate, could cause it to lose customers or potential customers for its products and services and thereby reduce revenues. Accordingly, any failure or perceived failure by JPMorgan Chase to comply with applicable privacy or data protection laws and regulations may subject it to inquiries, examinations and investigations that could result in requirements to modify or cease certain operations or practices or in significant liabilities, fines or penalties, and could damage JPMorgan Chase's reputation and otherwise adversely affect its businesses.

JPMorgan Chase may be subject to disruptions of its operating systems arising from events that are wholly or partially beyond its control, which may include, for example, security breaches (as discussed further below); electrical or telecommunications outages; failures of computer servers or other damage to JPMorgan Chase's property or assets; natural disasters or severe weather conditions; health emergencies or pandemics; or events arising from local or larger-scale political events, including outbreaks of hostilities or terrorist acts. JPMorgan Chase maintains a global resiliency and crisis management program that is intended to ensure that it has the ability to recover its critical business functions and supporting assets, including staff, technology and facilities, in the event of a business interruption. While JPMorgan Chase believes that its current resiliency plans are both sufficient and adequate, there can be no assurance that such plans will fully mitigate all potential business continuity risks to JPMorgan Chase or its customers and clients. Any failures or disruptions of JPMorgan Chase's systems or operations could give rise to losses in service to customers and clients, adversely affect its business and results of operations by subjecting JPMorgan Chase to losses or liability, or require it to expend significant resources to correct the failure or disruption, as well as by exposing it to litigation, regulatory fines or penalties or losses not covered by insurance.

**A breach in the security of JPMorgan Chase's systems, or those of other market participants, could disrupt its businesses, result in the disclosure of confidential information, damage its reputation and create significant financial and legal exposure for JPMorgan Chase.**

Although JPMorgan Chase devotes significant resources to maintain and regularly update its systems and processes that are designed to protect the security of JPMorgan Chase's computer systems, software, networks and other technology assets, as well as the confidentiality, integrity and availability of information belonging to JPMorgan Chase and its customers and clients, there is no assurance that all of JPMorgan Chase's security measures will provide absolute security. JPMorgan Chase and other companies have reported significant breaches in the security of their websites or other systems, some of which have involved sophisticated and targeted attacks intended to obtain unauthorized access to confidential information, destroy data, disrupt or degrade service, sabotage systems or cause other damage, including through the introduction of computer viruses or malware, cyberattacks and other means. JPMorgan Chase is regularly targeted by unauthorized parties using malicious code and viruses, and has experienced several significant distributed denial-of-service attacks from technically sophisticated and well-resourced third parties which were intended to disrupt online banking services.

Despite JPMorgan Chase's efforts to ensure the integrity of its systems, it is possible that it may not be able to anticipate, detect or recognize threats to its systems or to implement effective preventive measures against all security breaches of these types inside or outside JPMorgan Chase, especially because the techniques used change frequently or are not recognized until launched, and because cyberattacks can originate from a wide variety of sources, including third parties outside JPMorgan Chase such as persons who are associated with external service providers or who are or may be involved in organized crime or linked to terrorist organizations or hostile foreign governments. Those parties may also attempt to fraudulently induce employees, customers, third-party service providers or other users of JPMorgan Chase's systems to disclose sensitive information in order to gain access to its data or that of its customers or clients. These risks may increase in the future as JPMorgan Chase continues to increase its mobile-payment and other internet-based product offerings and expands its internal usage of web-based products and applications.

A successful penetration or circumvention of the security of JPMorgan Chase's systems or the systems of another market participant could cause serious negative consequences for JPMorgan Chase, including significant disruption of its operations, misappropriation of confidential information of JPMorgan Chase or that of its customers, or damage to computers or systems of JPMorgan Chase and those of its customers and counterparties, and could result in violations of applicable privacy and other

laws, financial loss to JPMorgan Chase or to its customers, loss of confidence in JPMorgan Chase's security measures, customer dissatisfaction, significant litigation exposure and harm to its reputation, all of which could have a material adverse effect on JPMorgan Chase.

## **Risk Management**

**JPMorgan Chase's framework for managing risks and its risk management procedures and practices may not be effective in identifying and mitigating every risk to JPMorgan Chase, thereby resulting in losses.**

JPMorgan Chase's risk management framework seeks to mitigate risk and loss. JPMorgan Chase has established processes and procedures intended to identify, measure, monitor, report and analyze the types of risk to which it is subject. However, as with any risk management framework, there are inherent limitations to JPMorgan Chase's risk management strategies because there may exist, or develop in the future, risks that JPMorgan Chase has not appropriately anticipated or identified. In addition, JPMorgan Chase relies on data to aggregate and assess its various risk exposures, and any deficiencies in the quality or effectiveness of its data aggregation and validation procedures could result in ineffective risk management practices or inaccurate risk reporting. Any lapse in JPMorgan Chase's risk management framework and governance structure or other inadequacies in the design or implementation of its risk management framework, governance, procedures, practices, models or risk reporting systems could, individually or in the aggregate, cause unexpected losses for JPMorgan Chase, materially and adversely affect its financial condition and results of operations, require significant resources to remediate any risk management deficiency, attract heightened regulatory scrutiny, expose JPMorgan Chase to regulatory investigations or legal proceedings, subject it to fines, penalties or judgments, harm its reputation, or otherwise cause a decline in investor confidence.

JPMorgan Chase's products, including loans, leases, lending commitments, derivatives and trading account assets, as well as the investment securities portfolio and cash management and clearing activities, expose it to credit risk. JPMorgan Chase has exposures arising from its many different products and counterparties, and the credit quality of its exposures can have a significant impact on its earnings. JPMorgan Chase establishes allowances for probable credit losses inherent in its credit exposure, including unfunded lending-related commitments. JPMorgan Chase also employs stress testing and other techniques to determine the capital and liquidity necessary to protect it in the event of adverse economic or market events. These processes are critical to JPMorgan Chase's financial results and condition, and require difficult, subjective and complex judgments, including forecasts of how economic conditions might impair the ability of JPMorgan Chase's borrowers and counterparties to repay their loans or other obligations. As is the case with any such assessments, there is always the possibility that JPMorgan Chase will fail to identify the proper factors or that it will fail to accurately estimate the impact of factors that it identifies.

JPMorgan Chase's market-making businesses may expose JPMorgan Chase to unexpected market, credit and operational risks that could cause it to suffer unexpected losses. Severe declines in asset values, unanticipated credit events, or unforeseen circumstances that may cause previously uncorrelated factors to become correlated (and vice versa) may create losses resulting from risks not appropriately taken into account in the development, structuring or pricing of a financial instrument such as a derivative.

Certain of JPMorgan Chase's trading transactions require the physical settlement by delivery of securities or other obligations that it does not own; if JPMorgan Chase is unable to obtain such securities or obligations within the required timeframe for delivery, this could cause it to forfeit payments otherwise due to it and could result in settlement delays, which could damage JPMorgan



Chase's reputation and ability to transact future business. In addition, in situations where trades are not settled or confirmed on a timely basis, JPMorgan Chase may be subject to heightened credit and operational risk, and in the event of a default, it may be exposed to market and operational losses.

In addition, disputes with counterparties may arise regarding the terms or the settlement procedures of derivative contracts, including with respect to the value of underlying collateral, which could cause JPMorgan Chase to incur unexpected costs, including transaction, operational, legal and litigation costs, or result in credit losses, all of which may impair its ability to manage effectively its risk exposure from these products.

In a difficult or less liquid market environment, JPMorgan Chase's risk management strategies may not be effective because other market participants may be attempting to use the same or similar strategies to deal with the challenging market conditions. In such circumstances, it may be difficult for JPMorgan Chase to reduce its risk positions due to the activity of such other market participants or widespread market dislocations.

Many of JPMorgan Chase's risk management strategies or techniques have a basis in historical market behavior, and all such strategies and techniques are based to some degree on management's subjective judgment. For example, many models used by JPMorgan Chase are based on assumptions regarding correlations among prices of various asset classes or other market indicators. In times of market stress, or in the event of other unforeseen circumstances, previously uncorrelated indicators may become correlated, or conversely, previously correlated indicators may make unrelated movements. These sudden market movements or unanticipated or unidentified market or economic movements have in some circumstances limited and could again limit the effectiveness of JPMorgan Chase's risk management strategies, causing it to incur losses.

Many of the models used by JPMorgan Chase are subject to review not only by its Model Risk function but also by JPMorgan Chase's regulators in order that it may utilize such models in connection with its calculations of market risk risk-weighted assets ("RWA"), credit risk RWA and operational risk RWA under the Advanced Approach of Basel III. JPMorgan Chase may be subject to higher capital charges, which could adversely affect its financial results or limit its ability to expand its businesses, if such models do not receive approval by its regulators.

In addition, JPMorgan Chase must comply with enhanced standards for the assessment and management of risks associated with vendors and other third parties that provide services to JPMorgan Chase. These requirements apply to JPMorgan Chase both under general guidance issued by its banking regulators and, more specifically, under certain of the consent orders to which it has been subject. JPMorgan Chase has incurred and expects to incur additional costs and expenses in connection with its initiatives to address the risks associated with oversight of its third party relationships. Failure by JPMorgan Chase to appropriately assess and manage third party relationships, especially those involving significant banking functions, shared services or other critical activities, could result in potential liability to clients and customers, fines, penalties or judgments imposed by JPMorgan Chase's regulators, increased operating expenses and harm to its reputation, any of which could materially and adversely affect JPMorgan Chase.

## **Other Risks**

**The financial services industry is highly competitive, and JPMorgan Chase's inability to compete successfully may adversely affect its results of operations.**

JPMorgan Chase operates in a highly competitive environment, and JPMorgan Chase expects that competition in the U.S. and global financial services industry will continue to be intense. Competitors of JPMorgan Chase include other banks and financial institutions, trading, advisory and investment

management firms, finance companies and technology companies and other firms that are engaged in providing similar products and services. Technological advances and the growth of e-commerce have made it possible for non-depository institutions to offer products and services that traditionally were banking products, and for financial institutions and other companies to provide electronic and internet-based financial solutions, including electronic securities trading and payment processing. New technologies have required and could require JPMorgan Chase to spend more to modify or adapt its products to attract and retain customers or to match products and services offered by its competitors, including technology companies.

Ongoing or increased competition, on the basis of the quality and variety of products and services offered, transaction execution, innovation, reputation, price or other factors, may put downward pressure on prices for JPMorgan Chase's products and services or may cause it to lose market share. In addition, the failure of any of JPMorgan Chase's businesses to meet the expectations of clients and customers, whether due to general market conditions or underperformance (relative to competitors or to benchmarks), could impact JPMorgan Chase's ability to retain clients and customers or attract new clients and customers, thereby reducing its revenues. Increased competition also may require JPMorgan Chase to make additional capital investments in its businesses, or to extend more of its capital on behalf of its clients in order to remain competitive. JPMorgan Chase cannot provide assurance that the significant competition in the financial services industry will not materially and adversely affect its future results of operations.

Competitors of JPMorgan Chase's non-U.S. wholesale businesses are typically subject to different, and in some cases, less stringent, legislative and regulatory regimes. The more restrictive laws and regulations applicable to U.S. financial services institutions, such as JPMorgan Chase, can put it at a competitive disadvantage to its non-U.S. competitors, including prohibiting JPMorgan Chase from engaging in certain transactions, imposing higher capital and liquidity requirements on JPMorgan Chase, making its pricing of certain transactions more expensive for clients or adversely affecting its cost structure for providing certain products, all of which can reduce the revenue and profitability of JPMorgan Chase's wholesale businesses.

**JPMorgan Chase's ability to attract and retain qualified employees is critical to its success.**

JPMorgan Chase's employees are JPMorgan Chase's most important resource, and in many areas of the financial services industry, competition for qualified personnel is intense. JPMorgan Chase endeavors to attract talented and diverse new employees and retain and motivate its existing employees. JPMorgan Chase also seeks to retain a pipeline of senior employees with superior talent, augmented from time to time by external hires, to provide continuity of succession for JPMorgan Chase's Operating Committee, including the Chief Executive Officer position, and senior positions below the Operating Committee. JPMorgan Chase regularly reviews candidates for senior management positions to assess whether they currently are ready for a next-level role. In addition, JPMorgan Chase's Board of Directors is deeply involved in succession planning, including review of the succession plans for the Chief Executive Officer and the members of the Operating Committee. If for any reason JPMorgan Chase were unable to continue to attract or retain qualified employees, including successors to the Chief Executive Officer or members of the Operating Committee, JPMorgan Chase's performance, including its competitive position, could be materially and adversely affected.

**JPMorgan Chase’s financial statements are based in part on estimates and judgments which, if incorrect, could result in unexpected losses in the future.**

Under accounting principles generally accepted in the U.S. (“U.S. GAAP”), JPMorgan Chase is required to use estimates and apply judgments in preparing its financial statements, including in determining allowances for credit losses and reserves related to litigation, among other items. Certain of JPMorgan Chase’s financial instruments, including trading assets and liabilities, instruments in the investment securities portfolio, certain loans, MSRs, structured notes and certain repurchase and resale agreements, among other items, require a determination of their fair value in order to prepare JPMorgan Chase’s financial statements. Where quoted market prices are not available, JPMorgan Chase may make fair value determinations based on internally developed models or other means which ultimately rely to some degree on management estimates and judgment. In addition, sudden illiquidity in markets or declines in prices of certain loans and securities may make it more difficult to value certain balance sheet items, which may lead to the possibility that such valuations will be subject to further change or adjustment. If estimates or judgments underlying JPMorgan Chase’s financial statements are incorrect, JPMorgan Chase may experience material losses.

**Lapses in disclosure controls and procedures or internal control over financial reporting could materially and adversely affect JPMorgan Chase’s operations, profitability or reputation.**

There can be no assurance that JPMorgan Chase’s disclosure controls and procedures will be effective in every circumstance or that a material weakness or significant deficiency in internal control over financial reporting will not occur. Any such lapses or deficiencies may materially and adversely affect JPMorgan Chase’s business and results of operations or financial condition, restrict its ability to access the capital markets, require JPMorgan Chase to expend significant resources to correct the lapses or deficiencies, expose it to regulatory or legal proceedings, subject it to fines, penalties or judgments, harm its reputation, or otherwise cause a decline in investor confidence.

**Damage to JPMorgan Chase’s reputation could damage its businesses.**

Maintaining trust in JPMorgan Chase is critical to JPMorgan Chase’s ability to attract and maintain customers, investors and employees. Damage to JPMorgan Chase’s reputation can therefore cause significant harm to its business and prospects. Harm to JPMorgan Chase’s reputation can arise from numerous sources, including, among others, employee misconduct, security breaches, compliance failures, litigation or regulatory outcomes or governmental investigations. JPMorgan Chase’s reputation could also be harmed by the failure or perceived failure of an affiliate, joint-venturer or merchant banking portfolio company, or a vendor or other third party with which JPMorgan Chase does business, to comply with laws or regulations. In addition, a failure or perceived failure to deliver appropriate standards of service and quality, to treat customers and clients fairly, to provide fiduciary products or services in accordance with the appropriate standards, or to handle or use confidential information of customers or clients appropriately or in compliance with applicable data protection and privacy laws and regulations can result in customer dissatisfaction, litigation and heightened regulatory scrutiny, all of which can lead to lost revenue, higher operating costs and harm to JPMorgan Chase’s reputation. Adverse publicity or negative information posted on social media websites regarding JPMorgan Chase, whether or not true, may result in harm to its prospects.

Management of potential conflicts of interests has become increasingly complex as JPMorgan Chase continues to expand its business activities through more numerous transactions, obligations and interests with and among JPMorgan Chase’s clients. The failure or perceived failure to adequately address or appropriately disclose conflicts of interest has given rise to litigation and enforcement actions and may do so in the future and could affect the willingness of clients to deal with JPMorgan Chase, as well as cause serious harm to its reputation.

Actions by the financial services industry generally or by certain members of or individuals in the industry can also affect JPMorgan Chase's reputation. For example, the role played by financial services firms during the financial crisis, including concerns that consumers have been treated unfairly by financial institutions, has damaged the reputation of the industry as a whole. Should any of these or other events or factors that can undermine JPMorgan Chase's reputation occur, there is no assurance that the additional costs and expenses that JPMorgan Chase may need to incur to address the issues giving rise to the damage to its reputation could not adversely affect JPMorgan Chase's earnings and results of operations, or that damage to its reputation will not impair its ability to retain its existing or attract new customers, investors and employees.

**JPMorgan Chase Bank, N.A. is affected by the risks that affects its parent company.**

JPMorgan Chase Bank, N.A. and its subsidiaries are also subject to each of the risks above, in addition to further risks. Risks that affect JPMorgan Chase & Co. can also affect JPMorgan Chase Bank, N.A. as there is substantial overlap in the businesses of JPMorgan Chase Bank, N.A. and JPMorgan Chase & Co. Further, JPMorgan Chase Bank, N.A. can be negatively affected by risks and other events affecting JPMorgan Chase & Co. even where JPMorgan Chase Bank, N.A. is not directly affected. For example, where JPMorgan Chase & Co.'s reputation is damaged, JPMorgan Chase Bank, N.A.'s reputation would likely also be damaged which could negatively affect JPMorgan Chase Bank, N.A.

## TAXATION

We have based this summary of Hong Kong, The Netherlands and United States tax on current law and practice. It is intended to give potential investors an overview of what Hong Kong, The Netherlands and United States tax they might have to pay if they hold our structured products. It is not complete and we are not giving any tax advice. Any potential investors should consult their own tax adviser for more information about the tax consequences of acquiring, owning and disposing of the Securities in their particular circumstances, particularly if they are subject to special tax rules (for example, if they are a bank, dealer, insurance company or a tax-exempt entity). This summary assumes that each transaction with respect to the Securities is at arm's length.

### HONG KONG

#### Withholding Tax

We are not required under current law to make any withholding on account of Hong Kong tax from payments in respect of our structured products.

#### Capital Gains Tax

No tax is payable in Hong Kong on any capital gains arising from a sale or disposal of our structured products.

#### Profits Tax

Hong Kong profits tax may be chargeable on any gains arising from a sale or disposal of our structured products where the sale or disposal is or forms part of a trade, profession or business carried on in Hong Kong and the gains are of a Hong Kong source.

#### Stamp Duty

Our cash-settled structured products are not subject to Hong Kong stamp duty either when issued or on any subsequent transfer.

### THE NETHERLANDS TAXATION

*The following discussion is a summary of certain material Dutch tax considerations relating to Securities issued by J.P. Morgan Structured Products B.V. ("JPMSP") held by a holder of Securities who is not a resident of the Netherlands, including where those Securities are held through a paying agent or custodian located in The Netherlands.*

*This summary is based on the laws and practice in force as of the date of this base listing document and is subject to any changes in law and the interpretation and application thereof, which changes could be made with retroactive effect. This summary does not purport to be a comprehensive description of all the tax considerations that may be relevant to a decision to acquire, hold or dispose of a Security, and does not purport to deal with the tax consequences applicable to all categories of investors, some of which may be subject to special rules.*

For the purpose of the paragraph "Taxes on Income and Capital Gains" below it is assumed that no Holder, being an individual or a non-resident entity, has or will have a substantial interest (*aanmerkelijk belang*), or – in the case of a Holder being an entity – a deemed substantial interest, in JPMSP and that no connected person (*verbonden persoon*) to the Holder has or will have a substantial interest in JPMSP.

With respect to Securities for which it is specified that physical delivery of shares of a company is applicable, it is furthermore assumed that where such company is a Dutch resident company no Holder being a non-resident individual or entity has or will have a substantial interest (*aanmerkelijk belang*) or a deemed substantial interest in such company and that no connected person (*verbonden persoon*) to such Holder being an individual has or will have a substantial interest in such company.

Generally speaking, an individual has a substantial interest (*aanmerkelijk belang*) in a company if (a) such individual, either alone or together with his partner, directly or indirectly has, or is deemed to have or (b) certain relatives of such individual or his partner directly or indirectly have or are deemed to have (i) the ownership of, a right to acquire the ownership of, or certain rights over, shares representing 5 per cent. or more of either the total issued and outstanding capital of the company or the issued and outstanding capital of any class of shares of the company, or (ii) the ownership of, or certain rights over, profit participating certificates (*winstbewijzen*) that relate to 5 per cent. or more of either the annual profit or the liquidation proceeds of the company.

Generally speaking, a non-resident entity has a substantial interest (*aanmerkelijk belang*) in a company if such entity, directly or indirectly has (i) the ownership of, a right to acquire the ownership of, or certain rights over, shares representing 5 per cent. or more of either the total issued and outstanding capital of the company or the issued and outstanding capital of any class of shares of the company, or (ii) the ownership of, or certain rights over, profit participating certificates (*winstbewijzen*) that relate to 5 per cent. or more of either the annual profit or the liquidation proceeds of the company. An entity has a deemed substantial interest in a company if such entity has disposed of or is deemed to have disposed of all or part of a substantial interest on a non-recognition basis.

For the purpose of this summary, the term “entity” means a corporation as well as any other person that is taxable as a corporation for Dutch corporate tax purposes.

Where this summary refers to a holder of a Security, an individual holding a Security or an entity holding a Security, such reference is restricted to an individual or entity holding legal title to as well as an economic interest in such Security or otherwise being regarded as owning a Security for Dutch tax purposes. It is noted that for purposes of Dutch income, corporate, gift and inheritance tax, assets legally owned by a third party such as a trustee, foundation or similar entity, may be treated as assets owned by the (deemed) settlor, grantor or similar originator or the beneficiaries in proportion to their interest in such arrangement.

Where the summary refers to “The Netherlands” or “Dutch”, it refers only to the European part of the Kingdom of the Netherlands.

## **Withholding Tax**

All payments made by JPMSP under the Securities can be made free of withholding or deduction of any taxes of whatsoever nature imposed, levied, withheld or assessed by The Netherlands or any political subdivision or taxing authority thereof or therein, unless the Securities qualify as debt that effectively functions as equity for purposes of article 10, paragraph 1, sub-paragraph (d) of the Corporate Tax Act (*Wet op de vennootschapsbelasting 1969*) or represent, are linked (to the performance of) or are convertible (in part or in whole) into (rights to purchase) (a) shares; (b) profit certificates (*winstbewijzen*); and/or (c) debt instruments having a maturity legally or de facto of more than 50 years, in each case issued by JPMSP or any other entity related to JPMSP. According to Supreme Court case law, the Securities effectively function as equity if (a) the Securities are subordinated to all other non-subordinated creditors of JPMSP, (b) the Securities do not have a fixed maturity or have a maturity of more than 50 years, and (c) payments under the Securities are entirely or almost entirely dependent on JPMSP’s profits.

## **Taxes on Income and Capital Gains**

A Holder who is not, and is not deemed to be resident in The Netherlands for the relevant tax purposes will not be subject to taxation on income or a capital gain derived from a Security unless:

- (i) the income or capital gain is attributable to an enterprise or part thereof which is either effectively managed in The Netherlands or carried on, in whole or in part, through a permanent establishment (*vaste inrichting*) or a permanent representative (*vaste vertegenwoordiger*) in The Netherlands; or
- (ii) the Holder is an individual and the income or capital gain qualifies as income from miscellaneous activities (*belastbaar resultaat uit overige werkzaamheden*) in The Netherlands as defined in the Income Tax Act (*Wet inkomstenbelasting 2001*), including, without limitation, activities that exceed normal, active asset management (*normaal, actief vermogensbeheer*).

## **Stamp/Transfer Taxes**

The subscription, issue, placement, allotment, delivery or transfer of a Security will not be subject to stamp tax, transfer tax or any other similar tax or duty payable in The Netherlands.

## **Gift and Inheritance Taxes**

Dutch gift or inheritance taxes will not be levied on the occasion of the transfer of a Security by way of gift by, or on the death of, a Holder, unless:

- (i) the Holder is, or is deemed to be, resident in The Netherlands for the purpose of the relevant provisions; or
- (ii) in the case of a gift of Securities by an individual who at the date of the gift was neither resident nor deemed to be resident in The Netherlands, such individual dies within 180 days after the date of the gift, while being resident or deemed to be resident in The Netherlands.

For purposes of Dutch gift and inheritance tax, an individual with Dutch nationality will be deemed to be resident in The Netherlands if he has been resident in The Netherlands at any time during the ten years preceding the date of the gift or his death.

For purposes of Dutch gift tax, an individual not holding Dutch nationality will be deemed to be resident in The Netherlands if he has been resident in The Netherlands at any time during the twelve months preceding the date of the gift.

For purposes of Dutch gift and inheritance tax, a gift that is made under a condition precedent is deemed to have been made at the moment such condition precedent is satisfied. If the condition precedent is fulfilled after the death of the donor, the gift is deemed to be made upon the death of the donor.

## **Exchange of information**

On 9 December 2014, the Council of the European Union adopted a Directive (EC Council Directive 2014/107/EU amending EU Council Directive 2011/16/EU) on the mandatory automatic exchange of information to implement the OECD measures known as the “Common Reporting Standard”. Member States are required to implement this Directive in respect of taxable periods from 1 January 2016 and to begin exchanging information pursuant to such Directive no later than 30 September 2017 (subject to deferral under transitional rules in the case of Austria).

On 10 November 2015, the Council of the European Union adopted a Directive (EU Council Directive 2015/2060/EU) repealing the EU Savings Directive with effect from 1 January 2016 (or 1 January 2017 in the case of Austria), subject to ongoing requirements to fulfil administrative obligations such as the reporting and exchange of information relating to, and accounting for withholding taxes on, payments made before those dates. The repeal of the EU Savings Directive is intended to prevent overlap between the information exchange requirements pursuant to the EU Savings Directive and the Common Reporting Standard.

In accordance with the Common Reporting Standard, The Netherlands will provide to the tax authorities of another EU Member State (and certain non-EU countries and associated territories specified in said directive) details of payments of interest or other similar income paid by a person within The Netherlands to, or collected by such a person for, an individual resident in such other state.

## **UNITED STATES OF AMERICA**

### **Section 871(m)**

Under Section 871(m) of the Code, enacted under the United States Hiring Incentives to Restore Employment Act of 2010, a “dividend equivalent” payment generally is treated as a dividend from sources within the United States and such payments generally would be subject to a 30 per cent. United States withholding tax if paid to a Non-U.S. Holder (as defined below). Under U.S. Treasury regulations issued pursuant to Section 871(m) of the Code, payments (including deemed payments) with respect to equity-linked instruments (“**ELIs**”) that are “specified ELIs” may be treated as dividend equivalents if such specified ELIs reference an interest in a U.S. “underlying security”, which is generally an interest in an entity taxable as a corporation for U.S. federal income tax purposes if a payment with respect to such an interest could give rise to a U.S. source dividend. The regulations also generally apply to U.S. and non-U.S. indices that contain U.S. underlying securities. While the regulations provide an exception for indices that satisfy certain criteria from being treated as a U.S. underlying security, the scope of this exception is unclear and may not apply to structured products linked to a U.S. or non-U.S. index and the application of the exception will generally depend on a holder’s particular circumstances. For purpose of the regulations, a specified ELI is an ELI that: (i) if it is classified as “simple”, has a “delta” equal to 0.80 or greater with respect to a U.S. underlying security at the time it is issued, or (ii) if it is classified as “complex”, meets a “substantial equivalence” test at the time it is issued. The regulations provide that the delta of an ELI is the ratio of the change in fair market value of the ELI to the change in the fair market value of the property referenced by the ELI. The regulations are extremely complex, and significant aspects of their application to the structured products are uncertain. Holders are urged to consult with their own tax advisors regarding the possible implications of these regulations on their investment in the structured products.

The regulations impose a withholding tax on payments made (or deemed to have been made) on certain securities issued on or after 1 January 2017 to the extent the payments are treated as dividend equivalents. If any payments are treated as dividend equivalents subject to withholding, we (or any applicable withholding agent) would be entitled to withhold taxes without being required to pay any additional amounts with respect to amounts so withheld.

### **The Foreign Account Tax Compliance Act**

The Foreign Account Tax Compliance Act (“**FATCA**”) (Sections 1471 through 1474 of the Code) generally imposes a 30 per cent. United States withholding tax on certain United States source payments, including interest (and original issue discount), dividends (and “dividend equivalent” payments), or other fixed or determinable annual or periodical gain, profits, and income, and on the gross proceeds from a disposition (after 31 December 2018) of property of a type which can produce United States source interest or dividends (“**Withholdable Payments**”), if paid to a foreign financial



institution (including amounts paid to a foreign financial institution on behalf of a holder), unless such institution enters into an agreement with the U.S. Treasury to collect and provide to the U.S. Treasury substantial information regarding United States account holders (including certain account holders that are foreign entities with United States owners) with such institution, or such institution otherwise complies with its obligations under FATCA. A structured product may constitute an account for these purposes. FATCA also generally imposes a withholding tax of 30 per cent. on Withholdable Payments made to a nonfinancial foreign entity unless such entity provides the withholding agent with a certification that it does not have any substantial United States owners or a certification identifying the direct and indirect substantial United States owners of the entity, or otherwise establishes an exemption. Under certain circumstances, a holder may be eligible for refunds or credits of such taxes.

In addition, under FATCA, “passthru payments” made by a foreign financial institution to “recalcitrant holders” or noncompliant foreign financial institutions are subject to a 30 per cent. United States withholding tax. A “recalcitrant holder” generally is a holder of an account with a foreign financial institution that fails to comply with certain requests for information that will help enable the relevant foreign financial institution to comply with its obligations under FATCA (a structured product may constitute an account for these purposes). Pursuant to U.S. Treasury regulations, a passthru payment is any Withholdable Payment and any “foreign passthru payment”, which has yet to be defined.

Under the current United States Treasury regulations and related official guidance issued by the U.S. Internal Revenue Service, the 30 per cent. United States withholding tax on “recalcitrant holders” or noncompliant foreign financial institutions generally may be imposed on “foreign passthru payments” made by us with respect to the structured products after the later of (i) 31 December 2018 or (ii) the date of publication in the U.S. Federal Register of final regulations defining the term “foreign passthru payment.” However, the withholding tax generally will not be imposed on payments pursuant to obligations giving rise to Withholdable Payments solely because such payments are treated as “dividend equivalent” payments if the obligation is outstanding six months after the date on which the obligation becomes subject to such treatment. In addition, payments on an obligation will not be treated as “foreign passthru payments” if such obligation is outstanding on or before the date that is six months after the date on which final regulations defining the term “foreign passthru payment” are filed with the U.S. Federal Register.

If we determine that withholding is appropriate with respect to the structured products, we (or an applicable withholding agent) will withhold tax at the applicable statutory rate without being required to pay any additional amounts with respect to amounts so withheld.

Foreign financial institutions and nonfinancial foreign entities located in jurisdictions that have an intergovernmental agreement with the United States governing FATCA may be subject to different rules. Holders are urged to consult with their own tax advisors regarding the possible implications of FATCA on their investment in the structured products.

The above summary only applies to you if you are a Non-U.S. Holder. You are a Non-U.S. Holder unless you are: (1) an individual citizen or resident of the United States; (2) a corporation, partnership or other entity (excluding a trust) that is formed or organised under the laws of the United States or any political subdivision of the United States (or is taxable as an entity so formed or organised); (3) an estate, the income of which is subject to U.S. federal income taxation regardless of its source; (4) a trust that is subject to the jurisdiction of a U.S. court and for which one or more “United States persons” (as defined in the Code) control all of the substantial decisions, or has otherwise made an appropriate election under the U.S. tax regulations.

## GENERAL INFORMATION ABOUT US

### History, Development and Organisational Structure

J.P. Morgan Structured Products B.V. (JPMSP) was incorporated as a limited liability company (*besloten vennootschap met beperkte aansprakelijkheid*) under the laws of The Netherlands in Amsterdam, The Netherlands, on 6 November 2006 to exist for an unlimited duration. JPMSP is registered at the Chamber of Commerce of Amsterdam under registered number 34259454 and has its registered offices at Luna ArenA, Herikerbergweg 238, 1101 CM Amsterdam, The Netherlands (telephone number +31 20 575 56 00).

JPMSP is an indirect, wholly-owned subsidiary of JPMorgan Chase Bank, N.A. JPMorgan Chase Bank, N.A. is one of the principal bank subsidiaries of JPMorgan Chase & Co., a company incorporated in the State of Delaware in the United States of America. Neither JPMSP nor JPMorgan Chase Bank, N.A. is the ultimate holding company of the group to which JPMSP belongs and with which JPMSP's name is identified.

### Investment Policy

JPMSP may undertake independent investments in its sole discretion with the proceeds (net of third party costs) of an issuance of notes, warrants or certificates, subject to compliance with certain legal, tax and regulatory restrictions.

### Principal Activities

JPMSP's business principally consists of the issuance of securitised derivatives comprising notes, warrants and certificates, including equity-linked, reverse convertible and market participation notes (the "Securities") and the subsequent hedging of those risk positions. All issuances which have been closed to date are subject to hedging arrangements. The proceeds of the sale of the securities are used for general corporate purposes, including the entry into hedging arrangements with other JPMorgan Chase affiliates. JPMSP anticipates that the hedging arrangements will be sufficient to hedge itself against the market risk of its securities issuance activities. JPMSP also has receipts from and makes payments to other JPMorgan Chase affiliates.

### Principal Markets

In 2015, JPMSP issued securities in the Asia Pacific region, in Europe, the Middle East, Africa and a limited number in the United States of America.

### Trend Information

JPMSP's primary objective in 2016 will be the continued development of securitised products for their placement to retail, "high net worth" and institutional investors principally outside of the United States of America, linked to a range of underlying reference assets including equity, credit, interest rates, commodities and so called "alternatives" such as funds and hedge funds.

## Directors and Officers of JPMSP

The administrative, management and supervisory bodies of JPMSP comprise its Board of Directors. Set forth below are the names and positions of JPMSP's Directors:

<b>Name</b>	<b>Function</b>	<b>Business address</b>
Wolbert Hinrik Kamphuijs	Managing Director	Luna ArenA, Herikerbergweg 238, 1101 CM Amsterdam, The Netherlands
Hubert Philippus de Kanter	Managing Director	Luna ArenA, Herikerbergweg 238, 1101 CM Amsterdam, The Netherlands
Ryoya Terasawa	Managing Director	25/F Chater House, 8 Connaught Road Central, Hong Kong
David Roland Hansson	Managing Director	25/F Chater House, 8 Connaught Road Central, Hong Kong
Jozef Cornelis Petrus van Uffelen	Managing Director	Luna ArenA, Herikerbergweg 238, 1101 CM Amsterdam, The Netherlands

The principal outside activities of Mr. Kamphuijs, Mr. de Kanter and Mr. van Uffelen are as employees of the firm TMF Netherlands B.V. (formerly known as Equity Trust Co. N.V.), a trust company which was established in The Netherlands in 1970. Mr. Hansson and Mr. Terasawa are both Managing Directors of the Investment Bank division at JPMorgan Chase and there are no principal outside activities performed by Mr. Hansson and Mr. Terasawa which are significant to JPMSP as issuer. All Directors hold office until removed.

Subject in the case of Mr. Kamphuijs, Mr. de Kanter and Mr. van Uffelen to their duties to TMF Netherlands B.V., there are no material potential conflicts of interest between any duties owed to JPMSP by the Directors of JPMSP identified above and their private interests and/or outside duties.

### Corporate Governance

JPMSP complies with established and accepted principles of corporate governance in The Netherlands. The Board of Directors of JPMSP conducts itself in accordance with general principles of Dutch corporate law.

The Board of Directors has appointed a committee to authorise and transact issuances of Securities. No other committees made up for specific purposes or to perform specific functions have been appointed.

### Capital Structure

The authorised share capital of JPMSP is euro 90,000, divided into 90,000 ordinary shares of euro 1.00 each. At the date of incorporation, 18,000 ordinary shares were issued. By a notarial deed of share issuance dated 30 March 2007 an additional 2,000 ordinary shares were issued in consideration of U.S.\$500,000,000. The total issued and paid up share capital amounts to 20,000 ordinary shares. JPMSP does not hold any of its own shares.

## **Memorandum and Articles of Association**

JPMSP's objects as set out in Article 3 of its Articles of Association are:

- (a) to incorporate, to participate in any way whatsoever, to manage, to supervise, to operate and to promote enterprises, businesses and companies;
- (b) to finance businesses and companies;
- (c) to borrow, to lend and to raise funds, including the issue of bonds, promissory notes or other securities or evidence of indebtedness as well as to enter into agreements in connection with the aforementioned;
- (d) to enter into swaps and any other derivative transactions whatsoever to hedge the company's exposure under any agreements, securities or other instruments whatsoever to which it is a party;
- (e) to supply advice and to render services to enterprises and companies with which the company forms a group and to third parties;
- (f) to render guarantees, to bind the company and to pledge its assets for obligations of the companies and enterprises with which it forms a group and on behalf of third parties;
- (g) to obtain, alienate, manage and exploit registered property and items of property in general;
- (h) to trade in currencies, securities and items of property in general;
- (i) to exploit and trade in patent, trade marks, licenses, know how and other intellectual and industrial property-rights; and
- (j) to perform any and all activity of industrial, financial or commercial nature;

as well as everything pertaining to the foregoing, relating thereto or conducive thereto, all in the widest sense of the word.

### **Principal Establishments and Real Estate Owned**

JPMSP does not own any principal establishments, which account for more than 10% (ten per cent.) of its revenues, nor does JPMSP own any real estate directly.

### **Dividends**

JPMSP has not paid any dividends since its incorporation on 6 November 2006.

## INFORMATION RELATING TO THE GUARANTOR

### History, Development and Organisational Structure

JPMorgan Chase Bank, National Association (“JPMorgan Chase Bank, N.A.”) is a wholly-owned bank subsidiary of JPMorgan Chase & Co. (“JPMorgan Chase”), which is a leading global financial services firm and one of the largest banking institutions in the United States of America (“U.S.”), with operations worldwide and retail branches in 23 states. JPMorgan Chase Bank, N.A. operates nationally as well as through overseas branches and subsidiaries, representative offices and subsidiary foreign banks. One of its principal wholly-owned operating subsidiaries in the United Kingdom is J.P. Morgan Securities plc. JPMorgan Chase Bank, N.A. either directly or through such offices, branches and subsidiaries offers a wide range of banking services to its U.S. and non-U.S. customers, including investment banking, financial services for consumers and small businesses, commercial banking, financial transaction processing and asset management. Under the J.P. Morgan and Chase brands, JPMorgan Chase Bank, N.A. serves millions of customers in the U.S. and many of the world’s most prominent corporate, institutional and government clients.

JPMorgan Chase Bank, N.A. is a national banking association organised under U.S. federal law. JPMorgan Chase Bank, N.A. was initially organised as a New York banking corporation on 26 November 1968, and converted into a national banking association on 13 November 2004. JPMorgan Chase Bank, N.A. is chartered and its business is subject to examination and regulation by the Office of the Comptroller of the Currency (the “OCC”), a bureau of the U.S. Department of the Treasury. JPMorgan Chase Bank, N.A. is a member of the U.S. Federal Reserve System and its U.S. domestic deposits are insured by the Federal Deposit Insurance Corporation (the “FDIC”). Its U.S. Federal Reserve Bank Identification Number is 852218.

The powers of JPMorgan Chase Bank, N.A. are set forth in the U.S. National Bank Act and include all such incidental powers as shall be necessary to carry on the business of banking; by discounting and negotiating promissory notes, drafts, bills of exchange, and other evidences of debt; by receiving deposits; by buying and selling exchange, coin, and bullion; by loaning money on personal security; and by obtaining, issuing, and circulating notes.

The registered office of JPMorgan Chase Bank, N.A. is located at 1111 Polaris Parkway, Columbus, Ohio 43240, U.S.A. JPMorgan Chase Bank, N.A.’s principal place of business is located at 270 Park Avenue, New York, New York 10017-2070, U.S.A. and its telephone number is +1 212 270 6000.

### Principal Activities and Principal Markets

JPMorgan Chase Bank, N.A.’s activities are organised and integrated with the businesses of JPMorgan Chase and consequently JPMorgan Chase Bank, N.A. is dependent on JPMorgan Chase (including subsidiaries of JPMorgan Chase & Co. and JPMorgan Chase Bank, N.A.) to conduct its business. A description of these businesses, and the products and services they provide to their respective client bases, follows.

#### *Consumer & Community Banking*

Consumer & Community Banking serves consumers and businesses through personal service at bank branches and through automated teller machines, online, mobile and telephone banking. Consumer & Community Banking is organized into Consumer & Business Banking (including Consumer Banking/ Chase Wealth Management and Business Banking), Mortgage Banking (including Mortgage Production, Mortgage Servicing and Real Estate Portfolios) and Card, Commerce Solutions & Auto. Consumer & Business Banking offers deposit and investment products and services to consumers, and lending, deposit, and cash management and payment solutions to small businesses. Mortgage Banking includes

mortgage origination and servicing activities, as well as portfolios consisting of residential mortgages and home equity loans. Card, Commerce Solutions & Auto issues credit cards to consumers and small businesses, offers payment processing services to merchants, and provides auto loans and leases and student loan services.

#### *Corporate & Investment Bank*

The Corporate & Investment Bank, which consists of Banking and Markets & Investor Services, offers a broad suite of investment banking, market-making, prime brokerage, and treasury and securities products and services to a global client base of corporations, investors, financial institutions, government and municipal entities. Banking offers a full range of investment banking products and services in all major capital markets, including advising on corporate strategy and structure, capital-raising in equity and debt markets, as well as loan origination and syndication. Banking also includes Treasury Services, which provides transaction services, consisting of cash management and liquidity solutions. Markets & Investor Services is a global market-maker in cash securities and derivative instruments, and also offers sophisticated risk management solutions, prime brokerage, and research. Markets & Investor Services also includes Securities Services, a leading global custodian which provides custody, fund accounting and administration, and securities lending products principally for asset managers, insurance companies and public and private investment funds.

#### *Commercial Banking*

Commercial Banking delivers extensive industry knowledge, local expertise and dedicated service to U.S. and U.S. multinational clients, including corporations, municipalities, financial institutions and non-profit entities with annual revenue generally ranging from \$20 million to \$2 billion. In addition, Commercial Banking provides financing to real estate investors and owners. Partnering with JPMorgan Chase's other businesses, Commercial Banking provides comprehensive financial solutions, including lending, treasury services, investment banking and asset management to meet its clients' U.S. domestic and international financial needs.

#### *Asset Management*

Asset Management is a global leader in investment and wealth management. Asset Management clients include institutions, high-net-worth individuals and retail investors in many major markets throughout the world. Asset Management offers investment management across most major asset classes including equities, fixed income, alternatives and money market funds. Asset Management also offers multi-asset investment management, providing solutions for a broad range of clients' investment needs. For Global Wealth Management clients, AM also provides retirement products and services, brokerage and banking services including trusts and estates, loans, mortgages and deposits. The majority of Asset Management's client assets are in actively managed portfolios.

#### *Corporate*

The Corporate segment consists of Treasury and Chief Investment Office and Other Corporate, which includes corporate staff units and expense that is centrally managed. Treasury and Chief Investment Office are predominantly responsible for measuring, monitoring, reporting and managing JPMorgan Chase's liquidity, funding and structural interest rate and foreign exchange risks, as well as executing JPMorgan Chase's capital plan. The major Other Corporate units include Real Estate, Enterprise Technology, Legal, Compliance, Finance, Human Resources, Internal Audit, Risk Management, Oversight & Control, Corporate Responsibility and various Other Corporate groups. Other centrally managed expense includes JPMorgan Chase's occupancy and pension-related expenses that are subject to allocation to the businesses.

## Executive Officers and Directors

### *Executive Officers*

The following persons are the Executive Officers of JPMorgan Chase Bank, N.A. as at the date of this base listing document. The business address of each Executive Officer is 270 Park Avenue, New York, New York 10017, U.S.A.

<b>Name</b>	<b>Title</b>
Marianne Lake	Chief Executive Officer, President and Chief Financial Officer of JPMorgan Chase Bank, N.A.; Chief Financial Officer of JPMorgan Chase & Co.
Ashley Bacon	Chief Risk Officer of JPMorgan Chase & Co.
John L. Donnelly	Head, Human Resources
Stacey R. Friedman	General Counsel of JPMorgan Chase & Co.
Mary Callahan Erdoes	Chief Executive Officer, Asset Management
Kathryn V. McCulloch	General Counsel
Douglas B. Petno	Chief Executive Officer, Commercial Banking
Daniel E. Pinto	Chief Executive Officer, Corporate & Investment Bank
Gordon A. Smith	Chief Executive Officer, Consumer & Community Banking
Matthew E. Zames	Chief Operating Officer
Steinar Zinke	Chief Risk Officer

### *Directors*

The following persons are the members of the Board of Directors of JPMorgan Chase Bank, N.A. as at the date of this base listing document. The business address of each Director is JPMorgan Chase Bank, N.A., 270 Park Avenue, New York, New York 10017, U.S.A.

<b>Name</b>	<b>Principal Occupation</b>
William C. Weldon, Chairman	Retired Chairman and Chief Executive Officer of Johnson & Johnson
James S. Crown	President of Henry Crown and Company
Laban P. Jackson, Jr.	Chairman and Chief Executive Officer of Clear Creek Properties, Inc.
Marianne Lake	Chief Financial Officer of JPMorgan Chase & Co.
Matthew E. Zames	Chief Operating Officer of JPMorgan Chase & Co.

Mr. Weldon, Mr. Crown and Mr. Jackson are also members of the Board of Directors of JPMorgan Chase & Co.

### *Conflicts of Interest*

There are no material potential conflicts of interest between the duties to JPMorgan Chase Bank, N.A. of each of the Executive Officers and Directors named above and his/her private interests and/or other duties.

## Financial Information

JPMorgan Chase Bank, N.A. prepares annual and semiannual consolidated financial statements in accordance with accounting principles generally accepted in the U.S. (“U.S. GAAP”). Additionally, where applicable, the accounting and financial reporting policies of JPMorgan Chase Bank, N.A.

conform to the accounting and reporting guidelines prescribed by U.S. bank regulatory authorities. The audited consolidated financial statements of JPMorgan Chase Bank, N.A. as at and for the years ended 31 December 2015 and 31 December 2014 comprising consolidated balance sheets at 31 December 2015 and 2014 and the related consolidated statements of income, changes in stockholder's equity, comprehensive income and cash flows for each of the three years ended 31 December 2015 are included in this base listing document. In addition, JPMorgan Chase Bank, N.A.'s annual and semiannual consolidated financial statements, as they become available, can be viewed on the websites of the Luxembourg Stock Exchange ([www.bourse.lu](http://www.bourse.lu)), the U.K. National Storage Mechanism ([www.morningstar.co.uk/uk/nsm](http://www.morningstar.co.uk/uk/nsm)) and the Irish Stock Exchange ([www.ise.ie](http://www.ise.ie)). JPMorgan Chase Bank, N.A. files quarterly Consolidated Reports of Condition and Income for A Bank With Domestic and Foreign Offices ("**Call Reports**") with the U.S. Federal Financial Institutions Examination Council (the "**FFIEC**"). The non-confidential portions of the Call Reports can be viewed on the FFIEC's website at <https://cdr.ffiec.gov/public/>. The Call Reports are prepared in accordance with regulatory instructions issued by the FFIEC and not U.S. GAAP. The Call Reports are supervisory and regulatory documents; they are not primarily accounting documents, do not conform with U.S. GAAP and do not provide a complete range of financial disclosure about JPMorgan Chase Bank, N.A. The Call Reports are not incorporated by reference in, and shall not be deemed to be part of, this base listing document.

## **Risk Management**

Risk is an inherent part of JPMorgan Chase's business activities. When JPMorgan Chase extends a consumer or wholesale loan, advises customers on their investment decisions, makes markets in securities, or offers other products or services, JPMorgan Chase takes on some degree of risk. JPMorgan Chase's overall objective is to manage its businesses, and the associated risks, in a manner that balances serving the interests of its clients, customers and investors and protects the safety and soundness of JPMorgan Chase.

Firmwide Risk Management is overseen and managed on an enterprise-wide basis. JPMorgan Chase's approach to risk management covers a broad spectrum of risk areas, such as credit, market, liquidity, model, structural interest rate, principal, country, operational, compliance, legal, capital and reputation risk, with controls and governance established for each area, as appropriate.

JPMorgan Chase believes that effective risk management requires:

- Acceptance of responsibility, including identification and escalation of risk issues, by all individuals within JPMorgan Chase;
- Ownership of risk management within each of the lines of business and corporate functions; and
- Firmwide structures for risk governance.

JPMorgan Chase's Operating Committee, which consists of JPMorgan Chase's Chief Executive Officer ("CEO"), Chief Risk Officer ("CRO") and other senior executives, is responsible for developing and executing JPMorgan Chase's risk management framework. The framework is intended to provide controls and ongoing management of key risks inherent in JPMorgan Chase's business activities and create a culture of transparency, awareness and personal responsibility through reporting, collaboration, discussion, escalation and sharing of information. The Operating Committee is responsible and accountable to JPMorgan Chase's Board of Directors.

JPMorgan Chase strives for continual improvement through ongoing employee training and development, as well as talent retention. JPMorgan Chase follows a disciplined and balanced compensation framework with strong internal governance and independent Board oversight. The impact



of risk and control issues are carefully considered in JPMorgan Chase's performance evaluation and incentive compensation processes. JPMorgan Chase is also engaged in a number of activities focused on conduct risk and in regularly evaluating its culture with respect to its business principles.

JPMorgan Chase Bank, N.A. is included in this risk management approach.

The following sections outline the key risks that are inherent in JPMorgan Chase's business activities, including the activities of JPMorgan Chase Bank, N.A.

### **Risk appetite and governance**

JPMorgan Chase's overall tolerance for risk is governed by a "Risk Appetite" framework for measuring and monitoring risk. The framework measures JPMorgan Chase's capacity to take risk against stated quantitative tolerances and qualitative factors at each of the line of business ("LOB") levels, as well as at the firmwide level. The framework and tolerances are set and approved by JPMorgan Chase's CEO, Chief Financial Officer ("CFO"), CRO and Chief Operating Officer ("COO"). LOB-level Risk Appetite parameters and tolerances are set by the respective LOB CEO, CFO and CRO and are approved by JPMorgan Chase's CEO, CFO, CRO and COO. Quantitative risk tolerances are expressed in terms of tolerance levels for stressed net income, market risk, credit risk, liquidity risk, structural interest rate risk, operational risk and capital. Risk Appetite results are reported quarterly to the Risk Policy Committee of the Board of Directors ("DRPC").

JPMorgan Chase's CRO is responsible for the overall direction of JPMorgan Chase's Risk Management functions and is head of the Risk Management Organization, reporting to JPMorgan Chase's CEO and DRPC. The Risk Management Organization operates independently from the revenue-generating businesses, which enables it to provide credible challenge to the businesses. The leadership team of the Risk Management Organization is aligned to the various LOBs and corporate functions as well as across JPMorgan Chase for firmwide risk categories (e.g. firmwide market risk, firmwide model risk, firmwide reputation risk, etc.) producing a matrix structure with specific subject matter expertise to manage risks both within the businesses and across JPMorgan Chase.

JPMorgan Chase places key reliance on each of the LOBs as the first line of defense in risk governance. The LOBs are accountable for identifying and addressing the risks in their respective businesses and for operating within a sound control environment.

In addition to the Risk Management Organization, JPMorgan Chase's control environment also includes firmwide functions like Oversight and Control, Compliance and Internal Audit.

The Firmwide Oversight and Control Group consists of dedicated control officers within each of the lines of business and corporate functions, as well as a central oversight function. The group is charged with enhancing JPMorgan Chase's control environment by looking within and across the lines of business and corporate functions to identify and remediate control issues. The group enables JPMorgan Chase to detect control problems more quickly, escalate issues promptly and engage other stakeholders to understand common themes and interdependencies among the various parts of JPMorgan Chase.

Each line of business is accountable for managing its compliance risk. JPMorgan Chase's Compliance Organization ("Compliance"), which is independent of the lines of business, works closely with the Operating Committee and management to provide independent review, monitoring and oversight of business operations with a focus on compliance with the legal and regulatory obligations applicable to the offering of JPMorgan Chase's products and services to clients and customers.

Internal Audit, a function independent of the businesses, Compliance and the Risk Management Organization, tests and evaluates JPMorgan Chase's risk governance and management, as well as its internal control processes. This function brings a systematic and disciplined approach to evaluating and improving the effectiveness of JPMorgan Chase's governance, risk management and internal control processes.

### **Risk governance structure**

The independent status of the Risk Management Organization is supported by a governance structure that provides for escalation of risk issues up to senior management and the Board of Directors.

The Board of Directors provides oversight of risk principally through the DRPC, Audit Committee and, with respect to compensation and other management-related matters, Compensation & Management Development Committee. Each committee of the Board oversees reputation risk issues within its scope of responsibility.

The Risk Policy Committee of the Board oversees JPMorgan Chase's global risk management framework and approves the primary risk-management policies of JPMorgan Chase. The Committee's responsibilities include oversight of management's exercise of its responsibility to assess and manage risks of JPMorgan Chase, as well as its capital and liquidity planning and analysis. Breaches in risk appetite tolerances, liquidity issues that may have a material adverse impact on JPMorgan Chase and other significant risk-related matters are escalated to the Committee.

The Audit Committee of the Board assists the Board in its oversight of management's responsibilities to assure that there is an effective system of controls reasonably designed to safeguard the assets and income of JPMorgan Chase, assure the integrity of JPMorgan Chase's financial statements and maintain compliance with JPMorgan Chase's ethical standards, policies, plans and procedures, and with laws and regulations. In addition, the Audit Committee assists the Board in its oversight of JPMorgan Chase's independent registered public accounting firm's qualifications and independence. The Independent Internal Audit Function at JPMorgan Chase is headed by the General Auditor, who reports to the Audit Committee.

The Compensation & Management Development Committee assists the Board in its oversight of JPMorgan Chase's compensation programs and reviews and approves JPMorgan Chase's overall compensation philosophy, incentive compensation pools, and compensation practices consistent with key business objectives and safety and soundness. The Committee reviews Operating Committee members' performance against their goals, and approves their compensation awards. The Committee also periodically reviews JPMorgan Chase's diversity programs and management development and succession planning, and provides oversight of JPMorgan Chase's culture and conduct programs.

Among JPMorgan Chase's senior management-level committees that are primarily responsible for key risk-related functions are:

The Firmwide Risk Committee ("FRC") is JPMorgan Chase's highest management-level risk committee. It provides oversight of the risks inherent in JPMorgan Chase's businesses. The Committee is co-chaired by JPMorgan Chase's CEO and CRO. Members of the Committee include JPMorgan Chase's COO, CFO, Treasurer & Chief Investment Officer, and General Counsel, as well as LOB CEOs and CROs, and other senior managers from risk and control functions. This Committee serves as an escalation point for risk topics and issues raised by its members, the Line of Business Risk Committees, Firmwide Control Committee, Firmwide Fiduciary Risk Governance Committee, Firmwide Reputation Risk Governance and regional Risk Committees. The Committee escalates significant issues to the Board of Directors, as appropriate.

The Firmwide Control Committee (“FCC”) is a forum for senior management to discuss firmwide operational risks including existing and emerging issues, to monitor operational risk metrics, and to review the execution of the Operational Risk Management Framework (“ORMF”). The FCC is co-chaired by the Chief Control Officer and the Firmwide Risk Executive for Operational Risk Governance. It serves as an escalation point for the line of business, corporate functions and regional Control Committees and escalates significant issues to the FRC, as appropriate.

The Firmwide Fiduciary Risk Governance Committee (“FFRGC”) is a forum for risk matters related to JPMorgan Chase’s fiduciary activities. The Committee oversees the firmwide fiduciary risk governance framework, which supports the consistent identification and escalation of fiduciary risk matters by the relevant lines of business or corporate functions responsible for managing fiduciary activities. The Committee escalates significant issues to the FRC and any other committee, as appropriate.

The Firmwide Reputation Risk Governance Group seeks to promote consistent management of reputation risk across JPMorgan Chase. Its objectives are to increase visibility of reputation risk governance; promote and maintain a globally consistent governance model for reputation risk across lines of business; promote early self-identification of potential reputation risks to JPMorgan Chase; and provide thought leadership on cross-line-of-business reputation risk issues. Each line of business has a separate reputation risk governance structure which includes, in most cases, one or more dedicated reputation risk committees.

Line of Business and Regional Risk Committees review the ways in which the particular line of business or the business operating in a particular region could be exposed to adverse outcomes with a focus on identifying, accepting, escalating and/or requiring remediation of matters brought to these committees. These committees may escalate to the FRC, as appropriate.

Line of Business, Corporate Function and Regional Control Committees oversee the control environment in the particular line of business or corporate function or the business operating in a particular region. They are responsible for reviewing the data indicating the quality and stability of the processes in a business or function, focusing on those processes with shortcomings and overseeing process remediation. These committees escalate to the FCC, as appropriate.

The Asset Liability Committee (“ALCO”), chaired by JPMorgan Chase’s Treasurer under the direction of the COO, monitors JPMorgan Chase’s balance sheet, liquidity risk and structural interest rate risk. ALCO reviews JPMorgan Chase’s overall structural interest rate risk position, funding requirements and strategy, and securitization programs (and any required liquidity support by JPMorgan Chase of such programs). ALCO is responsible for reviewing and approving JPMorgan Chase’s Funds Transfer Pricing Policy (through which lines of business “transfer” interest rate risk to Treasury) and JPMorgan Chase’s Intercompany Funding and Liquidity Policy. ALCO is also responsible for reviewing JPMorgan Chase’s Contingency Funding Plan.

The Capital Governance Committee, chaired by the Head of the Regulatory Capital Management Office (under the direction of JPMorgan Chase’s CFO) is responsible for reviewing JPMorgan Chase’s Capital Management Policy and the principles underlying capital issuance and distribution. The Committee is also responsible for governing the capital adequacy assessment process, including overall design, assumptions and risk streams, and for ensuring that capital stress test programs are designed to adequately capture the idiosyncratic risks across JPMorgan Chase’s businesses.

The Firmwide Valuation Governance Forum (“VGF”) is composed of senior finance and risk executives and is responsible for overseeing the management of risks arising from valuation activities conducted across JPMorgan Chase. The VGF is chaired by the firmwide head of the Valuation Control

function (under the direction of JPMorgan Chase's CFO), and includes sub-forums covering the Corporate & Investment Bank, Consumer & Community Banking, Commercial Banking, Asset Management and certain corporate functions, including Treasury and Chief Investment Office.

JPMorgan Chase Bank, N.A.'s Board of Directors is responsible for the oversight of management of the Bank. The JPMorgan Chase Bank, N.A. Board accomplishes this function acting directly and through the principal standing committees of JPMorgan Chase's Board of Directors. Risk oversight on behalf of JPMorgan Chase Bank N.A. is primarily the responsibility of the DRPC and Audit Committee of JPMorgan Chase's Board of Directors and, with respect to compensation and other management-related matters, the Compensation & Management Development Committee of JPMorgan Chase's Board of Directors.

### **Risk measurement**

JPMorgan Chase has a broad spectrum of risk management metrics, as appropriate for each risk category. Additionally, JPMorgan Chase is exposed to certain potential low-probability, but plausible and material, idiosyncratic risks that are not well-captured by its other existing risk analysis and reporting for credit, market, and other risks. These idiosyncratic risks may arise in a number of ways, such as changes in legislation, an unusual combination of market events, or specific counterparty events. JPMorgan Chase has a process intended to identify these risks in order to allow JPMorgan Chase to monitor vulnerabilities that are not adequately covered by its other standard risk measurements.

### **Supervision and regulation**

JPMorgan Chase Bank, N.A. operates and is subject to regulation under federal and state banking and other laws in the United States, including the National Banking Act and the Federal Deposit Insurance Act, as well as the applicable laws of each of the various jurisdictions outside the United States in which it does business. For additional information concerning the supervision and regulation of JPMorgan Chase Bank, N.A. and the significant laws and regulations to which it is subject, see "Supervision and regulation" in Note 1 to the audited consolidated financial statements of JPMorgan Chase Bank, N.A. for the year ended 31 December 2015 contained in this base listing document.

## Financial Information

### *Selected financial information*

The selected consolidated financial data set forth in the below table have been extracted from the audited Consolidated Financial Statements of JPMorgan Chase Bank, N.A. for the year ended 31 December 2015. This information should be read in conjunction with the notes to the Consolidated Financial Statements and the other detailed financial information concerning JPMorgan Chase Bank, N.A.

<b>Selected income statement data (in USD millions)</b>	<b>Year ended 31 December</b>	
	<b>2015</b>	<b>2014</b>
Total net revenue	U.S.\$73,380	U.S.\$72,500
Provision for credit losses	1,376	832
Total noninterest expense	49,096	50,578
Income before income tax expense	22,908	21,090
Net income	16,928	14,759

  

<b>Selected balance sheet data (in USD millions)</b>	<b>As at 31 December</b>	
	<b>2015</b>	<b>2014</b>
Trading assets	U.S.\$242,535	U.S.\$268,014
Securities	285,028	341,599
Loans, net of allowance for loan losses	724,910	640,278
Total assets	1,914,658	2,074,970
Deposits	1,312,940	1,439,405
Long-term debt	108,683	101,426
Total stockholders' equity	195,538	185,624

### *Auditor*

The consolidated financial statements of JPMorgan Chase Bank, N.A. for the year ended 31 December 2015 were audited by PricewaterhouseCoopers LLP, an independent auditor, of 300 Madison Avenue, New York, New York 10017, U.S.A., without qualification. A copy of the auditor's report is on page 1 of such financial statements.

### **Litigation**

The following summary of certain significant legal proceedings has been extracted from the audited Consolidated Financial Statements of JPMorgan Chase Bank, N.A. for the year ended 31 December 2015.

As of December 31, 2015, JPMorgan Chase and its subsidiaries, including but not limited to JPMorgan Chase Bank, N.A., are defendants or putative defendants in numerous legal proceedings, including private, civil litigations and regulatory/government investigations. The litigations range from individual actions involving a single plaintiff to class action lawsuits with potentially millions of class members. Investigations involve both formal and informal proceedings, by both governmental agencies and self-regulatory organizations. These legal proceedings are at varying stages of adjudication, arbitration or investigation, and involve each of JPMorgan Chase's lines of business and geographies and a wide variety of claims (including common law tort and contract claims and statutory antitrust, securities and consumer protection claims), some of which present novel legal theories.

Estimates of reasonably possible losses for legal proceedings are analyzed and managed at the JPMorgan Chase level and not at the subsidiary level (i.e., JPMorgan Chase Bank, N.A.). JPMorgan Chase believes the estimate of the aggregate range of reasonably possible losses, in excess of reserves established, for JPMorgan Chase's legal proceedings is from \$0 to approximately \$3.6 billion at December 31, 2015. This estimated aggregate range of reasonably possible losses is based upon currently available information for those proceedings in which JPMorgan Chase believes that an estimate of reasonably possible loss can be made. For certain matters, JPMorgan Chase does not believe that such an estimate can be made. JPMorgan Chase's estimate of the aggregate range of reasonably possible losses involves significant judgment, given the number, variety and varying stages of the proceedings (including the fact that many are in preliminary stages), the existence in many such proceedings of multiple defendants (including JPMorgan Chase and JPMorgan Chase Bank, N.A.) whose share of liability has yet to be determined, the numerous yet-unresolved issues in many of the proceedings (including issues regarding class certification and the scope of many of the claims) and the attendant uncertainty of the various potential outcomes of such proceedings, particularly proceedings that could result from government investigations. Accordingly, JPMorgan Chase's estimate will change from time to time, and actual losses may vary significantly.

Set forth below are descriptions of material legal proceedings in which JPMorgan Chase and its subsidiaries (which in certain instances include JPMorgan Chase Bank, N.A.) are involved or have been named as parties.

#### **Auto Dealer Regulatory Matter.**

The U.S. Department of Justice ("DOJ") is investigating potential statistical disparities in markups charged to borrowers of different races and ethnicities by automobile dealers on loans originated by those dealers and purchased by JPMorgan Chase.

#### **CIO Litigation.**

JPMorgan Chase has been sued in a consolidated shareholder class action, a consolidated putative class action brought under the Employee Retirement Income Security Act ("ERISA") and seven shareholder derivative actions brought in Delaware state court and in New York federal and state courts relating to 2012 losses in the synthetic credit portfolio managed by JPMorgan Chase's Chief Investment Office ("CIO"). A settlement of the shareholder class action, under which JPMorgan Chase will pay \$150 million, has been preliminarily approved by the court. The putative ERISA class action has been dismissed, and plaintiffs have filed a notice of appeal. Six of the seven shareholder derivative actions have been dismissed.

#### **Credit Default Swaps Investigations and Litigation.**

In July 2013, the European Commission (the "EC") filed a Statement of Objections against JPMorgan Chase (including various subsidiaries) and other industry members in connection with its ongoing investigation into the credit default swaps ("CDS") marketplace. The EC asserted that between 2006 and 2009, a number of investment banks acted collectively through the International Swaps and Derivatives Association ("ISDA") and Markit Group Limited ("Markit") to foreclose exchanges from the potential market for exchange-traded credit derivatives. In December 2015, the EC announced the closure of its investigation as to JPMorgan Chase and other investment banks.

Separately, JPMorgan Chase and other defendants have entered separate agreements to settle a consolidated putative class action filed in the United States District Court for the Southern District of New York on behalf of purchasers and sellers of CDS. The complaint in this action had alleged that the

defendant investment banks and dealers, including JPMorgan Chase, as well as Markit and/or ISDA, collectively prevented new entrants into the market for exchange-traded CDS products. These settlements are subject to Court approval.

### **Custody Assets Investigation.**

The U.K. Financial Conduct Authority (“FCA”) has closed its previously-reported investigation concerning compliance by JPMorgan Chase Bank, N.A., London branch and J.P. Morgan Europe Limited with the FCA’s rules regarding the provision of custody services relating to the administration of client assets.

### **Foreign Exchange Investigations and Litigation.**

JPMorgan Chase previously reported settlements with certain government authorities relating to its foreign exchange (“FX”) sales and trading activities and controls related to those activities. FX-related investigations and inquiries by other, non-U.S. government authorities, including competition authorities, remain ongoing, and JPMorgan Chase is cooperating with those matters.

JPMorgan Chase is also one of a number of foreign exchange dealers defending a class action filed in the United States District Court for the Southern District of New York by U.S.-based plaintiffs, principally alleging violations of federal antitrust laws based on an alleged conspiracy to manipulate foreign exchange rates (the “U.S. class action”). In January 2015, JPMorgan Chase entered into a settlement agreement in the U.S. class action. Following this settlement, a number of additional putative class actions were filed seeking damages for persons who transacted FX futures and options on futures (the “exchanged-based actions”), consumers who purchased foreign currencies at allegedly inflated rates (the “consumer actions”), and participants or beneficiaries of qualified ERISA plans (the “ERISA actions”). In July 2015, the plaintiffs in the U.S. class action filed an amended complaint, and the Court consolidated the exchange-based actions into the U.S. class action. JPMorgan Chase has entered into a revised settlement agreement to resolve the consolidated U.S. class action, including the exchange-based actions, and that agreement is subject to Court approval. The consumer actions and ERISA actions remain pending.

In September 2015, two class actions were filed in Canada against JPMorgan Chase as well as a number of other FX dealers, principally for alleged violations of the Canadian Competition Act based on an alleged conspiracy to fix the prices of currency purchased in the FX market. The first action was filed in the province of Ontario, and seeks to represent all persons in Canada who transacted any FX instrument. The second action seeks to represent only those persons in Quebec who engaged in FX transactions.

### **General Motors Litigation.**

JPMorgan Chase Bank, N.A. participated in, and was the Administrative Agent on behalf of a syndicate of lenders on, a \$1.5 billion syndicated Term Loan facility (“Term Loan”) for General Motors Corporation (“GM”). In July 2009, in connection with the GM bankruptcy proceedings, the Official Committee of Unsecured Creditors of Motors Liquidation Company (“Creditors Committee”) filed a lawsuit against JPMorgan Chase Bank, N.A., in its individual capacity and as Administrative Agent for other lenders on the Term Loan, seeking to hold the underlying lien invalid based on the filing of a UCC-3 termination statement relating to the Term Loan. In March 2013, the Bankruptcy Court granted JPMorgan Chase Bank, N.A.’s motion for summary judgment and dismissed the Creditors Committee’s complaint on the grounds that JPMorgan Chase Bank, N.A. did not authorize the filing of the UCC-3 termination statement at issue. The Creditors Committee appealed the Bankruptcy Court’s dismissal of its claim to the United States Court of Appeals for the Second Circuit. In January 2015, the Court of Appeals reversed the Bankruptcy Court’s dismissal of the Creditors Committee’s claim and remanded the

case to the Bankruptcy Court with instructions to enter partial summary judgment for the Creditors Committee as to the termination statement. The proceedings in the Bankruptcy Court continue with respect to, among other things, additional defenses asserted by JPMorgan Chase Bank, N.A. and the value of additional collateral on the Term Loan that was unaffected by the filing of the termination statement at issue. In addition, certain Term Loan lenders filed cross-claims against JPMorgan Chase Bank, N.A. in the Bankruptcy Court seeking indemnification and asserting various claims.

### **Interchange Litigation.**

A group of merchants and retail associations filed a series of class action complaints alleging that Visa and MasterCard, as well as certain banks, conspired to set the price of credit and debit card interchange fees, enacted respective rules in violation of antitrust laws, and engaged in tying/bundling and exclusive dealing. The parties have entered into an agreement to settle the cases for a cash payment of \$6.1 billion to the class plaintiffs (of which JPMorgan Chase's share is approximately 20%) and an amount equal to ten basis points of credit card interchange for a period of eight months to be measured from a date within 60 days of the end of the opt-out period. The agreement also provides for modifications to each credit card network's rules, including those that prohibit surcharging credit card transactions. In December 2013, the Court issued a decision granting final approval of the settlement. A number of merchants appealed, and oral argument was held in September 2015. Certain merchants and trade associations have also filed a motion with the District Court seeking to set aside the approval of the class settlement on the basis of alleged improper communications between one of MasterCard's former outside counsel and one of plaintiffs' outside counsel. That motion remains pending. Certain merchants that opted out of the class settlement have filed actions against Visa and MasterCard, as well as against JPMorgan Chase and other banks. Defendants' motion to dismiss those actions was denied in July 2014.

### **Investment Management Litigation.**

JPMorgan Chase is defending two pending cases that are being coordinated for pre-trial purposes, alleging that investment portfolios managed by J.P. Morgan Investment Management ("JPMIM") were inappropriately invested in securities backed by residential real estate collateral. Plaintiffs Assured Guaranty (U.K.) and Ambac Assurance UK Limited claim that JPMIM is liable for total losses of more than \$1 billion in market value of these securities. Discovery has been completed. In January 2016, plaintiffs filed a joint partial motion for summary judgment in the coordinated actions.

### **Lehman Brothers Bankruptcy Proceedings.**

In May 2010, Lehman Brothers Holdings Inc. ("LBHI") and its Official Committee of Unsecured Creditors (the "Committee") filed a complaint (and later an amended complaint) against JPMorgan Chase Bank, N.A. in the United States Bankruptcy Court for the Southern District of New York that asserted both federal bankruptcy law and state common law claims, and sought, among other relief, to recover \$7.9 billion in collateral (after deducting \$700 million of returned collateral) that was transferred to JPMorgan Chase Bank, N.A. in the weeks preceding LBHI's bankruptcy. The amended complaint also sought unspecified damages on the grounds that JPMorgan Chase Bank, N.A.'s collateral requests hastened LBHI's bankruptcy. The Bankruptcy Court dismissed the claims in the amended complaint that sought to void the allegedly constructively fraudulent and preferential transfers made to JPMorgan Chase during September 2008, but did not dismiss the other claims, including claims for duress and fraud. JPMorgan Chase filed counterclaims against LBHI, including alleging that LBHI fraudulently induced JPMorgan Chase to make large extensions of credit against inappropriate collateral in connection with JPMorgan Chase's role as the clearing bank for Lehman Brothers Inc. ("LBI"), LBHI's broker-dealer subsidiary. These extensions of credit left JPMorgan Chase with more than \$25 billion in claims against the estate of LBI, which was repaid principally through collateral posted by LBHI and LBI. In September 2015, the District Court, to which the case had been transferred from the Bankruptcy



Court, granted summary judgment in favor of JPMorgan Chase Bank, N.A. on most of the claims against it that the Bankruptcy Court had not previously dismissed, including the claims for duress and fraud. The District Court also denied LBHI's motion for summary judgment on certain of its claims and for dismissal of JPMorgan Chase's counterclaims. The claims that remained following the District Court's ruling challenged the propriety of JPMorgan Chase's post-petition payment, from collateral posted by LBHI, of approximately \$1.9 billion of derivatives, repo and securities lending claims.

In the Bankruptcy Court proceedings, LBHI and several of its subsidiaries that had been Chapter 11 debtors had filed a separate complaint and objection to derivatives claims asserted by JPMorgan Chase alleging that the amount of the derivatives claims had been overstated and challenging certain set-offs taken by JPMorgan Chase entities to recover on the claims. In January 2015, LBHI filed claims objections with respect to guaranty claims asserted by JPMorgan Chase arising from close-outs of derivatives transactions with LBI and one of its affiliates, and a claim objection with respect to derivatives close-out claims acquired by JPMorgan Chase in the Washington Mutual transaction.

In January 2016, the parties reached an agreement, approved by the Bankruptcy Court, under which JPMorgan Chase will pay \$1.42 billion to settle all of the claims, counterclaims and claims objections, including all appeal rights, except for the claims specified in the following paragraph. One pro se objector is seeking to appeal the settlement.

The settlement did not resolve the following remaining matters: In the Bankruptcy Court proceedings, LBHI and the Committee filed an objection to the claims asserted by JPMorgan Chase Bank, N.A. against LBHI with respect to clearing advances made to LBI, principally on the grounds that JPMorgan Chase had not conducted the sale of the securities collateral held for its claims in a commercially reasonable manner. In January 2015, LBHI brought two claims objections relating to securities lending claims and a group of other smaller claims. Discovery with respect to these objections is ongoing.

#### **LIBOR and Other Benchmark Rate Investigations and Litigation.**

JPMorgan Chase has received subpoenas and requests for documents and, in some cases, interviews, from federal and state agencies and entities, including the DOJ, the U.S. Commodity Futures Trading Commission ("CFTC"), the U.S. Securities and Exchange Commission ("SEC") and various state attorneys general, as well as the EC, the FCA, the Canadian Competition Bureau, the Swiss Competition Commission and other regulatory authorities and banking associations around the world relating primarily to the process by which interest rates were submitted to the British Bankers Association ("BBA") in connection with the setting of the BBA's London Interbank Offered Rate ("LIBOR") for various currencies, principally in 2007 and 2008. Some of the inquiries also relate to similar processes by which information on rates is submitted to the European Banking Federation ("EBF") in connection with the setting of the EBF's Euro Interbank Offered Rates ("EURIBOR") and to the Japanese Bankers' Association for the setting of Tokyo Interbank Offered Rates ("TIBOR"), as well as processes for the setting of U.S. dollar ISDAFIX rates and other reference rates in various parts of the world during similar time periods. JPMorgan Chase is responding to and continuing to cooperate with these inquiries. As previously reported, JPMorgan Chase has resolved EC inquiries relating to Yen LIBOR and Swiss Franc LIBOR. In May 2014, the EC issued a Statement of Objections outlining its case against JPMorgan Chase (and others) as to EURIBOR, to which JPMorgan Chase has filed a response and made oral representations. Other inquiries have been discontinued without any action against JPMorgan Chase, including by the FCA and the Canadian Competition Bureau.

In addition, JPMorgan Chase has been named as a defendant along with other banks in a series of individual and putative class actions filed in various United States District Courts, in which plaintiffs make varying allegations that in various periods, starting in 2000 or later, defendants either individually or collectively manipulated the U.S. dollar LIBOR, Yen LIBOR, Swiss franc LIBOR, Euroyen TIBOR

and/or EURIBOR rates by submitting rates that were artificially low or high. Plaintiffs allege that they transacted in loans, derivatives or other financial instruments whose values are affected by changes in U.S. dollar LIBOR, Yen LIBOR, Swiss franc LIBOR, Euroyen TIBOR or EURIBOR and assert a variety of claims including antitrust claims seeking treble damages. These matters are in various stages of litigation.

The U.S. dollar LIBOR-related putative class actions and most U.S. dollar LIBOR-related individual actions were consolidated for pre-trial purposes in the United States District Court for the Southern District of New York. The Court dismissed certain claims, including the antitrust claims, and permitted other claims under the Commodity Exchange Act and common law to proceed. Certain plaintiffs appealed the dismissal of the antitrust claims, and the United States Court of Appeals for the Second Circuit dismissed the appeal for lack of jurisdiction. In January 2015, the United States Supreme Court reversed the decision of the Court of Appeals, holding that plaintiffs have the jurisdictional right to appeal, and remanded the case to the Court of Appeals for further proceedings. The Court of Appeals heard oral argument on remand in November 2015.

JPMorgan Chase is one of the defendants in a number of putative class actions alleging that defendant banks and ICAP conspired to manipulate the U.S. dollar ISDAFIX rates. Plaintiffs primarily assert claims under the federal antitrust laws and Commodities Exchange Act.

#### **Madoff Litigation.**

Various subsidiaries of JPMorgan Chase, including J.P. Morgan Securities plc, have been named as defendants in lawsuits filed in Bankruptcy Court in New York arising out of the liquidation proceedings of Fairfield Sentry Limited and Fairfield Sigma Limited, so-called Madoff feeder funds. These actions seek to recover payments made by the funds to defendants totaling approximately \$155 million. All but two of these actions have been dismissed.

In addition, a putative class action was brought by investors in certain feeder funds against JPMorgan Chase in the United States District Court for the Southern District of New York, as was a motion by separate potential class plaintiffs to add claims against JPMorgan Chase and certain subsidiaries to an already pending putative class action in the same court. The allegations in these complaints largely track those previously raised – and resolved as to JPMorgan Chase – by the court-appointed trustee for Bernard L. Madoff Investment Securities LLC. The District Court dismissed these complaints and the United States Court of Appeals for the Second Circuit affirmed the District Court's decision. The United States Supreme Court denied plaintiffs' petition for a writ of certiorari in March 2015. Plaintiffs subsequently served a motion in the Court of Appeals seeking to have the Court reconsider its prior decision in light of another recent appellate decision. That motion was denied in June 2015.

JPMorgan Chase is a defendant in five other Madoff-related individual investor actions pending in New York state court. The allegations in all of these actions are essentially identical, and involve claims against JPMorgan Chase for, among other things, aiding and abetting breach of fiduciary duty, conversion and unjust enrichment. In August 2014, the Court dismissed all claims against JPMorgan Chase. In January 2016, the Appellate Court affirmed the dismissal.

A putative class action was filed in the United States District Court for the District of New Jersey by investors who were net winners (i.e., Madoff customers who had taken more money out of their accounts than had been invested) in Madoff's Ponzi scheme and were not included in a prior class action settlement. These plaintiffs allege violations of the federal securities law, federal and state racketeering statutes and multiple common law and statutory claims including breach of trust, aiding and abetting embezzlement, unjust enrichment, conversion and commercial bad faith. A similar action was filed in the United States District Court for the Middle District of Florida, although it was not styled as a class

action, and included claims pursuant to Florida statutes. JPMorgan Chase moved to transfer both the Florida and New Jersey actions to the United States District Court for the Southern District of New York. The Florida court denied the transfer motion, but subsequently granted JPMorgan Chase's motion to dismiss the case in September 2015. Plaintiffs have filed a notice of appeal, which is pending. In addition, the same plaintiffs have re-filed their dismissed state claims in Florida state court. The New Jersey court granted the transfer motion to the Southern District of New York, and JPMorgan Chase has moved to dismiss the case pending in New York.

Three shareholder derivative actions have also been filed in New York federal and state court against JPMorgan Chase, as nominal defendant, and certain of its current and former Board members, alleging breach of fiduciary duty in connection with JPMorgan Chase's relationship with Bernard Madoff and the alleged failure to maintain effective internal controls to detect fraudulent transactions. The actions seek declaratory relief and damages. All three actions have been dismissed. The plaintiff in one action did not appeal, the dismissal has been affirmed on appeal in another action, and one appeal remains pending.

### **Mortgage-Backed Securities and Repurchase Litigation and Related Regulatory Investigations.**

JPMorgan Chase and affiliates (together, "JPMC"), Bear Stearns and affiliates (together, "Bear Stearns") and certain Washington Mutual affiliates (together, "Washington Mutual") have been named as defendants in a number of cases in their various roles in offerings of mortgage-backed securities ("MBS"). These cases include actions by individual MBS purchasers and actions by monoline insurance companies that guaranteed payments of principal and interest for particular tranches of MBS offerings. Following the settlements referred to below, there are currently pending and tolled investor claims involving MBS with an original principal balance of approximately \$4.2 billion, of which \$2.6 billion involves JPMC, Bear Stearns or Washington Mutual as issuer and \$1.6 billion involves JPMC, Bear Stearns or Washington Mutual solely as underwriter. JPMorgan Chase and certain of its current and former officers and Board members have also been sued in shareholder derivative actions relating to JPMorgan Chase's MBS activities, and trustees have asserted or have threatened to assert claims that loans in securitization trusts should be repurchased.

Issuer Litigation – Class Actions. JPMC has fully resolved all pending putative class actions on behalf of purchasers of MBS.

Issuer Litigation – Individual Purchaser Actions. JPMorgan Chase is defending individual actions brought against JPMC, Bear Stearns and Washington Mutual as MBS issuers (and, in some cases, also as underwriters of their own MBS offerings). JPMorgan Chase has settled a number of these actions. Several actions remain pending in federal and state courts across the U.S. and are in various stages of litigation.

Monoline Insurer Litigation. JPMorgan Chase has settled two pending actions relating to a monoline insurer's guarantees of principal and interest on certain classes of 11 different Bear Stearns MBS offerings. This settlement fully resolves all pending actions by monoline insurers against JPMorgan Chase relating to RMBS issued and/or sponsored by JPMorgan Chase.

Underwriter Actions. In actions against JPMorgan Chase involving offerings where JPMorgan Chase was solely an underwriter of other issuers' MBS offerings, JPMorgan Chase has contractual rights to indemnification from the issuers. However, those indemnity rights may prove effectively unenforceable in various situations, such as where the issuers are now defunct. Currently there is one such action pending against JPMorgan Chase relating to a single offering of another issuer.

Repurchase Litigation. JPMorgan Chase is defending a number of actions brought by trustees, securities administrators or master servicers of various MBS trusts on behalf of purchasers of securities issued by those trusts. These cases generally allege breaches of various representations and warranties regarding securitized loans and seek repurchase of those loans or equivalent monetary relief, as well as indemnification of attorneys' fees and costs and other remedies. Deutsche Bank National Trust Company, acting as trustee for various MBS trusts, has filed such a suit against JPMorgan Chase Bank, N.A. and the Federal Deposit Insurance Corporation (the "FDIC") in connection with a significant number of MBS issued by Washington Mutual; that case is described in the Washington Mutual Litigations section below. Other repurchase actions, each specific to one or more MBS transactions issued by JPMC and/or Bear Stearns, are in various stages of litigation.

In addition, JPMorgan Chase and a group of 21 institutional MBS investors made a binding offer to the trustees of MBS issued by JPMC and Bear Stearns providing for the payment of \$4.5 billion and the implementation of certain servicing changes by JPMC, to resolve all repurchase and servicing claims that have been asserted or could have been asserted with respect to 330 MBS trusts created between 2005 and 2008. The offer does not resolve claims relating to Washington Mutual MBS. The trustees (or separate and successor trustees) for this group of 330 trusts have accepted the settlement for 319 trusts in whole or in part and excluded from the settlement 16 trusts in whole or in part. The trustees' acceptance is subject to a judicial approval proceeding initiated by the trustees and pending in New York state court. The judicial approval hearing was held in January 2016, and the parties are awaiting a decision. An investor in some of the trusts for which the settlement has been accepted has intervened in the judicial approval proceeding to challenge the trustees' allocation of the settlement among the trusts. Separately, in October 2015, JPMC reached agreements to resolve repurchase and servicing claims for four trusts among the 16 that were previously excluded from the trustee settlement. In December 2015, the court approved the trustees' decision to accept these separate settlements. The trustees are seeking to obtain certain remaining approvals necessary to effectuate these settlements.

Additional actions have been filed against third-party trustees that relate to loan repurchase and servicing claims involving trusts sponsored by JPMC, Bear Stearns and Washington Mutual.

Derivative Actions. Shareholder derivative actions relating to JPMorgan Chase's MBS activities have been filed against JPMorgan Chase, as nominal defendant, and certain of its current and former officers and members of its Board of Directors, in New York state court and California federal court. Two of the New York actions have been dismissed, one of which is on appeal. A consolidated action in California federal court has been dismissed without prejudice for lack of personal jurisdiction and plaintiffs are pursuing discovery relating to jurisdiction.

Government Enforcement Investigations and Litigation. JPMorgan Chase is responding to an ongoing investigation being conducted by the DOJ's Criminal Division and two United States Attorney's Offices relating to MBS offerings securitized and sold by JPMorgan Chase and its subsidiaries. JPMorgan Chase has also received subpoenas and informal requests for information from state authorities concerning the issuance and underwriting of MBS-related matters. JPMorgan Chase continues to respond to these MBS-related regulatory inquiries.

In addition, JPMorgan Chase continues to cooperate with investigations by the DOJ, including the United States Attorney's Office for the District of Connecticut, and by the SEC Division of Enforcement and the Office of the Special Inspector General for the Troubled Asset Relief Program, all of which relate to, among other matters, communications with counterparties in connection with certain secondary market trading in residential and commercial MBS.

JPMorgan Chase has entered into agreements with a number of entities that purchased MBS that toll applicable limitations periods with respect to their claims, and has settled, and in the future may settle, tolled claims. There is no assurance that JPMorgan Chase will not be named as a defendant in additional MBS-related litigation.

#### **Mortgage-Related Investigations and Litigation.**

One shareholder derivative action has been filed in New York Supreme Court against JPMorgan Chase's Board of Directors alleging that the Board failed to exercise adequate oversight as to wrongful conduct by JPMorgan Chase regarding mortgage servicing. In December 2014, the court granted defendants' motion to dismiss the complaint and in January 2016, the dismissal was affirmed on appeal.

The Civil Division of the United States Attorney's Office for the Southern District of New York is conducting an investigation concerning JPMorgan Chase's compliance with the Fair Housing Act and Equal Credit Opportunity Act in connection with its mortgage lending practices. In addition, three municipalities have commenced litigation against JPMorgan Chase alleging violations of an unfair competition law or the Fair Housing Act. The municipalities seek, among other things, civil penalties for the unfair competition claim, and, for the Fair Housing Act claims, damages resulting from lost tax revenue and increased municipal costs associated with foreclosed properties. Two of the municipal actions are stayed, and a motion to dismiss is pending in the remaining action.

In March 2015, JPMorgan Chase Bank, N.A entered into a settlement agreement with the Executive Office for United States Bankruptcy Trustees and the United States Trustee Program (collectively, the "Bankruptcy Trustee") to resolve issues relating to mortgage payment change notices and escrow statements in bankruptcy proceedings. In January 2016, the OCC determined that, among other things, the mortgage payment change notices issues that were the subject of the settlement with the Bankruptcy Trustee violated the 2011 mortgage servicing-related consent order entered into by JPMorgan Chase Bank, N.A. and the OCC (as amended in 2013 and 2015), and assessed a \$48 million civil money penalty. The OCC concurrently terminated that consent order.

#### **Municipal Derivatives Litigation.**

Several civil actions were commenced in New York and Alabama courts against JPMorgan Chase relating to certain Jefferson County, Alabama (the "County") warrant underwritings and swap transactions. The claims in the civil actions generally alleged that JPMorgan Chase made payments to certain third parties in exchange for being chosen to underwrite more than \$3 billion in warrants issued by the County and to act as the counterparty for certain swaps executed by the County. The County filed for bankruptcy in November 2011. In June 2013, the County filed a Chapter 9 Plan of Adjustment, as amended (the "Plan of Adjustment"), which provided that all the above-described actions against JPMorgan Chase would be released and dismissed with prejudice. In November 2013, the Bankruptcy Court confirmed the Plan of Adjustment, and in December 2013, certain sewer rate payers filed an appeal challenging the confirmation of the Plan of Adjustment. All conditions to the Plan of Adjustment's effectiveness, including the dismissal of the actions against JPMorgan Chase, were satisfied or waived and the transactions contemplated by the Plan of Adjustment occurred in December 2013. Accordingly, all the above-described actions against JPMorgan Chase have been dismissed pursuant to the terms of the Plan of Adjustment. The appeal of the Bankruptcy Court's order confirming the Plan of Adjustment remains pending.

### **Petters Bankruptcy and Related Matters.**

JPMorgan Chase and certain of its affiliates, including One Equity Partners (“OEP”), have been named as defendants in several actions filed in connection with the receivership and bankruptcy proceedings pertaining to Thomas J. Petters and certain affiliated entities (collectively, “Petters”) and the Polaroid Corporation. The principal actions against JPMorgan Chase and its affiliates have been brought by a court-appointed receiver for Petters and the trustees in bankruptcy proceedings for three Petters entities. These actions generally seek to avoid certain putative transfers in connection with (i) the 2005 acquisition by Petters of Polaroid, which at the time was majority-owned by OEP; (ii) two credit facilities that JPMorgan Chase and other financial institutions entered into with Polaroid; and (iii) a credit line and investment accounts held by Petters. The actions collectively seek recovery of approximately \$450 million. Defendants have moved to dismiss the complaints in the actions filed by the Petters bankruptcy trustees.

### **Proprietary Products Investigations and Litigation.**

In December 2015, JPMorgan Chase Bank, N.A. and J.P. Morgan Securities LLC agreed to a settlement with the SEC, and JPMorgan Chase Bank, N.A. agreed to a settlement with the CFTC, regarding disclosures to clients concerning conflicts associated with JPMorgan Chase’s sale and use of proprietary products, such as J.P. Morgan mutual funds, in JPMorgan Chase’s wealth management businesses, and the U.S. Private Bank’s disclosures concerning the use of hedge funds that pay placement agent fees to JPMorgan Chase broker-dealer affiliates. As part of the settlements, JPMorgan Chase Bank, N.A. and J.P. Morgan Securities LLC paid penalties, disgorgement and interest totaling approximately \$307 million. JPMorgan Chase continues to cooperate with inquiries from other government authorities concerning disclosure of conflicts associated with JPMorgan Chase’s sale and use of proprietary products. A putative class action filed in the United States District Court for the Northern District of Illinois on behalf of financial advisory clients from 2007 to the present whose funds were invested in proprietary funds and who were charged investment management fees, was dismissed by the Court. Plaintiffs’ appeal of the dismissal is pending.

### **Referral Hiring Practices Investigations.**

Various regulators are investigating, among other things, JPMorgan Chase’s compliance with the Foreign Corrupt Practices Act and other laws with respect to JPMorgan Chase’s hiring practices related to candidates referred by clients, potential clients and government officials, and its engagement of consultants in the Asia Pacific region. JPMorgan Chase is responding to and cooperating with these investigations.

### **Washington Mutual Litigations.**

Proceedings related to Washington Mutual’s failure are pending before the United States District Court for the District of Columbia and include a lawsuit brought by Deutsche Bank National Trust Company, initially against the FDIC and amended to include JPMorgan Chase Bank, N.A. as a defendant, asserting an estimated \$6 billion to \$10 billion in damages based upon alleged breaches of certain representations and warranties given by certain Washington Mutual affiliates in connection with mortgage securitization agreements. The case includes assertions that JPMorgan Chase Bank, N.A. may have assumed liabilities for the alleged breaches of representations and warranties in the mortgage securitization agreements. In June 2015, the court ruled in favor of JPMorgan Chase Bank, N.A. on the question of whether JPMorgan Chase or the FDIC bears responsibility for Washington Mutual Bank’s repurchase obligations, holding that JPMorgan Chase Bank, N.A. assumed only those liabilities that were reflected on Washington Mutual Bank’s financial accounting records as of September 25, 2008, and only up to the amount of the book value reflected therein. The FDIC is appealing that ruling and the case has otherwise been stayed pending the outcome of that appeal.

Certain holders of Washington Mutual Bank debt filed an action against JPMorgan Chase which alleged that by acquiring substantially all of the assets of Washington Mutual Bank from the FDIC, JPMorgan Chase Bank, N.A. caused Washington Mutual Bank to default on its bond obligations. JPMorgan Chase and the FDIC moved to dismiss this action and the District Court dismissed the case except as to the plaintiffs' claim that JPMorgan Chase tortiously interfered with the plaintiffs' bond contracts with Washington Mutual Bank prior to its closure. The action has been stayed pending a decision on JPMorgan Chase's motion to dismiss the plaintiffs' remaining claim.

JPMorgan Chase has also filed complaints in the United States District Court for the District of Columbia against the FDIC, in its corporate capacity as well as in its capacity as receiver for Washington Mutual Bank, asserting multiple claims for indemnification under the terms of the Purchase & Assumption Agreement between JPMorgan Chase and the FDIC relating to JPMorgan Chase's purchase of most of the assets and certain liabilities of Washington Mutual Bank.

#### **Wendel.**

Since 2012, the French criminal authorities have been investigating a series of transactions entered into by senior managers of Wendel Investissement ("Wendel") during the period from 2004 through 2007 to restructure their shareholdings in Wendel. JPMorgan Chase Bank, N.A., Paris branch provided financing for the transactions to a number of managers of Wendel in 2007. In April 2015, JPMorgan Chase Bank, N.A. was notified that the authorities were formally investigating the role of its Paris branch in the transactions, including alleged criminal tax abuse. JPMorgan Chase is responding to and cooperating with the investigation. In addition, civil proceedings have been commenced against JPMorgan Chase Bank, N.A. by a number of the managers. The claims are separate, involve different allegations and are at various stages of proceedings.

In addition to the various legal proceedings discussed above, JPMorgan Chase and its subsidiaries, including in certain cases, JPMorgan Chase Bank, N.A., are named as defendants or are otherwise involved in a substantial number of other legal proceedings and inquiries. JPMorgan Chase and JPMorgan Chase Bank, N.A. believes it has meritorious defenses to the claims asserted against it in its currently outstanding legal proceedings and inquiries, and it intends to defend itself vigorously in all such matters. Additional legal proceedings and inquiries may be initiated from time to time in the future.

JPMorgan Chase Bank, N.A. has established reserves for several hundred of its currently outstanding legal proceedings. In accordance with the provisions of U.S. GAAP for contingencies, JPMorgan Chase Bank, N.A. accrues for a litigation-related liability when it is probable that such a liability has been incurred and the amount of the loss can be reasonably estimated. JPMorgan Chase Bank, N.A. evaluates its outstanding legal proceedings each quarter to assess its litigation reserves, and makes adjustments in such reserves, upwards or downward, as appropriate, based on management's best judgment after consultation with counsel. During the years ended December 31, 2015, 2014 and 2013, JPMorgan Chase Bank, N.A. incurred legal expense of \$2.0 billion, \$2.3 billion and \$2.2 billion, respectively. Where a particular litigation matter involves one or more subsidiaries or affiliates of JPMorgan Chase, JPMorgan Chase determines the appropriate allocation of legal expense among those subsidiaries or affiliates (including, where applicable, JPMorgan Chase Bank, N.A.). There is no assurance that JPMorgan Chase Bank, N.A.'s litigation reserves will not need to be adjusted in the future.

In view of the inherent difficulty of predicting the outcome of legal proceedings, particularly where the claimants seek very large or indeterminate damages, or where the matters present novel legal theories, involve a large number of parties or are in early stages of discovery, JPMorgan Chase and JPMorgan Chase Bank, N.A. cannot state with confidence what will be the eventual outcomes of the currently pending matters, the timing of their ultimate resolution or the eventual losses, fines, penalties or impact related to those matters. JPMorgan Chase Bank, N.A. believes, based upon its current

knowledge, after consultation with counsel and after taking into account its current litigation reserves, that the legal proceedings currently pending against it should not have a material adverse effect on JPMorgan Chase Bank, N.A.'s consolidated financial condition. JPMorgan Chase Bank, N.A. notes, however, that in light of the uncertainties involved in such proceedings, there is no assurance the ultimate resolution of these matters will not significantly exceed the reserves it has currently accrued; as a result, the outcome of a particular matter may be material to JPMorgan Chase Bank, N.A.'s operating results for a particular period, depending on, among other factors, the size of the loss or liability imposed and the level of JPMorgan Chase Bank, N.A.'s income for that period.

**Credit Ratings**

The structured products to be offered by the Issuer and guaranteed by JPMorgan Chase Bank, N.A. will not be rated, unless otherwise specified in the supplemental listing document relating to such structured products. The following table, which is presented solely for the convenience of prospective purchasers of structured products of the Issuer, sets forth the credit ratings for JPMorgan Chase Bank, N.A.'s long term debt (as of the day immediately preceding the date of this base listing document). Credit ratings are determined by the rating agencies based upon information furnished to them by the relevant obligor as well as information obtained by the rating agencies from other sources. Credit ratings are not a recommendation to purchase, hold or sell any security, and may be changed, superseded or withdrawn at any time by any of the rating agencies. **Prospective purchasers should check the current credit ratings of JPMorgan Chase Bank, N.A. before purchasing any structured products of the Issuer.** Information concerning the current ratings of JPMorgan Chase Bank, N.A.'s debt can be obtained from the relevant rating agencies and can also be viewed on JPMorgan Chase & Co.'s investor relations website at <http://investor.shareholder.com/jpmorganchase/ratings.cfm>. Neither the Issuer nor JPMorgan Chase Bank, N.A. undertakes to update the information set forth in the below table.

<b>Rating agency</b>	<b>Current credit ratings of the guarantor's long-term debt (as of the day immediately preceding the date of this base listing document)</b>
Standard & Poor's Ratings Services	A+ (stable outlook)
Moody's Investors Service, Inc.	Aa3 (stable outlook)

**Additional Information**

Additional information concerning JPMorgan Chase Bank, N.A., including the Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K of JPMorgan Chase & Co. filed by JPMorgan Chase & Co. with the U.S. Securities and Exchange Commission ("**Periodic Reports**"), as they become available, can be viewed on the SEC's website at [www.sec.gov](http://www.sec.gov). Those reports and additional information concerning JPMorgan Chase Bank, N.A. can also be viewed on JPMorgan Chase & Co.'s investor relations website at <http://investor.shareholder.com/jpmorganchase>. No websites that are cited or referred to herein shall be deemed to form part of, or to be incorporated by reference in, this base listing document. **The Periodic Reports are not included or incorporated by reference in and shall not be deemed to be part of, this base listing document.**



**JPMORGAN CHASE BANK,  
NATIONAL ASSOCIATION**

(a wholly-owned subsidiary of JPMorgan Chase & Co.)

**CONSOLIDATED FINANCIAL STATEMENTS**  
For the three years ended December 31, 2015

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**FOR THE THREE YEARS ENDED DECEMBER 31, 2015**

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## Independent Auditor's Report

To the Board of Directors and Stockholder of JPMorgan Chase Bank, National Association

We have audited the accompanying consolidated financial statements of JPMorgan Chase Bank, National Association and its subsidiaries, which comprise the consolidated balance sheets as of December 31, 2015 and December 31, 2014, and the related consolidated statements of income, comprehensive income, changes in stockholder's equity and cash flows for each of the three years ended December 31, 2015.

### **Management's Responsibility for the Consolidated Financial Statements**

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

### **Auditor's Responsibility**

Our responsibility is to express an opinion on the consolidated financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on our judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, we consider internal control relevant to the Company's preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

### **Opinion**

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of JPMorgan Chase Bank, National Association and its subsidiaries at December 31, 2015 and December 31, 2014, and the results of their operations and their cash flows for each of the three years ended December 31, 2015 in accordance with accounting principles generally accepted in the United States of America.

*PricewaterhouseCoopers LLP*

February 24, 2016

## Consolidated statements of income

JPMorgan Chase Bank, National Association  
(a wholly-owned subsidiary of JPMorgan Chase & Co.)

Year ended December 31, (in millions)	2015	2014	2013
<b>Revenue</b>			
Investment banking fees	\$ 1,931	\$ 2,034	\$ 1,808
Principal transactions	9,085	7,660	6,589
Lending- and deposit-related fees	5,693	5,797	5,941
Asset management, administration and commissions	11,263	11,652	10,096
Securities gains <sup>(a)</sup>	202	68	643
Mortgage fees and related income	2,513	3,564	5,206
Card income	4,333	4,305	4,036
Other income	4,671	3,683	5,052
<b>Noninterest revenue</b>	<b>39,691</b>	<b>38,763</b>	<b>39,371</b>
Interest income	37,425	37,966	38,150
Interest expense	3,736	4,229	5,184
<b>Net interest income</b>	<b>33,689</b>	<b>33,737</b>	<b>32,966</b>
<b>Total net revenue</b>	<b>73,380</b>	<b>72,500</b>	<b>72,337</b>
Provision for credit losses	1,376	832	(1,247)
<b>Noninterest expense</b>			
Compensation expense	23,128	23,996	24,212
Occupancy expense	3,438	3,528	3,342
Technology, communications and equipment expense	5,747	5,328	4,935
Professional and outside services	5,268	5,994	5,875
Marketing	796	748	759
Other expense	10,719	10,984	11,102
<b>Total noninterest expense</b>	<b>49,096</b>	<b>50,578</b>	<b>50,225</b>
<b>Income before income tax expense</b>	<b>22,908</b>	<b>21,090</b>	<b>23,359</b>
Income tax expense	5,980	6,331	7,967
<b>Net income</b>	<b>\$ 16,928</b>	<b>\$ 14,759</b>	<b>\$ 15,392</b>

(a) JPMorgan Chase Bank, N.A. recognized other-than-temporary impairment ("OTTI") losses of \$22 million, \$4 million and \$21 million for the years ended December 31, 2015, 2014 and 2013, respectively.

The Notes to Consolidated Financial Statements are an integral part of these statements.

## Consolidated statements of comprehensive income

JPMorgan Chase Bank, National Association  
(a wholly-owned subsidiary of JPMorgan Chase & Co.)

Year ended December 31, (in millions)	2015		2014		2013
<b>Net income</b>	\$	<b>16,928</b>	\$	14,759	\$ 15,392
<b>Other comprehensive income/(loss), after-tax</b>					
Unrealized gains/(losses) on investment securities		<b>(2,104)</b>		1,862	(3,916)
Translation adjustments, net of hedges		<b>(17)</b>		(35)	(51)
Cash flow hedges		<b>46</b>		(16)	(404)
Defined benefit pension and OPEB plans		<b>139</b>		(34)	39
<b>Total other comprehensive income/(loss), after-tax</b>		<b>(1,936)</b>		1,777	(4,332)
<b>Comprehensive income</b>	\$	<b>14,992</b>	\$	16,536	\$ 11,060

The Notes to Consolidated Financial Statements are an integral part of these statements.

## Consolidated balance sheets

JPMorgan Chase Bank, National Association  
(a wholly-owned subsidiary of JPMorgan Chase & Co.)

December 31, (in millions, except share data)	2015	2014
<b>Assets</b>		
Cash and due from banks	\$ 19,359	\$ 26,637
Deposits with banks	316,350	471,427
Federal funds sold and securities purchased under resale agreements (included \$7,970 and \$14,265 at fair value)	148,483	141,156
Securities borrowed (included \$395 and \$992 at fair value)	25,519	32,173
Trading assets (included assets pledged of \$55,776 and \$48,593)	242,535	268,014
Securities (included \$235,955 and \$292,347 at fair value and assets pledged of \$16,133 and \$27,745)	285,028	341,599
Loans (included \$2,752 and \$2,283 at fair value)	735,717	651,630
Allowance for loan losses	(10,807)	(11,352)
<b>Loans, net of allowance for loan losses</b>	<b>724,910</b>	<b>640,278</b>
Accrued interest and accounts receivable	36,389	38,814
Premises and equipment	12,748	13,122
Goodwill	27,100	27,282
Mortgage servicing rights	6,608	7,436
Other intangible assets	246	344
Other assets (included \$5,701 and \$4,608 at fair value and assets pledged of \$1,074 and \$993)	69,383	66,688
<b>Total assets<sup>(a)</sup></b>	<b>\$ 1,914,658</b>	<b>\$ 2,074,970</b>
<b>Liabilities</b>		
Deposits (included \$12,847 and \$8,974 at fair value)	\$ 1,312,940	\$ 1,439,405
Federal funds purchased and securities loaned or sold under repurchase agreements (included \$728 and \$678 at fair value)	77,262	94,325
Other borrowed funds (included \$6,680 and \$8,209 at fair value)	30,170	38,572
Trading liabilities	101,053	120,323
Accounts payable and other liabilities (included \$6,652 and \$781 at fair value)	76,160	76,694
Beneficial interests issued by consolidated variable interest entities (included \$0 and \$18 at fair value)	12,852	18,601
Long-term debt (included \$14,729 and \$14,136 at fair value)	108,683	101,426
<b>Total liabilities<sup>(a)</sup></b>	<b>1,719,120</b>	<b>1,889,346</b>
Commitments and contingencies (see Notes 27, 28 and 29)		
<b>Stockholder's equity</b>		
Preferred stock (\$1 par value; authorized 15,000,000 shares; issued 0 shares)	—	—
Common stock (\$12 par value; authorized 150,000,000 shares; issued 148,761,243 shares)	1,785	1,785
Additional paid-in capital	92,782	90,801
Retained earnings	98,951	89,082
Accumulated other comprehensive income	2,020	3,956
<b>Total stockholder's equity</b>	<b>195,538</b>	<b>185,624</b>
<b>Total liabilities and stockholder's equity</b>	<b>\$ 1,914,658</b>	<b>\$ 2,074,970</b>

(a) The following table presents information on assets and liabilities related to VIEs that are consolidated by JPMorgan Chase Bank, N.A. at December 31, 2015 and 2014. The difference between total VIE assets and liabilities represents JPMorgan Chase Bank, N.A.'s interests in those entities, which were eliminated in consolidation.

December 31, (in millions)	2015	2014
<b>Assets</b>		
Trading assets	\$ 2,491	\$ 6,046
Loans	27,747	20,613
All other assets	1,574	345
<b>Total assets</b>	<b>\$ 31,812</b>	<b>\$ 27,004</b>
<b>Liabilities</b>		
Beneficial interests issued by consolidated variable interest entities	\$ 12,852	\$ 18,601
All other liabilities	691	815
<b>Total liabilities</b>	<b>\$ 13,543</b>	<b>\$ 19,416</b>

The assets of the consolidated VIEs are used to settle the liabilities of those entities. The holders of the beneficial interests do not have recourse to the general credit of JPMorgan Chase Bank, N.A. At both December 31, 2015 and 2014, JPMorgan Chase Bank, N.A. provided limited program-wide credit enhancement of \$2.0 billion, related to its JPMorgan Chase Bank, N.A.-administered multi-seller conduits, which are eliminated in consolidation. For further discussion, see Note 17.

The Notes to Consolidated Financial Statements are an integral part of these statements.

## Consolidated statements of changes in stockholder's equity

JPMorgan Chase Bank, National Association  
(a wholly-owned subsidiary of JPMorgan Chase & Co.)

Year ended December 31, (in millions)	2015	2014	2013
<b>Common stock</b>			
Balance at January 1 and December 31	\$ 1,785	\$ 1,785	\$ 1,785
<b>Additional paid-in capital</b>			
Balance at January 1	90,801	90,479	77,533
Cash capital contribution from JPMorgan Chase & Co.	4	477	12,752
Adjustments to capital due to transactions with JPMorgan Chase & Co.	1,977	(155)	194
<b>Balance at December 31</b>	<b>92,782</b>	<b>90,801</b>	<b>90,479</b>
<b>Retained earnings</b>			
Balance at January 1	89,082	74,323	60,196
Cumulative effect of change in accounting principle	–	–	(265)
<b>Balance at beginning of year, adjusted</b>	<b>89,082</b>	<b>74,323</b>	<b>59,931</b>
Net income	16,928	14,759	15,392
Cash dividends paid to JPMorgan Chase & Co.	(8,000)	–	(1,000)
Net internal legal entity mergers	941	–	–
<b>Balance at December 31</b>	<b>98,951</b>	<b>89,082</b>	<b>74,323</b>
<b>Accumulated other comprehensive income</b>			
Balance at January 1	3,956	2,179	6,511
Other comprehensive income/(loss)	(1,936)	1,777	(4,332)
<b>Balance at December 31</b>	<b>2,020</b>	<b>3,956</b>	<b>2,179</b>
<b>Total stockholder's equity</b>	<b>\$ 195,538</b>	<b>\$ 185,624</b>	<b>\$ 168,766</b>

The Notes to Consolidated Financial Statements are an integral part of these statements.

## Consolidated statements of cash flows

JPMorgan Chase Bank, National Association  
(a wholly-owned subsidiary of JPMorgan Chase & Co.)

Year ended December 31, (in millions)	2015	2014	2013
<b>Operating activities</b>			
Net income	\$ 16,928	\$ 14,759	\$ 15,392
Adjustments to reconcile net income to net cash provided by/(used in) operating activities:			
Provision for credit losses	1,376	832	(1,247)
Depreciation and amortization	4,559	4,343	4,974
Deferred tax expense	1,050	3,776	7,921
Other	(202)	(68)	(643)
Originations and purchases of loans held-for-sale	(49,197)	(67,525)	(75,927)
Proceeds from sales, securitizations and paydowns of loans held-for-sale	50,451	71,407	73,565
Net change in:			
Trading assets	38,192	(11,409)	74,384
Securities borrowed	7,106	7,674	15,727
Accrued interest and accounts receivable	1,623	9,598	(1,804)
Other assets	(486)	(17,703)	6,612
Trading liabilities	(22,417)	22,637	(12,070)
Accounts payable and other liabilities	(1,938)	(8,933)	(14,106)
Other operating adjustments	1,024	4,904	(1,174)
<b>Net cash provided by operating activities</b>	<b>48,069</b>	<b>34,292</b>	<b>91,604</b>
<b>Investing activities</b>			
Net change in:			
Deposits with banks	164,927	(163,246)	(189,752)
Federal funds sold and securities purchased under resale agreements	(6,666)	41,867	44,893
Held-to-maturity securities:			
Proceeds from paydowns and maturities	6,099	4,169	189
Purchases	(6,204)	(10,345)	(24,214)
Available-for-sale securities:			
Proceeds from paydowns and maturities	76,303	88,727	87,291
Proceeds from sales	37,362	24,425	69,189
Purchases	(68,027)	(118,271)	(114,582)
Proceeds from sales and securitizations of loans held-for-investment	17,975	19,387	11,850
Other changes in loans, net	(104,819)	(47,922)	(23,965)
All other investing activities, net	2,544	688	(2,790)
<b>Net cash provided by/(used in) investing activities</b>	<b>119,494</b>	<b>(160,521)</b>	<b>(141,891)</b>
<b>Financing activities</b>			
Net change in:			
Deposits	(131,456)	127,045	67,308
Federal funds purchased and securities loaned or sold under repurchase agreements	(17,057)	(18,291)	(45,878)
Other borrowed funds	(8,103)	10,011	6,554
Beneficial interests issued by consolidated variable interest entities	(5,587)	(527)	(8,509)
Proceeds from long-term borrowings	16,728	35,498	45,559
Payments of long-term borrowings	(22,719)	(39,656)	(40,829)
Cash capital contribution from JPMorgan Chase & Co.	4	477	12,752
Dividends paid to JPMorgan Chase & Co.	(8,000)	–	(1,000)
All other financing activities, net	1,620	469	348
<b>Net cash provided by/(used in) financing activities</b>	<b>(174,570)</b>	<b>115,026</b>	<b>36,305</b>
Effect of exchange rate changes on cash and due from banks	(271)	(1,115)	275
Net decrease in cash and due from banks	(7,278)	(12,318)	(13,707)
Cash and due from banks at the beginning of the period	26,637	38,955	52,662
<b>Cash and due from banks at the end of the period</b>	<b>\$ 19,359</b>	<b>\$ 26,637</b>	<b>\$ 38,955</b>
Cash interest paid	\$ 3,366	\$ 4,536	\$ 4,969
Cash income taxes paid/(refunded), net <sup>(a)</sup>	8,272	(481)	3,576

(a) Includes \$7.5 billion, \$(1.1) billion, and \$3.0 billion paid to/(refunded from) JPMorgan Chase & Co. in 2015, 2014 and 2013, respectively.

The Notes to Consolidated Financial Statements are an integral part of these statements.



## Notes to consolidated financial statements

JPMorgan Chase Bank, National Association  
(a wholly-owned subsidiary of JPMorgan Chase & Co.)

### Note 1 – Overview and basis of presentation

JPMorgan Chase Bank, National Association (“JPMorgan Chase Bank, N.A.”), is a wholly-owned bank subsidiary of JPMorgan Chase & Co. (“JPMorgan Chase”), which is a leading global financial services firm and one of the largest banking institutions in the United States of America (“U.S.”), with operations worldwide. JPMorgan Chase Bank, N.A. is a national banking association that is chartered by the Office of the Comptroller of the Currency (“OCC”), a bureau of the United States Department of the Treasury. JPMorgan Chase Bank, N.A.’s main office is located in Columbus, Ohio, and it has retail branches in 23 states. JPMorgan Chase Bank, N.A. operates nationally as well as through overseas branches and subsidiaries, representative offices and subsidiary foreign banks. One of its principal wholly-owned operating subsidiaries in the United Kingdom (“U.K.”) is J.P. Morgan Securities plc. JPMorgan Chase Bank, N.A. either directly or through such offices, branches and subsidiaries offers a wide range of banking services to its U.S. and non-U.S. customers including investment banking, financial services for consumers and small businesses, commercial banking, financial transactions processing and asset management. Under the J.P. Morgan and Chase brands, JPMorgan Chase Bank, N.A. serves millions of customers in the U.S. and many of the world’s most prominent corporate, institutional and governmental clients.

The JPMorgan Chase Bank, N.A. Board of Directors is responsible for the oversight of the management of JPMorgan Chase Bank, N.A. The JPMorgan Chase Bank, N.A. Board accomplishes this function acting directly and through the principal standing committees of JPMorgan Chase’s Board of Directors.

The accounting and financial reporting policies of JPMorgan Chase Bank, N.A. and its subsidiaries conform to accounting principles generally accepted in the U.S. (“U.S. GAAP”). Additionally, where applicable, the policies conform to the accounting and reporting guidelines prescribed by regulatory authorities.

Certain amounts reported in prior periods have been reclassified to conform with the current presentation.

#### Supervision and regulation

JPMorgan Chase and its subsidiaries (including JPMorgan Chase Bank, N.A.) are subject to regulation under state and federal laws in the U.S., as well as the applicable laws of each of the various jurisdictions outside the U.S. in which JPMorgan Chase does business.

As a result of regulatory reforms enacted and proposed in the U.S. and abroad, JPMorgan Chase has been experiencing a period of significant change in regulation which has had and could continue to have significant consequences for how JPMorgan Chase conducts business. JPMorgan Chase continues to work diligently in assessing the regulatory changes it is facing, and is devoting substantial resources to

comply with all the new regulations, while, at the same time, endeavoring to best meet the needs and expectations of its customers, clients and shareholders. These efforts include the implementation of new policies, procedures and controls, and appropriate adjustments to JPMorgan Chase’s business and operations, legal entity structure and capital and liquidity management policies, procedures and controls. The combined effect of numerous rule-makings by multiple governmental agencies and regulators, and the potential conflicts or inconsistencies among such rules, present challenges and risks to JPMorgan Chase’s business and operations. Given the current status of the regulatory developments, JPMorgan Chase cannot currently quantify all of the possible effects on its business and operations of the significant changes that are currently underway. For more information, see Risk Factors on pages 8-18 of JPMorgan Chase’s Annual Report on Form 10-K for the year ended December 31, 2015 (the “2015 Form 10-K”).

#### Financial holding company:

*Consolidated supervision by the Board of Governors of the Federal Reserve System (the “Federal Reserve”).* As a bank holding company (“BHC”) and a financial holding company, JPMorgan Chase is subject to comprehensive consolidated supervision, regulation and examination by the Federal Reserve. The Federal Reserve acts as an “umbrella regulator” and certain of JPMorgan Chase’s subsidiaries are regulated directly by additional authorities based on the particular activities of those subsidiaries. For example, JPMorgan Chase’s national bank subsidiaries, such as JPMorgan Chase Bank, N.A., and Chase Bank USA, N.A., are subject to supervision and regulation by the Office of the Comptroller of the Currency (“OCC”) and, with respect to certain matters, by the Federal Reserve and the Federal Deposit Insurance Corporation (the “FDIC”). Non-bank subsidiaries, such as JPMorgan Chase’s U.S. broker-dealers, are subject to supervision and regulation by the SEC and, with respect to certain futures-related and swaps-related activities, by the Commodity Futures Trading Commission (“CFTC”). See Securities and broker-dealer regulation, Investment management regulation and Derivatives regulation below. In addition, JPMorgan Chase’s consumer activities are subject to supervision and regulation by the Consumer Financial Protection Bureau (“CFPB”).

*Scope of permissible business activities.* The Bank Holding Company Act generally restricts BHCs from engaging in business activities other than the business of banking and certain closely related activities. Financial holding companies generally can engage in a broader range of financial activities than are otherwise permissible for BHCs, as long as they continue to meet the eligibility requirements for financial holding companies (including requirements that the financial holding company and each of its U.S. depository institution subsidiaries maintain their status as “well-capitalized” and “well-managed”). The broader range of permissible activities for financial holding companies

## Notes to consolidated financial statements

JPMorgan Chase Bank, National Association  
(a wholly-owned subsidiary of JPMorgan Chase & Co.)

includes underwriting, dealing and making markets in securities, and making merchant banking investments in non-financial companies.

The Federal Reserve has the authority to limit a financial holding company's ability to conduct activities that would otherwise be permissible if the financial holding company or any of its depository institution subsidiaries ceases to meet the applicable eligibility requirements. The Federal Reserve may also impose corrective capital and/or managerial requirements on the financial holding company and may require divestiture of the holding company's depository institutions if the deficiencies persist. Federal regulations also provide that if any depository institution controlled by a financial holding company fails to maintain a satisfactory rating under the Community Reinvestment Act, the Federal Reserve must prohibit the financial holding company and its subsidiaries from engaging in any activities other than those permissible for bank holding companies. In addition, a financial holding company must obtain Federal Reserve approval before engaging in certain banking and other financial activities both in the U.S. and internationally, as further described under Regulation of acquisitions below.

*Activities restrictions under the Volcker Rule.* Section 619 of the Wall Street Reform and Consumer Protection Act (the "Dodd-Frank Act") (the "Volcker Rule") prohibits banking entities, including JPMorgan Chase, from engaging in certain "proprietary trading" activities, subject to exceptions for underwriting, market-making, risk-mitigating hedging and certain other activities. In addition, the Volcker Rule limits the sponsorship of, and investment in, "covered funds" (as defined by the Volcker Rule) and imposes limits on certain transactions between JPMorgan Chase and its sponsored funds (see JPMorgan Chase's subsidiary banks - Restrictions on transactions with affiliates below). The Volcker Rule, which became effective in July 2015, requires banking entities to establish comprehensive compliance programs reasonably designed to help ensure and monitor compliance with the restrictions under the Volcker Rule, including, in order to distinguish permissible from impermissible risk-taking activities, the measurement, monitoring and reporting of certain key metrics. Given the uncertainty and complexity of the Volcker Rule's framework, the full impact of the Volcker Rule will ultimately depend on its ongoing interpretation by the five regulatory agencies responsible for its oversight.

*Capital and liquidity requirements.* The Federal Reserve establishes capital and leverage requirements for JPMorgan Chase and evaluates its compliance with such requirements. The OCC establishes similar capital and leverage requirements for JPMorgan Chase's national banking subsidiaries. For more information about the applicable requirements relating to risk-based capital and leverage in the U.S. under the most recent capital framework established by the Basel Committee on Banking Supervision (the "Basel Committee") ("Basel III"), see Regulatory capital on pages 117-118 and Note 28 of the 2015 Form 10-K.

Under Basel III, bank holding companies and banks are required to measure their liquidity against two specific liquidity tests: the liquidity coverage ratio ("LCR") and the net stable funding ratio ("NSFR"). The U.S. banking regulators have approved the final LCR rule ("U.S. LCR"), which became effective on January 1, 2015. A proposed U.S. rule for NSFR is expected. For additional information on these ratios, see Liquidity Risk Management on pages 159-164 of the 2015 Form 10-K. It is likely that the banking supervisors will continue to refine and enhance the Basel III capital framework for financial institutions. The Basel Committee recently finalized revisions to market risk capital for trading books; other proposals being contemplated by the Basel Committee include revisions to, among others, credit risk capital calculations, the measurement methodology to calculate counterparty credit risk, the elimination of the "advanced measurement approach" for operational risk, and revisions to the securitization framework. After a proposal is finalized by the Basel Committee, U.S. banking regulators would then need to propose requirements applicable to U.S. financial institutions.

*Stress tests.* The Federal Reserve has adopted supervisory stress tests for large bank holding companies, including JPMorgan Chase, which form part of the Federal Reserve's annual Comprehensive Capital Analysis and Review ("CCAR") framework. Under the framework, JPMorgan Chase must conduct semi-annual company-run stress tests and, in addition, must submit an annual capital plan to the Federal Reserve, taking into account the results of separate stress tests designed by JPMorgan Chase and the Federal Reserve. In reviewing JPMorgan Chase's capital plan, the Federal Reserve considers both quantitative and qualitative factors. Qualitative assessments include (among other things) the comprehensiveness of the plan, the assumptions and analysis underlying the plan, and the extent to which JPMorgan Chase has satisfied certain supervisory matters related to JPMorgan Chase's processes and analyses, including the design and operational effectiveness of the controls governing such processes. Moreover, JPMorgan Chase is required to receive a notice of non-objection from the Federal Reserve before taking capital actions, such as paying dividends, implementing common equity repurchase programs or redeeming or repurchasing capital instruments. The OCC requires JPMorgan Chase Bank, N.A. to perform separate, similar annual stress tests. JPMorgan Chase publishes each year the results of its mid-cycle stress tests under JPMorgan Chase's internally-developed "severely adverse" scenario and the results of its (and its two primary subsidiary banks') annual stress tests under the supervisory "severely adverse" scenarios provided by the Federal Reserve and the OCC. Commencing with the 2016 CCAR, the annual CCAR submission will be due on April 5. Results will be published by the Federal Reserve by June 30, with disclosures of results by BHCs, including JPMorgan Chase, to follow within 15 days. Also commencing

in 2016, the mid-cycle capital stress test submissions will be due on October 5 and BHCs, including JPMorgan Chase, will publish results by November 4. For additional information on JPMorgan Chase's CCAR, see Regulatory capital on pages 288-290 of the 2015 Form 10-K.

*Enhanced prudential standards.* The Financial Stability Oversight Council ("FSOC"), among other things, recommends prudential standards and reporting and disclosure requirements to the Federal Reserve for systemically important financial institutions, such as JPMorgan Chase. The Federal Reserve has adopted several rules to implement the heightened prudential standards, including final rules relating to risk management and corporate governance of subject BHCs. BHCs with \$50 billion or more in total consolidated assets are required to comply with enhanced liquidity and overall risk management standards, including a buffer of highly liquid assets based on projected funding needs for 30 days, and their board of directors is required to have increased oversight of their risk management activities. For information on liquidity measures, see Liquidity Risk Management on pages 159-164 of the 2015 Form 10-K. Several additional proposed rules are still being considered, including rules relating to single-counterparty credit limits and an "early remediation" framework to address financial distress or material management weaknesses.

*Risk reporting.* In January 2013, the Basel Committee issued new regulations relating to risk aggregation and reporting. Under these regulations, the banking institution's risk governance framework must encompass risk-data aggregation and reporting, and data aggregation must be highly automated and allow for minimal manual intervention. The regulations also impose higher standards for the accuracy, comprehensiveness, granularity and timely distribution of data reporting, and call for regular supervisory review of the banking institution's risk aggregation and reporting. These new standards became effective for global systemically important banks ("GSIBs"), including JPMorgan Chase, on January 1, 2016.

*Orderly liquidation authority and resolution and recovery.* As a BHC with assets of \$50 billion or more, JPMorgan Chase is required to submit annually to the Federal Reserve and the FDIC a plan for resolution under the Bankruptcy Code in the event of material distress or failure (a "resolution plan"). The FDIC also requires each insured depository institution with \$50 billion or more in assets to provide a resolution plan. For more information about JPMorgan Chase's resolution plan, see Risk Factors on pages 8-18 of the 2015 Form 10-K. In addition, certain financial companies, including JPMorgan Chase and certain of its subsidiaries, can be subjected to resolution under an "orderly liquidation authority." The U.S. Treasury Secretary, in consultation with the President of the United States, must first make certain extraordinary financial distress and systemic risk determinations, and action must be recommended by the FDIC and the Federal Reserve. Absent such actions,

JPMorgan Chase, as a BHC, would remain subject to resolution under the Bankruptcy Code. In December 2013, the FDIC issued a draft policy statement describing its "single point of entry" strategy for resolution of systemically important financial institutions under the orderly liquidation authority. This strategy seeks to keep operating subsidiaries of the BHC open and impose losses on shareholders and creditors of the holding company in receivership according to their statutory order of priority.

JPMorgan Chase has a comprehensive recovery plan detailing the actions it would take to avoid failure by remaining well-capitalized and well-funded in the case of an adverse event. JPMorgan Chase has provided the Federal Reserve with comprehensive confidential supervisory information and analyses about JPMorgan Chase's businesses, legal entities and corporate governance and about its crisis management governance, capabilities and available alternatives to raise liquidity and capital in severe market circumstances. The OCC has published for comment proposed guidelines establishing standards for recovery planning by insured national banks, including JPMorgan Chase Bank, N.A. and Chase Bank USA, N.A.

Regulators in the U.S. and abroad continue to be focused on developing measures designed to address the possibility or the perception that large financial institutions, including JPMorgan Chase, may be "too big to fail," and to provide safeguards so that, if a large financial institution does fail, it can be resolved without the use of public funds. Higher capital surcharges on GSIBs, requirements for certain large bank holding companies to maintain a minimum amount of long-term debt to facilitate orderly resolution of those firms, and the International Swaps and Derivatives Association ("ISDA") protocol relating to the "close-out" of derivatives transactions during the resolution of a large cross-border financial institution, are examples of initiatives to address "too big to fail." For further information on the potential impact of the GSIB framework and Total Loss Absorbing Capacity ("TLAC"), see Regulatory capital on pages 288-290 and Risk Factors on pages 8-18 of the 2015 Form 10-K, and on the ISDA close-out protocol, see Derivatives regulation below.

*Holding company as source of strength for bank subsidiaries.* JPMorgan Chase & Co. is required to serve as a source of financial strength for its depository institution subsidiaries and to commit resources to support those subsidiaries. This support may be required by the Federal Reserve at times when JPMorgan Chase might otherwise determine not to provide it.

*Regulation of acquisitions.* Acquisitions by bank holding companies and their banks are subject to multiple requirements by the Federal Reserve and the OCC. For example, financial holding companies and bank holding companies are required to obtain the approval of the Federal Reserve before they may acquire more than 5% of the voting shares of an unaffiliated bank. In addition,

## Notes to consolidated financial statements

JPMorgan Chase Bank, National Association  
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acquisitions by financial companies are prohibited if, as a result of the acquisition, the total liabilities of the financial company would exceed 10% of the total liabilities of all financial companies. In contrast, because the liabilities of non-U.S. financial companies are calculated differently under this rule, a non-U.S. financial company could hold significantly more than 10% of the U.S. market without exceeding the concentration limit. In addition, for certain acquisitions, JPMorgan Chase must provide written notice to the Federal Reserve prior to acquiring direct or indirect ownership or control of any voting shares of any company with over \$10 billion in assets that is engaged in activities that are “financial in nature”.

### **JPMorgan Chase’s subsidiary banks:**

JPMorgan Chase’s two primary subsidiary banks, JPMorgan Chase Bank, N.A. and Chase Bank USA, N.A., are FDIC-insured national banks regulated by the OCC. As national banks, the activities of JPMorgan Chase Bank, N.A. and Chase Bank USA, N.A. are limited to those specifically authorized under the National Bank Act and related interpretations by the OCC.

*FDIC deposit insurance.* The FDIC deposit insurance fund provides insurance coverage for certain deposits, which is funded through assessments on banks, such as JPMorgan Chase Bank, N.A. and Chase Bank USA, N.A. Changes in the methodology to calculate such assessments, resulting from the enactment of the Dodd-Frank Act, significantly increased the assessments that JPMorgan Chase’s bank subsidiaries pay annually to the FDIC. In October 2015, the FDIC proposed a new assessment surcharge on insured depository institutions with total consolidated assets greater than \$10 billion in order to raise the reserve ratio for the FDIC deposit insurance fund. Future FDIC rule-making could further increase such assessments.

*FDIC powers upon a bank insolvency.* Upon the insolvency of an insured depository institution, such as JPMorgan Chase Bank, N.A., the FDIC may be appointed as the conservator or receiver under the Federal Deposit Insurance Act (“FDIA”). In addition, as noted above, where a systemically important financial institution, such as JPMorgan Chase & Co., is “in default” or “in danger of default”, the FDIC may be appointed as receiver in order to conduct an orderly liquidation. In both cases, the FDIC has broad powers to transfer any assets and liabilities without the approval of the institution’s creditors.

*Cross-guarantee.* An FDIC-insured depository institution can be held liable for any loss incurred or expected to be incurred by the FDIC in connection with another FDIC-insured institution under common control with such institution being “in default” or “in danger of default” (commonly referred to as “cross-guarantee” liability). An FDIC cross-guarantee claim against a depository institution is generally superior in right of payment to claims of the holding company and its affiliates against such depository institution.

*Prompt corrective action and early remediation.* The Federal Deposit Insurance Corporation Improvement Act of 1991 requires the relevant federal banking regulator to take “prompt corrective action” with respect to a depository institution if that institution does not meet certain capital adequacy standards. While these regulations apply only to banks, such as JPMorgan Chase Bank, N.A. and Chase Bank USA, N.A., the Federal Reserve is authorized to take appropriate action against the parent BHC, such as JPMorgan Chase & Co., based on the undercapitalized status of any bank subsidiary. In certain instances, the BHC would be required to guarantee the performance of the capital restoration plan for its undercapitalized subsidiary.

*OCC Heightened Standards.* The OCC has issued final regulations and guidelines establishing heightened standards for large banks. The guidelines establish minimum standards for the design and implementation of a risk governance framework for banks. While the bank may use certain components of the parent company’s risk governance framework, the framework must ensure that the bank’s risk profile is easily distinguished and separate from the parent for risk management purposes. The bank’s board or risk committee is responsible for approving the bank’s risk governance framework, providing active oversight of the bank’s risk-taking activities and holding management accountable for adhering to the risk governance framework.

*Restrictions on transactions with affiliates.* The bank subsidiaries of JPMorgan Chase & Co. are subject to certain restrictions imposed by federal law on extensions of credit to, investments in stock or securities of, and derivatives, securities lending and certain other transactions with, JPMorgan Chase & Co. and certain other affiliates. These restrictions prevent JPMorgan Chase & Co. and other affiliates from borrowing from a bank subsidiary unless the loans are secured in specified amounts and comply with certain other requirements. For more information, see Note 25. In addition, the Volcker Rule imposes a prohibition on such transactions between any JPMorgan Chase entity and covered funds for which a JPMorgan Chase entity serves as the investment manager, investment advisor, commodity trading advisor or sponsor, as well as, subject to a limited exception, any covered fund controlled by such funds.

*Dividend restrictions.* Federal law imposes limitations on the payment of dividends by national banks, such as JPMorgan Chase Bank, N.A. See Note 25 for the amount of dividends that JPMorgan Chase Bank, N.A. could pay, at January 1, 2016, to JPMorgan Chase without the approval of its banking regulators.

In addition to the dividend restrictions described above, the OCC, the Federal Reserve and the FDIC have authority to prohibit or limit the payment of dividends by the banking organizations they supervise, including JPMorgan Chase and its bank and BHC subsidiaries, if, in the banking regulator’s opinion, payment of a dividend would constitute an unsafe

or unsound practice in light of the financial condition of the banking organization.

*Depositor preference.* Under federal law, the claims of a receiver of an insured depository institution for administrative expense and the claims of holders of U.S. deposit liabilities (including the FDIC) have priority over the claims of other unsecured creditors of the institution, including public noteholders and depositors in non-U.S. offices. As a result, such persons could receive substantially less than the depositors in U.S. offices of the depository institution. The U.K. Prudential Regulation Authority (the “PRA”), a subsidiary of the Bank of England which has responsibility for prudential regulation of banks and other systemically important institutions, has issued a proposal that may require JPMorgan Chase to either obtain equal treatment for U.K. depositors or “subsidiarize” in the U.K. In September 2013, the FDIC issued a final rule which clarifies that foreign deposits are considered deposits under the FDIA if they are payable in the U.S. as well as in the foreign branch.

*CFPB regulation and supervision, and other consumer regulations.* JPMorgan Chase and its national bank subsidiaries, including JPMorgan Chase Bank, N.A. and Chase Bank USA, N.A., are subject to supervision and regulation by the CFPB with respect to federal consumer protection laws, including laws relating to fair lending and the prohibition of unfair, deceptive or abusive acts or practices in connection with the offer, sale or provision of consumer financial products and services. These laws include the Truth-in-Lending, Equal Credit Opportunity (“ECOA”), Fair Credit Reporting, Fair Debt Collection Practice, Electronic Funds Transfer, Credit Card Accountability, Responsibility and Disclosure (“CARD”) and Home Mortgage Disclosure Acts. The CFPB also has authority to impose new disclosure requirements for any consumer financial product or service. The CFPB has issued informal guidance on a variety of topics (such as the collection of consumer debts and credit card marketing practices) and has taken enforcement actions against certain financial institutions. Much of the CFPB’s initial rule-making efforts have addressed mortgage related topics, including ability to repay and qualified mortgage standards, mortgage servicing standards, loan originator compensation standards, high-cost mortgage requirements, Home Mortgage Disclosure Act requirements, appraisal and escrow standards and requirements for higher-priced mortgages. Other areas of recent focus include pre-authorized electronic funds transfers, “add-on” products, matters involving consumer populations considered vulnerable by the CFPB (such as students), credit reporting, and the furnishing of credit scores to individuals. The CFPB has been focused on automobile dealer discretionary interest rate markups, and on holding JPMorgan Chase and other purchasers of such contracts (“indirect lenders”) responsible under the ECOA for statistical disparities in markups charged by the dealers to borrowers of different

races or ethnicities. For information regarding a current investigation relating to indirect lending to automobile dealers, see Note 29.

The activities of JPMorgan Chase Bank, N.A. and Chase Bank USA, N.A. as consumer lenders also are subject to regulation under various state statutes which are enforced by the respective state’s Attorney General.

**Securities and broker-dealer regulation:**

JPMorgan Chase conducts securities underwriting, dealing and brokerage activities in the U.S. through J.P. Morgan Securities LLC and other broker-dealer subsidiaries, all of which are subject to regulations of the SEC, the Financial Industry Regulatory Authority and the New York Stock Exchange, among others. JPMorgan Chase conducts similar securities activities outside the U.S. subject to local regulatory requirements. In the U.K., those activities are conducted by J.P. Morgan Securities plc, which is regulated by the PRA and by the Financial Conduct Authority (“FCA”), which regulates prudential matters for other firms and conduct matters for all market participants. Broker-dealers are subject to laws and regulations covering all aspects of the securities business, including sales and trading practices, securities offerings, publication of research reports, use of customer’s funds, the financing of clients’ purchases, capital structure, record-keeping and retention, and the conduct of their directors, officers and employees. For information on the net capital of J.P. Morgan Securities LLC and J.P. Morgan Clearing Corp., and the applicable requirements relating to risk-based capital for J.P. Morgan Securities plc, see Broker-dealer regulatory capital on page 158 of the 2015 Form 10-K. Future rule-making under the Dodd-Frank Act and the Department of Labor will involve (among other things) the standard of care applicable to broker-dealers when dealing with customers.

**Investment management regulation:**

JPMorgan Chase’s investment management business is subject to significant regulation in numerous jurisdictions around the world relating to, among other things, the safeguarding of client assets, offerings of funds, marketing activities, transactions among affiliates and management of client funds. Certain of JPMorgan Chase’s subsidiaries are registered with, and subject to oversight by, the SEC as investment advisers. As such, JPMorgan Chase’s registered investment advisers are subject to the fiduciary and other obligations imposed under the Investment Advisers Act of 1940 and the rules and regulations promulgated thereunder, as well as various state securities laws. For information regarding investigations and litigation in connection with disclosures to clients related to proprietary products, see Note 29.

JPMorgan Chase’s asset management business continues to be affected by ongoing rule-making. In July 2013, the SEC adopted amendments to rules that govern money-market funds, requiring a floating net asset value for institutional prime money-market funds. The Department of Labor has

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also proposed a rule that would significantly expand the universe of persons viewed as investment fiduciaries to retirement plans and IRAs. Further guidance on Volcker Rule regulations regarding “covered funds”, and their impact on JPMorgan Chase’s asset management activities, is expected from regulators.

### **Derivatives regulation:**

JPMorgan Chase is subject to comprehensive regulation of its derivatives businesses. The regulations impose capital and margin requirements, require central clearing of standardized over-the-counter derivatives, require that certain standardized over-the-counter swaps be traded on regulated trading venues, and provide for reporting of certain mandated information. In addition, the Act requires the registration of “swap dealers” and “major swap participants” with the CFTC and of “security-based swap dealers” and “major security-based swap participants” with the SEC. JPMorgan Chase Bank, N.A., J.P. Morgan Securities LLC, J.P. Morgan Securities plc and J.P. Morgan Ventures Energy Corporation have registered with the CFTC as swap dealers, and JPMorgan Chase Bank, N.A., J.P. Morgan Securities LLC and J.P. Morgan Securities plc will likely be required to register with the SEC as security-based swap dealers. As a result of their registration as swap dealers or security-based swap dealers, these entities will be subject to a new, comprehensive regulatory framework applicable to their swap or security-based swap activities, which includes capital requirements, rules regulating their swap activities, rules requiring the collateralization of uncleared swaps, rules regarding segregation of counterparty collateral, business conduct and documentation standards, record-keeping and reporting obligations, and anti-fraud and anti-manipulation requirements. Further, some of the rules for derivatives apply extraterritorially to U.S. firms doing business with clients outside of the U.S., as well as to the overseas activities of non-U.S. subsidiaries of JPMorgan Chase that either deal with U.S. persons or that are guaranteed by U.S. subsidiaries of JPMorgan Chase; however, the full scope of the extra-territorial impact of the U.S. swaps regulation has not been finalized and therefore remains unclear. The effect of these rules may require banking entities, such as JPMorgan Chase, to modify the structure of their derivatives businesses and face increased operational and regulatory costs. In the European Union (the “EU”), the implementation of the European Market Infrastructure Regulation (“EMIR”) and the revision of the Markets in Financial Instruments Directive (“MiFID II”) will result in comparable, but not identical, changes to the European regulatory regime for derivatives. The combined effect of the U.S. and EU requirements, and the potential conflicts and inconsistencies between them, present challenges and risks to the structure and operating model of JPMorgan Chase’s derivatives businesses.

JPMorgan Chase, along with 17 other financial institutions, agreed in November 2014 to adhere to the Resolution Stay Protocol developed by ISDA in response to regulator

concerns that the close-out of derivatives transactions during the resolution of a large cross-border financial institution could impede resolution efforts and potentially destabilize markets. The Resolution Stay Protocol provides for the contractual recognition of cross-border stays under various statutory resolution regimes and a contractual stay on certain cross-default rights.

In the U.S., two subsidiaries of JPMorgan Chase are registered as futures commission merchants, and other subsidiaries are either registered with the CFTC as commodity pool operators and commodity trading advisors or exempt from such registration. These CFTC-registered subsidiaries are also members of the National Futures Association.

### **Data regulation:**

JPMorgan Chase and its subsidiaries are subject to federal, state and international laws and regulations concerning the use and protection of certain customer, employee and other personal and confidential information, including those imposed by the Gramm-Leach-Bliley Act and the Fair Credit Reporting Act, as well as the EU Data Protection Directive.

In addition, there are numerous proposals pending before U.S. and non-U.S. legislative and regulatory bodies regarding privacy and data protection. For example, the European Parliament and the European Council have reached agreement on a data protection reform proposed by the European Commission which includes numerous operational requirements, adds a requirement to notify individuals of data breaches and establishes enhanced sanctions for non-compliance, including increased fines.

### **The Bank Secrecy Act and Economic Sanctions:**

The Bank Secrecy Act (“BSA”) requires all financial institutions, including banks and securities broker-dealers, to, among other things, establish a risk-based system of internal controls reasonably designed to prevent money laundering and the financing of terrorism. The BSA includes a variety of record-keeping and reporting requirements (such as cash transaction and suspicious activity reporting), as well as due diligence/know your customer documentation requirements. In January 2013, JPMorgan Chase entered into Consent Orders with its banking regulators relating to JPMorgan Chase’s Bank Secrecy Act/Anti-Money Laundering policies, procedures and controls; JPMorgan Chase has taken significant steps to modify and enhance its processes and controls with respect to its Anti-Money Laundering procedures and to remediate the issues identified in the Consent Order. JPMorgan Chase is also subject to the regulations and economic sanctions programs administered by the U.S. Treasury’s Office of Foreign Assets Control (“OFAC”).

### **Anti-Corruption:**

JPMorgan Chase is subject to laws and regulations relating to corrupt and illegal payments to government officials and others in the jurisdictions in which it operates, including the U.S. Foreign Corrupt Practices Act and the U.K. Bribery Act.

For more information on a current investigation relating to, among other things, JPMorgan Chase's hiring of persons referred by government officials and clients, see Note 29.

**Compensation practices:**

JPMorgan Chase's compensation practices are subject to oversight by the Federal Reserve, as well as other agencies. The Federal Reserve has issued guidance jointly with the FDIC and the OCC that is designed to ensure that incentive compensation paid by banking organizations does not encourage imprudent risk-taking that threatens the organizations' safety and soundness. In addition, under the Dodd-Frank Act, federal regulators, including the Federal Reserve, must issue regulations or guidelines requiring covered financial institutions, including JPMorgan Chase, to report the structure of all of their incentive-based compensation arrangements and prohibit incentive-based payment arrangements that encourage inappropriate risks by providing compensation that is excessive or that could lead to material financial loss to the institution. The Federal Reserve has conducted a review of the incentive compensation policies and practices of a number of large banking institutions, including JPMorgan Chase, and the supervisory findings of such review are incorporated in JPMorgan Chase's supervisory ratings. In addition to the Federal Reserve, the Financial Stability Board has established standards covering compensation principles for banks. In Europe, the Fourth Capital Requirements Directive (CRD IV) includes compensation provisions. In the U.K., compensation standards are governed by the Remuneration Code of the PRA and the FCA. The implementation of the Federal Reserve's and other banking regulators' guidelines regarding compensation are expected to evolve over the next several years, and may affect the manner in which JPMorgan Chase structures its compensation programs and practices.

**Significant international regulatory initiatives:**

The EU operates a European Systemic Risk Board which monitors financial stability, together with European Supervisory Agencies which set detailed regulatory rules and encourage supervisory convergence across the 28 Member States. The EU has also created a Single Supervisory Mechanism for the euro-zone, under which the regulation of all banks in that zone will be under the auspices of the European Central Bank, together with a Single Resolution Mechanism and Single Resolution Board, having jurisdiction over bank resolution in the zone. At both global and EU levels, various proposals are under consideration to address risks associated with global financial institutions. Some of the initiatives adopted include increased capital requirements for certain trading instruments or exposures and compensation limits on certain employees located in affected countries.

In the EU, there is an extensive and complex program of final and proposed regulatory enhancement which reflects, in part, the EU's commitments to policies of the Group of Twenty Finance Ministers and Central Bank Governors

("G-20") together with other plans specific to the EU. This program includes EMIR, which requires, among other things, the central clearing of standardized derivatives; and MiFID II, which gives effect to the G-20 commitment to trading of derivatives through central clearing houses and exchanges and also includes significantly enhanced requirements for pre- and post-trade transparency and a significant reconfiguration of the regulatory supervision of execution venues.

The EU is also currently considering or implementing significant revisions to laws covering: depositary activities; credit rating activities; resolution of banks, investment firms and market infrastructures; anti-money-laundering controls; data security and privacy; corporate governance in financial firms; and implementation in the EU of the Basel III capital and liquidity standards.

Following the issuance of the Report of the High Level Expert Group on Reforming the Structure of the EU Banking Sector (the "Liikanen Group"), the EU has proposed legislation providing for a proprietary trading ban and mandatory separation of other trading activities within certain banks, while various EU Member States have separately enacted similar measures. In the U.K., legislation was adopted that mandates the separation (or "ring-fencing") of deposit-taking activities from securities trading and other analogous activities within banks, subject to certain exemptions. The legislation includes the supplemental recommendation of the Parliamentary Commission on Banking Standards (the "Tyrie Commission") that such ring-fences should be "electrified" by the imposition of mandatory forced separation on banking institutions that are deemed to test the limits of the safeguards. Parallel but distinct provisions have been enacted by the French, Belgian and German governments. These measures may separately or taken together have significant implications for JPMorgan Chase's organizational structure in Europe, as well as its permitted activities and capital deployment in the EU.

U.K. regulators are introducing a range of policy measures that make significant changes to the regulatory environment in the U.K. Alongside broader recommendations made by the Fair and Effective Markets Review which focused on fixed income currencies and commodities markets, there is a focus by U.K. regulators on raising standards and accountability of individuals, and promoting forward-looking conduct risk identification and mitigation, including by introducing the new Senior Managers and Certification Regimes.

**Consolidation**

The Consolidated Financial Statements include the accounts of JPMorgan Chase Bank, N.A. and other entities in which JPMorgan Chase Bank, N.A. has a controlling financial interest. All material intercompany balances and transactions have been eliminated.

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Assets held for clients in an agency or fiduciary capacity by JPMorgan Chase Bank, N.A. are not assets of JPMorgan Chase Bank, N.A. and are not included on the Consolidated balance sheets.

JPMorgan Chase Bank, N.A. determines whether it has a controlling financial interest in an entity by first evaluating whether the entity is a voting interest entity or a variable interest entity (“VIE”).

### *Voting Interest Entities*

Voting interest entities are entities that have sufficient equity and provide the equity investors voting rights that enable them to make significant decisions relating to the entity’s operations. For these types of entities, JPMorgan Chase Bank, N.A.’s determination of whether it has a controlling interest is primarily based on the amount of voting equity interests held. Entities in which JPMorgan Chase Bank, N.A. has a controlling financial interest, through ownership of the majority of the entities’ voting equity interests, or through other contractual rights that give JPMorgan Chase Bank, N.A. control, are consolidated by JPMorgan Chase Bank, N.A.

Investments in companies in which JPMorgan Chase Bank, N.A. has significant influence over operating and financing decisions (but does not own a majority of the voting equity interests) are accounted for (i) in accordance with the equity method of accounting (which requires JPMorgan Chase Bank, N.A. to recognize its proportionate share of the entity’s net earnings), or (ii) at fair value if the fair value option was elected. These investments are generally included in other assets, with income or loss included in other income.

Certain JPMorgan Chase Bank, N.A.-sponsored asset management funds are structured as limited partnerships or limited liability companies. While JPMorgan Chase Bank, N.A. acts as investment advisor for these structures and is responsible for day to day decision-making, equity interests held in the structures, if any, are insignificant and the non-affiliated members of the Boards of Directors have the ability to remove JPMorgan Chase Bank, N.A. as advisor without cause. Accordingly, JPMorgan Chase Bank, N.A. does not consolidate these funds.

JPMorgan Chase Bank, N.A.’s investment companies have investments in both publicly-held and privately-held entities. These investments are accounted for under investment company guidelines and accordingly, irrespective of the percentage of equity ownership interests held, are carried on the Consolidated balance sheets at fair value, and are recorded in other assets.

### *Variable Interest Entities*

VIEs are entities that, by design, either (1) lack sufficient equity to permit the entity to finance its activities without additional subordinated financial support from other parties, or (2) have equity investors that do not have the ability to make significant decisions relating to the entity’s operations through voting rights, or do not have the

obligation to absorb the expected losses, or do not have the right to receive the residual returns of the entity.

The most common type of VIE is a special purpose entity (“SPE”). SPEs are commonly used in securitization transactions in order to isolate certain assets and distribute the cash flows from those assets to investors. The basic SPE structure involves a company selling assets to the SPE; the SPE funds the purchase of those assets by issuing securities to investors. The legal documents that govern the transaction specify how the cash earned on the assets must be allocated to the SPE’s investors and other parties that have rights to those cash flows. SPEs are generally structured to insulate investors from claims on the SPE’s assets by creditors of other entities, including the creditors of the seller of the assets.

The primary beneficiary of a VIE (i.e., the party that has a controlling financial interest) is required to consolidate the assets and liabilities of the VIE. The primary beneficiary is the party that has both (1) the power to direct the activities of the VIE that most significantly impact the VIE’s economic performance; and (2) through its interests in the VIE, the obligation to absorb losses or the right to receive benefits from the VIE that could potentially be significant to the VIE.

To assess whether JPMorgan Chase Bank, N.A. has the power to direct the activities of a VIE that most significantly impact the VIE’s economic performance, JPMorgan Chase Bank, N.A. considers all the facts and circumstances, including its role in establishing the VIE and its ongoing rights and responsibilities. This assessment includes, first, identifying the activities that most significantly impact the VIE’s economic performance; and second, identifying which party, if any, has power over those activities. In general, the parties that make the most significant decisions affecting the VIE (such as asset managers, collateral managers, servicers, or owners of call options or liquidation rights over the VIE’s assets) or have the right to unilaterally remove those decision-makers are deemed to have the power to direct the activities of a VIE.

To assess whether JPMorgan Chase Bank, N.A. has the obligation to absorb losses of the VIE or the right to receive benefits from the VIE that could potentially be significant to the VIE, JPMorgan Chase Bank, N.A. considers all of its economic interests, including debt and equity investments, servicing fees, and derivatives or other arrangements deemed to be variable interests in the VIE. This assessment requires that JPMorgan Chase Bank, N.A. apply judgment in determining whether these interests, in the aggregate, are considered potentially significant to the VIE. Factors considered in assessing significance include: the design of the VIE, including its capitalization structure; subordination of interests; payment priority; relative share of interests held across various classes within the VIE’s capital structure; and the reasons why the interests are held by JPMorgan Chase Bank, N.A.



JPMorgan Chase Bank, N.A. performs on-going reassessments of: (1) whether entities previously evaluated under the majority voting-interest framework have become VIEs, based on certain events, and therefore subject to the VIE consolidation framework; and (2) whether changes in the facts and circumstances regarding JPMorgan Chase Bank, N.A.'s involvement with a VIE cause JPMorgan Chase Bank, N.A.'s consolidation conclusion to change.

In February 2010, the Financial Accounting Standards Board ("FASB") issued an amendment which deferred the requirements of the accounting guidance for VIEs for certain investment funds, including mutual funds, private equity funds and hedge funds. For the funds to which the deferral applies, JPMorgan Chase Bank, N.A. continues to apply other existing authoritative accounting guidance to determine whether such funds should be consolidated.

#### **Use of estimates in the preparation of consolidated financial statements**

The preparation of the Consolidated Financial Statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, revenue and expense, and disclosures of contingent assets and liabilities. Actual results could be different from these estimates.

#### **Foreign currency translation**

JPMorgan Chase Bank, N.A. revalues assets, liabilities, revenue and expense denominated in non-U.S. currencies into U.S. dollars using applicable exchange rates.

Gains and losses relating to translating functional currency financial statements for U.S. reporting are included in other comprehensive income/(loss) ("OCI") within stockholder's equity. Gains and losses relating to nonfunctional currency transactions, including non-U.S. operations where the functional currency is the U.S. dollar, are reported in the Consolidated statements of income.

#### **Offsetting assets and liabilities**

U.S. GAAP permits entities to present derivative receivables and derivative payables with the same counterparty and the related cash collateral receivables and payables on a net basis on the Consolidated balance sheets when a legally enforceable master netting agreement exists. U.S. GAAP also permits securities sold and purchased under repurchase agreements to be presented net when specified conditions are met, including the existence of a legally enforceable master netting agreement. JPMorgan Chase Bank, N.A. has elected to net such balances when the specified conditions are met.

JPMorgan Chase Bank, N.A. uses master netting agreements with third parties and affiliates to mitigate counterparty credit risk in certain transactions, including derivatives transactions, repurchase and reverse repurchase agreements, and securities borrowed and loaned agreements. A master netting agreement is a single contract with a counterparty that permits multiple

transactions governed by that contract to be terminated and settled through a single payment in a single currency in the event of a default (e.g., bankruptcy, failure to make a required payment or securities transfer or deliver collateral or margin when due after expiration of any grace period). Upon the exercise of termination rights by the non-defaulting party (i) all transactions are terminated, (ii) all transactions are valued and the positive value or "in the money" transactions are netted against the negative value or "out of the money" transactions and (iii) the only remaining payment obligation is of one of the parties to pay the netted termination amount. Upon exercise of repurchase agreement and securities loan default rights in general (i) all transactions are terminated and accelerated, (ii) all values of securities or cash held or to be delivered are calculated, and all such sums are netted against each other and (iii) the only remaining payment obligation is of one of the parties to pay the netted termination amount.

Typical master netting agreements for these types of transactions also often contain a collateral/margin agreement that provides for a security interest in, or title transfer of, securities or cash collateral/margin to the party that has the right to demand margin (the "demanding party"). The collateral/margin agreement typically requires a party to transfer collateral/margin to the demanding party with a value equal to the amount of the margin deficit on a net basis across all transactions governed by the master netting agreement, less any threshold. The collateral/margin agreement grants to the demanding party, upon default by the counterparty, the right to set-off any amounts payable by the counterparty against any posted collateral or the cash equivalent of any posted collateral/margin. It also grants to the demanding party the right to liquidate collateral/margin and to apply the proceeds to an amount payable by the counterparty.

For further discussion of JPMorgan Chase Bank, N.A.'s derivative instruments, see Note 7. For further discussion of JPMorgan Chase Bank, N.A.'s repurchase and reverse repurchase agreements, and securities borrowing and lending agreements, see Note 14.

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### Investments in qualified affordable housing projects

Effective January 1, 2015, JPMorgan Chase Bank, N.A. adopted new accounting guidance for investments in affordable housing projects that qualify for the low-income housing tax credit, which impacted the corporate & investment banking business. As a result of the adoption of this new guidance, JPMorgan Chase Bank, N.A. made an accounting policy election to amortize the initial cost of its qualifying investments in proportion to the tax credits and other benefits received, and to present the amortization as a component of income tax expense; previously such amounts were predominantly presented in other income. The guidance was required to be applied retrospectively, and accordingly, certain prior period amounts have been revised to conform with the current period presentation. The cumulative effect on retained earnings was a reduction of \$265 million as of January 1, 2013. The adoption of this accounting guidance resulted in an increase of \$849 million and \$868 million in other income and income tax expense, respectively, for the year ended December 31, 2014 and \$687 million and \$733 million, respectively, for the year ended December 31, 2013, which led to an increase of approximately 3% and 2%, respectively, in the effective tax rate for the years ended December 31, 2014 and 2013. The impact on net income in the periods affected was not material. For further information, see Note 24.

### Statements of cash flows

For JPMorgan Chase Bank, N.A.'s Consolidated statements of cash flows, cash is defined as those amounts included in cash and due from banks.

### Significant accounting policies

The following table identifies JPMorgan Chase Bank, N.A.'s other significant accounting policies and the Note and page where a detailed description of each policy can be found.

Fair value measurement	Note 4	Page 19
Fair value option	Note 5	Page 37
Derivative instruments	Note 7	Page 41
Noninterest revenue	Note 8	Page 56
Interest income and interest expense	Note 9	Page 58
Pension and other postretirement employee benefit plans	Note 10	Page 58
Employee stock-based incentives	Note 11	Page 63
Securities	Note 13	Page 65
Securities financing activities	Note 14	Page 71
Loans	Note 15	Page 75
Allowance for credit losses	Note 16	Page 94
Variable interest entities	Note 17	Page 98
Goodwill and other intangible assets	Note 18	Page 107
Premises and equipment	Note 19	Page 109
Long-term debt	Note 21	Page 110
Income taxes	Note 24	Page 114
Off-balance sheet lending-related financial instruments, guarantees and other commitments	Note 27	Page 119
Litigation	Note 29	Page 127

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### Note 2 – Accounting and reporting developments

#### Financial Accounting Standards Board (“FASB”) Standards Adopted during 2015

Standard	Summary of guidance	Effects on financial statements
Simplifying the presentation of debt issuance costs	<ul style="list-style-type: none"> <li>Requires that unamortized debt issuance costs be presented as a reduction of the applicable liability rather than as an asset.</li> <li>Does not impact the amortization method for these costs.</li> </ul>	<ul style="list-style-type: none"> <li>Adopted October 1, 2015<sup>(a)</sup></li> <li>There was no material impact on JPMorgan Chase Bank, N.A.’s Consolidated balance sheets, and no impact on JPMorgan Chase Bank, N.A.’s Consolidated results of operations.</li> </ul>
Disclosures for investments in certain entities that calculate net asset value per share (or its equivalent)	<ul style="list-style-type: none"> <li>Removes the requirement to categorize investments measured under the net asset value (“NAV”) practical expedient from the fair value hierarchy.</li> <li>Limits disclosures required for investments that are eligible to be measured using the NAV practical expedient to investments for which the entity has elected the practical expedient.</li> </ul>	<ul style="list-style-type: none"> <li>Adopted April 1, 2015</li> <li>The application of this guidance only affected the disclosures related to these investments and had no impact on JPMorgan Chase Bank, N.A.’s Consolidated balance sheets or results of operations.</li> <li>For further information, see Note 4.<sup>(a)</sup></li> </ul>
Repurchase agreements and similar transactions	<ul style="list-style-type: none"> <li>Amends the accounting for certain secured financing transactions.</li> <li>Requires enhanced disclosures with respect to transactions recognized as sales in which exposure to the derecognized assets is retained through a separate agreement with the counterparty.</li> <li>Requires enhanced disclosures with respect to the types of financial assets pledged in secured financing transactions and the remaining contractual maturity of the secured financing transactions.</li> </ul>	<ul style="list-style-type: none"> <li>Accounting amendments adopted January 1, 2015</li> <li>Disclosure enhancements adopted April 1, 2015</li> <li>There was no material impact on JPMorgan Chase Bank, N.A.’s Consolidated Financial Statements.</li> <li>For further information, see Note 7 and Note 14.</li> </ul>
Reporting discontinued operations and disclosures of disposals of components of an entity	<ul style="list-style-type: none"> <li>Changes the criteria for determining whether a disposition qualifies for discontinued operations presentation.</li> <li>Requires enhanced disclosures about discontinued operations and significant dispositions that do not qualify to be presented as discontinued operations.</li> </ul>	<ul style="list-style-type: none"> <li>Adopted January 1, 2015</li> <li>There was no material impact on JPMorgan Chase Bank, N.A.’s Consolidated Financial Statements</li> </ul>
Investments in qualified affordable housing projects	<ul style="list-style-type: none"> <li>Applies to accounting for investments in affordable housing projects that qualify for the low-income housing tax credit.</li> <li>Replaces the effective yield method and allows companies to make an accounting policy election to amortize the initial cost of its investments in proportion to the tax credits and other benefits received if certain criteria are met, and to present the amortization as a component of income tax expense.</li> </ul>	<ul style="list-style-type: none"> <li>Adopted January 1, 2015</li> <li>For further information, see Note 1.<sup>(a)</sup></li> </ul>

(a) The guidance was required to be applied retrospectively and accordingly, certain prior period amounts have been revised to conform with the current period presentation.

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### FASB Standards Issued but not yet Adopted

Standard	Summary of guidance	Effects on financial statements
Amendments to the consolidation analysis <i>Issued February 2015</i>	<ul style="list-style-type: none"> <li>Eliminates the deferral issued by the FASB in February 2010 of certain VIE-related accounting requirements for certain investment funds, including mutual funds, private equity funds and hedge funds.</li> <li>Amends the evaluation of fees paid to a decision maker or a service provider, and exempts certain money market funds from consolidation.</li> </ul>	<ul style="list-style-type: none"> <li>Required effective date January 1, 2016</li> <li>Will not have a material impact on JPMorgan Chase Bank, N.A.'s Consolidated Financial Statements.</li> </ul>
Measuring the financial assets and financial liabilities of a consolidated collateralized financing entity <i>Issued August 2014</i>	<ul style="list-style-type: none"> <li>Provides an alternative for consolidated financing VIEs to elect: (1) to measure their financial assets and liabilities separately under existing U.S. GAAP for fair value measurement with any differences in such fair values reflected in earnings; or (2) to measure both their financial assets and liabilities using the more observable of the fair value of the financial assets or the fair value of the financial liabilities.</li> </ul>	<ul style="list-style-type: none"> <li>Required effective date January 1, 2016</li> <li>Will not have a material impact on JPMorgan Chase Bank, N.A.'s Consolidated Financial Statements.</li> </ul>
Revenue recognition - revenue from contracts with customers <i>Issued May 2014</i>	<ul style="list-style-type: none"> <li>Requires that revenue from contracts with customers be recognized upon transfer of control of a good or service in the amount of consideration expected to be received.</li> <li>Changes the accounting for certain contract costs, including whether they may be offset against revenue in the statements of income, and requires additional disclosures about revenue and contract costs.</li> <li>May be adopted using a full retrospective approach or a modified, cumulative effect-type approach wherein the guidance is applied only to existing contracts as of the date of initial application, and to new contracts transacted after that date.</li> </ul>	<ul style="list-style-type: none"> <li>Required effective date January 1, 2018<sup>(a)</sup></li> <li>Because the guidance does not apply to revenue associated with financial instruments, including loans and securities that are accounted for under other U.S. GAAP, JPMorgan Chase Bank, N.A. does not expect the new revenue recognition guidance to have a material impact on the elements of its statements of income most closely associated with financial instruments, including Securities Gains, Interest Income and Interest Expense.</li> <li>JPMorgan Chase Bank, N.A. plans to adopt the revenue recognition guidance in the first quarter of 2018 and is currently evaluating the potential impact on the Consolidated Financial Statements and its selection of transition method.</li> </ul>
Recognition and measurement of financial assets and financial liabilities <i>Issued January 2016</i>	<ul style="list-style-type: none"> <li>Requires that certain equity instruments be measured at fair value, with changes in fair value recognized in earnings.</li> <li>For financial liabilities where the fair value option has been elected, the portion of the total change in fair value caused by changes in JPMorgan Chase Bank, N.A.'s own credit risk is required to be presented separately in Other comprehensive income ("OCI").</li> <li>Generally requires a cumulative-effective adjustment to its retained earnings as of the beginning of the reporting period of adoption.</li> </ul>	<ul style="list-style-type: none"> <li>Required effective date January 1, 2018</li> <li>Early adoption is permitted for the requirement to report changes in fair value due to JPMorgan Chase Bank, N.A.'s own credit risk subsequent to the issuance of each liability in OCI, and JPMorgan Chase Bank, N.A. is planning to early adopt this guidance during 2016.</li> <li>JPMorgan Chase Bank, N.A. is currently evaluating the potential impact on the Consolidated Financial Statements.</li> </ul>

(a) Early adoption is permitted.

### **Note 3 – Business changes and developments**

#### **Internal transfers of legal entities under common control**

From time to time there may be transfers of legal entities under common control between JPMorgan Chase Bank, N.A. and JPMorgan Chase. Such transfers are accounted for at historical cost in accordance with U.S. GAAP. However, all transfers were reflected in the Consolidated Financial Statements prospectively, and not as of the beginning of the applicable periods presented, because the impact of the transfers was not material to JPMorgan Chase Bank, N.A.'s Consolidated Financial Statements.

On August 31, 2015, JPMorgan Chase merged its wholly-owned subsidiary, JPMorgan Bank and Trust Company, N.A. ("JPMBT"), into JPMorgan Chase Bank, N.A. JPMBT's principal activity was a borrowing relationship with the Federal Home Loan Bank of San Francisco ("FHLB SF"); and a custody business serving California insurance companies and other institutions. At the time of the merger, JPMBT had approximately \$15.9 billion of assets, predominantly consisting of \$9.9 billion of deposits with banks and \$4.9 billion of loans; liabilities were \$14.3 billion, consisting of long-term debt. There were no other significant transfers of legal entities for the year ended December 31, 2015.

During the years ended December 31, 2014 and 2013, there were no significant transfers of legal entities.

#### **Subsequent events**

In preparing these Consolidated Financial Statements, JPMorgan Chase Bank, N.A. performed an evaluation of material events subsequent to December 31, 2015, and through February 24, 2016, the date these financial statements were available to be issued.

### **Note 4 – Fair value measurement**

JPMorgan Chase Bank, N.A. carries a portion of its assets and liabilities at fair value. These assets and liabilities are predominantly carried at fair value on a recurring basis (i.e., assets and liabilities that are measured and reported at fair value on JPMorgan Chase Bank, N.A.'s Consolidated balance sheets). Certain assets (e.g., certain mortgage, home equity and other loans where the carrying value is based on the fair value of the underlying collateral), liabilities and unfunded lending-related commitments are measured at fair value on a nonrecurring basis; that is, they are not measured at fair value on an ongoing basis but are subject to fair value adjustments only in certain circumstances (for example, when there is evidence of impairment).

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Fair value is based on quoted market prices, where available. If listed prices or quotes are not available, fair value is based on models that consider

relevant transaction characteristics (such as maturity) and use as inputs observable or unobservable market parameters, including but not limited to yield curves, interest rates, volatilities, equity or debt prices, foreign exchange rates and credit curves. Valuation adjustments may be made to ensure that financial instruments are recorded at fair value, as described below.

The level of precision in estimating unobservable market inputs or other factors can affect the amount of gain or loss recorded for a particular position. Furthermore, while JPMorgan Chase Bank, N.A. believes its valuation methods are appropriate and consistent with those of other market participants, the methods and assumptions used reflect management judgment and may vary across JPMorgan Chase Bank, N.A.'s businesses and portfolios.

JPMorgan Chase Bank, N.A. uses various methodologies and assumptions in the determination of fair value. The use of different methodologies or assumptions by other market participants compared with those used by JPMorgan Chase Bank, N.A. could result in a different estimate of fair value at the reporting date.

#### Valuation process

Risk-taking functions are responsible for providing fair value estimates for assets and liabilities carried on the Consolidated balance sheets at fair value. JPMorgan Chase's valuation control function, which is part of JPMorgan Chase's Finance function and independent of the risk-taking functions, is responsible for verifying these estimates and determining any fair value adjustments that may be required to ensure that JPMorgan Chase Bank, N.A.'s positions are recorded at fair value. In addition, JPMorgan Chase firmwide Valuation Governance Forum ("VGF") is composed of senior finance and risk executives and is responsible for overseeing the management of risks arising from valuation activities conducted across JPMorgan Chase. The VGF is chaired by the Firmwide head of the valuation control function (under the direction of JPMorgan Chase's Chief Financial Officer ("CFO")), and includes sub-forums covering the corporate & investment banking business, the consumer & community banking business, commercial banking business, asset management and certain corporate functions including Treasury and Chief Investment Office ("CIO").

The valuation control function verifies fair value estimates provided by the risk-taking functions by leveraging independently derived prices, valuation inputs and other market data, where available. Where independent prices or inputs are not available, additional review is performed by the valuation control function to ensure the reasonableness of the estimates. The review may include evaluating the limited market activity including client unwinds, benchmarking of valuation inputs to those for similar instruments, decomposing the valuation of structured instruments into individual components, comparing expected to actual cash flows, reviewing profit and loss

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trends, and reviewing trends in collateral valuation. There are also additional levels of management review for more significant or complex positions.

The valuation control function determines any valuation adjustments that may be required to the estimates provided by the risk-taking functions. No adjustments are applied to the quoted market price for instruments classified within level 1 of the fair value hierarchy (see below for further information on the fair value hierarchy). For other positions, judgment is required to assess the need for valuation adjustments to appropriately reflect liquidity considerations, unobservable parameters, and, for certain portfolios that meet specified criteria, the size of the net open risk position. The determination of such adjustments follows a consistent framework across JPMorgan Chase Bank, N.A.:

- Liquidity valuation adjustments are considered where an observable external price or valuation parameter exists but is of lower reliability, potentially due to lower market activity. Liquidity valuation adjustments are applied and determined based on current market conditions. Factors that may be considered in determining the liquidity adjustment include analysis of: (1) the estimated bid-offer spread for the instrument being traded; (2) alternative pricing points for similar instruments in active markets; and (3) the range of reasonable values that the price or parameter could take.
- JPMorgan Chase Bank, N.A. manages certain portfolios of financial instruments on the basis of net open risk exposure and, as permitted by U.S. GAAP, has elected to estimate the fair value of such portfolios on the basis of a transfer of the entire net open risk position in an orderly transaction. Where this is the case, valuation adjustments may be necessary to reflect the cost of exiting a larger-than-normal market-size net open risk position. Where applied, such adjustments are based on factors that a relevant market participant would consider in the transfer of the net open risk position, including the size of the adverse market move that is likely to occur during the period required to reduce the net open risk position to a normal market-size.
- Unobservable parameter valuation adjustments may be made when positions are valued using prices or input parameters to valuation models that are unobservable due to a lack of market activity or because they cannot be implied from observable market data. Such prices or parameters must be estimated and are, therefore, subject to management judgment. Unobservable parameter valuation adjustments are applied to reflect the uncertainty inherent in the resulting valuation estimate.

Where appropriate, JPMorgan Chase Bank, N.A. also applies adjustments to its estimates of fair value in order to

appropriately reflect counterparty credit quality, JPMorgan Chase Bank, N.A.'s own creditworthiness and the impact of funding, utilizing a consistent framework across JPMorgan Chase Bank, N.A.

### Valuation model review and approval

If prices or quotes are not available for an instrument or a similar instrument, fair value is generally determined using valuation models that consider relevant transaction data such as maturity and use as inputs market-based or independently sourced parameters. Where this is the case the price verification process described above is applied to the inputs to those models.

The Model Risk function is independent of the model owners. It reviews and approves a wide range of models, including risk management, valuation and regulatory capital models used by JPMorgan Chase Bank, N.A. The Model Risk review and governance functions are part of JPMorgan Chase's Model Risk unit, and its Model Risk Executive reports to JPMorgan Chase's Chief Risk Officer ("CRO"). When reviewing a model, the Model Risk function analyzes and challenges the model methodology, and the reasonableness of model assumptions and may perform or require additional testing, including back-testing of model outcomes.

New valuation models, as well as material changes to existing valuation models, are reviewed and approved prior to implementation except where specified conditions are met, including the approval of an exception granted by the head of the Model Risk function. The Model Risk function performs an annual status assessment that considers developments in the product or market to determine whether valuation models which have already been reviewed need to be, on a full or partial basis, reviewed and approved again.

### **Valuation hierarchy**

A three-level valuation hierarchy has been established under U.S. GAAP for disclosure of fair value measurements. The valuation hierarchy is based on the transparency of inputs to the valuation of an asset or liability as of the measurement date. The three levels are defined as follows.

- Level 1 - inputs to the valuation methodology are quoted prices (unadjusted) for identical assets or liabilities in active markets.
- Level 2 - inputs to the valuation methodology include quoted prices for similar assets and liabilities in active markets, and inputs that are observable for the asset or liability, either directly or indirectly, for substantially the full term of the financial instrument.
- Level 3 - one or more inputs to the valuation methodology are unobservable and significant to the fair value measurement.

A financial instrument's categorization within the valuation hierarchy is based on the lowest level of input that is significant to the fair value measurement.

The following table describes the valuation methodologies generally used by JPMorgan Chase Bank, N.A. to measure its significant products/instruments at fair value, including the general classification of such instruments pursuant to the valuation hierarchy.

Product/instrument	Valuation methodology	Classifications in the valuation hierarchy
Securities financing agreements	<p>Valuations are based on discounted cash flows, which consider:</p> <ul style="list-style-type: none"> <li>• Derivative features: for further information refer to the discussion of derivatives below.</li> <li>• Market rates for the respective maturity</li> <li>• Collateral</li> </ul>	Level 2
<b>Loans and lending-related commitments - wholesale</b>		
Trading portfolio	<p>Where observable market data is available, valuations are based on:</p> <ul style="list-style-type: none"> <li>• Observed market prices (circumstances are infrequent)</li> <li>• Relevant broker quotes</li> <li>• Observed market prices for similar instruments</li> </ul> <p>Where observable market data is unavailable or limited, valuations are based on discounted cash flows, which consider the following:</p> <ul style="list-style-type: none"> <li>• Credit spreads derived from the cost of credit default swaps ("CDS"); or benchmark credit curves developed by JPMorgan Chase Bank, N.A., by industry and credit rating</li> <li>• Prepayment speed</li> </ul>	Level 2 or 3
Loans held for investment and associated lending related commitments	<p>Valuations are based on discounted cash flows, which consider:</p> <ul style="list-style-type: none"> <li>• Credit spreads, derived from the cost of CDS; or benchmark credit curves developed by JPMorgan Chase Bank, N.A., by industry and credit rating</li> <li>• Prepayment speed</li> </ul> <p>Lending related commitments are valued similar to loans and reflect the portion of an unused commitment expected, based on JPMorgan Chase Bank, N.A.'s average portfolio historical experience, to become funded prior to an obligor default</p> <p>For information regarding the valuation of loans measured at collateral value, see Note 15.</p>	Predominantly level 3
<b>Loans - consumer</b>		
Held for investment consumer loans, excluding credit card	<p>Valuations are based on discounted cash flows, which consider:</p> <ul style="list-style-type: none"> <li>• Expected lifetime credit losses -considering expected and current default rates, and loss severity</li> <li>• Prepayment speed</li> <li>• Discount rates</li> <li>• Servicing costs</li> </ul> <p>For information regarding the valuation of loans measured at collateral value, see Note 15.</p>	Predominantly level 3
Held for investment credit card receivables	<p>Valuations are based on discounted cash flows, which consider:</p> <ul style="list-style-type: none"> <li>• Credit costs - allowance for loan losses is considered a reasonable proxy for the credit cost</li> <li>• Projected interest income, late fee revenue and loan repayment rates</li> <li>• Discount rates</li> <li>• Servicing costs</li> </ul>	Level 3
Trading loans - conforming residential mortgage loans expected to be sold	<p>Fair value is based upon observable prices for mortgage-backed securities with similar collateral and incorporates adjustments to these prices to account for differences between the securities and the value of the underlying loans, which include credit characteristics, portfolio composition, and liquidity.</p>	Predominantly level 2

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Product/instrument	Valuation methodology, inputs and assumptions	Classifications in the valuation hierarchy
Investment and trading securities	Quoted market prices are used where available.	Level 1
	<p>In the absence of quoted market prices, securities are valued based on:</p> <ul style="list-style-type: none"> <li>• Observable market prices for similar securities</li> <li>• Relevant broker quotes</li> <li>• Discounted cash flows</li> </ul> <p>In addition, the following inputs to discounted cash flows are used for the following products:</p> <p><i>Mortgage- and asset-backed securities specific inputs:</i></p> <ul style="list-style-type: none"> <li>• Collateral characteristics</li> <li>• Deal-specific payment and loss allocations</li> <li>• Current market assumptions related to yield, prepayment speed, conditional default rates and loss severity</li> </ul> <p><i>Collateralized loan obligations (“CLOs”), specific inputs:</i></p> <ul style="list-style-type: none"> <li>• Collateral characteristics</li> <li>• Deal-specific payment and loss allocations</li> <li>• Expected prepayment speed, conditional default rates, loss severity</li> <li>• Credit spreads</li> <li>• Credit rating data</li> </ul>	Level 2 or 3
Physical commodities	Valued using observable market prices or data	Predominantly Level 1 and 2
Derivatives	Exchange-traded derivatives that are actively traded and valued using the exchange price.	Level 1
	<p>Derivatives that are valued using models such as the Black-Scholes option pricing model, simulation models, or a combination of models, that use observable or unobservable valuation inputs (e.g. plain vanilla options and interest rate and credit default swaps). Inputs include:</p> <ul style="list-style-type: none"> <li>• Contractual terms including the period to maturity</li> <li>• Readily observable parameters including interest rates and volatility</li> <li>• Credit quality of the counterparty and of JPMorgan Chase Bank, N.A.</li> <li>• Market funding levels</li> <li>• Correlation levels</li> </ul> <p>In addition, the following specific inputs are used for the following derivatives that are valued based on models with significant unobservable inputs:</p> <p><i>Structured credit derivatives specific inputs include:</i></p> <ul style="list-style-type: none"> <li>• CDS spreads and recovery rates</li> <li>• Credit correlation between the underlying debt instruments (levels are modeled on a transaction basis and calibrated to liquid benchmark tranche indices)</li> <li>• Actual transactions, where available, are used to regularly recalibrate unobservable parameters</li> </ul> <p><i>Certain long-dated equity option specific inputs include:</i></p> <ul style="list-style-type: none"> <li>• Long-dated equity volatilities</li> </ul> <p><i>Certain interest rate and foreign exchange (“FX”) exotic options specific inputs include:</i></p> <ul style="list-style-type: none"> <li>• Interest rate correlation</li> <li>• Interest rate spread volatility</li> <li>• Foreign exchange correlation</li> <li>• Correlation between interest rates and foreign exchange rates</li> <li>• Parameters describing the evolution of underlying interest rates</li> </ul> <p><i>Certain commodity derivatives specific inputs include:</i></p> <ul style="list-style-type: none"> <li>• Commodity volatility</li> <li>• Forward commodity price</li> </ul> <p>Additionally, adjustments are made to reflect counterparty credit quality (credit valuation adjustments or “CVA”), JPMorgan Chase Bank, N.A.’s own creditworthiness (debit valuation adjustments or “DVA”), and funding valuation adjustment (“FVA”) to incorporate the impact of funding.</p>	Level 2 or 3



Product/instrument	Valuation methodology, inputs and assumptions	Classification in the valuation hierarchy
Mortgage servicing rights ("MSRs")	See Mortgage servicing rights in Note 18.	Level 3
Retained interests in credit card securitizations	Valuations are based on discounted cash flows, which consider: <ul style="list-style-type: none"> <li>• Expected credit losses</li> <li>• Average payment rate</li> <li>• Yield</li> </ul>	Level 3
Fund investments (i.e., mutual/collective investment funds, private equity funds, hedge funds, and real estate funds)	Net asset value ("NAV") <ul style="list-style-type: none"> <li>• NAV is validated by sufficient level of observable activity (i.e., purchases and sales)</li> <li>• Adjustments to the NAV as required, for restrictions on redemption (e.g., lock up periods or withdrawal limitations) or where observable activity is limited</li> </ul>	Level 1 Level 2 or 3 <sup>(a)</sup>
Beneficial interests issued by consolidated VIEs	Valued using observable market information, where available In the absence of observable market information, valuations are based on the fair value of the underlying assets held by the VIE	Level 2 or 3
Long-term debt, not carried at fair value	Valuations are based on discounted cash flows, which consider: <ul style="list-style-type: none"> <li>• Market rates for respective maturity</li> <li>• JPMorgan Chase Bank, N.A.'s own creditworthiness (DVA).</li> </ul>	Predominantly level 2
Structured notes (included in deposits, other borrowed funds and long-term debt)	<ul style="list-style-type: none"> <li>• Valuations are based on discounted cash flow analyses that consider the embedded derivative and the terms and payment structure of the note.</li> <li>• The embedded derivative features are considered using models such as the Black-Scholes option pricing model, simulation models, or a combination of models that use observable or unobservable valuation inputs, depending on the embedded derivative. The specific inputs used vary according to the nature of the embedded derivative features, as described in the discussion above regarding derivative valuation. Adjustments are then made to this base valuation to reflect JPMorgan Chase Bank, N.A.'s own creditworthiness (DVA) and to incorporate the impact of funding (FVA).</li> </ul>	Level 2 or 3

(a) Excludes certain investments that are measured at fair value using the net asset value per share (or its equivalent) as a practical expedient.

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The following table presents the asset and liabilities reported at fair value as of December 31, 2015 and 2014 by major product category and fair value hierarchy.

### Assets and liabilities measured at fair value on a recurring basis

December 31, 2015 (in millions)	Fair value hierarchy			Derivative netting adjustments	Total fair value
	Level 1	Level 2	Level 3		
Federal funds sold and securities purchased under resale agreements	\$ —	\$ 7,970	\$ —	\$ —	\$ 7,970
Securities borrowed	—	395	—	—	395
Trading assets:					
Debt instruments:					
Mortgage-backed securities:					
U.S. government agencies <sup>(a)</sup>	—	—	664	—	664
Residential - nonagency	—	733	19	—	752
Commercial - nonagency	—	222	6	—	228
<b>Total mortgage-backed securities</b>	—	955	689	—	1,644
U.S. Treasury and government agencies <sup>(a)</sup>	6,419	10	—	—	6,429
Obligations of U.S. states and municipalities	—	3,855	26	—	3,881
Certificates of deposit, bankers' acceptances and commercial paper	—	175	—	—	175
Non-U.S. government debt securities	27,974	24,988	74	—	53,036
Corporate debt securities	—	15,464	482	—	15,946
Loans	—	21,813	5,364	—	27,177
Asset-backed securities	—	445	78	—	523
<b>Total debt instruments</b>	34,393	67,705	6,713	—	108,811
Equity securities	61,987	45	88	—	62,120
Physical commodities <sup>(b)</sup>	449	—	—	—	449
Other	—	11,268	342	—	11,610
<b>Total debt and equity instruments<sup>(c)</sup></b>	96,829	79,018	7,143	—	182,990
Derivative receivables:					
Interest rate	250	676,849	2,767	(652,767)	27,099
Credit	—	48,965	2,618	(50,159)	1,424
Foreign exchange	691	178,551	1,616	(163,421)	17,437
Equity	—	52,695	999	(47,938)	5,756
Commodity	108	40,588	32	(32,948)	7,780
<b>Total derivative receivables<sup>(d)</sup></b>	1,049	997,648	8,032	(947,233)	59,496
<b>Total trading assets</b>	97,878	1,076,666	15,175	(947,233)	242,486
Available-for-sale securities:					
Mortgage-backed securities:					
U.S. government agencies <sup>(a)</sup>	—	55,066	—	—	55,066
Residential - nonagency	—	27,618	1	—	27,619
Commercial - nonagency	—	22,316	—	—	22,316
<b>Total mortgage-backed securities</b>	—	105,000	1	—	105,001
U.S. Treasury and government agencies <sup>(a)</sup>	10,998	38	—	—	11,036
Obligations of U.S. states and municipalities	—	30,405	—	—	30,405
Certificates of deposit	—	283	—	—	283
Non-U.S. government debt securities	23,187	13,477	—	—	36,664
Corporate debt securities	—	12,436	—	—	12,436
Asset-backed securities:					
Collateralized loan obligations	—	30,248	759	—	31,007
Other	—	9,034	20	—	9,054
Equity securities	69	—	—	—	69
<b>Total available-for-sale securities</b>	34,254	200,921	780	—	235,955
Loans	—	1,344	1,408	—	2,752
Mortgage servicing rights	—	—	6,608	—	6,608
Other assets	3	28	5,670	—	5,701
<b>Total assets measured at fair value on a recurring basis</b>	\$ 132,135	\$ 1,287,324 <sup>(e)</sup>	\$ 29,641 <sup>(e)</sup>	\$ (947,233)	\$ 501,867
Deposits	\$ —	\$ 9,877	\$ 2,970	\$ —	\$ 12,847
Federal funds purchased and securities loaned or sold under repurchase agreements	—	728	—	—	728
Other borrowed funds	—	6,044	636	—	6,680
Trading liabilities:					
Debt and equity instruments <sup>(c)</sup>	34,609	13,612	48	—	48,269
Derivative payables:					
Interest rate	112	644,034	2,162	(634,494)	11,814
Credit	—	48,789	2,083	(49,102)	1,770
Foreign exchange	638	189,005	2,514	(171,836)	20,321
Equity	—	53,569	2,222	(47,092)	8,699
Commodity	52	41,095	1,356	(32,323)	10,180
<b>Total derivative payables<sup>(d)</sup></b>	802	976,492	10,337	(934,847)	52,784
<b>Total trading liabilities</b>	35,411	990,104	10,385	(934,847)	101,053
Accounts payable and other liabilities	6,652	—	—	—	6,652
Beneficial interests issued by consolidated VIEs	—	—	—	—	—
Long-term debt	—	7,946	6,783	—	14,729
<b>Total liabilities measured at fair value on a recurring basis</b>	\$ 42,063	\$ 1,014,699	\$ 20,774	\$ (934,847)	\$ 142,689

December 31, 2014 (in millions)	Fair value hierarchy			Derivative netting adjustments	Total fair value
	Level 1	Level 2	Level 3		
Federal funds sold and securities purchased under resale agreements	\$ —	\$ 14,265	\$ —	\$ —	\$ 14,265
Securities borrowed	—	992	—	—	992
Trading assets:					
Debt instruments:					
Mortgage-backed securities:					
U.S. government agencies <sup>(a)</sup>	—	—	904	—	904
Residential - nonagency	—	509	438	—	947
Commercial - nonagency	—	151	217	—	368
<b>Total mortgage-backed securities</b>	—	660	1,559	—	2,219
U.S. Treasury and government agencies <sup>(a)</sup>	8,238	21	—	—	8,259
Obligations of U.S. states and municipalities	—	6,007	59	—	6,066
Certificates of deposit, bankers' acceptances and commercial paper	—	146	—	—	146
Non-U.S. government debt securities	25,854	27,240	302	—	53,396
Corporate debt securities	—	17,239	2,756	—	19,995
Loans	—	22,658	9,830	—	32,488
Asset-backed securities	—	251	374	—	625
<b>Total debt instruments</b>	34,092	74,222	14,880	—	123,194
Equity securities	53,831	56	73	—	53,960
Physical commodities <sup>(b)</sup>	2,501	1,023	1	—	3,525
Other	—	9,080	1,183	—	10,263
<b>Total debt and equity instruments<sup>(c)</sup></b>	90,424	84,381	16,137	—	190,942
Derivative receivables:					
Interest rate	284	945,011 <sup>(e)</sup>	4,125	(916,081) <sup>(e)</sup>	33,339
Credit	—	73,860	3,008	(75,004)	1,864
Foreign exchange	758	212,130 <sup>(e)</sup>	2,269	(193,934) <sup>(e)</sup>	21,223
Equity	—	35,944 <sup>(e)</sup>	3,699 <sup>(e)</sup>	(31,470) <sup>(e)</sup>	8,173
Commodity	247	39,574	177	(27,633)	12,365
<b>Total derivative receivables<sup>(d)</sup></b>	1,289	1,306,519 <sup>(e)</sup>	13,278 <sup>(e)</sup>	(1,244,122) <sup>(e)</sup>	76,964
<b>Total trading assets</b>	91,713	1,390,900 <sup>(e)</sup>	29,415 <sup>(e)</sup>	(1,244,122) <sup>(e)</sup>	267,906
Available-for-sale securities:					
Mortgage-backed securities:					
U.S. government agencies <sup>(a)</sup>	—	65,319	—	—	65,319
Residential - nonagency	—	50,865	30	—	50,895
Commercial - nonagency	—	20,381	99	—	20,480
<b>Total mortgage-backed securities</b>	—	136,565	129	—	136,694
U.S. Treasury and government agencies <sup>(a)</sup>	13,581	54	—	—	13,635
Obligations of U.S. states and municipalities	—	26,755	—	—	26,755
Certificates of deposit	—	1,103	—	—	1,103
Non-U.S. government debt securities	24,061	28,670	—	—	52,731
Corporate debt securities	—	18,530	—	—	18,530
Asset-backed securities:					
Collateralized loan obligations	—	29,402	792	—	30,194
Other	—	12,546	41	—	12,587
Equity securities	118	—	—	—	118
<b>Total available-for-sale securities</b>	37,760	253,625	962	—	292,347
Loans	—	70	2,213	—	2,283
Mortgage servicing rights	—	—	7,436	—	7,436
Other assets	—	15	4,593	—	4,608
<b>Total assets measured at fair value on a recurring basis</b>	\$ 129,473	\$ 1,659,867 <sup>(e)</sup>	\$ 44,619 <sup>(e)</sup>	\$ (1,244,122) <sup>(e)</sup>	\$ 589,837
Deposits	\$ —	\$ 6,091	\$ 2,883	\$ —	\$ 8,974
Federal funds purchased and securities loaned or sold under repurchase agreements	—	678	—	—	678
Other borrowed funds	—	6,783	1,426	—	8,209
Trading liabilities:					
Debt and equity instruments <sup>(c)</sup>	37,282	10,022	51	—	47,355
Derivative payables:					
Interest rate	180	917,036 <sup>(e)</sup>	3,790	(900,192) <sup>(e)</sup>	20,814
Credit	—	73,574	2,823	(74,302)	2,095
Foreign exchange	746	221,628 <sup>(e)</sup>	3,030	(201,644) <sup>(e)</sup>	23,760
Equity	—	39,273 <sup>(e)</sup>	4,259 <sup>(e)</sup>	(31,680) <sup>(e)</sup>	11,852
Commodity	141	39,410	982	(26,086)	14,447
<b>Total derivative payables<sup>(d)</sup></b>	1,067	1,290,921 <sup>(e)</sup>	14,884 <sup>(e)</sup>	(1,233,904) <sup>(e)</sup>	72,968
<b>Total trading liabilities</b>	38,349	1,300,943 <sup>(e)</sup>	14,935 <sup>(e)</sup>	(1,233,904) <sup>(e)</sup>	120,323
Accounts payable and other liabilities <sup>(e)</sup>	781	—	—	—	781
Beneficial interests issued by consolidated VIEs	—	—	18	—	18
Long-term debt	—	7,166	6,970	—	14,136
<b>Total liabilities measured at fair value on a recurring basis</b>	\$ 39,130	\$ 1,321,661 <sup>(e)</sup>	\$ 26,232 <sup>(e)</sup>	\$ (1,233,904) <sup>(e)</sup>	\$ 153,119

Note: Effective April 1, 2015, JPMorgan Chase Bank, N.A. adopted new accounting guidance for investments in certain entities that calculate net asset value per share (or its equivalent). As a result of the adoption of this new guidance, certain investments that are measured at fair value using the net asset value per share (or its equivalent) as a practical expedient are not required to be classified in the fair value hierarchy. At December 31, 2015 and 2014 the fair values of these investments, which include certain hedge funds, was \$49 million and \$108 million, respectively, which had been previously classified in level 2 within trading assets. The guidance was required to be applied retrospectively, and accordingly, prior period amounts have been revised to conform with the current period presentation.

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- (a) At December 31, 2015 and 2014, included total U.S. government-sponsored enterprise obligations of \$43.0 billion and \$60.2 billion, respectively, which were predominantly mortgage-related.
- (b) Physical commodities inventories are generally accounted for at the lower of cost or market. "Market" is a term defined in U.S. GAAP as not exceeding fair value less costs to sell ("transaction costs"). Transaction costs for JPMorgan Chase Bank, N.A.'s physical commodities inventories are either not applicable or immaterial to the value of the inventory. Therefore, market approximates fair value for JPMorgan Chase Bank, N.A.'s physical commodities inventories. When fair value hedging has been applied (or when market is below cost), the carrying value of physical commodities approximates fair value, because under fair value hedge accounting, the cost basis is adjusted for changes in fair value. For a further discussion of JPMorgan Chase Bank, N.A.'s hedge accounting relationships, see Note 7. To provide consistent fair value disclosure information, all physical commodities inventories have been included in each period presented.
- (c) Balances reflect the reduction of securities owned (long positions) by the amount of identical securities sold but not yet purchased (short positions).
- (d) As permitted under U.S. GAAP, JPMorgan Chase Bank, N.A. has elected to net derivative receivables and derivative payables and the related cash collateral received and paid when a legally enforceable master netting agreement exists. For purposes of the tables above, JPMorgan Chase Bank, N.A. does not reduce derivative receivables and derivative payables balances for this netting adjustment, either within or across the levels of the fair value hierarchy, as such netting is not relevant to a presentation based on the transparency of inputs to the valuation of an asset or liability. However, if JPMorgan Chase Bank, N.A. were to net such balances within level 3, the reduction in the level 3 derivative receivables and payables balances would be \$1.3 billion and \$2.5 billion at December 31, 2015 and 2014, respectively; this is exclusive of the netting benefit associated with cash collateral, which would further reduce the level 3 balances. Additionally, includes derivative receivables and payables with affiliates on a net basis. See Note 22 for information regarding our derivative activities with affiliates.
- (e) Certain prior period amounts (including the corresponding fair value parenthetical disclosure for accounts payable and other liabilities on the Consolidated balance sheets) were revised to conform with the current period presentation.

### Transfers between levels for instruments carried at fair value on a recurring basis

For the year ended December 31, 2015, 2014, and 2013 there were no significant transfers between levels 1 and 2.

During the year ended December 31, 2015, transfers from level 3 to level 2 and from level 2 to level 3 included the following:

- \$3.5 billion of long-term debt and \$1.0 billion of deposits driven by an increase in observability on certain structured notes with embedded interest rates and FX derivatives and a reduction of the significance in the unobservable inputs of certain structured notes with embedded equity derivatives
- \$4.4 billion of equity derivative receivables and \$3.6 billion of equity derivative payables as a result of an increase in observability and a decrease in the significance in unobservable inputs, partially offset by transfers into level 3 resulting in net transfers of \$2.7 billion and \$2.3 billion respectively; \$1.5 billion of foreign exchange derivative receivables as a result of an increase in observability of certain valuation inputs
- \$2.6 billion of trading loans driven by an increase in observability of certain collateralized financing transactions; and \$2.3 billion of corporate debt driven by a reduction of the significance in the unobservable inputs and an increase in observability for certain structured products

During the year ended December 31, 2014, transfers from level 3 to level 2 included the following:

- \$4.3 billion and \$4.4 billion of equity derivative receivables and payables, respectively, due to increased observability of certain equity option valuation inputs
- \$2.6 billion of trading loans, \$2.6 billion of margin loans and \$2.0 billion of corporate debt, based on increased liquidity and price transparency

Transfers from level 2 into level 3 included \$1.1 billion of other borrowed funds and \$1.1 billion of trading loans, based on a decrease in observability of valuation inputs and price transparency.

During the year ended December 31, 2013, transfers from level 3 to level 2 included the following:

- Certain highly rated CLOs, including \$27.4 billion held in JPMorgan Chase Bank, N.A.'s available-for-sale ("AFS") securities portfolio and \$1.3 billion held in the trading portfolio, based on increased liquidity and price transparency
- \$2.0 billion of gross derivatives payables, primarily driven by an increase in observability of certain structured equity derivatives; and \$1.1 billion of long-term debt, largely driven by an increase in observability of certain equity structured notes

Transfers from level 2 to level 3 included \$1.3 billion of corporate debt securities in the trading portfolio largely driven by a decrease in observability for certain credit instruments.

All transfers are assumed to occur at the beginning of the interim reporting period in which they occur.

### Level 3 valuations

JPMorgan Chase Bank, N.A. has established well-documented processes for determining fair value, including for instruments where fair value is estimated using significant unobservable inputs (level 3). For further information on JPMorgan Chase Bank, N.A.'s valuation process and a detailed discussion of the determination of fair value for individual financial instruments, see pages 19-23 of this Note.

Estimating fair value requires the application of judgment. The type and level of judgment required is largely dependent on the amount of observable market information available to JPMorgan Chase Bank, N.A. For instruments valued using internally developed models that use significant unobservable inputs and are therefore classified within level 3 of the fair value hierarchy, judgments used to estimate fair value are more significant than those required when estimating the fair value of instruments classified within levels 1 and 2.

In arriving at an estimate of fair value for an instrument within level 3, management must first determine the appropriate model to use. Second, due to the lack of observability of significant inputs, management must assess all relevant empirical data in deriving valuation inputs including, but not limited to, transaction details, yield curves, interest rates, prepayment speed, default rates, volatilities, correlations, equity or debt prices, valuations of comparable instruments, foreign exchange rates and credit curves.

The following table presents JPMorgan Chase Bank, N.A.'s primary level 3 financial instruments, the valuation techniques used to measure the fair value of those financial instruments, the significant unobservable inputs, the range of values for those inputs and, for certain instruments, the weighted averages of such inputs. While the determination to classify an instrument within level 3 is based on the significance of the unobservable inputs to the overall fair value measurement, level 3 financial instruments typically include observable components (that is, components that are actively quoted and can be validated to external sources) in addition to the unobservable components. The level 1 and/or level 2 inputs are not included in the table. In addition, JPMorgan Chase Bank, N.A. manages the risk of the observable components of level 3 financial instruments using securities and derivative positions that are classified within levels 1 or 2 of the fair value hierarchy.

The range of values presented in the table is representative of the highest and lowest level input used to value the significant groups of instruments within a product/instrument classification. Where provided, the weighted averages of the input values presented in the table are calculated based on the fair value of the instruments that the input is being used to value.

In JPMorgan Chase Bank, N.A.'s view, the input range and the weighted average value do not reflect the degree of input uncertainty or an assessment of the reasonableness of JPMorgan Chase Bank, N.A.'s estimates and assumptions. Rather, they reflect the characteristics of the various instruments held by JPMorgan Chase Bank, N.A. and the relative distribution of instruments within the range of characteristics. For example, two option contracts may have similar levels of market risk exposure and valuation uncertainty, but may have significantly different implied volatility levels because the option contracts have different underlyings, tenors, or strike prices. The input range and weighted average values will therefore vary from period-to-period and parameter-to-parameter based on the characteristics of the instruments held by JPMorgan Chase Bank, N.A. at each balance sheet date.

For JPMorgan Chase Bank, N.A.'s derivatives and structured notes positions classified within level 3 at December 31, 2015, interest rate correlation inputs used in estimating fair value were concentrated towards the upper end of the range presented; equities correlation inputs were concentrated at the lower end of the range; the credit correlation inputs were distributed across the range presented; and the foreign exchange correlation inputs were concentrated at the top end of the range presented. In addition, the interest rate volatility inputs and the foreign exchange correlation inputs used in estimating fair value were each concentrated at the upper end of the range presented. The equity volatilities are concentrated in the lower half end of the range. The forward commodity prices used in estimating the fair value of commodity derivatives were concentrated within the lower end of the range presented.

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### Level 3 inputs<sup>(a)</sup>

December 31, 2015 (in millions, except for ratios and basis points)

Product/Instrument	Fair value	Principal valuation technique	Unobservable inputs	Range of input values	Weighted average
Residential mortgage-backed securities and loans	\$ 3,892	Discounted cash flows	Yield	6 % - 26%	6%
			Prepayment speed	0 % - 15%	7%
			Conditional default rate	0 % - 4%	1%
			Loss severity	0 % - 17%	2%
Commercial mortgage-backed securities and loans <sup>(b)</sup>	2,724	Discounted cash flows	Yield	1 % - 25%	6%
			Conditional default rate	0 % - 91%	35%
			Loss severity	40%	40%
Corporate debt securities, obligations of U.S. states and municipalities, and other <sup>(c)</sup>	560	Discounted cash flows	Credit spread	225 bps	225 bps
			Yield	4 % - 20%	5%
Net interest rate derivatives	605	Option pricing	Price	\$ - - \$168	\$88
			Interest rate correlation	(52)% - 99%	
Net credit derivatives <sup>(b)(c)</sup>	535	Discounted cash flows	Interest rate spread volatility	3 % - 38%	
			Credit correlation	35 % - 90%	
Net foreign exchange derivatives	(898)	Option pricing	Foreign exchange correlation	0 % - 60%	
Net equity derivatives	(1,223)	Option pricing	Equity volatility	20 % - 65%	
Net commodity derivatives	(1,324)	Discounted cash flows	Forward commodity price	\$ 22 - \$ 46 per barrel	
Collateralized loan obligations	759	Discounted cash flows	Credit spread	354 bps - 550 bps	396 bps
			Prepayment speed	20%	20%
			Conditional default rate	2%	2%
			Loss severity	40%	40%
			Price	\$ - - \$91	\$70
Mortgage servicing rights	6,608	Discounted cash flows	Refer to Note 18.		
Retained interests in credit card securitization trusts	5,643	Discounted cash flows	Refer to Note 17.		
Long-term debt, other borrowed funds, and deposits <sup>(d)</sup>	9,894	Option pricing	Interest rate correlation	(52)% - 99%	
			Interest rate spread volatility	3 % - 38%	
			Foreign exchange correlation	0 % - 60%	
			Equity correlation	(50)% - 80%	
			Credit correlation	35 % - 90%	
	495	Discounted cash flows			

(a) The categories presented in the table have been aggregated based upon the product type, which may differ from their classification on the Consolidated balance sheets.

(b) The unobservable inputs and associated input ranges for approximately \$349 million of credit derivative receivables and \$310 million of credit derivative payables with underlying commercial mortgage risk have been included in the inputs and ranges provided for commercial mortgage-backed securities and loans.

(c) The unobservable inputs and associated input ranges for approximately \$434 million of credit derivative receivables and \$401 million of credit derivative payables with underlying asset-backed securities risk have been included in the inputs and ranges provided for corporate debt securities, obligations of U.S. states and municipalities and other.

(d) Long-term debt, other borrowed funds and deposits include structured notes issued by JPMorgan Chase Bank, N.A. that are predominantly financial instruments containing embedded derivatives. The estimation of the fair value of structured notes is predominantly based on the derivative features embedded within the instruments. The significant unobservable inputs are broadly consistent with those presented for derivative receivables.

### ***Changes in and ranges of unobservable inputs***

The following discussion provides a description of the impact on a fair value measurement of a change in each unobservable input in isolation, and the interrelationship between unobservable inputs, where relevant and significant. The impact of changes in inputs may not be independent as a change in one unobservable input may give rise to a change in another unobservable input; where relationships exist between two unobservable inputs, those relationships are discussed below. Relationships may also exist between observable and unobservable inputs (for example, as observable interest rates rise, unobservable prepayment rates decline); such relationships have not been included in the discussion below. In addition, for each of the individual relationships described below, the inverse relationship would also generally apply.

In addition, the following discussion provides a description of attributes of the underlying instruments and external market factors that affect the range of inputs used in the valuation of JPMorgan Chase Bank, N.A.'s positions.

**Yield** - The yield of an asset is the interest rate used to discount future cash flows in a discounted cash flow calculation. An increase in the yield, in isolation, would result in a decrease in a fair value measurement.

**Credit spread** - The credit spread is the amount of additional annualized return over the market interest rate that a market participant would demand for taking exposure to the credit risk of an instrument. The credit spread for an instrument forms part of the discount rate used in a discounted cash flow calculation. Generally, an increase in the credit spread would result in a decrease in a fair value measurement.

The yield and the credit spread of a particular mortgage-backed security primarily reflect the risk inherent in the instrument. The yield is also impacted by the absolute level of the coupon paid by the instrument (which may not correspond directly to the level of inherent risk). Therefore, the range of yield and credit spreads reflects the range of risk inherent in various instruments owned by JPMorgan Chase Bank, N.A. The risk inherent in mortgage-backed securities is driven by the subordination of the security being valued and the characteristics of the underlying mortgages within the collateralized pool, including borrower FICO scores, loan-to-value ratios for residential mortgages and the nature of the property and/or any tenants for commercial mortgages. For corporate debt securities, obligations of U.S. states and municipalities and other similar instruments, credit spreads reflect the credit quality of the obligor and the tenor of the obligation.

**Prepayment speed** - The prepayment speed is a measure of the voluntary unscheduled principal repayments of a prepayable obligation in a collateralized pool. Prepayment speeds generally decline as borrower delinquencies rise. An increase in prepayment speeds, in isolation, would result in a decrease in a fair value measurement of assets valued at a premium to par and an increase in a fair value measurement of assets valued at a discount to par.

Prepayment speeds may vary from collateral pool to collateral pool, and are driven by the type and location of the underlying borrower, the remaining tenor of the obligation as well as the level and type (e.g., fixed or floating) of interest rate being paid by the borrower. Typically collateral pools with higher borrower credit quality have a higher prepayment rate than those with lower borrower credit quality, all other factors being equal.

**Conditional default rate** - The conditional default rate is a measure of the reduction in the outstanding collateral balance underlying a collateralized obligation as a result of defaults. While there is typically no direct relationship between conditional default rates and prepayment speeds, collateralized obligations for which the underlying collateral has high prepayment speeds will tend to have lower conditional default rates. An increase in conditional default rates would generally be accompanied by an increase in loss severity and an increase in credit spreads. An increase in the conditional default rate, in isolation, would result in a decrease in a fair value measurement. Conditional default rates reflect the quality of the collateral underlying a securitization and the structure of the securitization itself. Based on the types of securities owned in JPMorgan Chase Bank, N.A.'s market-making portfolios, conditional default rates are most typically at the lower end of the range presented.

**Loss severity** - The loss severity (the inverse concept is the recovery rate) is the expected amount of future realized losses resulting from the ultimate liquidation of a particular loan, expressed as the net amount of loss relative to the outstanding loan balance. An increase in loss severity is generally accompanied by an increase in conditional default rates. An increase in the loss severity, in isolation, would result in a decrease in a fair value measurement.

The loss severity applied in valuing a mortgage-backed security investment depends on factors relating to the underlying mortgages, including the loan-to-value ratio, the nature of the lender's lien on the property and other instrument-specific factors.

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**Correlation** – Correlation is a measure of the relationship between the movements of two variables (e.g., how the change in one variable influences the change in the other). Correlation is a pricing input for a derivative product where the payoff is driven by one or more underlying risks. Correlation inputs are related to the type of derivative (e.g., interest rate, credit, equity, foreign exchange and commodity) due to the nature of the underlying risks. When parameters are positively correlated, an increase in one parameter will result in an increase in the other parameter. When parameters are negatively correlated, an increase in one parameter will result in a decrease in the other parameter. An increase in correlation can result in an increase or a decrease in a fair value measurement. Given a short correlation position, an increase in correlation, in isolation, would generally result in a decrease in a fair value measurement. The range of correlation inputs between risks within the same asset class are generally narrower than those between underlying risks across asset classes. In addition, the ranges of credit correlation inputs tend to be narrower than those affecting other asset classes.

The level of correlation used in the valuation of derivatives with multiple underlying risks depends on a number of factors including the nature of those risks. For example, the correlation between two credit risk exposures would be different than that between two interest rate risk exposures. Similarly, the tenor of the transaction may also impact the correlation input as the relationship between the underlying risks may be different over different time periods. Furthermore, correlation levels are very much dependent on market conditions and could have a relatively wide range of levels within or across asset classes over time, particularly in volatile market conditions.

**Volatility** – Volatility is a measure of the variability in possible returns for an instrument, parameter or market index given how much the particular instrument, parameter or index changes in value over time. Volatility is a pricing input for options, including equity options, commodity options, and interest rate options. Generally, the higher the volatility of the underlying, the riskier the instrument. Given a long position in an option, an increase in volatility, in isolation, would generally result in an increase in a fair value measurement.

The level of volatility used in the valuation of a particular option-based derivative depends on a number of factors, including the nature of the risk underlying the option (e.g., the volatility of a particular equity security may be significantly different from that of a particular commodity index), the tenor of the derivative as well as the strike price of the option.

### Changes in level 3 recurring fair value measurements

The following tables include a rollforward of the Consolidated balance sheets amounts (including changes in fair value) for financial instruments classified by JPMorgan Chase Bank, N.A. within level 3 of the fair value hierarchy for the years ended December 31, 2015, 2014 and 2013. When a determination is made to classify a financial instrument within level 3, the determination is based on the significance of the unobservable parameters to the overall fair value measurement. However, level 3 financial instruments typically include, in addition to the unobservable or level 3 components, observable components (that is, components that are actively quoted and can be validated to external sources); accordingly, the gains and losses in the table below include changes in fair value due in part to observable factors that are part of the valuation methodology. Also, JPMorgan Chase Bank, N.A. risk-manages the observable components of level 3 financial instruments using securities and derivative positions that are classified within level 1 or 2 of the fair value hierarchy; as these level 1 and level 2 risk management instruments are not included below, the gains or losses in the following tables do not reflect the effect of JPMorgan Chase Bank, N.A.'s risk management activities related to such level 3 instruments.



Fair value measurements using significant unobservable inputs

Year ended December 31, 2015 (in millions)	Fair value at January 1, 2015	Total realized/ unrealized gains/ (losses)	Purchases <sup>(g)</sup>	Sales	Settlements <sup>(h)</sup>	Transfers into and/or out of level 3 <sup>(i)</sup>	Fair value at Dec. 31, 2015	Change in unrealized gains/ (losses) related to financial instruments held at Dec. 31, 2015
<b>Assets:</b>								
Trading assets:								
Debt instruments:								
Mortgage-backed securities:								
U.S. government agencies	\$ 904	\$ (35)	\$ 120	\$ (198)	\$ (127)	\$ —	\$ 664	\$ (37)
Residential - nonagency	438	(24)	139	(254)	(6)	(274)	19	(4)
Commercial - nonagency	217	(7)	43	(91)	(16)	(140)	6	1
<b>Total mortgage-backed securities</b>	<b>1,559</b>	<b>(66)</b>	<b>302</b>	<b>(543)</b>	<b>(149)</b>	<b>(414)</b>	<b>689</b>	<b>(40)</b>
Obligations of U.S. states and municipalities	59	—	—	—	(5)	(28)	26	—
Non-U.S. government debt securities	302	9	205	(123)	(64)	(255)	74	(15)
Corporate debt securities	2,756	(63)	1,103	(1,064)	(89)	(2,161)	482	(3)
Loans	9,830	(254)	2,995	(4,149)	(1,189)	(1,869)	5,364	(128)
Asset-backed securities	374	(29)	121	(294)	(14)	(80)	78	(12)
<b>Total debt instruments</b>	<b>14,880</b>	<b>(403)</b>	<b>4,726</b>	<b>(6,173)</b>	<b>(1,510)</b>	<b>(4,807)</b>	<b>6,713</b>	<b>(198)</b>
Equity securities	73	22	52	(35)	(28)	4	88	33
Other	1,184	110	1,642	(1,476)	(234)	(884)	342	99
<b>Total trading assets - debt and equity instruments</b>	<b>16,137</b>	<b>(271)</b> <sup>(c)</sup>	<b>6,420</b>	<b>(7,684)</b>	<b>(1,772)</b>	<b>(5,687)</b>	<b>7,143</b>	<b>(66)</b> <sup>(c)</sup>
Net derivative receivables: <sup>(a)</sup>								
Interest rate	335	1,146	545	(245)	(709)	(467)	605	218
Credit	185	110	145	(133)	129	99	535	256
Foreign exchange	(761)	627	40	(137)	(277)	(390)	(898)	151
Equity	(560)	649	3,021	(3,889)	(28)	(416)	(1,223)	74
Commodity	(805)	(893)	(245)	(12)	657	(26)	(1,324)	(780)
<b>Total net derivative receivables</b>	<b>(1,606)</b>	<b>1,639</b> <sup>(c)</sup>	<b>3,506</b>	<b>(4,416)</b>	<b>(228)</b>	<b>(1,200)</b>	<b>(2,305)</b>	<b>(81)</b> <sup>(c)</sup>
Available-for-sale securities:								
Asset-backed securities	833	(22)	48	(20)	(60)	—	779	(28)
Other	129	—	—	—	(29)	(99)	1	—
<b>Total available-for-sale securities</b>	<b>962</b>	<b>(22)</b> <sup>(d)</sup>	<b>48</b>	<b>(20)</b>	<b>(89)</b>	<b>(99)</b>	<b>780</b>	<b>(28)</b> <sup>(d)</sup>
Loans	2,213	(143) <sup>(c)</sup>	1,170	—	(985)	(847)	1,408	(40) <sup>(c)</sup>
Mortgage servicing rights	7,436	(405) <sup>(e)</sup>	985	(486)	(922)	—	6,608	(405) <sup>(e)</sup>
Other assets	4,593	(2) <sup>(f)</sup>	19	(3,334)	4,394	—	5,670	(4) <sup>(f)</sup>

Fair value measurements using significant unobservable inputs

Year ended December 31, 2015 (in millions)	Fair value at January 1, 2015	Total realized/ unrealized (gains)/ losses	Purchases <sup>(g)</sup>	Sales	Issuances	Settlements <sup>(h)</sup>	Transfers into and/or out of level 3 <sup>(i)</sup>	Fair value at Dec. 31, 2015	Change in unrealized (gains)/losses related to financial instruments held at Dec. 31, 2015
<b>Liabilities:<sup>(b)</sup></b>									
Deposits	\$ 2,883	\$ (16) <sup>(c)</sup>	\$ 1	\$ —	\$ 1,945	\$ (830)	\$ (1,013)	\$ 2,970	\$ (14) <sup>(c)</sup>
Other borrowed funds	1,426	(682) <sup>(c)</sup>	—	—	3,078	(2,753)	(433)	636	(48) <sup>(c)</sup>
Trading liabilities - debt and equity instruments	51	15 <sup>(c)</sup>	(141)	134	—	(15)	4	48	(5) <sup>(c)</sup>
Accounts payable and other liabilities	—	—	—	—	—	—	—	—	—
Beneficial interests issued by consolidated VIEs	18	(17) <sup>(c)</sup>	—	—	208	(209)	—	—	— <sup>(c)</sup>
Long-term debt	6,970	(414) <sup>(c)</sup>	(58)	—	6,373	(5,082)	(1,006)	6,783	319 <sup>(c)</sup>

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### Fair value measurements using significant unobservable inputs

Year ended December 31, 2014 (in millions)	Fair value at January 1, 2014	Total realized/ unrealized gains/ (losses)	Purchases <sup>(b)</sup>	Sales	Settlements <sup>(h)</sup>	Transfers into and/or out of level 3 <sup>(i)</sup>	Fair value at Dec. 31, 2014	Change in unrealized gains/(losses) related to financial instruments held at Dec. 31, 2014
<b>Assets:</b>								
Trading assets:								
Debt instruments:								
Mortgage-backed securities:								
U.S. government agencies	\$ 912	\$ (91)	\$ 244	\$ (38)	\$ (123)	\$ —	\$ 904	\$ (91)
Residential - nonagency	273	14	392	(275)	(12)	46	438	(11)
Commercial - nonagency	89	3	262	(129)	(16)	8	217	(6)
<b>Total mortgage-backed securities</b>	<b>1,274</b>	<b>(74)</b>	<b>898</b>	<b>(442)</b>	<b>(151)</b>	<b>54</b>	<b>1,559</b>	<b>(108)</b>
Obligations of U.S. states and municipalities	75	4	—	(20)	—	—	59	(6)
Non-U.S. government debt securities	143	24	719	(615)	(5)	36	302	10
Corporate debt securities	5,631	258	5,761	(3,157)	(4,637)	(1,100)	2,756	632
Loans	10,476	21	10,644	(5,866)	(3,955)	(1,490)	9,830	(78)
Asset-backed securities	283	(23)	892	(719)	(121)	62	374	(46)
<b>Total debt instruments</b>	<b>17,882</b>	<b>210</b>	<b>18,914</b>	<b>(10,819)</b>	<b>(8,869)</b>	<b>(2,438)</b>	<b>14,880</b>	<b>404</b>
Equity securities	145	48	183	(106)	(139)	(58)	73	16
Other	1,996	271	1,981	(525)	(359)	(2,180)	1,184	(1)
<b>Total trading assets - debt and equity instruments</b>	<b>20,023</b>	<b>529</b> <sup>(c)</sup>	<b>21,078</b>	<b>(11,450)</b>	<b>(9,367)</b>	<b>(4,676)</b>	<b>16,137</b>	<b>419</b> <sup>(c)</sup>
Net derivative receivables: <sup>(a)</sup>								
Interest rate	1,888	(44)	207	(255)	(1,353)	(108)	335	(1,125)
Credit	88	(162)	273	(47)	104	(71)	185	(120)
Foreign exchange	(1,433)	(228)	122	(28)	775	31	(761)	(147)
Equity <sup>(d)</sup>	(834)	340	4,992	(4,454)	(577)	(27)	(560)	1,458
Commodity	(95)	(864)	(12)	—	92	74	(805)	(603)
<b>Total net derivative receivables<sup>(d)</sup></b>	<b>(386)</b>	<b>(958)</b> <sup>(c)</sup>	<b>5,582</b>	<b>(4,784)</b>	<b>(959)</b>	<b>(101)</b>	<b>(1,606)</b>	<b>(537)</b> <sup>(c)</sup>
Available-for-sale securities:								
Asset-backed securities	1,012	(42)	274	—	(100)	(311)	833	(41)
Other	1,192	(19)	122	—	(223)	(943)	129	(1)
<b>Total available-for-sale securities</b>	<b>2,204</b>	<b>(61)</b> <sup>(d)</sup>	<b>396</b>	<b>—</b>	<b>(323)</b>	<b>(1,254)</b>	<b>962</b>	<b>(42)</b> <sup>(d)</sup>
Loans	1,102	(242) <sup>(c)</sup>	3,206	(563)	(1,290)	—	2,213	(245) <sup>(c)</sup>
Mortgage servicing rights	9,614	(1,826) <sup>(e)</sup>	768	(209)	(911)	—	7,436	(1,826) <sup>(e)</sup>
Other assets	5,975	24 <sup>(f)</sup>	—	(3,383)	1,977	—	4,593	12 <sup>(f)</sup>

### Fair value measurements using significant unobservable inputs

Year ended December 31, 2014 (in millions)	Fair value at January 1, 2014	Total realized/ unrealized (gains)/ losses	Purchases <sup>(b)</sup>	Sales	Issuances	Settlements <sup>(h)</sup>	Transfers into and/or out of level 3 <sup>(i)</sup>	Fair value at Dec. 31, 2014	Change in unrealized (gains)/losses related to financial instruments held at Dec. 31, 2014
<b>Liabilities:<sup>(b)</sup></b>									
Deposits	\$ 2,255	\$ 149 <sup>(c)</sup>	\$ —	\$ —	\$ 1,569	\$ (164)	\$ (926)	\$ 2,883	\$ 160 <sup>(c)</sup>
Other borrowed funds	1,467	(589) <sup>(c)</sup>	—	—	5,209	(5,439)	778	1,426	(300) <sup>(c)</sup>
Trading liabilities - debt and equity instruments	89	(3) <sup>(c)</sup>	(270)	281	—	(3)	(43)	51	1 <sup>(c)</sup>
Accounts payable and other liabilities	—	—	—	—	—	—	—	—	—
Beneficial interests issued by consolidated VIEs	40	2 <sup>(c)</sup>	—	—	2	(26)	—	18	1 <sup>(c)</sup>
Long-term debt	6,617	(447) <sup>(c)</sup>	—	—	6,016	(5,208)	(8)	6,970	(365) <sup>(c)</sup>

Fair value measurements using significant unobservable inputs

Year ended December 31, 2013 (in millions)	Fair value at January 1, 2013	Total realized/ unrealized gains/ (losses)	Purchases <sup>(g)</sup>	Sales	Settlements <sup>(h)</sup>	Transfers into and/or out of level 3 <sup>(i)</sup>	Fair value at Dec. 31, 2013	Change in unrealized gains/(losses) related to financial instruments held at Dec. 31, 2013
<b>Assets:</b>								
Trading assets:								
Debt instruments:								
Mortgage-backed securities:								
U.S. government agencies	\$ 438	\$ 194	\$ 734	\$ (347)	\$ (107)	\$ -	\$ 912	\$ 194
Residential - nonagency	152	77	167	(107)	(11)	(5)	273	52
Commercial - nonagency	82	10	156	(138)	(21)	-	89	3
<b>Total mortgage-backed securities</b>	<b>672</b>	<b>281</b>	<b>1,057</b>	<b>(592)</b>	<b>(139)</b>	<b>(5)</b>	<b>1,274</b>	<b>249</b>
Obligations of U.S. states and municipalities	308	53	6	(25)	(267)	-	75	3
Non-U.S. government debt securities	67	4	1,448	(1,479)	(7)	110	143	(4)
Corporate debt securities	5,082	206	7,498	(5,867)	(1,781)	493	5,631	463
Loans	8,583	124	10,304	(6,537)	(1,736)	(262)	10,476	(8)
Asset-backed securities	1,788	71	288	(520)	(96)	(1,248)	283	49
<b>Total debt instruments</b>	<b>16,500</b>	<b>739</b>	<b>20,601</b>	<b>(15,020)</b>	<b>(4,026)</b>	<b>(912)</b>	<b>17,882</b>	<b>752</b>
Equity securities	253	(49)	133	(114)	(59)	(19)	145	64
Other	825	860	837	(207)	(448)	129	1,996	1,085
<b>Total trading assets - debt and equity instruments</b>	<b>17,578</b>	<b>1,550</b> <sup>(c)</sup>	<b>21,571</b>	<b>(15,341)</b>	<b>(4,533)</b>	<b>(802)</b>	<b>20,023</b>	<b>1,901</b> <sup>(c)</sup>
Net derivative receivables: <sup>(a)</sup>								
Interest rate	2,650	1,436	347	(186)	(2,349)	(10)	1,888	267
Credit	1,870	(1,697)	115	(12)	(365)	177	88	(1,455)
Foreign exchange	(2,004)	(49)	4	(3)	650	(31)	(1,433)	157
Equity	(2,035)	2,586	1,478	(2,281)	(1,079)	497	(834)	859
Commodity	(150)	192	59	(3)	(190)	(3)	(95)	79
<b>Total net derivative receivables</b>	<b>331</b>	<b>2,468</b> <sup>(c)</sup>	<b>2,003</b>	<b>(2,485)</b>	<b>(3,333)</b>	<b>630</b>	<b>(386)</b>	<b>(93)</b> <sup>(c)</sup>
Available-for-sale securities:								
Asset-backed securities	27,896	(1)	579	-	(57)	(27,405)	1,012	(1)
Other	705	14	508	(17)	(48)	30	1,192	25
<b>Total available-for-sale securities</b>	<b>28,601</b>	<b>13</b> <sup>(d)</sup>	<b>1,087</b>	<b>(17)</b>	<b>(105)</b>	<b>(27,375)</b>	<b>2,204</b>	<b>24</b> <sup>(d)</sup>
Loans	1,321	80	820	(97)	(1,022)	-	1,102	20
Mortgage servicing rights	7,614	1,610	2,216	(725)	(1,101)	-	9,614	1,610
Other assets	6,644	(8)	-	(4,111)	3,450	-	5,975	(19)

Fair value measurements using significant unobservable inputs

Year ended December 31, 2013 (in millions)	Fair value at January 1, 2013	Total realized/ unrealized (gains)/ losses	Purchases <sup>(g)</sup>	Sales	Issuances	Settlements <sup>(h)</sup>	Transfers into and/or out of level 3 <sup>(i)</sup>	Fair value at Dec. 31, 2013	Change in unrealized (gains)/losses related to financial instruments held at Dec. 31, 2013
<b>Liabilities:<sup>(b)</sup></b>									
Deposits	\$ 1,976	\$ (82)	\$ -	\$ -	\$ 1,234	\$ (201)	\$ (672)	\$ 2,255	\$ (88)
Other borrowed funds	1,315	(134)	-	-	6,399	(6,530)	417	1,467	281
Trading liabilities - debt and equity instruments	189	(82)	(2,373)	2,552	-	(52)	(145)	89	(102)
Accounts payable and other liabilities	-	-	-	-	-	-	-	-	-
Beneficial interests issued by consolidated VIEs	29	11	-	-	-	-	-	40	11
Long-term debt	6,070	110	-	-	4,884	(4,037)	(410)	6,617	39

## Notes to consolidated financial statements

JPMorgan Chase Bank, National Association  
(a wholly-owned subsidiary of JPMorgan Chase & Co.)

Note: Effective April 1, 2015, JPMorgan Chase Bank, N.A. adopted new accounting guidance for certain investments where JPMorgan Chase Bank, N.A. measures fair value using the net asset value per share (or its equivalent) as a practical expedient and excluded such investments from the fair value hierarchy. The guidance was required to be applied retrospectively, and accordingly, prior period amounts have been revised to conform with the current period presentation. For further information, see pages 17-25.

- (a) All level 3 derivatives are presented on a net basis, irrespective of underlying counterparty.
- (b) Level 3 liabilities as a percentage of total JPMorgan Chase Bank, N.A. liabilities accounted for at fair value (including liabilities measured at fair value on a nonrecurring basis) were 15%, 17% and 20% at December 31, 2015, 2014 and 2013, respectively.
- (c) Predominantly reported in principal transactions revenue, except for changes in fair value for mortgage loans, lending-related commitments originated with the intent to sell, and mortgage loan purchase commitments within the consumer & community banking business, which are reported in mortgage fees and related income.
- (d) Realized gains/(losses) on AFS securities, as well as other-than-temporary impairment losses that are recorded in earnings, are reported in securities gains. Unrealized gains/(losses) are reported in OCI. Realized gains/(losses) and foreign exchange remeasurement adjustments recorded in income on AFS securities were zero, \$(78) million, and \$5 million for the years ended December 31, 2015, 2014 and 2013, respectively. Unrealized gains/(losses) recorded on AFS securities in OCI were \$(25) million, \$(19) million and \$8 million for the years ended December 31, 2015, 2014 and 2013, respectively.
- (e) Changes in fair value for the consumer & community banking business's mortgage servicing rights are reported in mortgage fees and related income.
- (f) Predominantly reported in other income.
- (g) Loan originations are included in purchases.
- (h) Includes financial assets and liabilities that have matured, been partially or fully repaid, impacts of modifications, and deconsolidations associated with beneficial interests in VIEs.
- (i) All transfers into and/or out of level 3 are assumed to occur at the beginning of the quarterly reporting period in which they occur.
- (j) Certain prior period amounts were revised to conform with the current period presentation.

### Level 3 analysis

#### Consolidated balance sheets changes

Level 3 assets (including assets measured at fair value on a nonrecurring basis) were 1.6% of total JPMorgan Chase Bank, N.A. assets and 6.1% of total assets measured at fair value at December 31, 2015, compared with 2.3% and 8.0%, respectively, at December 31, 2014. The following describes significant changes to level 3 assets since December 31, 2014, for those items measured at fair value on a recurring basis. For further information on changes impacting items measured at fair value on a nonrecurring basis, see Assets and liabilities measured at fair value on a nonrecurring basis on page 35.

#### For the year ended December 31, 2015

Level 3 assets were \$29.6 billion at December 31, 2015, reflecting a decrease of \$15.0 billion from December 31, 2014. This decrease was driven by net sales and transfers to Level 2 due to an increase in observability and a decrease in the significance of unobservable inputs. In particular:

- \$9.0 billion decrease in trading assets – debt and equity instruments was predominantly driven by a decrease of \$4.5 billion in trading loans due to sales, maturities and transfers from level 3 to level 2 as a result of an increase in observability of certain valuation inputs, and a \$2.3 billion decrease in corporate debt securities due to transfers from level 3 to level 2 as a result of an increase in observability of certain valuation inputs
- \$5.2 billion decrease in gross derivative receivables was driven by a \$4.7 billion decrease in equity, interest rate and foreign exchange derivative receivables due to transfers from level 3 to level 2 as a result of an increase in observability of certain valuation inputs and market movements

#### Gains and losses

The following describes significant components of total realized/unrealized gains/(losses) for instruments measured at fair value on a recurring basis for the years ended December 31, 2015, 2014 and 2013. For further information on these instruments, see Changes in level 3 recurring fair value measurements rollforward tables on pages 30-34.

#### 2015

- \$2.4 billion of net gains in interest rate, foreign exchange and equity derivative receivables due to market movements; partially offset by loss in commodity derivatives due to market movements
- \$1.1 billion of net gains in liabilities due to market movements

#### 2014

- \$1.8 billion of net losses on MSRs. For further discussion of the change, refer to Note 18

#### 2013

- \$2.5 billion of net gains on derivatives, largely driven by \$2.6 billion of gains on equity derivatives, primarily related to client-driven market-making activity and a rise in equity markets; and \$1.4 billion of gains, predominantly on interest rate lock and mortgage loan purchase commitments; partially offset by \$1.7 billion of losses on credit derivatives from the impact of tightening reference entity credit spreads
- \$1.6 billion of net gains on trading assets – debt and equity instruments, predominantly driven by the impact of market movements on client-driven financing transactions, mortgage-backed securities and corporate debt securities
- \$1.6 billion of net gains on MSRs. For further discussion of the change, refer to Note 18

### **Assets and liabilities measured at fair value on a nonrecurring basis**

At December 31, 2015 and 2014, assets measured at fair value on a nonrecurring basis were \$1.7 billion and \$3.6 billion, respectively, consisting predominantly of loans that had fair value adjustments for the years ended December 31, 2015 and 2014. At December 31, 2015, \$696 million and \$956 million of these assets were classified in levels 2 and 3 of the fair value hierarchy, respectively. At December 31, 2014, \$568 million and \$3.0 billion of these assets were classified in levels 2 and 3 of the fair value hierarchy, respectively. Liabilities measured at fair value on a nonrecurring basis were not significant at December 31, 2015 and 2014. For the years ended December 31, 2015, 2014 and 2013, there were no significant transfers between levels 1, 2 and 3 related to assets held at the balance sheet date.

Of the \$956 million in level 3 assets measured at fair value on a nonrecurring basis as of December 31, 2015:

- \$556 million related to residential real estate loans carried at the net realizable value of the underlying collateral (i.e., collateral-dependent loans and other loans charged off in accordance with regulatory guidance). These amounts are classified as level 3, as they are valued using a broker's price opinion and discounted based upon JPMorgan Chase Bank, N.A.'s experience with actual liquidation values. These discounts to the broker price opinions ranged from 4% to 59%, with a weighted average of 22%.

The total change in the recorded value of assets and liabilities for which a fair value adjustment has been included in the Consolidated statements of income for the years ended December 31, 2015, 2014 and 2013, related to financial instruments held at those dates, were losses of \$294 million, \$575 million and \$678 million, respectively; these reductions were predominantly associated with loans.

For further information about the measurement of impaired collateral-dependent loans, and other loans where the carrying value is based on the fair value of the underlying collateral (e.g., residential mortgage loans charged off in accordance with regulatory guidance), see Note 15.

### **Additional disclosures about the fair value of financial instruments that are not carried on the Consolidated balance sheets at fair value**

U.S. GAAP requires disclosure of the estimated fair value of certain financial instruments, and the methods and significant assumptions used to estimate their fair value. Financial instruments within the scope of these disclosure requirements are included in the following table. However, certain financial instruments and all nonfinancial instruments are excluded from the scope of these disclosure requirements. Accordingly, the fair value disclosures provided in the following table include only a partial estimate of the fair value of JPMorgan Chase Bank, N.A.'s assets and liabilities. For example, JPMorgan Chase Bank, N.A. has developed long-term relationships with its customers through its deposit base and credit card accounts, commonly referred to as core deposit intangibles and credit card relationships. In the opinion of management, these items, in the aggregate, add significant value to JPMorgan Chase Bank, N.A., but their fair value is not disclosed in this Note.

#### *Financial instruments for which carrying value approximates fair value*

Certain financial instruments that are not carried at fair value on the Consolidated balance sheets are carried at amounts that approximate fair value, due to their short-term nature and generally negligible credit risk. These instruments include cash and due from banks, deposits with banks, federal funds sold, securities purchased under resale agreements and securities borrowed, short-term receivables and accrued interest receivable, commercial paper, federal funds purchased, securities loaned and sold under repurchase agreements, other borrowed funds, accounts payable, and accrued liabilities. In addition, U.S. GAAP requires that the fair value of deposit liabilities with no stated maturity (i.e., demand, savings and certain money market deposits) be equal to their carrying value; recognition of the inherent funding value of these instruments is not permitted.

## Notes to consolidated financial statements

JPMorgan Chase Bank, National Association  
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The following table presents by fair value hierarchy classification the carrying values and estimated fair values at December 31, 2015 and 2014, of financial assets and liabilities, excluding financial instruments which are carried at fair value on a recurring basis. For additional information regarding the financial instruments within the scope of this disclosure, and the methods and significant assumptions used to estimate their fair value, see pages 19–23 of this Note.

(in billions)	December 31, 2015					December 31, 2014				
	Carrying value	Estimated fair value hierarchy			Total estimated fair value	Carrying value	Estimated fair value hierarchy			Total estimated fair value
		Level 1	Level 2	Level 3			Level 1	Level 2	Level 3	
<b>Financial assets</b>										
Cash and due from banks	\$ 19.4	\$ 19.4	\$ –	\$ –	\$ 19.4	\$ 26.6	\$ 26.6	\$ –	\$ –	\$ 26.6
Deposits with banks	316.4	305.6	10.8	–	316.4	471.4	466.7	4.8	–	471.5
Accrued interest and accounts receivable	36.4	–	36.3	0.1	36.4	38.8	–	38.7	0.1	38.8
Federal funds sold and securities purchased under resale agreements	140.5	–	140.5	–	140.5	126.9	–	126.9	–	126.9
Securities borrowed	25.1	–	25.1	–	25.1	31.2	–	31.2	–	31.2
Securities, held-to-maturity <sup>(a)</sup>	49.0	–	50.6	–	50.6	49.3	–	51.2	–	51.2
Loans, net of allowance for loan losses <sup>(b)</sup>	722.2	–	28.4	699.4	727.8	638.0	–	24.0	617.3	641.3
Other	47.1	–	39.0	8.6	47.6	49.9	–	41.9	8.5	50.4
<b>Financial liabilities</b>										
Deposits	\$ 1,300.1	\$ –	\$ 1,299.0	\$ 1.2	\$ 1,300.2	\$ 1,430.4	\$ –	\$ 1,429.5	\$ 1.2	\$ 1,430.7
Federal funds purchased and securities loaned or sold under repurchase agreements	76.6	–	76.6	–	76.6	93.6	–	93.6	–	93.6
Other borrowed funds	23.5	–	23.5	–	23.5	30.4	–	30.4	–	30.4
Accounts payable and other liabilities <sup>(c)</sup>	51.3	–	48.8	2.4	51.2	54.3	–	51.9	2.2	54.1
Beneficial interests issued by consolidated VIEs <sup>(d)</sup>	12.9	–	11.9	0.9	12.8	18.6	–	16.6	2.0	18.6
Long-term debt and junior subordinated deferrable interest debentures <sup>(e)</sup>	94.0	–	90.2	4.3	94.5	86.8	–	84.0	3.8	87.8

(a) Carrying value includes unamortized discount or premium.

(b) Fair value is typically estimated using a discounted cash flow model that incorporates the characteristics of the underlying loans (including principal, contractual interest rate and contractual fees) and other key inputs, including expected lifetime credit losses, interest rates, prepayment rates, and primary origination or secondary market spreads. For certain loans, the fair value is measured based on the value of the underlying collateral. The difference between the estimated fair value and carrying value of a financial asset or liability is the result of the different methodologies used to determine fair value as compared with carrying value. For example, credit losses are estimated for a financial asset's remaining life in a fair value calculation but are estimated for a loss emergence period in the allowance for loan loss calculation; future loan income (interest and fees) is incorporated in a fair value calculation but is generally not considered in the allowance for loan losses. For a further discussion of JPMorgan Chase Bank, N.A.'s methodologies for estimating the fair value of loans and lending-related commitments, see Valuation hierarchy on pages 20–23.

(c) Certain prior period amounts have been revised to conform with the current presentation.

(d) Carrying value reflects unamortized issuance costs.

(e) Carrying value includes unamortized premiums and discounts, issuance costs and other valuation adjustments.

The majority of JPMorgan Chase Bank, N.A.'s lending-related commitments are not carried at fair value on a recurring basis on the Consolidated balance sheets, nor are they actively traded. The carrying value of the allowance and the estimated fair value of JPMorgan Chase Bank, N.A.'s wholesale lending-related commitments were as follows for the periods indicated.

(in billions)	December 31, 2015					December 31, 2014				
	Carrying value <sup>(a)</sup>	Estimated fair value hierarchy			Total estimated fair value	Carrying value <sup>(a)</sup>	Estimated fair value hierarchy			Total estimated fair value
		Level 1	Level 2	Level 3			Level 1	Level 2	Level 3	
Wholesale lending-related commitments	\$ 0.8	\$ —	\$ —	\$ 2.9	\$ 2.9	\$ 0.6	\$ —	\$ —	\$ 1.6	\$ 1.6

(a) Excludes the current carrying values of the guarantee liability and the offsetting asset, each of which are recognized at fair value at the inception of guarantees.

JPMorgan Chase Bank, N.A. does not estimate the fair value of consumer lending-related commitments. In many cases, JPMorgan Chase Bank, N.A. can reduce or cancel these commitments by providing the borrower notice or, in some

cases as permitted by law, without notice. For a further discussion of the valuation of lending-related commitments, see page 21 of this Note.

## Note 5 – Fair value option

The fair value option provides an option to elect fair value as an alternative measurement for selected financial assets, financial liabilities, unrecognized firm commitments, and written loan commitments.

JPMorgan Chase Bank, N.A. has elected to measure certain instruments at fair value in order to:

- Mitigate income statement volatility caused by the differences in the measurement basis of elected instruments (e.g. certain instruments elected were previously accounted for on an accrual basis) while the associated risk management arrangements are accounted for on a fair value basis;
- Eliminate the complexities of applying certain accounting models (e.g., hedge accounting or bifurcation accounting for hybrid instruments); and/or
- Better reflect those instruments that are managed on a fair value basis.

JPMorgan Chase Bank, N.A.'s election of fair value includes the following instruments:

- Loans purchased or originated as part of securitization warehousing activity, subject to bifurcation accounting, or managed on a fair value basis.
- Certain securities financing arrangements with an embedded derivative and/or a maturity of greater than one year.
- Owned beneficial interests in securitized financial assets that contain embedded credit derivatives, which would otherwise be required to be separately accounted for as a derivative instrument.
- Certain investments that receive tax credits and other equity investments acquired as part of the Washington Mutual transaction.
- Structured notes issued as part of corporate & investment banking business's client-driven activities. (Structured notes are predominantly financial instruments that contain embedded derivatives.)
- Certain long-term beneficial interests issued by the corporate & investment banking business's consolidated securitization trusts where the underlying assets are carried at fair value.

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### Changes in fair value under the fair value option election

The following table presents the changes in fair value included in the Consolidated statements of income for the years ended December 31, 2015, 2014 and 2013, for items for which the fair value option was elected. The profit and loss information presented below only includes the financial instruments that were elected to be measured at fair value; related risk management instruments, which are required to be measured at fair value, are not included in the table.

December 31, (in millions)	2015			2014			2013		
	Principal transactions	All other income	Total changes in fair value recorded	Principal transactions	All other income	Total changes in fair value recorded	Principal transactions	All other income	Total changes in fair value recorded
Federal funds sold and securities purchased under resale agreements	\$ (32)	\$ —	\$ (32)	\$ (27)	\$ —	\$ (27)	\$ (324)	\$ —	\$ (324)
Securities borrowed	(6)	—	(6)	(10)	—	(10)	10	—	10
Trading assets:									
Debt and equity instruments, excluding loans	603	—	603	711	—	711	274	7 <sup>(c)</sup>	281
Loans reported as trading assets:									
Changes in instrument-specific credit risk	101	41 <sup>(c)</sup>	142	506	29 <sup>(c)</sup>	535	829	23 <sup>(c)</sup>	852
Other changes in fair value	200	818 <sup>(c)</sup>	1,018	345	1,353 <sup>(c)</sup>	1,698	(239)	1,833 <sup>(c)</sup>	1,594
Loans:									
Changes in instrument-specific credit risk	37	—	37	44	—	44	22	—	22
Other changes in fair value	4	—	4	29	—	29	23	—	23
Other assets	(2)	5 <sup>(d)</sup>	3	—	26 <sup>(d)</sup>	26	—	(29) <sup>(d)</sup>	(29)
Deposits <sup>(a)</sup>	94	—	94	(295)	—	(295)	260	—	260
Federal funds purchased and securities loaned or sold under repurchase agreements	6	—	6	(21)	—	(21)	59	—	59
Other borrowed funds <sup>(a)</sup>	194	—	194	(949)	—	(949)	941	—	941
Trading liabilities	(20)	—	(20)	(17)	—	(17)	(46)	—	(46)
Beneficial interests issued by consolidated VIEs	14	—	14	(3)	—	(3)	(15)	—	(15)
Other liabilities	—	—	—	—	—	—	—	—	—
Long-term debt:									
Changes in instrument-specific credit risk <sup>(a)</sup>	300	—	300	101	—	101	(271)	—	(271)
Other changes in fair value <sup>(b)</sup>	752	—	752	(374)	—	(374)	(68)	—	(68)

(a) Total changes in instrument-specific credit risk (DVA) related to structured notes were \$171 million, \$20 million and \$(337) million for the years ended December 31, 2015, 2014 and 2013, respectively. These totals include such changes for structured notes classified within deposits and other borrowed funds, as well as long-term debt.

(b) Structured notes are predominantly financial instruments containing embedded derivatives. Where present, the embedded derivative is the primary driver of risk. Although the risk associated with the structured notes is actively managed, the gains/(losses) reported in this table do not include the income statement impact of the risk management instruments used to manage such risk.

(c) Reported in mortgage fees and related income.

(d) Reported in other income.



### Determination of instrument-specific credit risk for items for which a fair value election was made

The following describes how the gains and losses included in earnings that are attributable to changes in instrument-specific credit risk, were determined.

- Loans and lending-related commitments: For floating-rate instruments, all changes in value are attributed to instrument-specific credit risk. For fixed-rate instruments, an allocation of the changes in value for the period is made between those changes in value that are interest rate-related and changes in value that are credit-related. Allocations are generally based on an analysis of borrower-specific credit spread and recovery information, where available, or benchmarking to similar entities or industries.

- Long-term debt: Changes in value attributable to instrument-specific credit risk were derived principally from observable changes in JPMorgan Chase Bank, N.A.'s credit spread.
- Resale and repurchase agreements, securities borrowed agreements and securities lending agreements: Generally, for these types of agreements, there is a requirement that collateral be maintained with a market value equal to or in excess of the principal amount loaned; as a result, there would be no adjustment or an immaterial adjustment for instrument-specific credit risk related to these agreements.

### Difference between aggregate fair value and aggregate remaining contractual principal balance outstanding

The following table reflects the difference between the aggregate fair value and the aggregate remaining contractual principal balance outstanding as of December 31, 2015 and 2014, for loans, long-term debt and long-term beneficial interests for which the fair value option has been elected.

December 31, (in millions)	2015			2014		
	Contractual principal outstanding	Fair value	Fair value over/ (under) contractual principal outstanding	Contractual principal outstanding	Fair value	Fair value over/ (under) contractual principal outstanding
<b>Loans<sup>(a)</sup></b>						
<b>Nonaccrual loans</b>						
Loans reported as trading assets	\$ 1,855	\$ 247	\$ (1,608)	\$ 2,097	\$ 457	\$ (1,640)
Loans	–	–	–	–	–	–
<b>Subtotal</b>	<b>1,855</b>	<b>247</b>	<b>(1,608)</b>	<b>2,097</b>	<b>457</b>	<b>(1,640)</b>
<b>All other performing loans</b>						
Loans reported as trading assets	28,094	26,930	(1,164)	32,314	32,031	(283)
Loans	2,771	2,752	(19)	2,290	2,283	(7)
<b>Total loans</b>	<b>\$ 32,720</b>	<b>\$ 29,929</b>	<b>\$ (2,791)</b>	<b>\$ 36,701</b>	<b>\$ 34,771</b>	<b>\$ (1,930)</b>
<b>Long-term debt</b>						
Principal-protected debt	\$ 2,778 <sup>(c)</sup>	\$ 2,673	\$ (105)	\$ 3,111 <sup>(c)</sup>	\$ 3,064	\$ (47)
Nonprincipal-protected debt <sup>(b)</sup>	NA	12,056	NA	NA	11,072	NA
<b>Total long-term debt</b>	<b>NA</b>	<b>\$ 14,729</b>	<b>NA</b>	<b>NA</b>	<b>\$ 14,136</b>	<b>NA</b>
<b>Long-term beneficial interests</b>						
Nonprincipal-protected debt	NA	\$ –	NA	NA	\$ 18	NA
<b>Total long-term beneficial interests</b>	<b>NA</b>	<b>\$ –</b>	<b>NA</b>	<b>NA</b>	<b>\$ 18</b>	<b>NA</b>

(a) There were no performing loans that were ninety days or more past due as of December 31, 2015 and 2014, respectively.

(b) Remaining contractual principal is not applicable to nonprincipal-protected notes. Unlike principal-protected structured notes, for which JPMorgan Chase Bank, N.A. is obligated to return a stated amount of principal at the maturity of the note, nonprincipal-protected structured notes do not obligate JPMorgan Chase Bank, N.A. to return a stated amount of principal at maturity, but to return an amount based on the performance of an underlying variable or derivative feature embedded in the note. However, investors are exposed to the credit risk of JPMorgan Chase Bank, N.A. as issuer for both nonprincipal-protected and principal protected notes.

(c) Where JPMorgan Chase Bank, N.A. issues principal-protected zero-coupon or discount notes, the balance reflects the contractual principal payment at maturity or, if applicable, the contractual principal payment at JPMorgan Chase Bank, N.A.'s next call date.

At December 31, 2015 and 2014, the contractual amount of letters of credit for which the fair value option was elected was \$4.6 billion and \$4.5 billion, respectively, with a corresponding fair value of \$(113) million and \$(147) million, respectively. For further information regarding off-balance sheet lending-related financial instruments, see Note 27.

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### Note 6 – Credit risk concentrations

Concentrations of credit risk arise when a number of customers are engaged in similar business activities or activities in the same geographic region, or when they have similar economic features that would cause their ability to meet contractual obligations to be similarly affected by changes in economic conditions.

JPMorgan Chase Bank, N.A. regularly monitors various segments of its credit portfolios to assess potential credit risk concentrations and to obtain collateral when deemed necessary. Senior management is significantly involved in the credit approval and review process, and risk levels are adjusted as needed to reflect JPMorgan Chase Bank, N.A.'s risk appetite.

In JPMorgan Chase Bank, N.A.'s consumer portfolio, concentrations are evaluated primarily by product and by U.S. geographic region, with a key focus on trends and concentrations at the portfolio level, where potential credit risk concentrations can be remedied through changes in underwriting policies and portfolio guidelines. In the wholesale portfolio, credit risk concentrations are evaluated

primarily by industry and monitored regularly on both an aggregate portfolio level and on an individual customer basis. JPMorgan Chase Bank, N.A.'s wholesale exposure is managed through loan syndications and participations, loan sales, securitizations, credit derivatives, master netting agreements, and collateral and other risk-reduction techniques. For additional information on loans, see Note 15.

JPMorgan Chase Bank, N.A. does not believe that its exposure to any particular loan product (e.g., option adjustable rate mortgages ("ARMs")), or industry segment (e.g., commercial real estate), or its exposure to residential real estate loans with high loan-to-value ratios, results in a significant concentration of credit risk. Terms of loan products and collateral coverage are included in JPMorgan Chase Bank, N.A.'s assessment when extending credit and establishing its allowance for loan losses.

The table below presents both on-balance sheet and off-balance sheet consumer and wholesale-related credit exposure by JPMorgan Chase Bank, N.A.'s three credit portfolio segments as of December 31, 2015 and 2014.

December 31, (in millions)	2015				2014			
	Credit exposure	On-balance sheet		Off-balance sheet <sup>(f)</sup>	Credit exposure	On-balance sheet		Off-balance sheet <sup>(f)(g)</sup>
		Loans	Derivatives			Loans	Derivatives	
<b>Total consumer, excluding credit card</b>	\$ 403,406	\$ 344,766	\$ –	\$ 58,640	\$ 347,479	\$ 289,294	\$ –	\$ 58,185
<b>Total credit card</b>	41,451	31,065	–	10,386	60,990	31,925	–	29,065
<b>Total consumer</b>	<b>444,857</b>	<b>375,831</b>	<b>–</b>	<b>69,026</b>	<b>408,469</b>	<b>321,219</b>	<b>–</b>	<b>87,250</b>
<b>Wholesale-related<sup>(a)</sup></b>								
Real Estate	116,829	92,792	312	23,725	105,936	79,075	326	26,535
Consumer & Retail	84,192	27,001	1,574	55,617	82,340	24,852	1,845	55,643
Technology, Media & Telecommunications	57,345	11,058	1,032	45,255	46,168	11,349	2,190	32,629
Industrials	54,341	16,783	1,428	36,130	47,714	16,016	1,284	30,414
Banks & Finance Cos	46,398	23,401	10,218	12,779	57,877	26,364	15,488	16,025
Healthcare	43,557	14,819	2,751	25,987	55,694	13,010	4,504	38,180
Oil & Gas	41,623	13,233	1,558	26,832	42,584	15,503	1,385	25,696
Utilities	30,026	5,102	1,128	23,796	26,406	4,622	1,537	20,247
State & Municipal Govt	27,980	8,510	3,279	16,191	29,538	6,247	3,828	19,463
Asset Managers	22,690	6,639	7,733	8,318	26,168	8,038	9,386	8,744
Transportation	19,199	9,129	1,575	8,495	20,565	10,342	2,232	7,991
Central Govt	17,968	2,000	13,240	2,728	19,881	1,103	15,527	3,251
Chemicals/Plastics	15,231	4,033	369	10,829	12,592	3,082	396	9,114
Metals/Mining	14,022	4,618	608	8,796	14,924	5,617	589	8,718
Automotive	13,864	4,473	1,350	8,041	12,738	3,763	766	8,209
Insurance	11,888	1,094	1,991	8,803	13,328	1,175	3,453	8,700
Financial Markets Infrastructure	6,169	724	2,602	2,843	9,575	928	6,146	2,501
Securities Firms	3,267	861	1,424	982	3,481	1,025	1,351	1,105
All other <sup>(b)</sup>	149,720	109,761	5,324	34,635	134,450	92,216	4,731	37,503
<b>Subtotal</b>	<b>776,309</b>	<b>356,031</b>	<b>59,496</b>	<b>360,782</b>	<b>761,959</b>	<b>324,327</b>	<b>76,964</b>	<b>360,668</b>
Loans held-for-sale and loans at fair value	3,855	3,855	–	–	6,084	6,084	–	–
Receivables from customers and other <sup>(c)</sup>	480	–	–	–	542	–	–	–
<b>Total wholesale-related</b>	<b>780,644</b>	<b>359,886</b>	<b>59,496</b>	<b>360,782</b>	<b>768,585</b>	<b>330,411</b>	<b>76,964</b>	<b>360,668</b>
<b>Total exposure<sup>(d)(e)</sup></b>	<b>\$ 1,225,501</b>	<b>\$ 735,717</b>	<b>\$ 59,496</b>	<b>\$ 429,808</b>	<b>\$ 1,177,054</b>	<b>\$ 651,630</b>	<b>\$ 76,964</b>	<b>\$ 447,918</b>

- (a) Effective in 2015, JPMorgan Chase Bank, N.A. realigned its wholesale industry divisions in order to better monitor and manage industry concentrations, as illustrated in the tables below. Included in this realignment is the combination of certain previous stand-alone industries (e.g. Consumer & Retail) as well as the creation of a new industry division, Financial Market Infrastructure, consisting of clearing houses, exchanges and related depositories. The prior period information has been revised to conform with the current period presentation.
- (b) All other includes: individuals; SPEs; holding companies; and private education and civic organizations. For more information on exposures to SPEs, see Note 17.
- (c) Primarily consists of margin loans to prime brokerage customers that are generally over-collateralized through a pledge of assets maintained in clients' brokerage accounts and are subject to daily minimum collateral requirements. As a result of JPMorgan Chase Bank, N.A.'s credit risk mitigation practices, JPMorgan Chase Bank, N.A. did not hold any reserves for credit impairment on these receivables.
- (d) For further information regarding on-balance sheet credit concentrations by major product and/or geography, see Note 7 and Note 15. For information regarding concentrations of off-balance sheet lending-related financial instruments by major product, see Note 27.
- (e) Excludes cash placed with banks of \$326.2 billion and \$487.2 billion, at December 31, 2015 and 2014, respectively, placed with various central banks, predominantly Federal Reserve Banks.
- (f) Represents lending-related financial instruments.
- (g) Effective January 1, 2015, JPMorgan Chase Bank, N.A. no longer includes within its disclosure of wholesale lending-related commitments the unused amounts of advised uncommitted lines of credit as it is within JPMorgan Chase Bank, N.A.'s discretion whether or not to make a loan under these lines, and JPMorgan Chase Bank, N.A.'s approval is generally required prior to funding. Prior period amounts have been revised to conform with the current period presentation.

## Note 7 – Derivative instruments

Derivative instruments enable end-users to modify or mitigate exposure to credit or market risks. Counterparties to a derivative contract seek to obtain risks and rewards similar to those that could be obtained from purchasing or selling a related cash instrument without having to exchange upfront the full purchase or sales price. JPMorgan Chase Bank, N.A. makes markets in derivatives for clients and also uses derivatives to hedge or manage its own risk exposures. Predominantly all of JPMorgan Chase Bank, N.A.'s derivatives are entered into for market-making or risk management purposes.

### *Market-making derivatives*

The majority of JPMorgan Chase Bank, N.A.'s derivatives are entered into for market-making purposes. Clients use derivatives to mitigate or modify interest rate, credit, foreign exchange, equity and commodity risks. JPMorgan Chase Bank, N.A. actively manages the risks from its exposure to these derivatives by entering into other derivative transactions or by purchasing or selling other financial instruments that partially or fully offset the exposure from client derivatives. JPMorgan Chase Bank, N.A. also seeks to earn a spread between the client derivatives and offsetting positions, and from the remaining open risk positions.

### *Risk management derivatives*

JPMorgan Chase Bank, N.A. manages its market risk exposures using various derivative instruments.

Interest rate contracts are used to minimize fluctuations in earnings that are caused by changes in interest rates. Fixed-rate assets and liabilities appreciate or depreciate in market value as interest rates change. Similarly, interest income and expense increases or decreases as a result of variable-rate assets and liabilities resetting to current market rates, and as a result of the repayment and subsequent origination or issuance of fixed-rate assets and liabilities at current market rates. Gains or losses on the derivative instruments that are related to such assets and liabilities are expected to substantially offset this variability in earnings. JPMorgan Chase Bank, N.A. generally uses interest rate swaps, forwards and futures to manage the impact of interest rate fluctuations on earnings.

Foreign currency forward contracts are used to manage the foreign exchange risk associated with certain foreign currency-denominated (i.e., non-U.S. dollar) assets and liabilities and forecasted transactions, as well as JPMorgan Chase Bank, N.A.'s net investments in certain non-U.S. subsidiaries or branches whose functional currencies are not the U.S. dollar. As a result of fluctuations in foreign currencies, the U.S. dollar-equivalent values of the foreign currency-denominated assets and liabilities or the forecasted revenues or expenses increase or decrease. Gains or losses on the derivative instruments related to these foreign currency-denominated assets or liabilities, or

forecasted transactions, are expected to substantially offset this variability.

Credit derivatives are used to manage the counterparty credit risk associated with loans and lending-related commitments. Credit derivatives compensate the purchaser when the entity referenced in the contract experiences a credit event, such as bankruptcy or a failure to pay an obligation when due. Credit derivatives primarily consist of credit default swaps. For a further discussion of credit derivatives, see the discussion in the Credit derivatives section on pages 52–55 of this Note.

For more information about risk management derivatives, see the risk management derivatives gains and losses table on page 52 of this Note, and the hedge accounting gains and losses tables on pages 49–52 of this Note.

### *Derivative counterparties and settlement types*

JPMorgan Chase Bank, N.A. enters into over-the-counter (“OTC”) derivatives with third parties and JPMorgan Chase affiliates, which are negotiated and settled bilaterally with the derivative counterparty. JPMorgan Chase Bank, N.A. also enters into, as principal, certain exchange-traded derivatives (“ETD”) such as futures and options, and “cleared” over-the-counter (“OTC-cleared”) derivative contracts with central counterparties (“CCPs”). ETD contracts are generally standardized contracts traded on an exchange and cleared by the CCP, which is the counterparty from the inception of the transactions. OTC-cleared derivatives are traded on a bilateral basis and then novated to the CCP for clearing.

### *Derivative Clearing Services*

JPMorgan Chase Bank, N.A. provides clearing services for clients where JPMorgan Chase Bank, N.A. acts as a clearing member with respect to certain derivative exchanges and clearing houses. JPMorgan Chase Bank, N.A. does not reflect the clients' derivative contracts in its Consolidated Financial Statements. For further information on JPMorgan Chase Bank, N.A.'s clearing services, see Note 27.

### **Accounting for derivatives**

All free-standing derivatives that JPMorgan Chase Bank, N.A. executes for its own account are required to be recorded on the Consolidated balance sheets at fair value.

As permitted under U.S. GAAP JPMorgan Chase Bank, N.A. nets derivative assets and liabilities, and the related cash collateral receivables and payables, when a legally enforceable master netting agreement exists between JPMorgan Chase Bank, N.A. and the derivative counterparty. For further discussion of the offsetting of assets and liabilities, see Note 1. The accounting for changes in value of a derivative depends on whether or not the transaction has been designated and qualifies for hedge accounting. Derivatives that are not designated as hedges are reported and measured at fair value through earnings. The tabular disclosures on pages 45–52 of this Note provide additional information on the amount of, and reporting for, derivative

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assets, liabilities, gains and losses. For further discussion of derivatives embedded in structured notes, see Notes 4 and 5.

### *Derivatives designated as hedges*

JPMorgan Chase Bank, N.A. applies hedge accounting to certain derivatives executed for risk management purposes – generally interest rate, foreign exchange and commodity derivatives. However, JPMorgan Chase Bank, N.A. does not seek to apply hedge accounting to all of the derivatives involved in its risk management activities. For example, JPMorgan Chase Bank, N.A. does not apply hedge accounting to purchased credit default swaps used to manage the credit risk of loans and lending-related commitments, because of the difficulties in qualifying such contracts as hedges. For the same reason, JPMorgan Chase Bank, N.A. does not apply hedge accounting to certain interest rate, foreign exchange, and commodity derivatives used for risk management purposes.

To qualify for hedge accounting, a derivative must be highly effective at reducing the risk associated with the exposure being hedged. In addition, for a derivative to be designated as a hedge, the risk management objective and strategy must be documented. Hedge documentation must identify the derivative hedging instrument, the asset or liability or forecasted transaction and type of risk to be hedged, and how the effectiveness of the derivative is assessed prospectively and retrospectively. To assess effectiveness, JPMorgan Chase Bank, N.A. uses statistical methods such as regression analysis, as well as nonstatistical methods including dollar-value comparisons of the change in the fair value of the derivative to the change in the fair value or cash flows of the hedged item. The extent to which a derivative has been, and is expected to continue to be, effective at offsetting changes in the fair value or cash flows of the hedged item must be assessed and documented at least quarterly. Any hedge ineffectiveness (i.e., the amount by which the gain or loss on the designated derivative instrument does not exactly offset the change in the hedged item attributable to the hedged risk) must be reported in current-period earnings. If it is determined that a derivative is not highly effective at hedging the designated exposure, hedge accounting is discontinued.

There are three types of hedge accounting designations: fair value hedges, cash flow hedges and net investment hedges. JPMorgan Chase Bank, N.A. uses fair value hedges primarily to hedge fixed-rate long-term debt, AFS securities and certain commodities inventories. For qualifying fair value hedges, the changes in the fair value of the derivative, and in the value of the hedged item for the risk being hedged, are recognized in earnings. If the hedge relationship is terminated, then the adjustment to the hedged item continues to be reported as part of the basis of the hedged item, and for benchmark interest rate hedges is amortized to earnings as a yield adjustment. Derivative amounts affecting earnings are recognized consistent with the classification of the hedged item – primarily net interest income and principal transactions revenue.

JPMorgan Chase Bank, N.A. uses cash flow hedges primarily to hedge the exposure to variability in forecasted cash flows from floating-rate assets and liabilities and foreign currency-denominated revenue and expense. For qualifying cash flow hedges, the effective portion of the change in the fair value of the derivative is recorded in OCI and recognized in the Consolidated statements of income when the hedged cash flows affect earnings. Derivative amounts affecting earnings are recognized consistent with the classification of the hedged item – primarily interest income, interest expense, noninterest revenue and compensation expense. The ineffective portions of cash flow hedges are immediately recognized in earnings. If the hedge relationship is terminated, then the value of the derivative recorded in accumulated other comprehensive income/ (loss) (“AOCI”) is recognized in earnings when the cash flows that were hedged affect earnings. For hedge relationships that are discontinued because a forecasted transaction is not expected to occur according to the original hedge forecast, any related derivative values recorded in AOCI are immediately recognized in earnings.

JPMorgan Chase Bank, N.A. uses foreign currency hedges to protect the value of JPMorgan Chase Bank, N.A.’s net investments in certain non-U.S. subsidiaries or branches whose functional currencies are not the U.S. dollar. For foreign currency qualifying net investment hedges, changes in the fair value of the derivatives are recorded in the translation adjustments account within AOCI.

The following table outlines JPMorgan Chase Bank, N.A.'s primary uses of derivatives and the related hedge accounting designation or disclosure category.

Type of Derivative	Use of Derivative	Designation and disclosure	Page reference
Manage specifically identified risk exposures in qualifying hedge accounting relationships:			
◦ Interest rate	Hedge fixed rate assets and liabilities	Fair value hedge	50
◦ Interest rate	Hedge floating-rate assets and liabilities	Cash flow hedge	51
◦ Foreign exchange	Hedge foreign currency-denominated assets and liabilities	Fair value hedge	50
◦ Foreign exchange	Hedge forecasted revenue and expense	Cash flow hedge	51
◦ Foreign exchange	Hedge the value of JPMorgan Chase Bank, N.A.'s investments in non-U.S. subsidiaries	Net investment hedge	52
◦ Commodity	Hedge commodity inventory	Fair value hedge	50
Manage specifically identified risk exposures not designated in qualifying hedge accounting relationships:			
◦ Interest rate	Manage the risk of the mortgage pipeline, warehouse loans and MSRs	Specified risk management	52
◦ Credit	Manage the credit risk of wholesale lending exposures	Specified risk management	52
◦ Commodity	Manage the risk of certain commodities-related contracts and investments	Specified risk management	52
◦ Interest rate and foreign exchange	Manage the risk of certain other specified assets and liabilities	Specified risk management	52
Market-making derivatives and other activities:			
• Various	Market-making and related risk management	Market-making and other	52
• Various	Other derivatives	Market-making and other	52

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### Notional amount of derivative contracts

The following table summarizes the notional amount of derivative contracts outstanding as of December 31, 2015 and 2014.

December 31, (in billions)	Notional amounts <sup>(b)</sup>	
	2015	2014
<b>Interest rate contracts</b>		
Swaps	\$ 24,394	\$ 29,980
Futures and forwards	4,885	9,840
Written options	3,524	3,913
Purchased options	3,927	4,259
<b>Total interest rate contracts</b>	<b>36,730</b>	<b>47,992</b>
<b>Credit derivatives<sup>(a)</sup></b>	<b>2,893</b>	<b>4,247</b>
<b>Foreign exchange contracts</b>		
Cross-currency swaps	3,213	3,355
Spot, futures and forwards	5,083	4,675
Written options	690	790
Purchased options	706	780
<b>Total foreign exchange contracts</b>	<b>9,692</b>	<b>9,600</b>
<b>Equity contracts</b>		
Swaps	318	306
Futures and forwards	40	37
Written options	441	480
Purchased options	408	431
<b>Total equity contracts</b>	<b>1,207</b>	<b>1,254</b>
<b>Commodity contracts</b>		
Swaps	345	132
Spot, futures and forwards	92	163
Written options	135	180
Purchased options	136	178
<b>Total commodity contracts</b>	<b>708</b>	<b>653</b>
<b>Total derivative notional amounts</b>	<b>\$ 51,230</b>	<b>\$ 63,746</b>

(a) For more information on volumes and types of credit derivative contracts, see the Credit derivatives discussion on pages 52-55 of this Note.

(b) Represents the sum of gross long and gross short notional derivative contracts with third-parties and JPMorgan Chase affiliates. For additional information on related party derivatives, see Note 22.

While the notional amounts disclosed above give an indication of the volume of JPMorgan Chase Bank, N.A.'s derivatives activity, the notional amounts significantly exceed, in JPMorgan Chase Bank, N.A.'s view, the possible losses that could arise from such transactions. For most derivative transactions, the notional amount is not exchanged; it is used simply as a reference to calculate payments.

### Impact of derivatives on the Consolidated balance sheets

The tables below include derivative receivables and payables with affiliates on a net basis. See Note 22 for information regarding our derivative activities with affiliates.

The following table summarizes information on derivative receivables and payables (before and after netting adjustments) that are reflected on JPMorgan Chase Bank, N.A.'s Consolidated balance sheets as of December 31, 2015 and 2014, by accounting designation (e.g., whether the derivatives were designated in qualifying hedge accounting relationships or not) and contract type.

#### Free-standing derivative receivables and payables<sup>(a)</sup>

December 31, 2015 (in millions)	Gross derivative receivables			Net derivative receivables <sup>(b)</sup>	Gross derivative payables			Net derivative payables <sup>(b)</sup>
	Not designated as hedges	Designated as hedges	Total derivative receivables		Not designated as hedges	Designated as hedges	Total derivative payables	
<b>Trading assets and liabilities</b>								
Interest rate	\$ 679,090	\$ 776	\$ 679,866	\$ 27,099	\$ 644,227	\$ 2,081	\$ 646,308	\$ 11,814
Credit	51,583	—	51,583	1,424	50,872	—	50,872	1,770
Foreign exchange	180,070	788	180,858	17,437	191,793	364	192,157	20,321
Equity	53,694	—	53,694	5,756	55,791	—	55,791	8,699
Commodity	40,719	9	40,728	7,780	42,503	—	42,503	10,180
<b>Total fair value of trading assets and liabilities</b>	<b>\$ 1,005,156</b>	<b>\$ 1,573</b>	<b>\$ 1,006,729</b>	<b>\$ 59,496</b>	<b>\$ 985,186</b>	<b>\$ 2,445</b>	<b>\$ 987,631</b>	<b>\$ 52,784</b>

December 31, 2014 (in millions)	Gross derivative receivables			Net derivative receivables <sup>(b)</sup>	Gross derivative payables			Net derivative payables <sup>(b)</sup>
	Not designated as hedges	Designated as hedges	Total derivative receivables		Not designated as hedges	Designated as hedges	Total derivative payables	
<b>Trading assets and liabilities</b>								
Interest rate	\$ 948,416 <sup>(c)</sup>	\$ 1,004	\$ 949,420 <sup>(c)</sup>	\$ 33,339	\$ 918,216 <sup>(c)</sup>	\$ 2,790	\$ 921,006 <sup>(c)</sup>	\$ 20,814
Credit	76,868	—	76,868	1,864	76,397	—	76,397	2,095
Foreign exchange	211,523 <sup>(c)</sup>	3,634	215,157 <sup>(c)</sup>	21,223	225,350 <sup>(c)</sup>	54	225,404 <sup>(c)</sup>	23,760
Equity	39,643 <sup>(c)</sup>	—	39,643 <sup>(c)</sup>	8,173	43,532 <sup>(c)</sup>	—	43,532 <sup>(c)</sup>	11,852
Commodity	39,496	502	39,998	12,365	40,370	163	40,533	14,447
<b>Total fair value of trading assets and liabilities</b>	<b>\$ 1,315,946 <sup>(c)</sup></b>	<b>\$ 5,140</b>	<b>\$ 1,321,086 <sup>(c)</sup></b>	<b>\$ 76,964</b>	<b>\$ 1,303,865 <sup>(c)</sup></b>	<b>\$ 3,007</b>	<b>\$ 1,306,872 <sup>(c)</sup></b>	<b>\$ 72,968</b>

(a) Balances exclude structured notes for which the fair value option has been elected. See Note 5 for further information.

(b) As permitted under U.S. GAAP, JPMorgan Chase Bank, N.A. has elected to net derivative receivables and derivative payables and the related cash collateral receivables and payables when a legally enforceable master netting agreement exists.

(c) The prior period amounts have been revised to conform with the current period presentation. These revisions had no impact on JPMorgan Chase Bank, N.A.'s Consolidated balance sheets or its results of operations.

## Notes to consolidated financial statements

JPMorgan Chase Bank, National Association  
(a wholly-owned subsidiary of JPMorgan Chase & Co.)

The following table presents, as of December 31, 2015 and 2014, the gross and net derivative receivables by contract and settlement type. Derivative receivables have been netted on the Consolidated balance sheets against derivative payables and cash collateral payables to the same counterparty with respect to derivative contracts for which JPMorgan Chase Bank, N.A. has obtained an appropriate legal opinion with respect to the master netting agreement. Where such a legal opinion has not been either sought or obtained, the receivables are not eligible under U.S. GAAP for netting on the Consolidated balance sheets, and are shown separately in the table below.

December 31, (in millions)	2015			2014		
	Gross derivative receivables	Amounts netted on the Consolidated balance sheets	Net derivative receivables	Gross derivative receivables	Amounts netted on the Consolidated balance sheets	Net derivative receivables
<b>U.S. GAAP nettable derivative receivables</b>						
<b>Interest rate contracts:</b>						
OTC	\$ 427,840	\$ (406,182)	\$ 21,658	\$ 541,806 <sup>(c)</sup>	\$ (514,902) <sup>(c)</sup>	\$ 26,904
OTC-cleared	246,594	(246,585)	9	401,217	(401,179)	38
Exchange-traded <sup>(a)</sup>	—	—	—	—	—	—
<b>Total interest rate contracts</b>	<b>674,434</b>	<b>(652,767)</b>	<b>21,667</b>	<b>943,023<sup>(c)</sup></b>	<b>(916,081)<sup>(c)</sup></b>	<b>26,942</b>
<b>Credit contracts:</b>						
OTC	44,203	(43,297)	906	66,664	(65,720)	944
OTC-cleared	6,865	(6,862)	3	9,320	(9,284)	36
<b>Total credit contracts</b>	<b>51,068</b>	<b>(50,159)</b>	<b>909</b>	<b>75,984</b>	<b>(75,004)</b>	<b>980</b>
<b>Foreign exchange contracts:</b>						
OTC	176,177	(163,100)	13,077	208,798 <sup>(c)</sup>	(193,900) <sup>(c)</sup>	14,898
OTC-cleared	323	(321)	2	36	(34)	2
Exchange-traded <sup>(a)</sup>	—	—	—	—	—	—
<b>Total foreign exchange contracts</b>	<b>176,500</b>	<b>(163,421)</b>	<b>13,079</b>	<b>208,834<sup>(c)</sup></b>	<b>(193,934)<sup>(c)</sup></b>	<b>14,900</b>
<b>Equity contracts:</b>						
OTC	40,056	(39,568)	488	23,455	(22,826)	629
OTC-cleared	—	—	—	—	—	—
Exchange-traded <sup>(a)</sup>	10,754	(8,370)	2,384	10,798 <sup>(c)</sup>	(8,644) <sup>(c)</sup>	2,154
<b>Total equity contracts</b>	<b>50,810</b>	<b>(47,938)</b>	<b>2,872</b>	<b>34,253<sup>(c)</sup></b>	<b>(31,470)<sup>(c)</sup></b>	<b>2,783</b>
<b>Commodity contracts:</b>						
OTC	30,996	(23,892)	7,104	19,740	(12,563)	7,177
OTC-cleared	—	—	—	—	—	—
Exchange-traded <sup>(a)</sup>	9,124	(9,056)	68	19,200	(15,070)	4,130
<b>Total commodity contracts</b>	<b>40,120</b>	<b>(32,948)</b>	<b>7,172</b>	<b>38,940</b>	<b>(27,633)</b>	<b>11,307</b>
<b>Derivative receivables with appropriate legal opinion</b>	<b>\$ 992,932</b>	<b>\$ (947,233)<sup>(b)</sup></b>	<b>\$ 45,699</b>	<b>\$ 1,301,034<sup>(c)</sup></b>	<b>\$ (1,244,122)<sup>(b)(c)</sup></b>	<b>\$ 56,912</b>
<b>Derivative receivables where an appropriate legal opinion has not been either sought or obtained</b>	<b>13,797</b>		<b>13,797</b>	<b>20,052</b>		<b>20,052</b>
<b>Total derivative receivables recognized on the Consolidated balance sheets</b>	<b>\$ 1,006,729</b>		<b>\$ 59,496</b>	<b>\$ 1,321,086<sup>(c)</sup></b>		<b>\$ 76,964</b>

(a) Exchange-traded derivative amounts that relate to futures contracts are settled daily.

(b) Included cash collateral netted of \$73.4 billion and \$73.9 billion at December 31, 2015, and 2014, respectively.

(c) The prior period amounts have been revised to conform with the current period presentation with a corresponding impact to the table below. These revisions had no impact on JPMorgan Chase Bank, N.A.'s Consolidated balance sheets or its results of operations.



The following table presents, as of December 31, 2015 and 2014, the gross and net derivative payables by contract and settlement type. Derivative payables have been netted on the Consolidated balance sheets against derivative receivables and cash collateral receivables from the same counterparty with respect to derivative contracts for which JPMorgan Chase Bank, N.A. has obtained an appropriate legal opinion with respect to the master netting agreement. Where such a legal opinion has not been either sought or obtained, the payables are not eligible under U.S. GAAP for netting on the Consolidated balance sheets, and are shown separately in the table below.

December 31, (in millions)	2015			2014		
	Gross derivative payables	Amounts netted on the Consolidated balance sheets	Net derivative payables	Gross derivative payables	Amounts netted on the Consolidated balance sheets	Net derivative payables
<b>U.S. GAAP nettable derivative payables</b>						
<b>Interest rate contracts:</b>						
OTC	\$ 405,054	\$ (394,282)	\$ 10,772	\$ 519,010 <sup>(c)</sup>	\$ (503,381) <sup>(c)</sup>	\$ 15,629
OTC-cleared	240,241	(240,212)	29	398,079	(396,811)	1,268
Exchange-traded <sup>(a)</sup>	—	—	—	—	—	—
<b>Total interest rate contracts</b>	<b>645,295</b>	<b>(634,494)</b>	<b>10,801</b>	<b>917,089 <sup>(c)</sup></b>	<b>(900,192) <sup>(c)</sup></b>	<b>16,897</b>
<b>Credit contracts:</b>						
OTC	44,731	(43,133)	1,598	65,937	(64,904)	1,033
OTC-cleared	5,969	(5,969)	—	9,398	(9,398)	—
<b>Total credit contracts</b>	<b>50,700</b>	<b>(49,102)</b>	<b>1,598</b>	<b>75,335</b>	<b>(74,302)</b>	<b>1,033</b>
<b>Foreign exchange contracts:</b>						
OTC	186,567	(171,535)	15,032	218,909 <sup>(c)</sup>	(201,578) <sup>(c)</sup>	17,331
OTC-cleared	301	(301)	—	66	(66)	—
Exchange-traded <sup>(a)</sup>	—	—	—	—	—	—
<b>Total foreign exchange contracts</b>	<b>186,868</b>	<b>(171,836)</b>	<b>15,032</b>	<b>218,975 <sup>(c)</sup></b>	<b>(201,644) <sup>(c)</sup></b>	<b>17,331</b>
<b>Equity contracts:</b>						
OTC	42,683	(38,722)	3,961	28,041	(23,036)	5,005
OTC-cleared	—	—	—	—	—	—
Exchange-traded <sup>(a)</sup>	8,911	(8,370)	541	10,022 <sup>(c)</sup>	(8,644) <sup>(c)</sup>	1,378
<b>Total equity contracts</b>	<b>51,594</b>	<b>(47,092)</b>	<b>4,502</b>	<b>38,063 <sup>(c)</sup></b>	<b>(31,680) <sup>(c)</sup></b>	<b>6,383</b>
<b>Commodity contracts:</b>						
OTC	31,976	(23,054)	8,922	20,618	(11,016)	9,602
OTC-cleared	—	—	—	—	—	—
Exchange-traded <sup>(a)</sup>	9,322	(9,269)	53	18,078	(15,070)	3,008
<b>Total commodity contracts</b>	<b>41,298</b>	<b>(32,323)</b>	<b>8,975</b>	<b>38,696</b>	<b>(26,086)</b>	<b>12,610</b>
<b>Derivative payables with appropriate legal opinions</b>	<b>\$ 975,755</b>	<b>\$ (934,847) <sup>(b)</sup></b>	<b>\$ 40,908</b>	<b>\$ 1,288,158 <sup>(c)</sup></b>	<b>\$ (1,233,904) <sup>(b)(c)</sup></b>	<b>\$ 54,254</b>
<b>Derivative payables where an appropriate legal opinion has not been either sought or obtained</b>	<b>11,876</b>		<b>11,876</b>	<b>18,714</b>		<b>18,714</b>
<b>Total derivative payables recognized on the Consolidated balance sheets</b>	<b>\$ 987,631</b>		<b>\$ 52,784</b>	<b>\$ 1,306,872 <sup>(c)</sup></b>		<b>\$ 72,968</b>

(a) Exchange-traded derivative balances that relate to futures contracts are settled daily.

(b) Included cash collateral netted of \$61.1 billion and \$63.7 billion related to OTC and OTC-cleared derivatives at December 31, 2015, and December 31, 2014, respectively.

(c) The prior period amounts have been revised to conform with the current period presentation. These revisions had no impact on JPMorgan Chase Bank, N.A.'s Consolidated balance sheets or its results of operations.

## Notes to consolidated financial statements

JPMorgan Chase Bank, National Association  
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In addition to the cash collateral received and transferred that is presented on a net basis with net derivative receivables and payables, JPMorgan Chase Bank, N.A. receives and transfers additional collateral (financial instruments and cash). These amounts mitigate counterparty credit risk associated with JPMorgan Chase Bank, N.A.'s derivative instruments but are not eligible for net presentation, because (a) the collateral consists of non-

cash financial instruments (generally U.S. government and agency securities and other Group of Seven Nations ("G7") government bonds), (b) the amount of collateral held or transferred exceeds the fair value exposure, at the individual counterparty level, as of the date presented, or (c) the collateral relates to derivative receivables or payables where an appropriate legal opinion has not been either sought or obtained.

The following tables present information regarding certain financial instrument collateral received and transferred as of December 31, 2015 and 2014, that is not eligible for net presentation under U.S. GAAP. The collateral included in these tables relates only to the derivative instruments for which appropriate legal opinions have been obtained; excluded are (i) additional collateral that exceeds the fair value exposure and (ii) all collateral related to derivative instruments where an appropriate legal opinion has not been either sought or obtained.

### Derivative receivable collateral

December 31, (in millions)	2015			2014		
	Net derivative receivables	Collateral not nettable on the Consolidated balance sheets	Net exposure	Net derivative receivables	Collateral not nettable on the Consolidated balance sheets	Net exposure
Derivative receivables with appropriate legal opinions	\$ 45,699	\$ (13,354) <sup>(a)</sup>	\$ 32,345	\$ 56,912	\$ (16,032) <sup>(a)</sup>	\$ 40,880

### Derivative payable collateral<sup>(b)</sup>

December 31, (in millions)	2015			2014		
	Net derivative payables	Collateral not nettable on the Consolidated balance sheets	Net amount <sup>(c)</sup>	Net derivative payables	Collateral not nettable on the Consolidated balance sheets	Net amount <sup>(c)</sup>
Derivative payables with appropriate legal opinions	\$ 40,908	\$ (7,946) <sup>(a)</sup>	\$ 32,962	\$ 54,254	\$ (10,505) <sup>(a)</sup>	\$ 43,749

(a) Represents liquid security collateral as well as cash collateral held at third party custodians. For some counterparties, the collateral amounts of financial instruments may exceed the derivative receivables and derivative payables balances. Where this is the case, the total amount reported is limited to the net derivative receivables and net derivative payables balances with that counterparty.

(b) Derivative payables collateral relates only to OTC and OTC-cleared derivative instruments. Amounts exclude collateral transferred related to exchange-traded derivative instruments.

(c) Net amount represents exposure of counterparties to JPMorgan Chase Bank, N.A.

### Liquidity risk and credit-related contingent features

In addition to the specific market risks introduced by each derivative contract type, derivatives expose JPMorgan Chase Bank, N.A. to credit risk – the risk that derivative counterparties may fail to meet their payment obligations under the derivative contracts and the collateral, if any, held by JPMorgan Chase Bank, N.A. proves to be of insufficient value to cover the payment obligation. It is the policy of JPMorgan Chase Bank, N.A. to actively pursue, where possible, the use of legally enforceable master netting arrangements and collateral agreements to mitigate derivative counterparty credit risk. The amount of derivative receivables reported on the Consolidated balance sheets is the fair value of the derivative contracts after giving effect to legally enforceable master netting agreements and cash collateral held by JPMorgan Chase Bank, N.A.

While derivative receivables expose JPMorgan Chase Bank, N.A. to credit risk, derivative payables expose JPMorgan Chase Bank, N.A. to liquidity risk, as the derivative contracts typically require JPMorgan Chase Bank, N.A. to post cash or

securities collateral with counterparties as the fair value of the contracts moves in the counterparties' favor or upon specified downgrades in JPMorgan Chase Bank, N.A.'s its subsidiaries' respective credit ratings. Certain derivative contracts also provide for termination of the contract, generally upon a downgrade of either JPMorgan Chase Bank, N.A. or the counterparty, at the fair value of the derivative contracts. The following table shows the aggregate fair value of net derivative payables related to OTC and OTC-cleared derivatives that contain contingent collateral or termination features that may be triggered upon a ratings downgrade, and the associated collateral JPMorgan Chase Bank, N.A. has posted in the normal course of business, at December 31, 2015 and 2014.

### OTC and OTC-cleared derivative payables containing downgrade triggers

December 31, (in millions)	2015	2014
Aggregate fair value of net derivative payables	\$ 21,934	\$ 31,882
Collateral posted	18,176	27,282

The following table shows the impact of a single-notch and two-notch downgrade of the long-term issuer ratings of JPMorgan Chase Bank, N.A. and its subsidiaries at December 31, 2015 and 2014, related to OTC and OTC-cleared derivative contracts with contingent collateral or termination features that may be triggered upon a ratings downgrade. Derivatives contracts generally require additional collateral to be posted or terminations to be triggered when the predefined threshold rating is breached. A downgrade by a single rating agency that does not result in a rating lower than a preexisting corresponding rating provided by another major rating agency will generally not result in additional collateral (except in certain instances in which additional initial margin may be required upon a ratings downgrade), nor in termination payments requirements. The liquidity impact in the table is calculated based upon a downgrade below the lowest current rating by the rating agencies referred to in the derivative contract.

#### Liquidity impact of downgrade triggers on OTC and OTC-cleared derivatives

December 31, (in millions)	2015		2014	
	Single-notch downgrade	Two-notch downgrade	Single-notch downgrade	Two-notch downgrade
Amount of additional collateral to be posted upon downgrade <sup>(a)</sup>	\$ 787	\$ 3,001	\$ 1,032	\$ 3,297
Amount required to settle contracts with termination triggers upon downgrade <sup>(b)</sup>	271	1,093	366	1,388

(a) Includes the additional collateral to be posted for initial margin.

(b) Amounts represent fair values of derivative payables, and do not reflect collateral posted.

#### Derivatives executed in contemplation of a sale of the underlying financial asset

In certain instances JPMorgan Chase Bank, N.A. enters into transactions in which it transfers financial assets but maintains the economic exposure to the transferred assets by entering into a derivative with the same counterparty in contemplation of the initial transfer. JPMorgan Chase Bank, N.A. generally accounts for such transfers as collateralized financing transactions as described in Note 14, but in limited circumstances they may qualify to be accounted for as a sale and a derivative under U.S. GAAP. The amount of such transfers accounted for as a sale where the associated derivative was outstanding at December 31, 2015 was not material.

#### Impact of derivatives on the Consolidated statements of income

The following tables provide information related to gains and losses recorded on derivatives based on their hedge accounting designation or purpose.

#### Fair value hedge gains and losses

The following tables present derivative instruments, by contract type, used in fair value hedge accounting relationships, as well as pretax gains/(losses) recorded on such derivatives and the related hedged items for the years ended December 31, 2015, 2014 and 2013, respectively. JPMorgan Chase Bank, N.A. includes gains/(losses) on the hedging derivative and the related hedged item in the same line item in the Consolidated statements of income.

## Notes to consolidated financial statements

JPMorgan Chase Bank, National Association  
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Year ended December 31, 2015 (in millions)	Gains/(losses) recorded in income			Income statement impact due to:	
	Derivatives	Hedged items	Total income statement impact	Hedge ineffectiveness <sup>(d)</sup>	Excluded components <sup>(e)</sup>
<b>Contract type</b>					
Interest rate <sup>(a)</sup>	\$ (123)	\$ (233)	\$ (356)	\$ 26	\$ (382)
Foreign exchange <sup>(b)</sup>	6,900	(6,921)	(21)	–	(21)
Commodity <sup>(c)</sup>	600	(638)	(38)	(11)	(27)
<b>Total</b>	<b>\$ 7,377</b>	<b>\$ (7,792)</b>	<b>\$ (415)</b>	<b>\$ 15</b>	<b>\$ (430)</b>

Year ended December 31, 2014 (in millions)	Gains/(losses) recorded in income			Income statement impact due to:	
	Derivatives	Hedged items	Total income statement impact	Hedge ineffectiveness <sup>(d)</sup>	Excluded components <sup>(e)</sup>
<b>Contract type</b>					
Interest rate <sup>(a)</sup>	\$ (2,967)	\$ 2,577	\$ (390)	\$ 55	\$ (445)
Foreign exchange <sup>(b)</sup>	9,107	(9,434)	(327)	–	(327)
Commodity <sup>(c)</sup>	327	(149)	178	42	136
<b>Total</b>	<b>\$ 6,467</b>	<b>\$ (7,006)</b>	<b>\$ (539)</b>	<b>\$ 97</b>	<b>\$ (636)</b>

Year ended December 31, 2013 (in millions)	Gains/(losses) recorded in income			Income statement impact due to:	
	Derivatives	Hedged items	Total income statement impact	Hedge ineffectiveness <sup>(d)</sup>	Excluded components <sup>(e)</sup>
<b>Contract type</b>					
Interest rate <sup>(a)</sup>	\$ 2,011	\$ (2,363)	\$ (352)	\$ 2	\$ (354)
Foreign exchange <sup>(b)</sup>	(556)	293	(263)	–	(263)
Commodity <sup>(c)</sup>	316	(1,160)	(844)	42	(886)
<b>Total</b>	<b>\$ 1,771</b>	<b>\$ (3,230)</b>	<b>\$ (1,459)</b>	<b>\$ 44</b>	<b>\$ (1,503)</b>

(a) Primarily consists of hedges of the benchmark (e.g., London Interbank Offered Rate (“LIBOR”)) interest rate risk of fixed-rate AFS securities. Gains and losses were recorded in net interest income.

(b) Primarily consists of hedges of the foreign currency risk of AFS securities for changes in spot foreign currency rates. Gains and losses related to the derivatives and the hedged items, due to changes in foreign currency rates, were recorded primarily in principal transactions revenue and net interest income.

(c) Consists of overall fair value hedges of physical commodities inventories that are generally carried at the lower of cost or market (market approximates fair value). Gains and losses were recorded in principal transactions revenue.

(d) Hedge ineffectiveness is the amount by which the gain or loss on the designated derivative instrument does not exactly offset the gain or loss on the hedged item attributable to the hedged risk.

(e) The assessment of hedge effectiveness excludes certain components of the changes in fair values of the derivatives and hedged items such as forward points on foreign exchange forward contracts and time values.

### Cash flow hedge gains and losses

The following tables present derivative instruments, by contract type, used in cash flow hedge accounting relationships, and the pretax gains/(losses) recorded on such derivatives, for the years ended December 31, 2015, 2014 and 2013, respectively. JPMorgan Chase Bank, N.A. includes the gain/(loss) on the hedging derivative and the change in cash flows on the hedged item in the same line item in the Consolidated statements of income.

Year ended December 31, 2015 (in millions)	Gains/(losses) recorded in income and other comprehensive income/(loss)				
	Derivatives - effective portion reclassified from AOCI to income	Hedge ineffectiveness recorded directly in income <sup>(c)</sup>	Total income statement impact	Derivatives - effective portion recorded in OCI	Total change in OCI for period
<b>Contract type</b>					
Interest rate <sup>(a)</sup>	\$ (93)	\$ —	\$ (93)	\$ (44)	\$ 49
Foreign exchange <sup>(b)</sup>	(81)	—	(81)	(53)	28
<b>Total</b>	<b>\$ (174)</b>	<b>\$ —</b>	<b>\$ (174)</b>	<b>\$ (97)</b>	<b>\$ 77</b>

Year ended December 31, 2014 (in millions)	Gains/(losses) recorded in income and other comprehensive income/(loss)				
	Derivatives - effective portion reclassified from AOCI to income	Hedge ineffectiveness recorded directly in income <sup>(c)</sup>	Total income statement impact	Derivatives - effective portion recorded in OCI	Total change in OCI for period
<b>Contract type</b>					
Interest rate <sup>(a)</sup>	\$ 45	\$ —	\$ 45	\$ 192	\$ 147
Foreign exchange <sup>(b)</sup>	78	—	78	(92)	(170)
<b>Total</b>	<b>\$ 123</b>	<b>\$ —</b>	<b>\$ 123</b>	<b>\$ 100</b>	<b>\$ (23)</b>

Year ended December 31, 2013 (in millions)	Gains/(losses) recorded in income and other comprehensive income/(loss)				
	Derivatives - effective portion reclassified from AOCI to income	Hedge ineffectiveness recorded directly in income <sup>(c)</sup>	Total income statement impact	Derivatives - effective portion recorded in OCI	Total change in OCI for period
<b>Contract type</b>					
Interest rate <sup>(a)</sup>	\$ 149	\$ —	\$ 149	\$ (547)	\$ (696)
Foreign exchange <sup>(b)</sup>	7	—	7	40	33
<b>Total</b>	<b>\$ 156</b>	<b>\$ —</b>	<b>\$ 156</b>	<b>\$ (507)</b>	<b>\$ (663)</b>

(a) Primarily consists of benchmark interest rate hedges of LIBOR-indexed floating-rate assets and floating-rate liabilities. Gains and losses were recorded in net interest income, and for the forecasted transactions that JPMorgan Chase Bank, N.A. determined during the year ended December 31, 2015, were probable of not occurring, in other income.

(b) Primarily consists of hedges of the foreign currency risk of non-U.S. dollar-denominated revenue and expense. The income statement classification of gains and losses follows the hedged item - primarily noninterest revenue and compensation expense.

(c) Hedge ineffectiveness is the amount by which the cumulative gain or loss on the designated derivative instrument exceeds the present value of the cumulative expected change in cash flows on the hedged item attributable to the hedged risk.

In 2015, JPMorgan Chase Bank, N.A. reclassified approximately \$150 million of net losses from AOCI to other income because JPMorgan Chase Bank, N.A. determined that it was probable that the forecasted interest payment cash flows would not occur as a result of the planned reduction in wholesale non-operating deposits JPMorgan Chase Bank, N.A. did not experience any forecasted transactions that failed to occur for the years ended December 31, 2014 or 2013.

Over the next 12 months, JPMorgan Chase Bank, N.A. expects that approximately \$95 million (after-tax) of net losses recorded in AOCI at December 31, 2015, related to cash flow hedges, will be recognized in income. For terminated cash flow hedges, the maximum length of time over which forecasted transactions are remaining is approximately 7 years. For open cash flow hedges, the maximum length of time over which forecasted transactions are hedged is approximately 2 years. JPMorgan Chase Bank, N.A.'s longer-dated forecasted transactions relate to core lending and borrowing activities.

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### Net investment hedge gains and losses

The following table presents hedging instruments, by contract type, that were used in net investment hedge accounting relationships, and the pretax gains/(losses) recorded on such instruments for the years ended December 31, 2015, 2014 and 2013.

Year ended December 31, (in millions)	Gains/(losses) recorded in income and other comprehensive income/(loss)					
	2015		2014		2013	
	Excluded components recorded directly in income <sup>(a)</sup>	Effective portion recorded in OCI	Excluded components recorded directly in income <sup>(a)</sup>	Effective portion recorded in OCI	Excluded components recorded directly in income <sup>(a)</sup>	Effective portion recorded in OCI
Foreign exchange derivatives	\$ (317)	\$ 1,541	\$ (394)	\$ 1,413	\$ (340)	\$ 817

(a) Certain components of hedging derivatives are permitted to be excluded from the assessment of hedge effectiveness, such as forward points on foreign exchange forward contracts. Amounts related to excluded components are recorded in other income. JPMorgan Chase Bank, N.A. measures the ineffectiveness of net investment hedge accounting relationships based on changes in spot foreign currency rates, and therefore there was no significant ineffectiveness for net investment hedge accounting relationships during 2015, 2014 and 2013.

### Gains and losses on derivatives used for specified risk management purposes

The following table presents pretax gains/(losses) recorded on a limited number of derivatives, not designated in hedge accounting relationships, that are used to manage risks associated with certain specified assets and liabilities, including certain risks arising from the mortgage pipeline, warehouse loans, MSRs, wholesale lending exposures, AFS securities, foreign currency-denominated assets and liabilities, and commodities-related contracts and investments.

Year ended December 31, (in millions)	Derivatives gains/(losses) recorded in income		
	2015	2014	2013
<b>Contract type</b>			
Interest rate <sup>(a)</sup>	\$ 853	\$ 2,308	\$ 617
Credit <sup>(b)</sup>	70	(58)	(142)
Foreign exchange <sup>(c)</sup>	17	(27)	(18)
<b>Total</b>	\$ 940	2,223	457

(a) Primarily represents interest rate derivatives used to hedge the interest rate risk inherent in the mortgage pipeline, warehouse loans and MSRs, as well as written commitments to originate warehouse loans. Gains and losses were recorded predominantly in mortgage fees and related income.

(b) Relates to credit derivatives used to mitigate credit risk associated with lending exposures in JPMorgan Chase Bank, N.A.'s wholesale businesses. These derivatives do not include credit derivatives used to mitigate counterparty credit risk arising from derivative receivables, which is included in gains and losses on derivatives related to market-making activities and other derivatives. Gains and losses were recorded in principal transactions revenue.

(c) Primarily relates to hedges of the foreign exchange risk of specified foreign currency-denominated assets and liabilities. Gains and losses were recorded in principal transactions revenue.

### Gains and losses on derivatives related to market-making activities and other derivatives

JPMorgan Chase Bank, N.A. makes markets in derivatives in order to meet the needs of customers and uses derivatives to manage certain risks associated with net open risk positions from its market-making activities, including the counterparty credit risk arising from derivative receivables. All derivatives not included in the hedge accounting or specified risk management categories above are included in this category. Gains and losses on these derivatives are primarily recorded in principal transactions revenue. See Note 8 for information on principal transactions revenue.

### Credit derivatives

Credit derivatives are financial instruments whose value is derived from the credit risk associated with the debt of a third-party issuer (the reference entity) and which allow one party (the protection purchaser) to transfer that risk to another party (the protection seller). Credit derivatives expose the protection purchaser to the creditworthiness of the protection seller, as the protection seller is required to make payments under the contract when the reference entity experiences a credit event, such as a bankruptcy, a failure to pay its obligation or a restructuring. The seller of credit protection receives a premium for providing protection but has the risk that the underlying instrument referenced in the contract will be subject to a credit event.

JPMorgan Chase Bank, N.A. is both a purchaser and seller of protection in the credit derivatives market and uses these derivatives for two primary purposes. First, in its capacity as a market-maker, JPMorgan Chase Bank, N.A. actively manages a portfolio of credit derivatives by purchasing and selling credit protection, predominantly on corporate debt obligations, to meet the needs of customers. Second, as an end-user, JPMorgan Chase Bank, N.A. uses credit derivatives to manage credit risk associated with lending exposures (loans and unfunded commitments) and derivatives counterparty exposures in JPMorgan Chase Bank, N.A.'s wholesale businesses, and to manage the credit risk arising from certain financial instruments in JPMorgan Chase Bank, N.A.'s market-making businesses. Following is a summary of various types of credit derivatives.

### *Credit default swaps*

Credit derivatives may reference the credit of either a single reference entity (“single-name”) or a broad-based index. JPMorgan Chase Bank, N.A. purchases and sells protection on both single- name and index-reference obligations. Single-name CDS and index CDS contracts are either OTC or OTC-cleared derivative contracts. Single-name CDS are used to manage the default risk of a single reference entity, while index CDS contracts are used to manage the credit risk associated with the broader credit markets or credit market segments. Like the S&P 500 and other market indices, a CDS index consists of a portfolio of CDS across many reference entities. New series of CDS indices are periodically established with a new underlying portfolio of reference entities to reflect changes in the credit markets. If one of the reference entities in the index experiences a credit event, then the reference entity that defaulted is removed from the index. CDS can also be referenced against specific portfolios of reference names or against customized exposure levels based on specific client demands: for example, to provide protection against the first \$1 million of realized credit losses in a \$10 million portfolio of exposure. Such structures are commonly known as tranche CDS.

For both single-name CDS contracts and index CDS contracts, upon the occurrence of a credit event, under the terms of a CDS contract neither party to the CDS contract has recourse to the reference entity. The protection purchaser has recourse to the protection seller for the difference between the face value of the CDS contract and the fair value of the reference obligation at settlement of the credit derivative contract, also known as the recovery value. The protection purchaser does not need to hold the debt instrument of the underlying reference entity in order to receive amounts due under the CDS contract when a credit event occurs.

### *Credit-related notes*

A credit-related note is a funded credit derivative where the issuer of the credit-related note purchases from the note investor credit protection on a reference entity or an index. Under the contract, the investor pays the issuer the par value of the note at the inception of the transaction, and in return, the issuer pays periodic payments to the investor, based on the credit risk of the referenced entity. The issuer also repays the investor the par value of the note at maturity unless the reference entity (or one of the entities that makes up a reference index) experiences a specified credit event. If a credit event occurs, the issuer is not obligated to repay the par value of the note, but rather, the issuer pays the investor the difference between the par value of the note and the fair value of the defaulted reference obligation at the time of settlement. Neither party to the credit-related note has recourse to the defaulting reference entity.

The following tables present a summary of the notional amounts of credit derivatives and credit-related notes JPMorgan Chase Bank, N.A. sold and purchased as of December 31, 2015 and 2014. Upon a credit event, JPMorgan Chase Bank, N.A. as a seller of protection would typically pay out only a percentage of the full notional amount of net protection sold, as the amount actually required to be paid on the contracts takes into account the recovery value of the reference obligation at the time of settlement. JPMorgan Chase Bank, N.A. manages the credit risk on contracts to sell protection by purchasing protection with identical or similar underlying reference entities. Other purchased protection referenced in the following tables includes credit derivatives bought on related, but not identical, reference positions (including indices, portfolio coverage and other reference points) as well as protection purchased through credit-related notes.

## Notes to consolidated financial statements

JPMorgan Chase Bank, National Association  
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JPMorgan Chase Bank, N.A. does not use notional amounts of credit derivatives as the primary measure of risk management for such derivatives, because the notional amount does not take into account the probability of the occurrence of a credit event, the recovery value of the reference obligation, or related cash instruments and economic hedges, each of which reduces, in JPMorgan Chase Bank, N.A.'s view, the risks associated with such derivatives.

### Total credit derivatives and credit-related notes

December 31, 2015 (in millions)	Maximum payout/Notional amount			
	Protection sold	Protection purchased with identical underlyings <sup>(b)</sup>	Net protection (sold)/purchased <sup>(c)</sup>	Other protection purchased <sup>(d)</sup>
<b>Credit derivatives</b>				
Credit default swaps	\$ (1,382,805)	\$ 1,398,627	\$ 15,822	\$ 12,011
Other credit derivatives <sup>(a)</sup>	(42,646)	42,922	276	14,028
<b>Total credit derivatives</b>	<b>(1,425,451)</b>	<b>1,441,549</b>	<b>16,098</b>	<b>26,039</b>
Credit-related notes	(30)	–	(30)	4,489
<b>Total</b>	<b>\$ (1,425,481)</b>	<b>\$ 1,441,549</b>	<b>\$ 16,068</b>	<b>\$ 30,528</b>

December 31, 2014 (in millions)	Maximum payout/Notional amount			
	Protection sold	Protection purchased with identical underlyings <sup>(b)</sup>	Net protection (sold)/purchased <sup>(c)</sup>	Other protection purchased <sup>(d)</sup>
<b>Credit derivatives</b>				
Credit default swaps	\$ (2,058,173)	\$ 2,017,214	\$ (40,959)	\$ 80,007
Other credit derivatives <sup>(a)</sup>	(40,322)	32,048	(8,274)	19,475
<b>Total credit derivatives</b>	<b>(2,098,495)</b>	<b>2,049,262</b>	<b>(49,233)</b>	<b>99,482</b>
Credit-related notes	(40)	–	(40)	3,165
<b>Total</b>	<b>\$ (2,098,535)</b>	<b>\$ 2,049,262</b>	<b>\$ (49,273)</b>	<b>\$ 102,647</b>

(a) Other credit derivatives predominantly consists of credit swap options.

(b) Represents the total notional amount of protection purchased where the underlying reference instrument is identical to the reference instrument on protection sold; the notional amount of protection purchased for each individual identical underlying reference instrument may be greater or lower than the notional amount of protection sold.

(c) Does not take into account the fair value of the reference obligation at the time of settlement, which would generally reduce the amount the seller of protection pays to the buyer of protection in determining settlement value.

(d) Represents protection purchased by JPMorgan Chase Bank, N.A. on referenced instruments (single-name, portfolio or index) where JPMorgan Chase Bank, N.A. has not sold any protection on the identical reference instrument.



The following tables summarize the notional amounts by the ratings and maturity profile, and the total fair value, of credit derivatives and credit-related notes as of December 31, 2015 and 2014, where JPMorgan Chase Bank, N.A. is the seller of protection. The maturity profile is based on the remaining contractual maturity of the credit derivative contracts. The ratings profile is based on the rating of the reference entity on which the credit derivative contract is based. The ratings and maturity profile of credit derivatives and credit-related notes where JPMorgan Chase Bank, N.A. is the purchaser of protection are comparable to the profile reflected below.

**Protection sold - credit derivatives and credit-related notes ratings<sup>(a)</sup>/maturity profile**

December 31, 2015 (in millions)	<1 year	1-5 years	>5 years	Total notional amount	Fair value of receivables <sup>(b)</sup>	Fair value of payables <sup>(b)</sup>	Net fair value
<b>Risk rating of reference entity</b>							
Investment-grade	\$ (307,416)	\$ (699,148)	\$ (46,997)	\$ (1,053,561)	\$ 13,538	\$ (6,878)	\$ 6,660
Noninvestment-grade	(109,105)	(245,110)	(17,705)	(371,920)	10,946	(18,867)	(7,921)
<b>Total</b>	<b>\$ (416,521)</b>	<b>\$ (944,258)</b>	<b>\$ (64,702)</b>	<b>\$ (1,425,481)</b>	<b>\$ 24,484</b>	<b>\$ (25,745)</b>	<b>\$ (1,261)</b>

  

December 31, 2014 (in millions)	<1 year	1-5 years	>5 years	Total notional amount	Fair value of receivables <sup>(b)</sup>	Fair value of payables <sup>(b)</sup>	Net fair value
<b>Risk rating of reference entity</b>							
Investment-grade	\$ (323,400)	\$ (1,118,418)	\$ (80,185)	\$ (1,522,003)	\$ 25,771	\$ (6,318)	\$ 19,453
Noninvestment-grade	(156,557)	(396,663)	(23,312)	(576,532)	20,680	(22,646)	(1,966)
<b>Total</b>	<b>\$ (479,957)</b>	<b>\$ (1,515,081)</b>	<b>\$ (103,497)</b>	<b>\$ (2,098,535)</b>	<b>\$ 46,451</b>	<b>\$ (28,964)</b>	<b>\$ 17,487</b>

(a) The ratings scale is primarily based on external credit ratings defined by S&P and Moody's Investors Service ("Moody's").

(b) Amounts are shown on a gross basis, before the benefit of legally enforceable master netting agreements and cash collateral received by JPMorgan Chase Bank, N.A.

## Notes to consolidated financial statements

JPMorgan Chase Bank, National Association  
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### Note 8 – Noninterest revenue

#### Investment banking fees

This revenue category includes equity and debt underwriting and advisory fees. Underwriting fees are recognized as revenue when JPMorgan Chase Bank, N.A. has rendered all services to the issuer and is entitled to collect the fee from the issuer, as long as there are no other contingencies associated with the fee. Underwriting fees are net of syndicate expense; JPMorgan Chase Bank, N.A. recognizes credit arrangement and syndication fees as revenue after satisfying certain retention, timing and yield criteria. Advisory fees are recognized as revenue when the related services have been performed and the fee has been earned.

The following table presents the components of investment banking fees.

Year ended December 31, (in millions)	2015	2014	2013
<b>Underwriting</b>			
Equity	\$ 517	\$ 592	\$ 432
Debt	750	829	839
<b>Total underwriting</b>	<b>1,267</b>	<b>1,421</b>	<b>1,271</b>
Advisory	664	613	537
<b>Total investment banking fees</b>	<b>\$ 1,931</b>	<b>\$ 2,034</b>	<b>\$ 1,808</b>

#### Principal transactions

Principal transactions revenue consists of realized and unrealized gains and losses on derivatives and other instruments (including those accounted for under the fair value option) primarily used in client-driven market-making activities and on private equity investments. In connection with its client-driven market-making activities, JPMorgan Chase Bank, N.A. transacts in debt and equity instruments, derivatives and commodities (including physical commodities inventories and financial instruments that reference commodities).

Principal transactions revenue also includes realized and unrealized gains and losses related to hedge accounting and specified risk-management activities, including: (a) certain derivatives designated in qualifying hedge accounting relationships (primarily fair value hedges of commodity and foreign exchange risk), (b) certain derivatives used for specific risk management purposes, primarily to mitigate credit risk, foreign exchange risk and commodity risk, and (c) other derivatives. For further information on the income statement classification of gains and losses from derivatives activities, see Note 7.

In the financial commodity markets, JPMorgan Chase Bank, N.A. transacts in OTC derivatives (e.g., swaps, forwards, options) and exchange-traded derivatives that reference a wide range of underlying commodities. In the physical commodity markets, JPMorgan Chase Bank, N.A. purchases and sells precious and base metals.

Physical commodities inventories are generally carried at the lower of cost or market (market approximates fair value) subject to any applicable fair value hedge accounting adjustments, with realized gains and losses and unrealized losses recorded in principal transactions revenue.

The following table presents all realized and unrealized gains and losses recorded in principal transactions revenue. This table excludes interest income and interest expense on trading assets and liabilities, which are an integral part of the overall performance of JPMorgan Chase Bank, N.A.'s client-driven market-making activities. See Note 9 for further information on interest income and interest expense. Trading revenue is presented primarily by instrument type. JPMorgan Chase Bank, N.A.'s client-driven market-making businesses generally utilize a variety of instrument types in connection with their market-making and related risk-management activities; accordingly, the trading revenue presented in the table below is not representative of the total revenue of any individual line of business.

Year ended December 31, (in millions)	2015	2014	2013
<b>Trading revenue by instrument type</b>			
Interest rate	\$ 2,782	\$ 1,951	\$ 886
Credit	930	901	892
Foreign exchange	2,700	1,586	1,754
Equity	2,043	2,021	2,117
Commodity <sup>(a)</sup>	610	1,182	953
<b>Total trading revenue</b>	<b>9,065</b>	<b>7,641</b>	<b>6,602</b>
Private equity gains	20	19	(13)
<b>Principal transactions</b>	<b>\$ 9,085</b>	<b>\$ 7,660</b>	<b>\$ 6,589</b>

(a) Commodity derivatives are frequently used to manage JPMorgan Chase Bank, N.A.'s risk exposure to its physical commodities inventories. For gains/(losses), see Note 7.

### Lending- and deposit-related fees

This revenue category includes fees from loan commitments, standby letters of credit, financial guarantees, deposit-related fees in lieu of compensating balances, cash management-related activities or transactions, deposit accounts and other loan-servicing activities. These fees are recognized over the period in which the related service is provided.

### Asset management, administration and commissions

This revenue category includes fees from investment management and related services, custody, brokerage services, and other products. These fees are recognized over the period in which the related service is provided. JPMorgan Chase Bank, N.A. has contractual arrangements with third parties to provide certain services in connection with its asset management activities. Amounts paid to third-party service providers are predominantly expensed, such that asset management fees are recorded gross of payments made to third parties.

The following table presents JPMorgan Chase Bank, N.A. asset management, administration and commissions.

Year ended December 31, (in millions)	2015	2014	2013
<b>Asset management fees</b>			
Investment management fees <sup>(a)</sup>	\$ 2,086	\$ 1,981	\$ 1,754
All other asset management fees <sup>(b)</sup>	40	46	38
<b>Total asset management fees</b>	<b>2,126</b>	<b>2,027</b>	<b>1,792</b>
Total administration fees <sup>(c)</sup>	2,027	2,198	2,120
<b>Commissions and other fees</b>			
Brokerage commissions	1,033	1,219	1,258
All other commissions and fees <sup>(d)</sup>	6,077	6,208	4,926
<b>Total commissions and fees</b>	<b>7,110</b>	<b>7,427</b>	<b>6,184</b>
<b>Total asset management, administration and commissions</b>	<b>\$ 11,263</b>	<b>\$ 11,652</b>	<b>\$ 10,096</b>

- (a) Represents fees earned from managing assets on behalf of JPMorgan Chase Bank, N.A.'s clients, including investors in JPMorgan Chase Bank, N.A. sponsored funds and owners of separately managed investment accounts.
- (b) Represents fees for services that are ancillary to investment management services, such as commissions earned on the sales or distribution of mutual funds to clients.
- (c) Predominantly, includes fees for custody, securities lending, funds services and securities clearance.
- (d) Includes fees earned by JPMorgan Chase Bank, N.A. for services provided to related party affiliates.

### Mortgage fees and related income

This revenue category primarily reflects the consumer & community banking business's mortgage banking production and servicing revenue, including fees and income derived from mortgages originated with the intent to sell; mortgage sales and servicing including losses related to the repurchase of previously sold loans; the impact of risk-management activities associated with the mortgage pipeline, warehouse loans and MSR; and revenue related to any residual interests held from mortgage securitizations. This revenue category also includes gains and losses on sales and lower of cost or fair value adjustments for mortgage loans held-for-sale, as well as changes in fair value for mortgage loans originated with the intent to sell and measured at fair value under the fair value option. Changes in the fair value of the consumer & community banking business's MSR are reported in mortgage fees and related income. Net interest income from mortgage loans is recorded in interest income. For a further discussion of MSR, see Note 18.

### Card income

This revenue category includes interchange income from credit and debit cards and net fees earned from processing credit card transactions for merchants. Card income is recognized as earned. Cost related to rewards programs is recorded when the rewards are earned by the customer and presented as a reduction to interchange income. Annual fees and direct loan origination costs are deferred and recognized on a straight-line basis over a 12-month period. The card income earned by JPMorgan Chase Bank, N.A. results from activity in Commerce Solutions and from a participation arrangement with a bank affiliate of JPMorgan Chase Bank, N.A.

### Other income

Other income on JPMorgan Chase Bank, N.A.'s Consolidated statements of income included the following:

Year ended December 31, (in millions)	2015	2014	2013
Operating lease income	\$ 2,075	\$ 1,698	\$ 1,465
Gain from sale of Visa B shares	—	—	857

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### Note 9 – Interest income and Interest expense

Interest income and interest expense are recorded in the Consolidated statements of income and classified based on the nature of the underlying asset or liability. Interest income and interest expense includes the current-period interest accruals for financial instruments measured at fair value, except for financial instruments containing embedded derivatives that would be separately accounted for in accordance with U.S. GAAP absent the fair value option election; for those instruments, all changes in fair value, including any interest elements, are reported in principal transactions revenue. For financial instruments that are not measured at fair value, the related interest is included within interest income or interest expense, as applicable.

Details of interest income and interest expense were as follows.

Year ended December 31, (in millions)	2015	2014	2013
<b>Interest income</b>			
Loans	\$22,925	\$21,898	\$22,627
Taxable securities	6,522	7,569	6,874
Non-taxable securities <sup>(a)</sup>	1,562	1,273	748
Total securities	8,084	8,842	7,622
Trading assets	4,097	4,714	5,248
Federal funds sold and securities purchased under resale agreements	960	1,171	1,437
Securities borrowed <sup>(b)</sup>	(10)	39	209
Deposits with banks	1,176	1,099	912
Other assets	193	203	95
<b>Total interest income</b>	<b>37,425</b>	<b>37,966</b>	<b>38,150</b>
<b>Interest expense</b>			
Interest-bearing deposits	1,409	1,802	2,292
Federal funds purchased and securities loaned or sold under repurchase agreements	253	396	317
Trading liabilities - debt, short-term and other liabilities	1,311	1,274	1,366
Long-term debt	682	684	1,094
Beneficial interests issued by consolidated VIEs	81	73	115
<b>Total interest expense</b>	<b>3,736</b>	<b>4,229</b>	<b>5,184</b>
<b>Net interest income</b>	<b>33,689</b>	<b>33,737</b>	<b>32,966</b>
Provision for credit losses	1,376	832	(1,247)
<b>Net interest income after provision for credit losses</b>	<b>\$32,313</b>	<b>\$32,905</b>	<b>\$34,213</b>

(a) Represents securities which are tax exempt for U.S. federal income tax purposes.

(b) Negative interest income for the year ended December 31, 2015, is a result of increased client-driven demand for certain securities combined with the impact of low interest rates; this is matched book activity and the negative interest expense on the corresponding securities loaned is recognized in interest expense.

### Note 10 – Pension and other postretirement employee benefit plans

JPMorgan Chase Bank, N.A. has various defined benefit pension plans and other postretirement employee benefit (“OPEB”) plans that provide benefits to its employees. These plans are discussed below.

#### Defined benefit pension and OPEB plans

Substantially all of JPMorgan Chase Bank, N.A.’s U.S. employees are provided benefits through JPMorgan Chase’s qualified noncontributory, U.S. defined benefit pension plan. JPMorgan Chase Bank, N.A. also offers benefits through defined benefit pension plans to qualifying employees in certain non-U.S. locations. In addition, JPMorgan Chase Bank, N.A. offers postretirement medical and life insurance benefits to certain retirees and postretirement medical benefits to qualifying U.S. employees through JPMorgan Chase plans. These JPMorgan Chase plans are discussed in the JPMorgan Chase defined benefit pension and OPEB plans section on pages 62–63 of this Note.

JPMorgan Chase Bank, N.A. also offers certain qualifying employees in the U.S. the ability to participate in a number of defined benefit pension plans that are not subject to Title IV of the Employee Retirement Income Security Act. One of the most significant of these plans is the U.S. Excess Retirement Plan, pursuant to which certain employees previously earned pay credits on compensation amounts above the maximum stipulated by law under a qualified plan; no further pay credits are allocated under this plan. The U.S. Excess Retirement Plan had an unfunded projected benefit obligation (“PBO”) in the amount of \$22 million and \$214 million, at December 31, 2015 and 2014, respectively.

It is JPMorgan Chase Bank, N.A.’s policy to fund the pension plans in amounts sufficient to meet the requirements under applicable laws. In 2016, the cost of funding benefits under the U.S. Excess Retirement Plan is expected to be \$2 million. The 2016 contributions to the non-U.S. defined benefit pension plans are expected to be \$47 million of which \$31 million are contractually required.

#### Defined contribution plans

JPMorgan Chase Bank, N.A.’s employees may also participate in one of the two qualified defined contribution plans offered by JPMorgan Chase in the U.S. and other similar arrangements offered by JPMorgan Chase Bank, N.A. in certain non-U.S. locations, all of which are administered in accordance with applicable local laws and regulations. The most significant of these plans is The JPMorgan Chase 401(k) Savings Plan (the “401(k) Savings Plan”), which covers substantially all U.S. employees. Employees can contribute to the 401(k) Savings Plan on a pretax and/or Roth 401(k) after-tax basis. The JPMorgan Chase Common Stock Fund, which is an investment option under the 401(k)

Savings Plan, is a nonleveraged employee stock ownership plan.

JPMorgan Chase Bank, N.A. matches eligible employee contributions up to 5% of eligible compensation (generally base salary/regular pay and variable incentive compensation) on an annual basis. Employees begin to receive matching contributions after completing a one-year-

of-service requirement. Employees with total annual cash compensation of \$250,000 or more are not eligible for matching contributions. Matching contributions vest after three years of service. The 401(k) Savings Plan also permits discretionary profit-sharing contributions by participating companies for certain employees, subject to a specified vesting schedule.

The following table presents the changes in benefit obligations, plan assets and funded status amounts reported on the Consolidated balance sheets for JPMorgan Chase Bank, N.A.'s significant defined benefit pension plans.

As of or for the year ended December 31, (in millions)	Defined benefit pension plans			
	U.S.		Non-U.S.	
	2015	2014	2015	2014
<b>Change in benefit obligation</b>				
Benefit obligation, beginning of year	\$ (426)	\$ (365)	\$ (3,632)	\$ (3,430)
Benefits earned during the year	(2)	(4)	(36)	(31)
Interest cost on benefit obligations	(5)	(17)	(111)	(129)
Employee contributions	NA	NA	(7)	(7)
Net gain/(loss)	9	(71)	146	(408)
Benefits paid	6	31	120	119
Special termination benefits	—	—	(1)	—
Foreign exchange impact and other	300	—	177	254
<b>Benefit obligation, end of year</b>	<b>\$ (118)</b>	<b>\$ (426)</b>	<b>\$ (3,344)</b>	<b>\$ (3,632)</b>
<b>Change in plan assets</b>				
Fair value of plan assets, beginning of year	\$ —	\$ —	\$ 3,718	\$ 3,532
Actual return on plan assets	—	—	52	518
JPMorgan Chase Bank, N.A. contributions	6	31	45	46
Employee contributions	—	—	7	7
Benefits paid	(6)	(31)	(120)	(119)
Foreign exchange impact and other	—	—	(191)	(266)
<b>Fair value of plan assets, end of year</b>	<b>\$ —</b>	<b>\$ —</b>	<b>\$ 3,511</b>	<b>\$ 3,718</b>
<b>Net (unfunded)/funded status<sup>(a)</sup></b>	<b>\$ (118)</b>	<b>\$ (426)</b>	<b>\$ 167</b>	<b>\$ 86</b>
<b>Accumulated benefit obligation, end of year</b>	<b>\$ (118)</b>	<b>\$ (426)</b>	<b>\$ (3,344)</b>	<b>\$ (3,615)</b>

(a) Represents plans with an aggregate underfunded balance of \$251 million and \$588 million at December 31, 2015 and 2014, respectively, and plans with an aggregate overfunded balance of \$300 million and \$248 million at December 31, 2015 and 2014, respectively.

### Gains and losses

For JPMorgan Chase Bank, N.A.'s defined benefit pension plans, fair value is used to determine the expected return on plan assets. Amortization of net gains and losses is included in annual net periodic benefit cost if, as of the beginning of the year, the net gain or loss exceeds 10% of the greater of the PBO or the fair value of the plan assets. Any excess is amortized over the average future service period of defined benefit pension plan participants, which for the U.S. Excess Retirement Plan is currently seven years

and for the non-U.S. defined benefit pension plans is the period appropriate for the affected plan. In addition, prior service costs are amortized over the average remaining service period of active employees expected to receive benefits under the plan when the prior service cost is first recognized.

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The following table presents pretax pension amounts recorded in AOCI related to JPMorgan Chase Bank, N.A.'s significant defined benefit pension plans.

December 31, (in millions)	Defined benefit pension plans			
	U.S.		Non-U.S.	
	2015	2014	2015	2014
Net gain/(loss)	\$ (28)	\$ (142)	\$ (509)	\$ (621)
Prior service credit/(cost)	–	–	10	12
<b>Accumulated other comprehensive income/(loss), pretax, end of year</b>	<b>\$ (28)</b>	<b>\$ (142)</b>	<b>\$ (499)</b>	<b>\$ (609)</b>

The following table presents the components of net periodic benefit costs reported in the Consolidated statements of income and other comprehensive income for JPMorgan Chase Bank, N.A.'s significant defined benefit pension and defined contribution plans.

Year ended December 31, (in millions)	Pension plans					
	U.S.			Non-U.S.		
	2015	2014	2013	2015	2014	2013
<b>Components of net periodic benefit cost</b>						
Benefits earned during the year	\$ 2	\$ 4	\$ 5	\$ 36	\$ 31	\$ 32
Interest cost on benefit obligations	5	17	15	111	129	116
Expected return on plan assets	–	–	–	(150)	(172)	(141)
Amortization:						
Net (gain)/loss	5	7	11	35	46	49
Prior service cost/(credit)	–	–	–	(2)	(2)	(2)
Special termination benefits	–	–	–	1	–	–
<b>Net periodic defined benefit cost</b>	<b>12</b>	<b>28</b>	<b>31</b>	<b>31</b>	<b>32</b>	<b>54</b>
Other defined benefit pension plans <sup>(a)</sup>	14	14	14	4	2	4
<b>Total defined benefit plans</b>	<b>26</b>	<b>42</b>	<b>45</b>	<b>35</b>	<b>34</b>	<b>58</b>
Total defined contribution plans	390	364	440	277	282	278
<b>Total pension and OPEB cost included in compensation expense</b>	<b>\$ 416</b>	<b>\$ 406</b>	<b>\$ 485</b>	<b>\$ 312</b>	<b>\$ 316</b>	<b>\$ 336</b>
<b>Changes in plan assets and benefit obligations recognized in other comprehensive income</b>						
Net (gain)/loss arising during the year	\$ (9)	\$ 71	\$ (37)	\$ (45)	\$ 51	\$ 20
Prior service credit arising during the year	–	–	–	–	–	–
Amortization of net loss	(5)	(7)	(11)	(35)	(46)	(49)
Amortization of prior service (cost)/credit	–	–	–	2	2	2
Foreign exchange impact and other	(100)	(1)	–	(32) <sup>(a)</sup>	(35) <sup>(a)</sup>	10 <sup>(a)</sup>
<b>Total recognized in other comprehensive income</b>	<b>\$ (114)</b>	<b>\$ 63</b>	<b>\$ (48)</b>	<b>\$ (110)</b>	<b>\$ (28)</b>	<b>\$ (17)</b>
<b>Total recognized in net periodic benefit cost and other comprehensive income</b>	<b>\$ (102)</b>	<b>\$ 91</b>	<b>\$ (17)</b>	<b>\$ (79)</b>	<b>\$ 4</b>	<b>\$ 37</b>

(a) Includes various defined benefit pension plans which are individually immaterial.

It is expected that \$23 million and \$2 million, pretax, of net loss and prior service credit, respectively, related to non-U.S. defined benefit pension plans and \$3 million, pretax, of net loss related to U.S. defined benefit pension plans, recorded in AOCI at December 31, 2015, will be recognized in earnings during 2016.

The following table presents the actual rate of return on plan assets for the non-U.S. defined benefit pension plans.

Year ended December 31,	2015	2014	2013
Actual rate of return	(0.48) - 4.92%	5.62 - 17.69%	3.74 - 23.80%

## Plan assumptions

For the United Kingdom (“U.K.”) defined benefit pension plans, which represent the most significant of JPMorgan Chase Bank, N.A.’s non-U.S. defined benefit pension plans, procedures are used to develop the expected long-term rate of return on plan assets, taking into consideration local market conditions and the specific allocation of plan assets. The expected long-term rate of return on U.K. plan assets is an average of projected long-term returns for each asset class. The return on equities has been selected by reference to the yield on long-term U.K. government bonds plus an equity risk premium above the risk-free rate. The expected return on “AA” rated long-term corporate bonds is based on an implied yield for similar bonds.

The discount rate used in determining the benefit obligation under the U.S. Excess Retirement Plan was provided by our actuaries. This rate was selected by reference to the yields on portfolios of bonds with maturity dates and coupons that closely match the plan’s projected cash flows; such portfolios are derived from a broad-based universe of high-quality corporate bonds as of the measurement date. In years in which these hypothetical bond portfolios generate excess cash, such excess is assumed to be reinvested at the one-year forward rates implied by the Citigroup Pension Discount Curve published as of the measurement date. The discount rate for the U.K. defined benefit pension plan

represents a rate of appropriate duration from the analysis of yield curves provided by our actuaries.

In 2014, the Society of Actuaries (“SOA”) completed a comprehensive review of mortality experience of uninsured private retirement plans in the U.S. In October 2014, the SOA published new mortality tables and a new mortality improvement scale that reflects improved life expectancies and an expectation that this trend will continue. In 2014, JPMorgan Chase Bank, N.A. adopted the SOA’s tables and projection scale, resulting in an estimated increase in PBO of \$34 million. In 2015, the SOA updated the projection scale to reflect two additional years of historical data. JPMorgan Chase Bank, N.A. has adopted the updated projection scale resulting in an estimated decrease in PBO in 2015 of \$2 million.

At December 31, 2015, JPMorgan Chase Bank, N.A. increased the discount rate used to determine its benefit obligation for the U.S. Excess Retirement Plan in light of current market interest rates, which will result in an immaterial decrease in expense for 2016. As of December 31, 2015, the interest crediting rate assumption remained at 5.00%.

The following tables present the weighted-average annualized actuarial assumptions for the PBO and the components of net periodic benefit costs, for JPMorgan Chase Bank, N.A.’s significant defined benefit pension plans, as of and for the periods indicated.

### Weighted-average assumptions used to determine benefit obligations

December 31,	U.S.		Non-U.S.	
	2015	2014	2015	2014
Discount rate	4.50%	4.00%	0.80% - 3.70%	1.00 - 3.60%
Rate of compensation increase	NA	NA	2.25 - 4.30	2.75 - 4.20

### Weighted-average assumptions used to determine net periodic benefit costs

Year ended December 31,	U.S.			Non-U.S.		
	2015	2014	2013	2015	2014	2013
Discount rate	4.00%	5.00%	3.90%	1.00 - 3.60%	1.10 - 4.40%	1.40 - 4.40%
Expected long-term rate of return on plan assets	NA	NA	NA	0.90 - 4.80	1.20 - 5.30	2.40 - 4.90
Rate of compensation increase	NA	NA	NA	2.75 - 4.20	2.75 - 4.60	2.75 - 4.10

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JPMorgan Chase Bank, N.A.'s U.S. and non-U.S. defined benefit pension plans expense is sensitive to the discount rate. A 25-basis point decline in the discount rate for the U.S. Excess Retirement Plan would result in an immaterial increase in 2016 for both the U.S. defined benefit pension expense and the related PBO. A 25-basis point decrease in the interest crediting rate for the U.S. Excess Retirement Plan would result in an immaterial decrease in 2016 for both the U.S. defined benefit pension expense and the related PBO. A 25-basis point decline in the discount rates for the non-U.S. plans would result in an increase in the 2016 non-U.S. defined benefit pension plan expense of approximately \$17 million.

### Investment strategy and asset allocation

The investment policy for the U.K. defined benefit pension plans, which represent the most significant of the non-U.S. defined benefit pension plans, is to maximize returns subject to an appropriate level of risk relative to the plans' liabilities. In order to reduce the volatility in returns relative to the plans' liability profiles, the U.K. defined benefit pension plans' largest asset allocations are to debt securities of appropriate durations. Other assets, mainly equity securities, are then invested for capital appreciation, to provide long-term investment growth. Asset allocations and asset managers for the U.K. defined benefit pension plans are reviewed regularly and the portfolios are rebalanced when deemed necessary.

### Fair value measurement of the plans' assets and liabilities

For information on fair value measurements, including descriptions of level 1 and 2 of the fair value hierarchy and the valuation methods employed by JPMorgan Chase Bank, N.A., see Note 4.

### Pension and OPEB plan assets and liabilities measured at fair value

December 31, (in millions)	Non-U.S. defined benefit pension plans <sup>(c)</sup>					
	2015			2014		
	Level 1	Level 2	Total fair value	Level 1	Level 2	Total fair value
Cash and cash equivalents	\$ 114	\$ 1	\$ 115	\$ 128	\$ 1	\$ 129
Equity securities	1,002	157	1,159	1,019	169	1,188
Common/collective trust funds	135	–	135	112	–	112
Corporate debt securities <sup>(a)</sup>	–	758	758	–	724	724
Non-U.S. government debt securities	212	504	716	235	540	775
Mortgage-backed securities	2	26	28	2	77	79
Derivative receivables	–	209	209	–	258	258
Other <sup>(b)</sup>	257	53	310	283	58	341
<b>Total assets measured at fair value</b>	<b>\$ 1,722</b>	<b>\$ 1,708</b>	<b>\$ 3,430</b>	<b>\$ 1,779</b>	<b>\$ 1,827</b>	<b>\$ 3,606</b>
Derivative payables	–	(153)	(153)	–	(139)	(139)
<b>Total liabilities measured at fair value</b>	<b>\$ –</b>	<b>\$ (153)</b>	<b>\$ (153)</b>	<b>\$ –</b>	<b>\$ (139)</b>	<b>\$ (139)</b>

Note: Effective April 1, 2015, JPMorgan Chase Bank, N.A. adopted new accounting guidance for certain investments where JPMorgan Chase Bank, N.A. measures fair value using the net asset value per share (or its equivalent) as a practical expedient and excluded them from the fair value hierarchy. Accordingly, such investments are not included within these tables. At December 31, 2015 and 2014, the fair values of these investments, which include certain common/collective trust funds, were \$234 million and \$251 million, respectively, of which \$251 million had been previously classified in level 2 at December 31, 2014. The guidance was required to be applied retrospectively, and accordingly, prior period amounts have been revised to conform with the current period presentation.

(a) Corporate debt securities include debt securities of U.S. and non-U.S. corporations.

(b) Other primarily consists of money markets and exchange-traded funds and insurance contracts. Money markets and exchange-traded funds are primarily classified within level 1 of the fair value hierarchy given they are valued using observable market prices. Insurance contracts are guaranteed return investments subject to the credit risk of the insurance company and are classified in level 2 of the valuation hierarchy.

(c) There were zero assets or liabilities classified as level 3 for the non-U.S. defined benefit pension plans as of December 31, 2015 and 2014.

As of December 31, 2015, assets held by JPMorgan Chase Bank, N.A.'s non-U.S. defined benefit pension plans do not include JPMorgan Chase common stock, except through indirect exposures through investments in third-party stock-index funds. The non-U.S. plans hold investments in funds that are sponsored or managed by affiliates of JPMorgan Chase Bank, N.A. in the amount of \$1.2 billion and \$1.4 billion as of December 31, 2015 and 2014, respectively.

The following table presents the weighted-average asset allocation of the fair values of total plan assets at December 31 for the years indicated, as well as the respective approved target allocation by asset category, for JPMorgan Chase Bank, N.A.'s non-U.S. defined benefit pension plans.

December 31,	Target Allocation	% of plan assets	
		2015	2014
<b>Asset category</b>			
Debt securities <sup>(a)</sup>	59%	60%	61%
Equity securities	40	38	38
Real Estate	–	1	–
Alternatives	1	1	1
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

(a) Debt securities primarily include corporate debt and non-U.S. government debt securities.



### Estimated future benefit payments

The following table presents benefit payments expected to be paid, which include the effect of expected future service, for the years indicated.

Year ended December 31, (in millions)	U.S. defined benefit pension plans	Non-U.S. defined benefit pension plans
2016	\$ 7	\$ 107
2017	7	110
2018	7	119
2019	8	123
2020	8	129
Years 2021-2025	42	722

### JPMorgan Chase defined benefit pension and OPEB plans

JPMorgan Chase Bank, N.A.'s U.S. employees are eligible to participate in JPMorgan Chase's U.S. qualified noncontributory defined benefit pension plan. In addition, qualifying U.S. employees may receive postretirement medical and life insurance benefits that are provided through JPMorgan Chase's U.S. OPEB plan. Benefits vary with length of service and date of hire and provide for limits on JPMorgan Chase Bank, N.A.'s share of covered medical benefits. The medical and life insurance benefits are both contributory. Defined benefit pension expense and postretirement medical benefit expense are determined based upon employee participation in the JPMorgan Chase plans and effected through an intercompany charge from JPMorgan Chase, which is cash settled monthly.

JPMorgan Chase Bank, N.A. was charged \$194 million, \$666 million and \$260 million in 2015, 2014 and 2013, respectively, for its share of the U.S. qualified defined benefit pension plan expense; and it was charged \$1 million for each of the years 2015, 2014 and 2013, for its share of the U.S. OPEB plan expense.

Consolidated disclosures of information about the defined benefit pension and OPEB plans of JPMorgan Chase, including the funded status of the plans, components of benefit cost and weighted-average actuarial assumptions are included in Note 9 on pages 223-230 of the 2015 Form 10-K.

### Note 11 – Employee stock-based incentives

#### Employee stock-based awards

JPMorgan Chase Bank, N.A.'s employees receive annual incentive compensation based on their performance, the performance of their business and JPMorgan Chase's consolidated operating results. JPMorgan Chase Bank, N.A.'s employees participate, to the extent they meet minimum eligibility requirements, in various stock-based incentive plans sponsored by JPMorgan Chase. For additional information regarding JPMorgan Chase's employee stock-based incentives, see Note 10 on pages 231-232 of the 2015 Form 10-K.

In 2015, 2014 and 2013, JPMorgan Chase granted long-term stock-based awards to certain employees under its Long-Term Incentive Plan, as amended and restated effective May 19, 2015 ("LTIP"). Under the terms of the LTIP, as of December 31, 2015, 93 million shares of JPMorgan Chase's common stock were available for issuance through May 2019. The LTIP is the only active plan under which JPMorgan Chase is currently granting stock-based incentive awards. In the following discussion, the LTIP, plus prior JPMorgan Chase plans and plans assumed as the result of acquisitions, are referred to collectively as the "LTI Plans," and such plans constitute JPMorgan Chase's stock-based incentive plans.

Restricted stock units ("RSUs") are awarded at no cost to the recipient upon their grant. Generally, RSUs are granted annually and vest at a rate of 50% after two years and 50% after three years and are converted into shares of common stock as of the vesting date. In addition, RSUs typically include full-career eligibility provisions, which allow employees to continue to vest upon voluntary termination, subject to post-employment and other restrictions based on age or service-related requirements. All RSUs awards are subject to forfeiture until vested and contain clawback provisions that may result in cancellation under certain specified circumstances. RSUs entitle the recipient to receive cash payments equivalent to any dividends paid on the underlying common stock during the period the RSUs are outstanding and, as such, are considered participating securities as discussed in Note 24 on page 283 of the 2015 Form 10-K.

Under the LTI Plans, stock options and stock appreciation rights ("SARs") have generally been granted with an exercise price equal to the fair value of JPMorgan Chase's common stock on the grant date. JPMorgan Chase periodically grants employee stock options to individual employees. There were no material grants of stock options or SARs in 2015 and 2014. Grants of SARs in 2013 become exercisable ratably over five years (i.e., 20% per year) and contain clawback provisions similar to RSUs. The 2013 grants of SARs contain full-career eligibility provisions. SARs generally expire ten years after the grant date.

JPMorgan Chase Bank, N.A. separately recognizes compensation expense for each tranche of each award as if it were a separate award with its own vesting date. Generally, for each tranche granted, compensation expense is recognized on a straight-line basis from the grant date until the vesting date of the respective tranche, provided that the employees will not become full-career eligible during the vesting period. For awards with full-career eligibility provisions and awards granted with no future substantive service requirement, JPMorgan Chase Bank, N.A. accrues the estimated value of awards expected to be awarded to employees as of the grant date without giving consideration to the impact of post-employment restrictions. For each tranche granted to employees who will become full-career eligible during the vesting period, compensation expense is recognized on a straight-line basis from the grant date until the earlier of the employee's full-

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career eligibility date or the vesting date of the respective tranche.

In January 2008, JPMorgan Chase awarded to its Chairman and Chief Executive Officer up to 2 million SARs. The terms of this award are distinct from, and more restrictive than, other equity grants regularly awarded by JPMorgan Chase. On July 15, 2014, the Compensation & Management Development Committee and Board of Directors of JPMorgan Chase determined that all requirements for the vesting of the 2 million SAR awards had been met and thus, the awards became exercisable.

The SARs, which will expire in January 2018, have an exercise price of \$39.83 (the price of JPMorgan Chase common stock on the date of grant). The expense related to this award was dependent on changes in fair value of the SARs through July 15, 2014 (the date when the vested number of SARs were determined), and the cumulative expense was recognized ratably over the service period, which was initially assumed to be five years but, effective in the first quarter of 2013, had been extended to six and one-half years. JPMorgan Chase Bank, N.A. recognized \$3 million and \$14 million in compensation expense in 2014 and 2013, respectively, for this award.

### RSUs, employee stock options and SARs activity

Compensation expense for RSUs is measured based on the number of shares granted multiplied by the stock price at the grant date, and for employee stock options and SARs, is measured at the grant date using the Black-Scholes valuation model. Compensation expense for these awards is recognized in net income as described previously. The following table summarizes JPMorgan Chase Bank, N.A.'s RSUs, employee stock options and SARs activity for 2015.

Year ended December 31, 2015 (in thousands, except weighted-average data, and where otherwise stated)	RSUs		Options/SARs			
	Number of shares	Weighted-average grant date fair value	Number of awards	Weighted-average exercise price	Weighted-average remaining contractual life (in years)	Aggregate intrinsic value
Outstanding, January 1	65,704	\$ 47.76	47,820	\$ 42.36		
Granted	25,000	56.37	94	64.00		
Exercised or vested	(32,117)	41.97	(12,169)	40.35		
Forfeited	(2,405)	53.84	(820)	43.14		
Canceled	NA	NA	(365)	159.65		
Transferred	515	47.76	74	42.36		
<b>Outstanding, December 31</b>	<b>56,697</b>	<b>\$ 54.60</b>	<b>34,634</b>	<b>\$ 41.83</b>	<b>4.6</b>	<b>\$ 883,511</b>
Exercisable, December 31	NA	NA	25,114	41.46	4.0	658,870

The total fair value of RSUs that vested during the years ended December 31, 2015, 2014 and 2013, was \$1.9 billion, \$2.1 billion and \$2.0 billion, respectively. The weighted-average grant date per share fair value of stock options and SARs granted during the year ended December 31, 2013, was \$9.58. The total intrinsic value of options exercised during the years ended December 31, 2015, 2014 and 2013, was \$284 million, \$444 million and \$407 million, respectively.

### Compensation expense

JPMorgan Chase Bank, N.A. recognized the following compensation expense related to its various employee stock-based incentive plans in its Consolidated statements of income.

Year ended December 31, (in millions)	2015	2014	2013
Cost of prior grants of RSUs and SARs that are amortized over their applicable vesting periods	\$ 730	\$ 905	\$ 942
Accrual of estimated costs of stock-based awards to be granted in future periods including those to full-career eligible employees	597	568	519
<b>Total noncash compensation expense related to employee stock-based incentive plans</b>	<b>\$ 1,327</b>	<b>\$ 1,473</b>	<b>\$ 1,461</b>

At December 31, 2015, approximately \$464 million (pretax) of compensation expense related to unvested awards had not yet been charged to net income. That cost is expected to be amortized into compensation expense over a weighted-average period of 1.0 year. JPMorgan Chase Bank, N.A. does not capitalize any compensation expense related to share-based compensation awards to employees.

### Tax benefits

Income tax benefits related to stock-based incentive arrangements recognized in JPMorgan Chase Bank, N.A.'s Consolidated statements of income for the years ended December 31, 2015, 2014 and 2013, were \$498 million, \$575 million and \$570 million, respectively. Excess tax benefits related to stock-based incentive awards are recognized by JPMorgan Chase. Pursuant to a tax sharing agreement between JPMorgan Chase Bank, N.A. and its parent, JPMorgan Chase, cash payments were made by JPMorgan Chase to JPMorgan Chase Bank, N.A.

### Valuation assumptions

The following table presents the assumptions used to value employee stock options and SARs granted during the year ended December 31, 2013, under the Black-Scholes valuation model. There were no material grants of stock options or SARs for the years ended December 31, 2015 and 2014.

Year ended December 31,	2013
<b>Weighted-average annualized valuation assumptions</b>	
Risk-free interest rate	1.18%
Expected dividend yield	2.66
Expected common stock price volatility	28
Expected life (in years)	6.6

The expected dividend yield is determined using forward-looking assumptions. The expected volatility assumption is derived from the implied volatility of JPMorgan Chase's stock options. The expected life assumption is an estimate of the length of time that an employee might hold an option or SAR before it is exercised or canceled, and the assumption is based on JPMorgan Chase's historical experience.

### Note 12 – Noninterest expense

For details on noninterest expense, see Consolidated statements of income on page 2. Included within other expense is the following:

Year ended December 31, (in millions)	2015	2014	2013
Legal expense	\$ 2,035	\$ 2,262	\$ 2,245
Federal Deposit Insurance Corporation-related ("FDIC") expense	1,157	970	1,396

### Note 13 – Securities

Securities are classified as trading, AFS or held-to-maturity ("HTM"). Securities classified as trading assets are discussed in Note 4. Predominantly all of JPMorgan Chase Bank, N.A.'s AFS and HTM investment securities (the "investment securities portfolio") are held by Treasury and CIO in connection with its asset-liability management objectives. At December 31, 2015, the investment securities portfolio consisted of debt securities with an average credit rating of AA+ (based upon external ratings where available, and where not available, based primarily upon internal ratings which correspond to ratings as defined by S&P and Moody's). AFS securities are carried at fair value on the Consolidated balance sheets. Unrealized gains and losses, after any applicable hedge accounting adjustments, are reported as net increases or decreases to accumulated other comprehensive income/(loss). The specific identification method is used to determine realized gains and losses on AFS securities, which are included in securities gains/(losses) on the Consolidated statements of income. HTM debt securities, which management has the intent and ability to hold until maturity, are carried at amortized cost on the Consolidated balance sheets. For both AFS and HTM debt securities, purchase discounts or premiums are generally amortized into interest income over the contractual life of the security.

During 2014, JPMorgan Chase Bank, N.A. transferred U.S. government agency mortgage-backed securities and obligations of U.S. states and municipalities with a fair value of \$19.3 billion from AFS to HTM. These securities were transferred at fair value, and the transfer was a non-cash transaction. AOCI included net pretax unrealized losses of \$9 million on the securities at the date of transfer. The transfer reflected JPMorgan Chase Bank, N.A.'s intent to hold the securities to maturity in order to reduce the impact of price volatility on AOCI and certain capital measures under Basel III.

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The amortized costs and estimated fair values of the investment securities portfolio were as follows for the dates indicated.

December 31, (in millions)	2015				2014			
	Amortized cost	Gross unrealized gains	Gross unrealized losses	Fair value	Amortized cost	Gross unrealized gains	Gross unrealized losses	Fair value
<b>Available-for-sale debt securities</b>								
Mortgage-backed securities:								
U.S. government agencies <sup>(a)</sup>	\$ 53,689	\$ 1,483	\$ 106	\$ 55,066	\$ 63,089	\$ 2,302	\$ 72	\$ 65,319
Residential:								
Prime and Alt-A	7,462	40	57	7,445	5,595	78	29	5,644
Subprime	210	7	–	217	677	14	–	691
Non-U.S.	19,629	341	13	19,957	43,550	1,010	–	44,560
Commercial	22,424	134	242	22,316	20,086	411	17	20,480
<b>Total mortgage-backed securities</b>	<b>103,414</b>	<b>2,005</b>	<b>418</b>	<b>105,001</b>	<b>132,997</b>	<b>3,815</b>	<b>118</b>	<b>136,694</b>
U.S. Treasury and government agencies <sup>(a)</sup>	11,202	–	166	11,036	13,593	56	14	13,635
Obligations of U.S. states and municipalities	28,467	1,960	22	30,405	24,860	1,910	15	26,755
Certificates of deposit	282	1	–	283	1,103	1	1	1,103
Non-U.S. government debt securities	35,852	853	41	36,664	51,480	1,272	21	52,731
Corporate debt securities	12,464	142	170	12,436	18,158	396	24	18,530
Asset-backed securities:								
Collateralized loan obligations	31,146	52	191	31,007	30,229	147	182	30,194
Other	9,088	66	100	9,054	12,428	170	11	12,587
<b>Total available-for-sale debt securities</b>	<b>231,915</b>	<b>5,079</b>	<b>1,108</b>	<b>235,886</b>	<b>284,848</b>	<b>7,767</b>	<b>386</b>	<b>292,229</b>
Available-for-sale equity securities	58	11	–	69	108	10	–	118
<b>Total available-for-sale securities</b>	<b>\$ 231,973</b>	<b>\$ 5,090</b>	<b>\$ 1,108</b>	<b>\$ 235,955</b>	<b>\$ 284,956</b>	<b>\$ 7,777</b>	<b>\$ 386</b>	<b>\$ 292,347</b>
Total held-to-maturity securities <sup>(b)</sup>	\$ 49,073	\$ 1,560	\$ 46	\$ 50,587	\$ 49,252	\$ 1,902	\$ –	\$ 51,154

(a) Includes total U.S. government-sponsored enterprise obligations with fair values of \$42.3 billion and \$59.3 billion at December 31, 2015 and 2014, respectively, which were predominantly mortgage-related.

(b) As of December 31, 2015, consists of mortgage backed securities (“MBS”) issued by U.S. government-sponsored enterprises with an amortized cost of \$30.8 billion, MBS issued by U.S. government agencies with an amortized cost of \$5.5 billion and obligations of U.S. states and municipalities with an amortized cost of \$12.8 billion. As of December 31, 2014, consists of MBS issued by U.S. government-sponsored enterprises with an amortized cost of \$35.3 billion, MBS issued by U.S. government agencies with an amortized cost of \$3.7 billion and obligations of U.S. states and municipalities with an amortized cost of \$10.2 billion.

## Securities impairment

The following tables present the fair value and gross unrealized losses for the investment securities portfolio by aging category at December 31, 2015 and 2014.

December 31, 2015 (in millions)	Securities with gross unrealized losses					
	Less than 12 months		12 months or more		Total fair value	Total gross unrealized losses
	Fair value	Gross unrealized losses	Fair value	Gross unrealized losses		
<b>Available-for-sale debt securities</b>						
Mortgage-backed securities:						
U.S. government agencies	\$ 13,002	\$ 95	\$ 697	\$ 11	\$ 13,699	\$ 106
Residential:						
Prime and Alt-A	5,147	52	239	5	5,386	57
Subprime	—	—	—	—	—	—
Non-U.S.	2,021	12	167	1	2,188	13
Commercial	13,703	238	658	4	14,361	242
<b>Total mortgage-backed securities</b>	<b>33,873</b>	<b>397</b>	<b>1,761</b>	<b>21</b>	<b>35,634</b>	<b>418</b>
U.S. Treasury and government agencies	10,998	166	—	—	10,998	166
Obligations of U.S. states and municipalities	1,537	17	205	5	1,742	22
Certificates of deposit	—	—	—	—	—	—
Non-U.S. government debt securities	3,251	26	367	15	3,618	41
Corporate debt securities	3,199	124	848	46	4,047	170
Asset-backed securities:						
Collateralized loan obligations	15,340	67	10,692	124	26,032	191
Other	4,284	60	1,005	40	5,289	100
<b>Total available-for-sale debt securities</b>	<b>72,482</b>	<b>857</b>	<b>14,878</b>	<b>251</b>	<b>87,360</b>	<b>1,108</b>
Available-for-sale equity securities	—	—	—	—	—	—
Held-to-maturity securities	3,763	46	—	—	3,763	46
<b>Total securities with gross unrealized losses</b>	<b>\$ 76,245</b>	<b>\$ 903</b>	<b>\$ 14,878</b>	<b>\$ 251</b>	<b>\$ 91,123</b>	<b>\$ 1,154</b>

December 31, 2014 (in millions)	Securities with gross unrealized losses					
	Less than 12 months		12 months or more		Total fair value	Total gross unrealized losses
	Fair value	Gross unrealized losses	Fair value	Gross unrealized losses		
<b>Available-for-sale debt securities</b>						
Mortgage-backed securities:						
U.S. government agencies	\$ 1,118	\$ 5	\$ 4,989	\$ 67	\$ 6,107	\$ 72
Residential:						
Prime and Alt-A	1,840	10	405	19	2,245	29
Subprime	—	—	—	—	—	—
Non-U.S.	—	—	—	—	—	—
Commercial	4,803	15	92	2	4,895	17
<b>Total mortgage-backed securities</b>	<b>7,761</b>	<b>30</b>	<b>5,486</b>	<b>88</b>	<b>13,247</b>	<b>118</b>
U.S. Treasury and government agencies	8,412	14	—	—	8,412	14
Obligations of U.S. states and municipalities	1,339	14	130	1	1,469	15
Certificates of deposit	1,050	1	—	—	1,050	1
Non-U.S. government debt securities	4,421	4	906	17	5,327	21
Corporate debt securities	2,492	22	80	2	2,572	24
Asset-backed securities:						
Collateralized loan obligations	13,909	76	9,012	106	22,921	182
Other	2,258	11	—	—	2,258	11
<b>Total available-for-sale debt securities</b>	<b>41,642</b>	<b>172</b>	<b>15,614</b>	<b>214</b>	<b>57,256</b>	<b>386</b>
Available-for-sale equity securities	—	—	—	—	—	—
Held-to-maturity securities	—	—	—	—	—	—
<b>Total securities with gross unrealized losses</b>	<b>\$ 41,642</b>	<b>\$ 172</b>	<b>\$ 15,614</b>	<b>\$ 214</b>	<b>\$ 57,256</b>	<b>\$ 386</b>

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### Gross unrealized losses

JPMorgan Chase Bank, N.A. has recognized the unrealized losses on securities it intends to sell. As of December 31, 2015, JPMorgan Chase Bank, N.A. does not intend to sell any securities with a loss position in AOCI, and it is not likely that JPMorgan Chase Bank, N.A. will be required to sell these securities before recovery of their amortized cost basis. Except for the securities for which credit losses have been recognized in income, JPMorgan Chase Bank, N.A. believes that the securities with an unrealized loss in AOCI are not other-than-temporarily impaired as of December 31, 2015.

### Other-than-temporary impairment

AFS debt and equity securities and HTM debt securities in unrealized loss positions are analyzed as part of JPMorgan Chase Bank, N.A.'s ongoing assessment of other-than-temporary impairment ("OTTI"). For most types of debt securities, JPMorgan Chase Bank, N.A. considers a decline in fair value to be other-than-temporary when JPMorgan Chase Bank, N.A. does not expect to recover the entire amortized cost basis of the security. For beneficial interests in securitizations that are rated below "AA" at their acquisition, or that can be contractually prepaid or otherwise settled in such a way that JPMorgan Chase Bank, N.A. would not recover substantially all of its recorded investment, JPMorgan Chase Bank, N.A. considers an impairment to be other than temporary when there is an adverse change in expected cash flows. For AFS equity securities, JPMorgan Chase Bank, N.A. considers a decline in fair value to be other-than-temporary if it is probable that JPMorgan Chase Bank, N.A. will not recover its cost basis.

Potential OTTI is considered using a variety of factors, including the length of time and extent to which the market value has been less than cost; adverse conditions specifically related to the industry, geographic area or financial condition of the issuer or underlying collateral of a security; payment structure of the security; changes to the rating of the security by a rating agency; the volatility of the fair value changes; and JPMorgan Chase Bank, N.A.'s intent and ability to hold the security until recovery.

For AFS debt securities, JPMorgan Chase Bank, N.A. recognizes OTTI losses in earnings if JPMorgan Chase Bank, N.A. has the intent to sell the debt security, or if it is more likely than not that JPMorgan Chase Bank, N.A. will be required to sell the debt security before recovery of its amortized cost basis. In these circumstances the impairment loss is equal to the full difference between the amortized cost basis and the fair value of the securities. For debt securities in an unrealized loss position that JPMorgan Chase Bank, N.A. has the intent and ability to hold, the expected cash flows to be received from the securities are evaluated to determine if a credit loss exists. In the event of a credit loss, only the amount of impairment associated with the credit loss is recognized in income. Amounts relating to factors other than credit losses are recorded in OCI.

JPMorgan Chase Bank, N.A.'s cash flow evaluations take into account the factors noted above and expectations of relevant market and economic data as of the end of the reporting period. For securities issued in a securitization, JPMorgan Chase Bank, N.A. estimates cash flows considering underlying loan-level data and structural features of the securitization, such as subordination, excess spread, overcollateralization or other forms of credit enhancement, and compares the losses projected for the underlying collateral ("pool losses") against the level of credit enhancement in the securitization structure to determine whether these features are sufficient to absorb the pool losses, or whether a credit loss exists. JPMorgan Chase Bank, N.A. also performs other analyses to support its cash flow projections, such as first-loss analyses or stress scenarios.

For equity securities, OTTI losses are recognized in earnings if JPMorgan Chase Bank, N.A. intends to sell the security. In other cases JPMorgan Chase Bank, N.A. considers the relevant factors noted above, as well as JPMorgan Chase Bank, N.A.'s intent and ability to retain its investment for a period of time sufficient to allow for any anticipated recovery in market value, and whether evidence exists to support a realizable value equal to or greater than the cost basis. Any impairment loss on an equity security is equal to the full difference between the cost basis and the fair value of the security.

### Securities gains and losses

The following table presents realized gains and losses and OTTI from AFS securities that were recognized in income.

Year ended December 31, (in millions)	2015	2014	2013
Realized gains	\$ 351	\$ 305	\$ 1,277
Realized losses	(127)	(233)	(613)
OTTI losses	(22)	(4)	(21)
<b>Net securities gains</b>	<b>\$ 202</b>	<b>\$ 68</b>	<b>\$ 643</b>
<b>OTTI losses</b>			
Credit losses recognized in income	\$ (1)	\$ (2)	\$ (1)
Securities JPMorgan Chase Bank, N.A. intends to sell <sup>(a)</sup>	(21)	(2)	(20)
<b>Total OTTI losses recognized in income</b>	<b>\$ (22)</b>	<b>\$ (4)</b>	<b>\$ (21)</b>

(a) Excludes realized losses on securities sold of \$5 million, \$3 million and \$12 million for the years ended December 31, 2015, 2014 and 2013, respectively, that had been previously reported as an OTTI loss due to the intention to sell the securities.

### Changes in the credit loss component of credit-impaired debt securities

The following table presents a rollforward for the years ended December 31, 2015, 2014 and 2013, of the credit loss component of OTTI losses that have been recognized in income, related to AFS debt securities that JPMorgan Chase Bank, N.A. does not intend to sell.

Year ended December 31, (in millions)	2015	2014	2013
Balance, beginning of period	\$ 3	\$ 1	\$ 3
Additions:			
Newly credit-impaired securities	1	2	1
Losses reclassified from other comprehensive income on previously credit-impaired securities	—	—	—
Reductions:			
Sales and redemptions of credit- impaired securities	—	—	(3)
<b>Balance, end of period</b>	<b>\$ 4</b>	<b>\$ 3</b>	<b>\$ 1</b>

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### Contractual maturities and yields

The following table presents the amortized cost and estimated fair value at December 31, 2015, of JPMorgan Chase Bank, N.A.'s investment securities portfolio by contractual maturity.

By remaining maturity December 31, 2015 (in millions)	Due in one year or less	Due after one year through five years	Due after five years through 10 years	Due after 10 years <sup>(c)</sup>	Total
<b>Available-for-sale debt securities</b>					
Mortgage-backed securities <sup>(a)</sup>					
Amortized cost	\$ 2,415	\$ 9,728	\$ 6,562	\$ 84,709	\$ 103,414
Fair value	2,421	9,886	6,756	85,938	105,001
Average yield <sup>(b)</sup>	1.48%	1.86%	3.15%	3.08%	2.93%
U.S. Treasury and government agencies <sup>(a)</sup>					
Amortized cost	\$ —	\$ —	\$ 10,069	\$ 1,133	\$ 11,202
Fair value	—	—	9,932	1,104	11,036
Average yield <sup>(b)</sup>	—%	—%	0.31%	0.48%	0.33%
Obligations of U.S. states and municipalities					
Amortized cost	\$ 184	\$ 666	\$ 1,081	\$ 26,536	\$ 28,467
Fair value	187	678	1,139	28,401	30,405
Average yield <sup>(b)</sup>	5.21%	3.11%	4.81%	6.57%	6.41%
Certificates of deposit					
Amortized cost	\$ 230	\$ 52	\$ —	\$ —	\$ 282
Fair value	231	52	—	—	283
Average yield <sup>(b)</sup>	8.66%	3.28%	—%	—%	7.68%
Non-U.S. government debt securities					
Amortized cost	\$ 6,126	\$ 11,166	\$ 16,574	\$ 1,986	\$ 35,852
Fair value	6,422	11,419	16,745	2,078	36,664
Average yield <sup>(b)</sup>	3.11%	1.82%	1.06%	0.67%	1.63%
Corporate debt securities					
Amortized cost	\$ 2,761	\$ 7,175	\$ 2,385	\$ 143	\$ 12,464
Fair value	2,776	7,179	2,347	134	12,436
Average yield <sup>(b)</sup>	2.87%	2.32%	3.09%	4.46%	2.61%
Asset-backed securities					
Amortized cost	\$ 39	\$ 442	\$ 20,501	\$ 19,252	\$ 40,234
Fair value	40	449	20,421	19,151	40,061
Average yield <sup>(b)</sup>	0.71%	1.72%	1.79%	1.83%	1.81%
<b>Total available-for-sale debt securities</b>					
Amortized cost	\$ 11,755	\$ 29,229	\$ 57,172	\$ 133,759	\$ 231,915
Fair value	12,077	29,663	57,340	136,806	235,886
Average yield <sup>(b)</sup>	2.85%	1.99%	1.59%	3.54%	2.83%
<b>Available-for-sale equity securities</b>					
Amortized cost	\$ —	\$ —	\$ —	\$ 58	\$ 58
Fair value	—	—	—	69	69
Average yield <sup>(b)</sup>	—%	—%	—%	0.14%	0.14%
<b>Total available-for-sale securities</b>					
Amortized cost	\$ 11,755	\$ 29,229	\$ 57,172	\$ 133,817	\$ 231,973
Fair value	12,077	29,663	57,340	136,875	235,955
Average yield <sup>(b)</sup>	2.85%	1.99%	1.59%	3.53%	2.82%
<b>Total held-to-maturity securities</b>					
Amortized cost	\$ 51	\$ —	\$ 931	\$ 48,091	\$ 49,073
Fair value	50	—	976	49,561	50,587
Average yield <sup>(b)</sup>	4.42%	—%	5.01%	3.98%	4.00%

(a) U.S. government-sponsored enterprises were the only issuers whose securities exceeded 10% of JPMorgan Chase Bank, N.A.'s total stockholder's equity at December 31, 2015.

(b) Average yield is computed using the effective yield of each security owned at the end of the period, weighted based on the amortized cost of each security. The effective yield considers the contractual coupon, amortization of premiums and accretion of discounts, and the effect of related hedging derivatives. Taxable-equivalent amounts are used where applicable. The effective yield excludes unscheduled principal prepayments; and accordingly, actual maturities of securities may differ from their contractual or expected maturities as certain securities may be prepaid.

(c) Includes securities with no stated maturity. Substantially all of JPMorgan Chase Bank, N.A.'s residential mortgage-backed securities and collateralized mortgage obligations are due in 10 years or more, based on contractual maturity. The estimated weighted-average life, which reflects anticipated future prepayments, is approximately five years for agency residential mortgage-backed securities, two years for agency residential collateralized mortgage obligations and four years for nonagency residential collateralized mortgage obligations.



## Note 14 – Securities financing activities

JPMorgan Chase Bank, N.A. enters into resale agreements, repurchase agreements, securities borrowed transactions and securities loaned transactions (collectively, “securities financing agreements”) primarily to finance JPMorgan Chase Bank, N.A.’s inventory positions, acquire securities to cover short positions, accommodate customers’ financing needs, and settle other securities obligations.

Securities financing agreements are treated as collateralized financings on JPMorgan Chase Bank, N.A.’s Consolidated balance sheets. Resale and repurchase agreements are generally carried at the amounts at which the securities will be subsequently sold or repurchased. Securities borrowed and securities loaned transactions are generally carried at the amount of cash collateral advanced or received. Where appropriate under applicable accounting guidance, resale and repurchase agreements with the same counterparty are reported on a net basis. For further discussion of the offsetting of assets and liabilities, see Note 1. Fees received and paid in connection with securities financing agreements are recorded in interest income and interest expense on the Consolidated statements of income.

JPMorgan Chase Bank, N.A. has elected the fair value option for certain securities financing agreements. For further information regarding the fair value option, see Note 4. The securities financing agreements for which the fair value option has been elected are reported within securities purchased under resale agreements, securities loaned or sold under repurchase agreements, and securities borrowed on the Consolidated balance sheets. Generally, for agreements carried at fair value, current-period interest accruals are recorded within interest income and interest expense, with changes in fair value reported in principal transactions revenue. However, for financial instruments containing embedded derivatives that would be separately accounted for in accordance with accounting guidance for hybrid instruments, all changes in fair value, including any interest elements, are reported in principal transactions revenue.

Secured financing transactions expose JPMorgan Chase Bank, N.A. to credit and liquidity risk. To manage these risks, JPMorgan Chase Bank, N.A. monitors the value of the underlying securities (predominantly high-quality securities

collateral, including government-issued debt and agency MBS) that it has received from or provided to its counterparties compared to the value of cash proceeds and exchanged collateral, and either requests additional collateral or returns securities or collateral when appropriate. Margin levels are initially established based upon the counterparty, the type of underlying securities, and the permissible collateral, and are monitored on an ongoing basis.

In resale agreements and securities borrowed transactions, JPMorgan Chase Bank, N.A. is exposed to credit risk to the extent that the value of the securities received is less than initial cash principal advanced and any collateral amounts exchanged. In repurchase agreements and securities loaned transactions, credit risk exposure arises to the extent that the value of underlying securities exceeds the value of the initial cash principal advanced, and any collateral amounts exchanged.

Additionally, JPMorgan Chase Bank, N.A. typically enters into master netting agreements and other similar arrangements with its counterparties, which provide for the right to liquidate the underlying securities and any collateral amounts exchanged in the event of a counterparty default. It is also JPMorgan Chase Bank, N.A.’s policy to take possession, where possible, of the securities underlying resale agreements and securities borrowed transactions. For further information regarding assets pledged and collateral received in securities financing agreements, see Note 28.

As a result of JPMorgan Chase Bank, N.A.’s credit risk mitigation practices with respect to resale and securities borrowed agreements as described above, JPMorgan Chase Bank, N.A. did not hold any reserves for credit impairment with respect to these agreements as of December 31, 2015 and 2014.

Certain prior period amounts for securities purchased under resale agreements and securities borrowed, as well as securities sold under repurchase agreements and securities loaned, have been revised to conform with the current period presentation. These revisions had no impact on the JPMorgan Chase Bank, N.A.’s Consolidated balance sheets or its results of operations.

## Notes to consolidated financial statements

JPMorgan Chase Bank, National Association  
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The following table presents as of December 31, 2015 and 2014, the gross and net securities purchased under resale agreements and securities borrowed. Securities purchased under resale agreements have been presented on the Consolidated balance sheets net of securities sold under repurchase agreements where JPMorgan Chase Bank, N.A. has obtained an appropriate legal opinion with respect to the master netting agreement, and where the other relevant criteria have been met. Where such a legal opinion has not been either sought or obtained, the securities purchased under resale agreements are not eligible for netting and are shown separately in the table below. Securities borrowed are presented on a gross basis on the Consolidated balance sheets.

December 31, (in millions)	2015			2014		
	Gross asset balance	Amounts netted on the Consolidated balance sheets	Net asset balance	Gross asset balance	Amounts netted on the Consolidated balance sheets	Net asset balance
Securities purchased under resale agreements						
Securities purchased under resale agreements with an appropriate legal opinion	\$ 233,113	\$ (89,172)	\$ 143,941	\$ 222,793	\$ (91,687)	\$ 131,106
Securities purchased under resale agreements where an appropriate legal opinion has not been either sought or obtained	3,857		3,857	9,269		9,269
<b>Total securities purchased under resale agreements</b>	<b>\$ 236,970</b>	<b>\$ (89,172)</b>	<b>\$ 147,798</b> <sup>(a)</sup>	<b>\$ 232,062</b>	<b>\$ (91,687)</b>	<b>\$ 140,375</b> <sup>(a)</sup>
<b>Securities borrowed</b>	<b>\$ 25,519</b>	<b>NA</b>	<b>\$ 25,519</b> <sup>(b)(c)</sup>	<b>\$ 32,173</b>	<b>NA</b>	<b>\$ 32,173</b> <sup>(b)(c)</sup>

(a) For December 31, 2015 and 2014, included securities purchased under resale agreements of \$8.0 billion and \$14.3 billion, respectively, accounted for at fair value.

(b) At December 31, 2015 and 2014, included securities borrowed of \$395 million and \$992 million, respectively, accounted for at fair value.

(c) Included \$1.5 billion and \$2.7 billion at December 31, 2015 and 2014, respectively, of securities borrowed where an appropriate legal opinion has not been either sought or obtained with respect to the master netting agreement.

The following table presents information as of December 31, 2015 and 2014, regarding the securities purchased under resale agreements and securities borrowed for which an appropriate legal opinion has been obtained with respect to the master netting agreement. The below table excludes information related to resale agreements and securities borrowed where such a legal opinion has not been either sought or obtained.

December 31, (in millions)	2015				2014			
	Net asset balance	Amounts not nettable on the Consolidated balance sheets <sup>(a)</sup>		Net exposure	Net asset balance	Amounts not nettable on the Consolidated balance sheets <sup>(a)</sup>		Net exposure
		Financial instruments <sup>(b)</sup>	Cash collateral			Financial instruments <sup>(b)</sup>	Cash collateral	
Securities purchased under resale agreements with an appropriate legal opinion	\$ 143,941	\$ (143,183)	\$ (335)	\$ 423	\$ 131,106	\$ (128,524)	\$ (56)	\$ 2,526
Securities borrowed	\$ 24,054	\$ (23,759)	\$ –	\$ 295	\$ 29,498	\$ (29,252)	\$ –	\$ 246

(a) For some counterparties, the sum of the financial instruments and cash collateral not nettable on the Consolidated balance sheets may exceed the net asset balance. Where this is the case the total amounts reported in these two columns are limited to the balance of the net reverse repurchase agreement or securities borrowed asset with that counterparty. As a result a net exposure amount is reported even though JPMorgan Chase Bank, N.A., on an aggregate basis for its securities purchased under resale agreements and securities borrowed, has received securities collateral with a total fair value that is greater than the funds provided to counterparties.

(b) Includes financial instrument collateral received, repurchase liabilities and securities loaned liabilities with an appropriate legal opinion with respect to the master netting agreement; these amounts are not presented net on the Consolidated balance sheets because other U.S. GAAP netting criteria are not met.

The following table presents as of December 31, 2015 and 2014, the gross and net securities sold under repurchase agreements and securities loaned. Securities sold under repurchase agreements have been presented on the Consolidated balance sheets net of securities purchased under resale agreements where JPMorgan Chase Bank, N.A. has obtained an appropriate legal opinion with respect to the master netting agreement, and where the other relevant criteria have been met. Where such a legal opinion has not been either sought or obtained, the securities sold under repurchase agreements are not eligible for netting and are shown separately in the table below. Securities loaned are presented on a gross basis on the Consolidated balance sheets.

December 31, (in millions)	2015			2014		
	Gross liability balance	Amounts netted on the Consolidated balance sheets	Net liability balance	Gross liability balance	Amounts netted on the Consolidated balance sheets	Net liability balance
Securities sold under repurchase agreements						
Securities sold under repurchase agreements with an appropriate legal opinion	\$ 151,367	\$ (89,172)	\$ 62,195	\$ 158,816	\$ (91,687)	\$ 67,129
Securities sold under repurchase agreements where an appropriate legal opinion has not been either sought or obtained <sup>(a)</sup>	3,684		3,684	5,711		5,711
<b>Total securities sold under repurchase agreements</b>	<b>\$ 155,051</b>	<b>\$ (89,172)</b>	<b>\$ 65,879</b> <sup>(c)</sup>	<b>\$ 164,527</b>	<b>\$ (91,687)</b>	<b>\$ 72,840</b> <sup>(c)</sup>
<b>Securities loaned<sup>(b)</sup></b>	<b>\$ 17,260</b>	<b>NA</b>	<b>\$ 17,260</b> <sup>(d)(e)</sup>	<b>\$ 21,067</b>	<b>NA</b>	<b>\$ 21,067</b> <sup>(d)(e)</sup>

(a) Includes repurchase agreements that are not subject to a master netting agreement but do provide rights to collateral.

(b) Included securities-for-securities lending transactions of \$6.7 billion and \$781 million at December 31, 2015 and 2014, respectively, accounted for at fair value, where JPMorgan Chase Bank, N.A. is acting as lender. These amounts are presented within other liabilities in the Consolidated balance sheets.

(c) At December 31, 2015 and 2014, included securities sold under repurchase agreements of \$728 million and \$678 million, respectively, accounted for at fair value.

(d) There were no securities loaned accounted for at fair value at December 31, 2015 and 2014, respectively.

(e) Included \$5 million and \$149 million at December 31, 2015 and 2014, respectively, of securities loaned where an appropriate legal opinion has not been either sought or obtained with respect to the master netting agreement.

The following table presents information as of December 31, 2015 and 2014, regarding the securities sold under repurchase agreements and securities loaned for which an appropriate legal opinion has been obtained with respect to the master netting agreement. The below table excludes information related to repurchase agreements and securities loaned where such a legal opinion has not been either sought or obtained.

December 31, (in millions)	2015				2014			
	Net liability balance	Amounts not nettable on the Consolidated balance sheets <sup>(a)</sup>		Net amount <sup>(c)</sup>	Net liability balance	Amounts not nettable on the Consolidated balance sheets <sup>(a)</sup>		Net amount <sup>(c)</sup>
		Financial instruments <sup>(b)</sup>	Cash collateral			Financial instruments <sup>(b)</sup>	Cash collateral	
Securities sold under repurchase agreements with an appropriate legal opinion	\$ 62,195	\$ (58,968)	\$ (362)	\$ 2,865	\$ 67,129	\$ (66,214)	\$ (24)	\$ 891
Securities loaned	\$ 17,255	\$ (16,873)	\$ —	\$ 382	\$ 20,918	\$ (20,183)	\$ —	\$ 735

(a) For some counterparties the sum of the financial instruments and cash collateral not nettable on the Consolidated balance sheets may exceed the net liability balance. Where this is the case the total amounts reported in these two columns are limited to the balance of the net repurchase agreement or securities loaned liability with that counterparty.

(b) Includes financial instrument collateral transferred, reverse repurchase assets and securities borrowed assets with an appropriate legal opinion with respect to the master netting agreement; these amounts are not presented net on the Consolidated balance sheets because other U.S. GAAP netting criteria are not met.

(c) Net amount represents exposure of counterparties to JPMorgan Chase Bank, N.A.

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Effective April 1, 2015, JPMorgan Chase Bank, N.A. adopted new accounting guidance, which requires enhanced disclosures with respect to the types of financial assets pledged in secured financing transactions and the remaining contractual maturity of the secured financing transactions; the following tables present this information as of December 31, 2015.

December 31, 2015 (in millions)	Gross liability balance	
	Securities sold under repurchase agreements	Securities loaned
Mortgage-backed securities	\$ 3,286	\$ —
U.S. Treasury and government agencies	60,119	31
Non-U.S. government debt	80,863	4,812
Corporate debt securities	8,794	637
Asset-backed securities	734	—
Equity securities	1,255	11,780
<b>Total</b>	<b>\$ 155,051</b>	<b>\$ 17,260</b>

December 31, 2015 (in millions)	Remaining contractual maturity of the agreements					Total
	Overnight and continuous	Up to 30 days	30 - 90 days	Greater than 90 days		
Total securities sold under repurchase agreements	\$ 25,950	\$ 76,681	\$ 35,050	\$ 17,370	\$ 155,051	
Total securities loaned	14,517	708	475	1,560	17,260	

### Transfers not qualifying for sale accounting

At December 31, 2015 and 2014, JPMorgan Chase Bank, N.A. held \$7.5 billion and \$13.8 billion, respectively, of financial assets for which the rights have been transferred to third parties; however, the transfers did not qualify as a sale in accordance with U.S. GAAP. These transfers have been recognized as collateralized financing transactions. The transferred assets are recorded in trading assets and loans, and the corresponding liabilities are predominantly recorded in other borrowed funds on the Consolidated balance sheets.

## Note 15 – Loans

### Loan accounting framework

The accounting for a loan depends on management's strategy for the loan, and on whether the loan was credit-impaired at the date of acquisition. JPMorgan Chase Bank, N.A. accounts for loans based on the following categories:

- Originated or purchased loans held-for-investment (i.e., "retained"), other than purchased credit-impaired ("PCI") loans
- Loans held-for-sale
- Loans at fair value
- PCI loans held-for-investment

The following provides a detailed accounting discussion of these loan categories:

#### *Loans held-for-investment (other than PCI loans)*

Originated or purchased loans held-for-investment, other than PCI loans, are measured at the principal amount outstanding, net of the following: allowance for loan losses; charge-offs; interest applied to principal (for loans accounted for on the cost recovery method); unamortized discounts and premiums; and net deferred loan fees or costs. Credit card loans also include billed finance charges and fees net of an allowance for uncollectible amounts.

#### *Interest income*

Interest income on performing loans held-for-investment, other than PCI loans, is accrued and recognized as interest income at the contractual rate of interest. Purchase price discounts or premiums, as well as net deferred loan fees or costs, are amortized into interest income over the life of the loan to produce a level rate of return.

#### *Nonaccrual loans*

Nonaccrual loans are those on which the accrual of interest has been suspended. Loans (other than credit card loans and certain consumer loans insured by U.S. government agencies) are placed on nonaccrual status and considered nonperforming when full payment of principal and interest is in doubt, or when principal and interest has been in default for a period of 90 days or more, unless the loan is both well-secured and in the process of collection. A loan is determined to be past due when the minimum payment is not received from the borrower by the contractually specified due date or for certain loans (e.g., residential real estate loans), when a monthly payment is due and unpaid for 30 days or more. Finally, collateral-dependent loans are typically maintained on nonaccrual status.

On the date a loan is placed on nonaccrual status, all interest accrued but not collected is reversed against interest income. In addition, the amortization of deferred amounts is suspended. Interest income on nonaccrual loans may be recognized as cash interest payments are received (i.e., on a cash basis) if the recorded loan balance is deemed fully collectible; however, if there is doubt regarding the ultimate collectibility of the recorded loan

balance, all interest cash receipts are applied to reduce the carrying value of the loan (the cost recovery method). For consumer loans, application of this policy typically results in JPMorgan Chase Bank, N.A. recognizing interest income on nonaccrual consumer loans on a cash basis.

A loan may be returned to accrual status when repayment is reasonably assured and there has been demonstrated performance under the terms of the loan or, if applicable, the terms of the restructured loan.

As permitted by regulatory guidance, credit card loans are generally exempt from being placed on nonaccrual status; accordingly, interest and fees related to credit card loans continue to accrue until the loan is charged off or paid in full. However, JPMorgan Chase Bank, N.A. separately establishes an allowance for the estimated uncollectible portion of accrued interest and fee income on credit card loans. The allowance is established with a charge to interest income and is reported as an offset to loans.

#### *Allowance for loan losses*

The allowance for loan losses represents the estimated probable credit losses inherent in the held-for-investment loan portfolio at the balance sheet date. Changes in the allowance for loan losses are recorded in the provision for credit losses on JPMorgan Chase Bank, N.A.'s Consolidated statements of income. See Note 16 for further information on JPMorgan Chase Bank, N.A.'s accounting policies for the allowance for loan losses.

#### *Charge-offs*

Consumer loans, other than risk-rated business banking, risk-rated auto and PCI loans, are generally charged off or charged down to the net realizable value of the underlying collateral (i.e., fair value less costs to sell), with an offset to the allowance for loan losses, upon reaching specified stages of delinquency in accordance with standards established by the Federal Financial Institutions Examination Council ("FFIEC"). Residential real estate loans, non-modified credit card loans and scored business banking loans are generally charged off at 180 days past due. Auto and student loans are charged off no later than 120 days past due, and modified credit card loans are charged off at 120 days past due.

Certain consumer loans will be charged off earlier than the FFIEC charge-off standards in certain circumstances as follows:

- A charge-off is recognized when a loan is modified in a troubled debt restructuring ("TDR") if the loan is determined to be collateral-dependent. A loan is considered to be collateral-dependent when repayment of the loan is expected to be provided solely by the underlying collateral, rather than by cash flows from the borrower's operations, income or other resources.
- Loans to borrowers who have experienced an event (e.g., bankruptcy) that suggests a loss is either known or

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highly certain are subject to accelerated charge-off standards. Residential real estate and auto loans are charged off when the loan becomes 60 days past due, or sooner if the loan is determined to be collateral-dependent. Credit card and scored business banking loans are charged off within 60 days of receiving notification of the bankruptcy filing or other event. Student loans are generally charged off when the loan becomes 60 days past due after receiving notification of a bankruptcy.

- Auto loans are written down to net realizable value upon repossession of the automobile and after a redemption period (i.e., the period during which a borrower may cure the loan) has passed.

Other than in certain limited circumstances, JPMorgan Chase Bank, N.A. typically does not recognize charge-offs on government-guaranteed loans.

Wholesale loans, risk-rated business banking loans and risk-rated auto loans are charged off when it is highly certain that a loss has been realized, including situations where a loan is determined to be both impaired and collateral-dependent. The determination of whether to recognize a charge-off includes many factors, including the prioritization of JPMorgan Chase Bank, N.A.'s claim in bankruptcy, expectations of the workout/restructuring of the loan and valuation of the borrower's equity or the loan collateral.

When a loan is charged down to the estimated net realizable value, the determination of the fair value of the collateral depends on the type of collateral (e.g., securities, real estate). In cases where the collateral is in the form of liquid securities, the fair value is based on quoted market prices or broker quotes. For illiquid securities or other financial assets, the fair value of the collateral is estimated using a discounted cash flow model.

For residential real estate loans, collateral values are based upon external valuation sources. When it becomes likely that a borrower is either unable or unwilling to pay, JPMorgan Chase Bank, N.A. obtains a broker's price opinion of the home based on an exterior-only valuation ("exterior opinions"), which is then updated at least every six months thereafter. As soon as practicable after JPMorgan Chase Bank, N.A. receives the property in satisfaction of a debt (e.g., by taking legal title or physical possession), generally, either through foreclosure or upon the execution of a deed in lieu of foreclosure transaction with the borrower, JPMorgan Chase Bank, N.A. obtains an appraisal based on an inspection that includes the interior of the home ("interior appraisals"). Exterior opinions and interior appraisals are discounted based upon JPMorgan Chase Bank, N.A.'s experience with actual liquidation values as compared with the estimated values provided by exterior opinions and interior appraisals, considering state- and product-specific factors.

For commercial real estate loans, collateral values are generally based on appraisals from internal and external valuation sources. Collateral values are typically updated every six to twelve months, either by obtaining a new appraisal or by performing an internal analysis, in accordance with JPMorgan Chase Bank, N.A.'s policies. JPMorgan Chase Bank, N.A. also considers both borrower- and market-specific factors, which may result in obtaining appraisal updates or broker price opinions at more frequent intervals.

### Loans held-for-sale

Held-for-sale loans are measured at the lower of cost or fair value, with valuation changes recorded in noninterest revenue. For consumer loans, the valuation is performed on a portfolio basis. For wholesale loans, the valuation is performed on an individual loan basis.

Interest income on loans held-for-sale is accrued and recognized based on the contractual rate of interest.

Loan origination fees or costs and purchase price discounts or premiums are deferred in a contra loan account until the related loan is sold. The deferred fees and discounts or premiums are an adjustment to the basis of the loan and therefore are included in the periodic determination of the lower of cost or fair value adjustments and/or the gain or loss recognized at the time of sale.

Held-for-sale loans are subject to the nonaccrual policies described above.

Because held-for-sale loans are recognized at the lower of cost or fair value, JPMorgan Chase Bank, N.A.'s allowance for loan losses and charge-off policies do not apply to these loans.

### Loans at fair value

Loans used in a market-making strategy or risk managed on a fair value basis are measured at fair value, with changes in fair value recorded in noninterest revenue.

For these loans, the earned current contractual interest payment is recognized in interest income. Changes in fair value are recognized in noninterest revenue. Loan origination fees are recognized upfront in noninterest revenue. Loan origination costs are recognized in the associated expense category as incurred.

Because these loans are recognized at fair value, JPMorgan Chase Bank, N.A.'s allowance for loan losses and charge-off policies do not apply to these loans.

See Note 5 for further information on JPMorgan Chase Bank, N.A.'s elections of fair value accounting under the fair value option. See Note 4 and Note 5 for further information on loans carried at fair value and classified as trading assets.

### PCI loans

PCI loans held-for-investment are initially measured at fair value. PCI loans have evidence of credit deterioration since the loan's origination date and therefore it is probable, at acquisition, that all contractually required payments will not be collected. Because PCI loans are initially measured at fair value, which includes an estimate of future credit losses, no allowance for loan losses related to PCI loans is recorded at the acquisition date. See page 87 of this Note for information on accounting for PCI loans subsequent to their acquisition.

### **Loan classification changes**

Loans in the held-for-investment portfolio that management decides to sell are transferred to the held-for-sale portfolio at the lower of cost or fair value on the date of transfer. Credit-related losses are charged against the allowance for loan losses; non-credit related losses such as those due to changes in interest rates or foreign currency exchange rates are recognized in noninterest revenue.

In the event that management decides to retain a loan in the held-for-sale portfolio, the loan is transferred to the held-for-investment portfolio at the lower of cost or fair value on the date of transfer. These loans are subsequently assessed for impairment based on JPMorgan Chase Bank, N.A.'s allowance methodology. For a further discussion of the methodologies used in establishing JPMorgan Chase Bank, N.A.'s allowance for loan losses, see Note 16.

### **Loan modifications**

JPMorgan Chase Bank, N.A. seeks to modify certain loans in conjunction with its loss-mitigation activities. Through the modification, JPMorgan Chase Bank, N.A. grants one or more concessions to a borrower who is experiencing financial difficulty in order to minimize JPMorgan Chase Bank, N.A.'s economic loss, avoid foreclosure or repossession of the collateral, and to ultimately maximize payments received by JPMorgan Chase Bank, N.A. from the borrower. The concessions granted vary by program and by borrower-specific characteristics, and may include interest rate reductions, term extensions, payment deferrals, principal forgiveness, or the acceptance of equity or other assets in lieu of payments.

Such modifications are accounted for and reported as TDRs. A loan that has been modified in a TDR is generally considered to be impaired until it matures, is repaid, or is otherwise liquidated, regardless of whether the borrower performs under the modified terms. In certain limited cases, the effective interest rate applicable to the modified loan is at or above the current market rate at the time of the restructuring. In such circumstances, and assuming that the loan subsequently performs under its modified terms and JPMorgan Chase Bank, N.A. expects to collect all contractual principal and interest cash flows, the loan is disclosed as impaired and as a TDR only during the year of the modification; in subsequent years, the loan is not

disclosed as an impaired loan or as a TDR so long as repayment of the restructured loan under its modified terms is reasonably assured.

Loans, except for credit card loans, modified in a TDR are generally placed on nonaccrual status, although in many cases such loans were already on nonaccrual status prior to modification. These loans may be returned to performing status (the accrual of interest is resumed) if the following criteria are met: (a) the borrower has performed under the modified terms for a minimum of six months and/or six payments, and (b) JPMorgan Chase Bank, N.A. has an expectation that repayment of the modified loan is reasonably assured based on, for example, the borrower's debt capacity and level of future earnings, collateral values, loan-to-value ("LTV") ratios, and other current market considerations. In certain limited and well-defined circumstances in which the loan is current at the modification date, such loans are not placed on nonaccrual status at the time of modification.

Because loans modified in TDRs are considered to be impaired, these loans are measured for impairment using JPMorgan Chase Bank, N.A.'s established asset-specific allowance methodology, which considers the expected re-default rates for the modified loans. A loan modified in a TDR generally remains subject to the asset-specific allowance methodology throughout its remaining life, regardless of whether the loan is performing and has been returned to accrual status and/or the loan has been removed from the impaired loans disclosures (i.e., loans restructured at market rates). For further discussion of the methodology used to estimate JPMorgan Chase Bank, N.A.'s asset-specific allowance, see Note 16.

### **Foreclosed property**

JPMorgan Chase Bank, N.A. acquires property from borrowers through loan restructurings, workouts, and foreclosures. Property acquired may include real property (e.g., residential real estate, land, and buildings) and commercial and personal property (e.g., automobiles, aircraft, railcars, and ships).

JPMorgan Chase Bank, N.A. recognizes foreclosed property upon receiving assets in satisfaction of a loan (e.g., by taking legal title or physical possession). For loans collateralized by real property, JPMorgan Chase Bank, N.A. generally recognizes the asset received at foreclosure sale or upon the execution of a deed in lieu of foreclosure transaction with the borrower. Foreclosed assets are reported in other assets on the Consolidated balance sheets and initially recognized at fair value less costs to sell. Each quarter the fair value of the acquired property is reviewed and adjusted, if necessary, to the lower of cost or fair value. Subsequent adjustments to fair value are charged/credited to noninterest revenue. Operating expense, such as real estate taxes and maintenance, are charged to other expense.

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### Loan portfolio

JPMorgan Chase Bank, N.A.'s loan portfolio is divided into three portfolio segments, which are the same segments used by JPMorgan Chase Bank, N.A. to determine the allowance for loan losses: Consumer, excluding credit card; Credit card; and Wholesale. Within each portfolio segment, JPMorgan Chase Bank, N.A. monitors and assesses the credit risk in the following classes of loans, based on the risk characteristics of each loan class:

Consumer, excluding credit card <sup>(a)</sup>	Credit card	Wholesale <sup>(c)</sup>
<u>Residential real estate – excluding PCI</u> <ul style="list-style-type: none"> <li>• Home equity – senior lien</li> <li>• Home equity – junior lien</li> <li>• Prime mortgage, including option ARMs</li> <li>• Subprime mortgage</li> </ul> <u>Other consumer loans</u> <ul style="list-style-type: none"> <li>• Auto<sup>(b)</sup></li> <li>• Business banking<sup>(b)</sup></li> <li>• Student and other</li> </ul> <u>Residential real estate – PCI</u> <ul style="list-style-type: none"> <li>• Home equity</li> <li>• Prime mortgage</li> <li>• Subprime mortgage</li> <li>• Option ARMs</li> </ul>	<ul style="list-style-type: none"> <li>• Credit card loans</li> </ul>	<ul style="list-style-type: none"> <li>• Commercial and industrial</li> <li>• Real estate</li> <li>• Financial institutions</li> <li>• Government agencies</li> <li>• Other<sup>(d)</sup></li> </ul>

(a) Includes loans held in the consumer & community banking business, prime mortgage and home equity loans held in the asset management business and prime mortgage loans held in the corporate business.

(b) Includes certain business banking and auto dealer risk-rated loans that apply the wholesale methodology for determining the allowance for loan losses; these loans are managed by the consumer & community banking business, and therefore, for consistency in presentation, are included with the other consumer loan classes.

(c) Includes loans held in the corporate & investment banking, commercial banking and asset management businesses and in the corporate business. Excludes prime mortgage and home equity loans held in the asset management business and prime mortgage loans held in the corporate business. Classes are internally defined and may not align with regulatory definitions.

(d) Includes loans to: individuals; SPEs; holding companies; and private education and civic organizations. For more information on exposures to SPEs, see Note 17.

The following tables summarize JPMorgan Chase Bank, N.A.'s loan balances by portfolio segment.

December 31, 2015 (in millions)	Consumer, excluding credit card	Credit card <sup>(a)</sup>	Wholesale	Total
Retained	\$ 344,300	\$ 30,989	\$ 356,031	\$ 731,320 <sup>(b)</sup>
Held-for-sale	466	76	1,103	1,645
At fair value	–	–	2,752	2,752
<b>Total</b>	<b>\$ 344,766</b>	<b>\$ 31,065</b>	<b>\$ 359,886</b>	<b>\$ 735,717</b>

December 31, 2014 (in millions)	Consumer, excluding credit card	Credit card <sup>(a)</sup>	Wholesale	Total
Retained	\$ 288,905	\$ 29,745	\$ 324,327	\$ 642,977 <sup>(b)</sup>
Held-for-sale	389	2,180	3,801	6,370
At fair value	–	–	2,283	2,283
<b>Total</b>	<b>\$ 289,294</b>	<b>\$ 31,925</b>	<b>\$ 330,411</b>	<b>\$ 651,630</b>

(a) Includes billed finance charges and fees net of an allowance for uncollectible amounts.

(b) Loans (other than PCI loans and those for which the fair value option has been elected) are presented net of unearned income, unamortized discounts and premiums, and net deferred loan costs. These amounts were not material as of December 31, 2015 and 2014.



The following tables provide information about the carrying value of retained loans purchased, sold and reclassified to held-for-sale during the periods indicated. These tables exclude loans recorded at fair value. JPMorgan Chase Bank, N.A. manages its exposure to credit risk on an ongoing basis. Selling loans is one way that JPMorgan Chase Bank, N.A. reduces its credit exposures.

Year ended December 31, (in millions)	2015			
	Consumer, excluding credit card	Credit card	Wholesale	Total
Purchases	\$ 5,279 <sup>(a)(b)</sup>	\$ –	\$ 1,066	\$ 6,345
Sales	5,049	–	9,195	14,244
Retained loans reclassified to held-for-sale	1,439	79	642	2,160

  

Year ended December 31, (in millions)	2014			
	Consumer, excluding credit card	Credit card	Wholesale	Total
Purchases	\$ 7,434 <sup>(a)(b)</sup>	\$ –	\$ 885	\$ 8,319
Sales	6,582	– <sup>(c)</sup>	7,381	13,963
Retained loans reclassified to held-for-sale	1,173	2,176	581	3,930

  

Year ended December 31, (in millions)	2013			
	Consumer, excluding credit card	Credit card	Wholesale	Total
Purchases	\$ 7,616 <sup>(a)(b)</sup>	\$ –	\$ 697	\$ 8,313
Sales	4,829	–	4,287	9,116
Retained loans reclassified to held-for-sale	1,261	68	5,641	6,970

(a) Purchases predominantly represent JPMorgan Chase Bank, N.A.'s voluntary repurchase of certain delinquent loans from loan pools as permitted by Ginnie Mae guidelines. JPMorgan Chase Bank, N.A. typically elects to repurchase these delinquent loans as it continues to service them and/or manage the foreclosure process in accordance with applicable requirements of Ginnie Mae, the Federal Housing Administration ("FHA"), Rural Housing Services ("RHS") and/or the U.S. Department of Veterans Affairs ("VA").

(b) Excludes purchases of retained loans sourced through the correspondent origination channel and underwritten in accordance with JPMorgan Chase Bank, N.A.'s standards. Such purchases were \$50.3 billion, \$15.1 billion and \$5.7 billion for the years ended December 31, 2015, 2014 and 2013, respectively.

(c) Prior period amounts have been revised to conform with current period presentation.

The following table provides information about gains and losses, including lower of cost or fair value adjustments, on loan sales by portfolio segment.

Year ended December 31, (in millions)	2015	2014	2013
<b>Net gains/(losses) on sales of loans (including lower of cost or fair value adjustments)<sup>(a)</sup></b>			
Consumer, excluding credit card	\$ 305	\$ 341	\$ 313
Credit card	(3)	(227)	–
Wholesale	15	85	(78)
<b>Total net gains on sales of loans (including lower of cost or fair value adjustments)</b>	<b>\$ 317</b>	<b>\$ 199</b>	<b>\$ 235</b>

(a) Excludes sales related to loans accounted for at fair value.

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### Consumer, excluding credit card, loan portfolio

Consumer loans, excluding credit card loans, consist primarily of residential mortgages, home equity loans and lines of credit, auto loans, business banking loans, and student and other loans, with a focus on serving the prime consumer credit market. The portfolio also includes home equity loans secured by junior liens, prime mortgage loans with an interest-only payment period, and certain payment-option loans originated by Washington Mutual that may result in negative amortization.

The table below provides information about retained consumer loans, excluding credit card, by class.

December 31, (in millions)	2015	2014
<b>Residential real estate – excluding PCI</b>		
Home equity:		
Senior lien	\$ 14,848	\$ 16,033
Junior lien	30,692	34,824
Mortgages:		
Prime, including option ARMs	162,515	100,794
Subprime	3,688	5,054
<b>Other consumer loans</b>		
Auto	60,255	54,536
Business banking	21,208	20,056
Student and other	10,096	10,912
<b>Residential real estate – PCI</b>		
Home equity	14,989	17,095
Prime mortgage	8,893	10,220
Subprime mortgage	3,263	3,673
Option ARMs	13,853	15,708
<b>Total retained loans</b>	<b>\$ 344,300</b>	<b>\$ 288,905</b>

Delinquency rates are a primary credit quality indicator for consumer loans. Loans that are more than 30 days past due provide an early warning of borrowers who may be experiencing financial difficulties and/or who may be unable or unwilling to repay the loan. As the loan continues to age, it becomes more clear that the borrower is likely either unable or unwilling to pay. In the case of residential real estate loans, late-stage delinquencies (greater than 150 days past due) are a strong indicator of loans that will ultimately result in a foreclosure or similar liquidation transaction. In addition to delinquency rates, other credit quality indicators for consumer loans vary based on the class of loan, as follows:

- For residential real estate loans, including both non-PCI and PCI portfolios, the current estimated LTV ratio, or the combined LTV ratio in the case of junior lien loans, is an indicator of the potential loss severity in the event of default. Additionally, LTV or combined LTV can provide

insight into a borrower's continued willingness to pay, as the delinquency rate of high-LTV loans tends to be greater than that for loans where the borrower has equity in the collateral. The geographic distribution of the loan collateral also provides insight as to the credit quality of the portfolio, as factors such as the regional economy, home price changes and specific events such as natural disasters, will affect credit quality. The borrower's current or "refreshed" FICO score is a secondary credit-quality indicator for certain loans, as FICO scores are an indication of the borrower's credit payment history. Thus, a loan to a borrower with a low FICO score (660 or below) is considered to be of higher risk than a loan to a borrower with a high FICO score. Further, a loan to a borrower with a high LTV ratio and a low FICO score is at greater risk of default than a loan to a borrower that has both a high LTV ratio and a high FICO score.

- For scored auto, scored business banking and student loans, geographic distribution is an indicator of the credit performance of the portfolio. Similar to residential real estate loans, geographic distribution provides insights into the portfolio performance based on regional economic activity and events.
- Risk-rated business banking and auto loans are similar to wholesale loans in that the primary credit quality indicators are the risk rating that is assigned to the loan and whether the loans are considered to be criticized and/or nonaccrual. Risk ratings are reviewed on a regular and ongoing basis by Credit Risk Management and are adjusted as necessary for updated information about borrowers' ability to fulfill their obligations. For further information about risk-rated wholesale loan credit quality indicators, see page 91 of this Note.

### Residential real estate – excluding PCI loans

The following table provides information by class for residential real estate – excluding retained PCI loans in the consumer, excluding credit card, portfolio segment.

The following factors should be considered in analyzing certain credit statistics applicable to JPMorgan Chase Bank, N.A.'s residential real estate – excluding PCI loans portfolio: (i) junior lien home equity loans may be fully charged off when the loan becomes 180 days past due, and the value of the collateral does not support the repayment of the loan, resulting in relatively high charge-off rates for this product class; and (ii) the lengthening of loss-mitigation timelines may result in higher delinquency rates for loans carried at the net realizable value of the collateral that remain on JPMorgan Chase Bank, N.A.'s Consolidated balance sheets.

## Residential real estate – excluding PCI loans

December 31, (in millions, except ratios)	Home equity <sup>(d)</sup>				Mortgages				Total residential real estate – excluding PCI	
	Senior lien		Junior lien		Prime, including option ARMs <sup>(i)</sup>		Subprime		2015	2014
	2015	2014	2015	2014	2015	2014	2015	2014		
<b>Loan delinquency<sup>(a)</sup></b>										
Current	\$ 14,278	\$ 15,408	\$ 30,002	\$ 34,043	\$ 153,298	\$ 90,021	\$ 3,139	\$ 4,295	\$ 200,717	\$ 143,767
30-149 days past due	238	270	470	522	3,661	4,009	376	489	4,745	5,290
150 or more days past due	332	355	220	259	5,556	6,764	173	270	6,281	7,648
<b>Total retained loans</b>	<b>\$ 14,848</b>	<b>\$ 16,033</b>	<b>\$ 30,692</b>	<b>\$ 34,824</b>	<b>\$ 162,515</b>	<b>\$ 100,794</b>	<b>\$ 3,688</b>	<b>\$ 5,054</b>	<b>\$ 211,743</b>	<b>\$ 156,705</b>
% of 30+ days past due to total retained loans <sup>(b)</sup>	3.84%	3.90%	2.25%	2.24%	0.71%	1.29%	14.89%	15.02%	1.40%	2.21%
90 or more days past due and government guaranteed <sup>(c)</sup>	\$ –	\$ –	\$ –	\$ –	\$ 6,053	\$ 7,541	\$ –	\$ –	\$ 6,053	\$ 7,541
Nonaccrual loans	867	921	1,324	1,554	1,749	1,927	750	1,035	4,690	5,437
<b>Current estimated LTV ratios<sup>(d)(e)(f)(g)</sup></b>										
Greater than 125% and refreshed FICO scores:										
Equal to or greater than 660	\$ 42	\$ 37	\$ 123	\$ 250	\$ 56	\$ 97	\$ 2	\$ 4	\$ 223	\$ 388
Less than 660	3	6	29	65	65	72	12	28	109	171
101% to 125% and refreshed FICO scores:										
Equal to or greater than 660	50	83	1,293	2,087	249	476	25	76	1,617	2,722
Less than 660	23	40	411	646	189	280	101	207	724	1,173
80% to 100% and refreshed FICO scores:										
Equal to or greater than 660	311	460	4,223	5,693	3,012	2,569	146	382	7,692	9,104
Less than 660	142	203	1,266	1,619	597	785	399	702	2,404	3,309
Less than 80% and refreshed FICO scores:										
Equal to or greater than 660	11,721	12,321	17,915	18,259	140,934	79,317	1,298	1,623	171,868	111,520
Less than 660	1,942	2,143	2,990	3,179	5,273	4,156	1,516	1,795	11,721	11,273
No FICO/LTV available	614	740	2,442	3,026	1,467	952	189	237	4,712	4,955
U.S. government-guaranteed	–	–	–	–	10,673	12,090	–	–	10,673	12,090
<b>Total retained loans</b>	<b>\$ 14,848</b>	<b>\$ 16,033</b>	<b>\$ 30,692</b>	<b>\$ 34,824</b>	<b>\$ 162,515</b>	<b>\$ 100,794</b>	<b>\$ 3,688</b>	<b>\$ 5,054</b>	<b>\$ 211,743</b>	<b>\$ 156,705</b>
<b>Geographic region</b>										
California	\$ 2,072	\$ 2,221	\$ 6,869	\$ 7,935	\$ 46,745	\$ 26,381	\$ 517	\$ 717	\$ 56,203	\$ 37,254
New York	2,583	2,747	6,560	7,373	20,937	16,002	520	676	30,600	26,798
Illinois	1,189	1,264	2,230	2,459	11,378	6,501	145	207	14,942	10,431
Texas	1,581	1,839	950	1,012	8,985	4,848	142	177	11,658	7,876
Florida	797	844	1,611	1,871	6,761	4,820	414	632	9,583	8,167
New Jersey	647	632	1,942	2,102	5,394	3,218	172	227	8,155	6,179
Washington	442	503	1,008	1,185	4,097	2,179	79	109	5,626	3,976
Arizona	815	899	1,328	1,538	3,081	1,747	74	112	5,298	4,296
Michigan	650	716	699	819	1,865	1,184	79	121	3,293	2,840
Ohio	1,014	1,104	638	718	1,165	602	81	112	2,898	2,536
All other <sup>(h)</sup>	3,058	3,264	6,857	7,812	52,107	33,312	1,465	1,964	63,487	46,352
<b>Total retained loans</b>	<b>\$ 14,848</b>	<b>\$ 16,033</b>	<b>\$ 30,692</b>	<b>\$ 34,824</b>	<b>\$ 162,515</b>	<b>\$ 100,794</b>	<b>\$ 3,688</b>	<b>\$ 5,054</b>	<b>\$ 211,743</b>	<b>\$ 156,705</b>

- (a) Individual delinquency classifications include mortgage loans insured by U.S. government agencies as follows: current included \$2.6 billion and \$2.6 billion; 30-149 days past due included \$3.2 billion and \$3.5 billion; and 150 or more days past due included \$4.9 billion and \$6.0 billion at December 31, 2015 and 2014, respectively.
- (b) At December 31, 2015 and 2014, Prime, including option ARMs loans excluded mortgage loans insured by U.S. government agencies of \$8.1 billion and \$9.5 billion, respectively. These amounts have been excluded from nonaccrual loans based upon the government guarantee.
- (c) These balances, which are 90 days or more past due, were excluded from nonaccrual loans as the loans are guaranteed by U.S. government agencies. Typically, the principal balance of the loans is insured and interest is guaranteed at a specified reimbursement rate subject to meeting agreed-upon servicing guidelines. At December 31, 2015, and 2014, these balances included \$3.4 billion and \$4.2 billion, respectively, of loans that are no longer accruing interest based on the agreed-upon servicing guidelines. For the remaining balance, interest is being accrued at the guaranteed reimbursement rate. There were no loans not guaranteed by U.S. government agencies that are 90 or more days past due and still accruing at December 31, 2015, and 2014.
- (d) Represents the aggregate unpaid principal balance of loans divided by the estimated current property value. Current property values are estimated, at a minimum, quarterly, based on home valuation models using nationally recognized home price index valuation estimates incorporating actual data to the extent available and forecasted data where actual data is not available. These property values do not represent actual appraised loan level collateral values; as such, the resulting ratios are necessarily imprecise and should be viewed as estimates. Effective December 31, 2015, the current estimated LTV ratios reflect updates to the nationally recognized home price index valuation estimates incorporated into JPMorgan Chase Bank, N.A.'s home valuation models. The prior period ratios have been revised to conform with these updates in the home price index.
- (e) Junior lien represents combined LTV, which considers all available lien positions, as well as unused lines, related to the property. All other products are presented without consideration of subordinate liens on the property.
- (f) Refreshed FICO scores represent each borrower's most recent credit score, which is obtained by JPMorgan Chase Bank, N.A. on at least a quarterly basis.
- (g) The current period current estimated LTV ratios disclosures have been updated to reflect where either the FICO score or estimated property value is unavailable. The prior period amounts have been revised to conform with the current presentation.
- (h) At December 31, 2015 and 2014, included mortgage loans insured by U.S. government agencies of \$10.7 billion and \$12.1 billion, respectively.
- (i) Includes residential real estate loans to private banking clients in the asset management business, for which the primary credit quality indicators are the borrower's financial position and LTV.

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The following table represents JPMorgan Chase Bank, N.A.'s delinquency statistics for junior lien home equity loans and lines as of December 31, 2015 and 2014.

December 31, (in millions, except ratios)	Total loans		Total 30+ day delinquency rate	
	2015	2014	2015	2014
HELOCs: <sup>(a)</sup>				
Within the revolving period <sup>(b)</sup>	\$ 17,040	\$ 23,977	1.57%	1.79%
Beyond the revolving period	11,244	7,860	3.10	3.16
HELOANS	2,408	2,987	3.03	3.48
<b>Total</b>	<b>\$ 30,692</b>	<b>34,824</b>	<b>2.25%</b>	<b>2.24%</b>

(a) These HELOCs are predominantly revolving loans for a 10-year period, after which time the HELOC converts to a loan with a 20-year amortization period, but also include HELOCs originated by Washington Mutual that allow interest-only payments beyond the revolving period.

(b) JPMorgan Chase Bank, N.A. manages the risk of HELOCs during their revolving period by closing or reducing the undrawn line to the extent permitted by law when borrowers are experiencing financial difficulty or when the collateral does not support the loan amount.

Home equity lines of credit ("HELOCs") beyond the revolving period and home equity loans ("HELOANS") have higher delinquency rates than do HELOCs within the revolving period. That is primarily because the fully-amortizing payment that is generally required for those products is higher than the minimum payment options

available for HELOCs within the revolving period. The higher delinquency rates associated with amortizing HELOCs and HELOANS are factored into the loss estimates produced by JPMorgan Chase Bank, N.A.'s delinquency roll-rate methodology, which estimates defaults based on the current delinquency status of a portfolio.

### Impaired loans

The table below sets forth information about JPMorgan Chase Bank, N.A.'s residential real estate impaired loans, excluding PCI loans. These loans are considered to be impaired as they have been modified in a TDR. All impaired loans are evaluated for an asset-specific allowance as described in Note 16.

December 31, (in millions)	Home equity				Mortgages				Total residential real estate - excluding PCI	
	Senior lien		Junior lien		Prime, including option ARMs		Subprime		2015	2014
	2015	2014	2015	2014	2015	2014	2015	2014		
<b>Impaired loans</b>										
With an allowance	\$ 557	\$ 549	\$ 736	\$ 715	\$ 3,842	\$ 4,160	\$ 1,392	\$ 2,238	\$ 6,527	\$ 7,662
Without an allowance <sup>(a)</sup>	491	540	574	567	974	1,056	471	639	2,510	2,802
<b>Total impaired loans<sup>(b)(c)</sup></b>	<b>\$ 1,048</b>	<b>\$ 1,089</b>	<b>\$ 1,310</b>	<b>\$ 1,282</b>	<b>\$ 4,816</b>	<b>\$ 5,216</b>	<b>\$ 1,863</b>	<b>\$ 2,877</b>	<b>\$ 9,037</b>	<b>\$ 10,464</b>
Allowance for loan losses related to impaired loans	\$ 53	\$ 84	\$ 85	\$ 146	\$ 93	\$ 110	\$ 15	\$ 64	\$ 246	\$ 404
Unpaid principal balance of impaired loans <sup>(d)</sup>	1,370	1,437	2,590	2,568	6,213	6,735	2,856	4,198	13,029	14,938
Impaired loans on nonaccrual status <sup>(e)</sup>	581	619	637	615	1,284	1,369	670	931	3,172	3,534

(a) Represents collateral-dependent residential mortgage loans that are charged off to the fair value of the underlying collateral less cost to sell. JPMorgan Chase Bank, N.A. reports, in accordance with regulatory guidance, residential real estate loans that have been discharged under Chapter 7 bankruptcy and not reaffirmed by the borrower ("Chapter 7 loans") as collateral-dependent nonaccrual TDRs, regardless of their delinquency status. At December 31, 2015, Chapter 7 residential real estate loans included approximately 17% of senior lien home equity, 9% of junior lien home equity, 18% of prime mortgages, including option ARMs, and 15% of subprime mortgages that were 30 days or more past due.

(b) At December 31, 2015 and 2014, \$3.8 billion and \$4.9 billion, respectively, of loans modified subsequent to repurchase from Government National Mortgage Association ("Ginnie Mae") in accordance with the standards of the appropriate government agency (i.e., FHA, VA, RHS) are not included in the table above. When such loans perform subsequent to modification in accordance with Ginnie Mae guidelines, they are generally sold back into Ginnie Mae loan pools. Modified loans that do not re-perform become subject to foreclosure.

(c) Predominantly all residential real estate impaired loans, excluding PCI loans, are in the U.S.

(d) Represents the contractual amount of principal owed at December 31, 2015 and 2014. The unpaid principal balance differs from the impaired loan balances due to various factors, including charge-offs, net deferred loan fees or costs; and unamortized discounts or premiums on purchased loans.

(e) As of December 31, 2015 and 2014, nonaccrual loans included \$2.5 billion and \$2.7 billion, respectively, of TDRs for which the borrowers were less than 90 days past due. For additional information about loans modified in a TDR that are on nonaccrual status refer to the Loan accounting framework on pages 75-77 of this Note.

The following table presents average impaired loans and the related interest income reported by JPMorgan Chase Bank, N.A.

Year ended December 31, (in millions)	Average impaired loans			Interest income on impaired loans <sup>(a)</sup>			Interest income on impaired loans on a cash basis <sup>(a)</sup>		
	2015	2014	2013	2015	2014	2013	2015	2014	2013
<b>Home equity</b>									
Senior lien	\$ 1,067	\$ 1,111	\$ 1,142	\$ 51	\$ 55	\$ 58	\$ 34	\$ 37	\$ 39
Junior lien	1,273	1,292	1,280	77	80	82	50	52	54
<b>Mortgages</b>									
Prime, including option ARMs	4,794	5,722	6,138	194	225	241	43	47	53
Subprime	2,298	3,303	3,586	131	174	189	41	49	51
<b>Total residential real estate - excluding PCI</b>	<b>\$ 9,432</b>	<b>\$ 11,428</b>	<b>\$ 12,146</b>	<b>\$ 453</b>	<b>\$ 534</b>	<b>\$ 570</b>	<b>\$ 168</b>	<b>\$ 185</b>	<b>\$ 197</b>

(a) Generally, interest income on loans modified in TDRs is recognized on a cash basis until such time as the borrower has made a minimum of six payments under the new terms.

### Loan modifications

Modifications of residential real estate loans, excluding PCI loans, are generally accounted for and reported as TDRs. There were no additional commitments to lend to borrowers whose residential real estate loans, excluding PCI loans, have been modified in TDRs.

The following table presents new TDRs reported by JPMorgan Chase Bank, N.A.

Year ended December 31, (in millions)	2015	2014	2013
<b>Home equity:</b>			
Senior lien	\$ 106	\$ 108	\$ 203
Junior lien	288	202	375
<b>Mortgages:</b>			
Prime, including option ARMs	201	266	677
Subprime	58	121	297
<b>Total residential real estate - excluding PCI</b>	<b>\$ 653</b>	<b>\$ 697</b>	<b>\$ 1,552</b>

## Notes to consolidated financial statements

JPMorgan Chase Bank, National Association  
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### Nature and extent of modifications

The U.S. Treasury's Making Home Affordable ("MHA") programs, as well as JPMorgan Chase Bank, N.A.'s proprietary modification programs, generally provide various concessions to financially troubled borrowers including, but not limited to, interest rate reductions, term or payment extensions and deferral of principal and/or interest payments that would otherwise have been required under the terms of the original agreement.

The following table provides information about how residential real estate loans, excluding PCI loans, were modified under JPMorgan Chase Bank, N.A.'s loss mitigation programs during the periods presented. This table excludes Chapter 7 loans where the sole concession granted is the discharge of debt.

Year ended Dec. 31,	Home equity						Mortgages						Total residential real estate - excluding PCI		
	Senior lien			Junior lien			Prime, including option ARMs			Subprime					
	2015	2014	2013	2015	2014	2013	2015	2014	2013	2015	2014	2013	2015	2014	2013
Number of loans approved for a trial modification	1,334	925	1,701	2,582	617	870	1,054	959	2,579	1,608	2,021	3,887	6,578	4,522	9,037
Number of loans permanently modified	1,082	1,159	1,741	3,166	2,761	4,970	1,431	2,289	3,974	1,649	3,111	5,063	7,328	9,320	15,748
<b>Concession granted:<sup>(a)</sup></b>															
Interest rate reduction	75%	53%	71%	63%	84%	88%	72%	43%	73%	71%	46%	71%	68%	58%	77%
Term or payment extension	86	67	76	90	83	80	80	51	72	82	54	59	86	63	71
Principal and/or interest deferred	32	16	12	19	23	24	33	20	30	21	12	13	24	18	21
Principal forgiveness	4	36	38	8	23	32	24	51	38	31	53	50	16	41	40
Other <sup>(b)</sup>	-	-	-	-	-	-	9	9	24	13	10	14	5	6	10

(a) Represents concessions granted in permanent modifications as a percentage of the number of loans permanently modified. The sum of the percentages exceeds 0% because predominantly all of the modifications include more than one type of concession. A significant portion of trial modifications include interest rate reductions and/or term or payment extensions.

(b) Represents variable interest rate to fixed interest rate modifications.

### Financial effects of modifications and redefaults

The following table provides information about the financial effects of the various concessions granted in modifications of residential real estate loans, excluding PCI, under JPMorgan Chase Bank, N.A.'s loss mitigation programs and about redefaults of certain loans modified in TDRs for the periods presented. Because the specific types and amounts of concessions offered to borrowers frequently change between the trial modification and the permanent modification, the following table presents only the financial effects of permanent modifications. This table also excludes Chapter 7 loans where the sole concession granted is the discharge of debt.

Year ended December 31, (in millions, except weighted-average data and number of loans)	Home equity						Mortgages						Total residential real estate - excluding PCI		
	Senior lien			Junior lien			Prime, including option ARMs			Subprime			2015	2014	2013
	2015	2014	2013	2015	2014	2013	2015	2014	2013	2015	2014	2013			
Weighted-average interest rate of loans with interest rate reductions - before TDR	5.70%	6.40%	6.35%	4.94%	4.83%	5.06%	5.01%	4.82%	5.24%	6.66%	7.15%	7.35%	5.52%	5.64%	5.88%
Weighted-average interest rate of loans with interest rate reductions - after TDR	2.70	3.03	3.23	2.16	2.00	2.13	2.58	2.71	2.78	3.15	3.37	3.54	2.65	2.79	2.93
Weighted-average remaining contractual term (in years) of loans with term or payment extensions - before TDR	17	17	19	18	19	19	25	25	25	24	24	24	22	23	23
Weighted-average remaining contractual term (in years) of loans with term or payment extensions - after TDR	32	30	31	36	35	34	37	37	37	36	36	35	36	36	36
Charge-offs recognized upon permanent modification	\$ 1	\$ 2	\$ 7	\$ 3	\$ 25	\$ 69	\$ 9	\$ 9	\$ 16	\$ 2	\$ 3	\$ 5	\$ 15	\$ 39	\$ 97
Principal deferred	12	5	7	14	11	24	38	35	116	17	19	41	81	70	188
Principal forgiven	2	14	30	4	21	51	34	78	189	32	88	215	72	201	485
Balance of loans that redefaulted within one year of permanent modification <sup>(a)</sup>	\$ 14	\$ 19	\$ 26	\$ 7	\$ 10	\$ 20	\$ 73	\$ 113	\$ 142	\$ 58	\$ 91	\$ 99	\$ 152	\$ 233	\$ 287

(a) Represents loans permanently modified in TDRs that experienced a payment default in the periods presented, and for which the payment default occurred within one year of the modification. The dollar amounts presented represent the balance of such loans at the end of the reporting period in which such loans defaulted. For residential real estate loans modified in TDRs, payment default is deemed to occur when the loan becomes two contractual payments past due. In the event that a modified loan redefaults, it is probable that the loan will ultimately be liquidated through foreclosure or another similar type of liquidation transaction. Defaults of loans modified within the last 12 months may not be representative of ultimate redefault levels.

At December 31, 2015, the weighted-average estimated remaining lives of residential real estate loans, excluding PCI loans, permanently modified in TDRs were 10 years for senior lien home equity, 9 years for junior lien home equity, 10 years for prime mortgages, including option ARMs, and 8 years for subprime mortgage. The estimated remaining lives of these loans reflect estimated prepayments, both voluntary and involuntary (i.e., foreclosures and other forced liquidations).

#### Active and suspended foreclosure

At December 31, 2015 and 2014, JPMorgan Chase Bank, N.A. had non-PCI residential real estate loans, excluding those insured by U.S. government agencies, with a carrying value of \$1.2 billion and \$1.4 billion, respectively, that were not included in REO, but were in the process of active or suspended foreclosure.

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### Other consumer loans

The table below provides information for other consumer retained loan classes, including auto, business banking and student loans.

December 31, (in millions, except ratios)	Auto		Business banking		Student and other		Total other consumer	
	2015	2014	2015	2014	2015	2014	2015	2014
<b>Loan delinquency<sup>(a)</sup></b>								
Current	\$ 59,442	\$ 53,866	\$ 20,887	\$ 19,708	\$ 9,406	\$ 10,022	\$ 89,735	\$ 83,596
30-119 days past due	804	663	215	208	444	576	1,463	1,447
120 or more days past due	9	7	106	140	246	314	361	461
<b>Total retained loans</b>	<b>\$ 60,255</b>	<b>\$ 54,536</b>	<b>\$ 21,208</b>	<b>\$ 20,056</b>	<b>\$ 10,096</b>	<b>\$ 10,912</b>	<b>\$ 91,559</b>	<b>\$ 85,504</b>
% of 30+ days past due to total retained loans	1.35%	1.23%	1.51%	1.74%	1.62% <sup>(d)</sup>	2.16% <sup>(d)</sup>	1.42% <sup>(d)</sup>	1.47% <sup>(d)</sup>
90 or more days past due and still accruing <sup>(b)</sup>	\$ —	\$ —	\$ —	\$ —	\$ 290	\$ 367	\$ 290	\$ 367
Nonaccrual loans	116	115	263	279	242	269	621	663
<b>Geographic region</b>								
California	\$ 7,186	\$ 6,294	\$ 3,530	\$ 3,008	\$ 1,051	\$ 1,141	\$ 11,767	\$ 10,443
New York	3,874	3,662	3,359	3,187	1,224	1,210	8,457	8,059
Illinois	3,678	3,175	1,459	1,373	679	728	5,816	5,276
Texas	6,457	5,608	2,621	2,624	839	866	9,917	9,098
Florida	2,843	2,301	941	827	516	520	4,300	3,648
New Jersey	1,998	1,945	500	451	366	378	2,864	2,774
Washington	1,135	1,019	264	258	212	235	1,611	1,512
Arizona	2,033	2,003	1,205	1,083	236	239	3,474	3,325
Michigan	1,550	1,633	1,361	1,375	415	466	3,326	3,474
Ohio	2,340	2,157	1,363	1,354	559	628	4,262	4,139
All other	27,161	24,739	4,605	4,516	3,999	4,501	35,765	33,756
<b>Total retained loans</b>	<b>\$ 60,255</b>	<b>\$ 54,536</b>	<b>\$ 21,208</b>	<b>\$ 20,056</b>	<b>\$ 10,096</b>	<b>\$ 10,912</b>	<b>\$ 91,559</b>	<b>\$ 85,504</b>
<b>Loans by risk ratings<sup>(c)</sup></b>								
Noncriticized	\$ 11,277	\$ 9,822	\$ 15,504	\$ 14,617	NA	NA	\$ 26,781	\$ 24,439
Criticized performing	76	35	815	708	NA	NA	891	743
Criticized nonaccrual	—	—	210	213	NA	NA	210	213

(a) Student loan delinquency classifications included loans insured by U.S. government agencies under the Federal Family Education Loan Program ("FFELP") as follows: current included \$3.8 billion and \$4.3 billion; 30-119 days past due included \$299 million and \$364 million; and 120 or more days past due included \$227 million and \$290 million at December 31, 2015 and 2014, respectively.

(b) These amounts represent student loans, which are insured by U.S. government agencies under the FFELP. These amounts were accruing as reimbursement of insured amounts is proceeding normally.

(c) For risk-rated business banking and auto loans, the primary credit quality indicator is the risk rating of the loan, including whether the loans are considered to be criticized and/or nonaccrual.

(d) December 31, 2015 and 2014, excluded loans 30 days or more past due and still accruing, which are insured by U.S. government agencies under the FFELP, of \$526 million and \$654 million, respectively. These amounts were excluded as reimbursement of insured amounts is proceeding normally.

### Other consumer impaired loans and loan modifications

The table below sets forth information about JPMorgan Chase Bank, N.A.'s other consumer impaired loans, including risk-rated business banking and auto loans that have been placed on nonaccrual status, and loans that have been modified in TDRs.

December 31, (in millions)	2015	2014
<b>Impaired loans</b>		
With an allowance	\$ 527	\$ 557
Without an allowance <sup>(a)</sup>	31	35
<b>Total impaired loans<sup>(b)(c)</sup></b>	<b>\$ 558</b>	<b>\$ 592</b>
Allowance for loan losses related to impaired loans	\$ 118	\$ 117
Unpaid principal balance of impaired loans <sup>(d)</sup>	668	719
Impaired loans on nonaccrual status	449	456

(a) When discounted cash flows, collateral value or market price equals or exceeds the recorded investment in the loan, the loan does not require an allowance. This typically occurs when the impaired loans have been partially charged off and/or there have been interest payments received and applied to the loan balance.

(b) Predominantly all other consumer impaired loans are in the U.S.

(c) Other consumer average impaired loans were \$566 million, \$599 million and \$648 million for the years ended December 31, 2015, 2014 and 2013, respectively. The related interest income on impaired loans, including those on a cash basis, was not material for the years ended December 31, 2015, 2014 and 2013.

(d) Represents the contractual amount of principal owed at December 31, 2015 and 2014. The unpaid principal balance differs from the impaired loan balances due to various factors, including charge-offs; interest payments received and applied to the principal balance; net deferred loan fees or costs; and unamortized discounts or premiums on purchased loans.



## Loan modifications

Certain other consumer loan modifications are considered to be TDRs as they provide various concessions to borrowers who are experiencing financial difficulty. All of these TDRs are reported as impaired loans in the table above.

The following table provides information about JPMorgan Chase Bank, N.A.'s other consumer loans modified in TDRs. New TDRs were not material for the years ended December 31, 2015 and 2014.

December 31, (in millions)	2015	2014
Loans modified in TDRs <sup>(a)(b)</sup>	\$ 384	\$ 442
TDRs on nonaccrual status	275	306

(a) The impact of these modifications was not material to JPMorgan Chase Bank, N.A. for the years ended December 31, 2015 and 2014.

(b) Additional commitments to lend to borrowers whose loans have been modified in TDRs as of December 31, 2015 and 2014 were immaterial.

## Purchased credit-impaired loans

PCI loans are initially recorded at fair value at acquisition. PCI loans acquired in the same fiscal quarter may be aggregated into one or more pools, provided that the loans have common risk characteristics. A pool is then accounted for as a single asset with a single composite interest rate and an aggregate expectation of cash flows. With respect to the Washington Mutual transaction, all of the consumer PCI loans were aggregated into pools of loans with common risk characteristics.

On a quarterly basis, JPMorgan Chase Bank, N.A. estimates the total cash flows (both principal and interest) expected to be collected over the remaining life of each pool. These estimates incorporate assumptions regarding default rates, loss severities, the amounts and timing of prepayments and other factors that reflect then-current market conditions. Probable decreases in expected cash flows (i.e., increased credit losses) trigger the recognition of impairment, which is then measured as the present value of the expected principal loss plus any related foregone interest cash flows, discounted at the pool's effective interest rate. Impairments are recognized through the provision for credit losses and an increase in the allowance for loan losses. Probable and significant increases in expected cash flows (e.g., decreased credit losses, the net benefit of modifications) would first reverse any previously recorded allowance for loan losses with any remaining increases recognized prospectively as a yield adjustment over the remaining estimated lives of the underlying loans. The impacts of (i) prepayments, (ii) changes in variable interest rates, and (iii) any other changes in the timing of expected cash flows are recognized prospectively as adjustments to interest income.

JPMorgan Chase Bank, N.A. continues to modify certain PCI loans. The impact of these modifications is incorporated into JPMorgan Chase Bank, N.A.'s quarterly assessment of whether a probable and significant change in expected cash flows has occurred, and the loans continue to be accounted for and reported as PCI loans. In evaluating the effect of modifications on expected cash flows, JPMorgan Chase Bank, N.A. incorporates the effect of any foregone interest and also considers the potential for redefault. JPMorgan

Chase Bank, N.A. develops product-specific probability of default estimates, which are used to compute expected credit losses. In developing these probabilities of default, JPMorgan Chase Bank, N.A. considers the relationship between the credit quality characteristics of the underlying loans and certain assumptions about home prices and unemployment based upon industry-wide data. JPMorgan Chase Bank, N.A. also considers its own historical loss experience to-date based on actual redefaulted modified PCI loans.

The excess of cash flows expected to be collected over the carrying value of the underlying loans is referred to as the accretible yield. This amount is not reported on JPMorgan Chase Bank, N.A.'s Consolidated balance sheets but is accreted into interest income at a level rate of return over the remaining estimated lives of the underlying pools of loans.

If the timing and/or amounts of expected cash flows on PCI loans were determined not to be reasonably estimable, no interest would be accreted and the loans would be reported as nonaccrual loans; however, since the timing and amounts of expected cash flows for JPMorgan Chase Bank, N.A.'s PCI consumer loans are reasonably estimable, interest is being accreted and the loans are being reported as performing loans.

The liquidation of PCI loans, which may include sales of loans, receipt of payment in full from the borrower, or foreclosure, results in removal of the loans from the underlying PCI pool. When the amount of the liquidation proceeds (e.g., cash, real estate), if any, is less than the unpaid principal balance of the loan, the difference is first applied against the PCI pool's nonaccretable difference for principal losses (i.e., the lifetime credit loss estimate established as a purchase accounting adjustment at the acquisition date). When the nonaccretable difference for a particular loan pool has been fully depleted, any excess of the unpaid principal balance of the loan over the liquidation proceeds is written off against the PCI pool's allowance for loan losses. Beginning in 2014, write-offs of PCI loans also include other adjustments, primarily related to interest forgiveness modifications. Because JPMorgan Chase Bank, N.A.'s PCI loans are accounted for at a pool level, JPMorgan Chase Bank, N.A. does not recognize charge-offs of PCI loans when they reach specified stages of delinquency (i.e., unlike non-PCI consumer loans, these loans are not charged off based on FFIEC standards).

The PCI portfolio affects JPMorgan Chase Bank, N.A.'s results of operations primarily through: (i) contribution to net interest margin; (ii) expense related to defaults and servicing resulting from the liquidation of the loans; and (iii) any provision for loan losses. The PCI loans acquired in the Washington Mutual transaction were funded based on the interest rate characteristics of the loans. For example, variable-rate loans were funded with variable-rate liabilities and fixed-rate loans were funded with fixed-rate liabilities with a similar maturity profile. A net spread will be earned on the declining balance of the portfolio, which is estimated as of December 31, 2015, to have a remaining weighted-average life of 9 years.

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### Residential real estate – PCI loans

The table below sets forth information about JPMorgan Chase Bank, N.A.'s consumer, excluding credit card, PCI loans.

December 31, (in millions, except ratios)	Home equity		Prime mortgage		Subprime mortgage		Option ARMs		Total PCI	
	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014
Carrying value <sup>(a)</sup>	\$ 14,989	\$ 17,095	\$ 8,893	\$ 10,220	\$ 3,263	\$ 3,673	\$ 13,853	\$ 15,708	\$ 40,998	\$ 46,696
Related allowance for loan losses <sup>(b)</sup>	1,708	1,758	985	1,193	–	180	49	194	2,742	3,325
<b>Loan delinquency (based on unpaid principal balance)</b>										
Current	\$ 14,387	\$ 16,295	\$ 7,894	\$ 8,912	\$ 3,232	\$ 3,565	\$ 12,370	\$ 13,814	\$ 37,883	\$ 42,586
30-149 days past due	322	445	424	500	439	536	711	858	1,896	2,339
150 or more days past due	633	1,000	601	837	380	551	1,272	1,824	2,886	4,212
<b>Total loans</b>	<b>\$ 15,342</b>	<b>\$ 17,740</b>	<b>\$ 8,919</b>	<b>\$ 10,249</b>	<b>\$ 4,051</b>	<b>\$ 4,652</b>	<b>\$ 14,353</b>	<b>\$ 16,496</b>	<b>\$ 42,665</b>	<b>\$ 49,137</b>
% of 30+ days past due to total loans	6.22%	8.15%	11.49%	13.05%	20.22%	23.37%	13.82%	16.26%	11.21%	13.33%
<b>Current estimated LTV ratios (based on unpaid principal balance)<sup>(c)(d)(e)</sup></b>										
Greater than 125% and refreshed FICO scores:										
Equal to or greater than 660	\$ 153	\$ 301	\$ 10	\$ 22	\$ 10	\$ 22	\$ 19	\$ 50	\$ 192	\$ 395
Less than 660	80	159	28	52	55	106	36	84	199	401
101% to 125% and refreshed FICO scores:										
Equal to or greater than 660	942	1,448	120	268	77	144	166	330	1,305	2,190
Less than 660	444	728	152	284	220	390	239	448	1,055	1,850
80% to 100% and refreshed FICO scores:										
Equal to or greater than 660	2,709	3,591	816	1,405	331	451	977	1,695	4,833	7,142
Less than 660	1,136	1,485	614	969	643	911	1,050	1,610	3,443	4,975
Lower than 80% and refreshed FICO scores:										
Equal to or greater than 660	6,724	6,626	4,243	4,211	863	787	7,073	7,053	18,903	18,677
Less than 660	2,265	2,308	2,438	2,427	1,642	1,585	4,065	4,291	10,410	10,611
No FICO/LTV available	889	1,094	498	611	210	256	728	935	2,325	2,896
<b>Total unpaid principal balance</b>	<b>\$ 15,342</b>	<b>\$ 17,740</b>	<b>\$ 8,919</b>	<b>\$ 10,249</b>	<b>\$ 4,051</b>	<b>\$ 4,652</b>	<b>\$ 14,353</b>	<b>\$ 16,496</b>	<b>\$ 42,665</b>	<b>\$ 49,137</b>
<b>Geographic region (based on unpaid principal balance)</b>										
California	\$ 9,205	\$ 10,671	\$ 5,172	\$ 5,965	\$ 1,005	\$ 1,138	\$ 8,108	\$ 9,190	\$ 23,490	\$ 26,964
New York	788	876	580	672	400	463	813	933	2,581	2,944
Illinois	358	405	263	301	196	229	333	397	1,150	1,332
Texas	224	273	94	92	243	281	75	85	636	731
Florida	1,479	1,696	586	689	373	432	1,183	1,440	3,621	4,257
New Jersey	310	348	238	279	139	165	470	553	1,157	1,345
Washington	819	959	194	225	81	95	339	395	1,433	1,674
Arizona	281	323	143	167	76	85	203	227	703	802
Michigan	44	53	141	166	113	130	150	182	448	531
Ohio	17	20	45	48	62	72	61	69	185	209
All other	1,817	2,116	1,463	1,645	1,363	1,562	2,618	3,025	7,261	8,348
<b>Total unpaid principal balance</b>	<b>\$ 15,342</b>	<b>\$ 17,740</b>	<b>\$ 8,919</b>	<b>\$ 10,249</b>	<b>\$ 4,051</b>	<b>\$ 4,652</b>	<b>\$ 14,353</b>	<b>\$ 16,496</b>	<b>\$ 42,665</b>	<b>\$ 49,137</b>

- (a) Carrying value includes the effect of fair value adjustments that were applied to the consumer PCI portfolio at the date of acquisition.
- (b) Management concluded as part of JPMorgan Chase Bank, N.A.'s regular assessment of the PCI loan pools that it was probable that higher expected credit losses would result in a decrease in expected cash flows. As a result, an allowance for loan losses for impairment of these pools has been recognized.
- (c) Represents the aggregate unpaid principal balance of loans divided by the estimated current property value. Current property values are estimated, at a minimum, quarterly, based on home valuation models using nationally recognized home price index valuation estimates incorporating actual data to the extent available and forecasted data where actual data is not available. These property values do not represent actual appraised loan level collateral values; as such, the resulting ratios are necessarily imprecise and should be viewed as estimates. Current estimated combined LTV for junior lien home equity loans considers all available lien positions, as well as unused lines, related to the property. Effective December 31, 2015, the current estimated LTV ratios reflect updates to the nationally recognized home price index valuation estimates incorporated into JPMorgan Chase Bank, N.A.'s home valuation models. The prior period ratios have been revised to conform with this update in the home price index.
- (d) Refreshed FICO scores represent each borrower's most recent credit score, which is obtained by JPMorgan Chase Bank, N.A. on at least a quarterly basis.
- (e) The current period current estimated LTV ratios disclosures have been updated to reflect where either the FICO score or estimated property value is unavailable. The prior period amounts have been revised to conform with the current presentation.

Approximately 23% of the PCI home equity portfolio are senior lien loans; the remaining balance are junior lien HELOANS or HELOCs. The following table sets forth delinquency statistics for PCI junior lien home equity loans and lines of credit based on the unpaid principal balance as of December 31, 2015 and 2014.

December 31, (in millions, except ratios)	Total loans		Total 30+ day delinquency rate	
	2015	2014	2015	2014
HELOCs: <sup>(a)</sup>				
Within the revolving period <sup>(b)</sup>	\$ 5,000	\$ 8,972	4.10%	6.42%
Beyond the revolving period	6,252	4,143	4.46	6.42
HELOANS	582	736	5.33	8.83
<b>Total</b>	<b>\$ 11,834</b>	<b>\$ 13,851</b>	<b>4.35%</b>	<b>6.55%</b>

- (a) In general, these HELOCs are revolving loans for a 10-year period, after which time the HELOC converts to an interest-only loan with a balloon payment at the end of the loan's term.  
(b) Substantially all undrawn HELOCs within the revolving period have been closed.  
(c) Includes loans modified into fixed-rate amortizing loans.

The table below sets forth the accretable yield activity for JPMorgan Chase Bank, N.A.'s PCI consumer loans for the years ended December 31, 2015, 2014 and 2013, and represents JPMorgan Chase Bank, N.A.'s estimate of gross interest income expected to be earned over the remaining life of the PCI loan portfolios. The table excludes the cost to fund the PCI portfolios, and therefore the accretable yield does not represent net interest income expected to be earned on these portfolios.

Year ended December 31, (in millions, except ratios)	Total PCI		
	2015	2014	2013
<b>Beginning balance</b>	<b>\$ 14,592</b>	<b>\$ 16,167</b>	<b>\$ 18,457</b>
Accretion into interest income	(1,700)	(1,934)	(2,201)
Changes in interest rates on variable-rate loans	279	(174)	(287)
Other changes in expected cash flows <sup>(a)</sup>	230	533	198
Reclassification from nonaccretable difference <sup>(b)</sup>	90	—	—
<b>Balance at December 31</b>	<b>\$ 13,491</b>	<b>\$ 14,592</b>	<b>\$ 16,167</b>
Accretable yield percentage	<b>4.20%</b>	4.19%	4.31%

- (a) Other changes in expected cash flows may vary from period to period as JPMorgan Chase Bank, N.A. continues to refine its cash flow model and periodically updates model assumptions. For the years ended December 31, 2015 and 2014, other changes in expected cash flows were driven by changes in prepayment assumptions. For the year ended December 31, 2013, other changes in expected cash flows were due to refining the expected interest cash flows on HELOCs with balloon payments, partially offset by changes in prepayment assumptions.  
(b) Reclassifications from the nonaccretable difference in the year ended December 31, 2015 were driven by continued improvement in home prices and delinquencies, as well as increased granularity in the impairment estimates.

The factors that most significantly affect estimates of gross cash flows expected to be collected, and accordingly the accretable yield balance, include: (i) changes in the benchmark interest rate indices for variable-rate products such as option ARM and home equity loans; and (ii) changes in prepayment assumptions.

#### Active and suspended foreclosure

At December 31, 2015 and 2014, JPMorgan Chase Bank, N.A. had PCI residential real estate loans with an unpaid principal balance of \$2.3 billion and \$3.2 billion, respectively, that were not included in REO, but were in the process of active or suspended foreclosure.

#### Credit card loan portfolio

The credit card portfolio segment includes credit card loans originated and purchased by JPMorgan Chase Bank, N.A. Delinquency rates are the primary credit quality indicator for credit card loans as they provide an early warning that borrowers may be experiencing difficulties (30 days past due); information on those borrowers that have been delinquent for a longer period of time (90 days past due) is also considered. In addition to delinquency rates, the geographic distribution of the loans provides insight as to the credit quality of the portfolio based on the regional economy.

While the borrower's credit score is another general indicator of credit quality, JPMorgan Chase Bank, N.A. does not view credit scores as a primary indicator of credit quality because the borrower's credit score tends to be a lagging indicator. However, the distribution of such scores provides a general indicator of credit quality trends within the portfolio. Refreshed FICO score information, which is

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obtained at least quarterly, for a statistically significant random sample of the credit card portfolio is indicated in the table below; FICO is considered to be the industry benchmark for credit scores.

JPMorgan Chase Bank, N.A. generally originates new card accounts to prime consumer borrowers. However, certain cardholders' FICO scores may decrease over time, depending on the performance of the cardholder and changes in credit score technology.

The table below sets forth information about JPMorgan Chase Bank, N.A.'s credit card loans.

As of or for the year ended December 31, (in millions, except ratios)	2015	2014
Net charge-offs	\$ 673	\$ 790
% of net charge-offs to retained loans	2.37%	2.60%
<b>Loan delinquency</b>		
Current and less than 30 days past due and still accruing	\$ 30,526	\$ 29,341
30-89 days past due and still accruing	232	213
90 or more days past due and still accruing	231	191
<b>Total retained credit card loans</b>	<b>\$ 30,989</b>	<b>\$ 29,745</b>
<b>Loan delinquency ratios</b>		
% of 30+ days past due to total retained loans	1.49%	1.36%
% of 90+ days past due to total retained loans	0.75	0.64
<b>Credit card loans by geographic region</b>		
California	\$ 4,655	\$ 4,230
Texas	3,011	2,701
New York	2,765	2,604
Florida	1,887	1,684
Illinois	1,782	1,702
New Jersey	1,392	1,322
Ohio	1,035	1,026
Pennsylvania	1,017	992
Colorado	831	744
Michigan	791	763
All other	11,823	11,977
<b>Total retained credit card loans</b>	<b>\$ 30,989</b>	<b>\$ 29,745</b>
<b>Percentage of portfolio based on carrying value with estimated refreshed FICO scores</b>		
Equal to or greater than 660	84.8%	86.4%
Less than 660	15.2	13.6

### Credit card impaired loans and loan modifications

The table below sets forth information about JPMorgan Chase Bank, N.A.'s impaired credit card loans. All of these loans are considered to be impaired as they have been modified in TDRs.

December 31, (in millions)	2015	2014
<b>Impaired credit card loans with an allowance<sup>(a)(b)</sup></b>		
Credit card loans with modified payment terms <sup>(c)</sup>	\$ 254	\$ 331
Modified credit card loans that have reverted to pre-modification payment terms <sup>(d)</sup>	34	47
<b>Total impaired credit card loans<sup>(e)</sup></b>	<b>\$ 288</b>	<b>\$ 378</b>
Allowance for loan losses related to impaired credit card loans	\$ 91	\$ 95

- (a) The carrying value and the unpaid principal balance are the same for credit card impaired loans.  
(b) There were no impaired loans without an allowance.  
(c) Represents credit card loans outstanding to borrowers enrolled in a credit card modification program as of the date presented.  
(d) Represents credit card loans that were modified in TDRs but that have subsequently reverted back to the loans' pre-modification payment terms. At December 31, 2015 and 2014, \$22 million and \$30 million, respectively, of loans have reverted back to the pre-modification payment terms of the loans due to noncompliance with the terms of the modified loans. The remaining \$12 million and \$17 million at December 31, 2015 and 2014, respectively, of these loans are to borrowers who have successfully completed a short-term modification program. JPMorgan Chase Bank, N.A. continues to report these loans as TDRs since the borrowers' credit lines remain closed.  
(e) Predominantly all impaired credit card loans are in the U.S.

The following table presents average balances of impaired credit card loans and interest income recognized on those loans.

Year ended December 31, (in millions)	2015	2014	2013
Average impaired credit card loans	\$ 325	\$ 458	\$ 672
Interest income on impaired credit card loans	15	22	34

### Loan modifications

JPMorgan Chase Bank, N.A. may offer one of a number of loan modification programs to credit card borrowers who are experiencing financial difficulty. Most of the credit card loans have been modified under long-term programs for borrowers who are experiencing financial difficulties. Modifications under long-term programs involve placing the customer on a fixed payment plan, generally for 60 months. JPMorgan Chase Bank, N.A. may also offer short-term programs for borrowers who may be in need of temporary relief; however, none are currently being offered. Modifications under all short- and long-term programs typically include reducing the interest rate on the credit card. Substantially all modifications are considered to be TDRs.

If the cardholder does not comply with the modified payment terms, then the credit card loan agreement reverts back to its pre-modification payment terms. Assuming that the cardholder does not begin to perform in accordance with those payment terms, the loan continues to age and will ultimately be charged-off in accordance with JPMorgan Chase Bank, N.A.'s standard charge-off policy. In addition, if a borrower successfully completes a short-term modification program, then the loan reverts back to its pre-modification payment terms. However, in most cases, JPMorgan Chase Bank, N.A. does not reinstate the borrower's line of credit.

New enrollments in these loan modification programs for the years ended December 31, 2015, 2014 and 2013, were \$111 million, \$132 million and \$112 million, respectively.

#### **Financial effects of modifications and redefaults**

The following table provides information about the financial effects of the concessions granted on credit card loans modified in TDRs and redefaults for the periods presented.

Year ended December 31, (in millions, except weighted-average data)	2015	2014	2013
Weighted-average interest rate of loans - before TDR	14.77%	14.62%	14.75%
Weighted-average interest rate of loans - after TDR	4.40	4.40	4.38
Loans that redefaulted within one year of modification <sup>(a)</sup>	\$ 16	\$ 22	\$ 35

(a) Represents loans modified in TDRs that experienced a payment default in the periods presented, and for which the payment default occurred within one year of the modification. The amounts presented represent the balance of such loans as of the end of the quarter in which they defaulted.

For credit card loans modified in TDRs, payment default is deemed to have occurred when the loans become two payments past due. A substantial portion of these loans is expected to be charged-off in accordance with JPMorgan Chase Bank, N.A.'s standard charge-off policy. Based on historical experience, the estimated weighted-average default rate for credit card loans modified was expected to be 25.08%, 27.17% and 30.14% as of December 31, 2015, 2014 and 2013, respectively.

#### **Wholesale loan portfolio**

Wholesale loans include loans made to a variety of customers, ranging from large corporate and institutional clients to high-net-worth individuals.

The primary credit quality indicator for wholesale loans is the risk rating assigned each loan. Risk ratings are used to identify the credit quality of loans and differentiate risk within the portfolio. Risk ratings on loans consider the probability of default ("PD") and the loss given default ("LGD"). The PD is the likelihood that a loan will default and not be fully repaid by the borrower. The LGD is the estimated loss on the loan that would be realized upon the default of the borrower and takes into consideration collateral and structural support for each credit facility.

Management considers several factors to determine an appropriate risk rating, including the obligor's debt capacity and financial flexibility, the level of the obligor's earnings, the amount and sources for repayment, the level and nature of contingencies, management strength, and the industry and geography in which the obligor operates. JPMorgan Chase Bank, N.A.'s definition of criticized aligns with the banking regulatory definition of criticized exposures, which consist of special mention, substandard and doubtful categories. Risk ratings generally represent ratings profiles similar to those defined by S&P and Moody's. Investment-grade ratings range from "AAA/Aaa" to "BBB-/Baa3." Noninvestment-grade ratings are classified as noncriticized ("BB+/Ba1 and B-/B3") and criticized ("CCC+"/"Caa1 and below"), and the criticized portion is further subdivided into performing and nonaccrual loans, representing management's assessment of the collectibility of principal and interest. Criticized loans have a higher probability of default than noncriticized loans.

Risk ratings are reviewed on a regular and ongoing basis by Credit Risk Management and are adjusted as necessary for updated information affecting the obligor's ability to fulfill its obligations.

As noted above, the risk rating of a loan considers the industry in which the obligor conducts its operations. As part of the overall credit risk management framework, JPMorgan Chase Bank, N.A. focuses on the management and diversification of its industry and client exposures, with particular attention paid to industries with actual or potential credit concern. See Note 6 for further detail on industry concentrations.

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The table below provides information by class of receivable for the retained loans in the Wholesale portfolio segment.

As of or for the year ended December 31, (in millions, except ratios)	Commercial and industrial		Real estate		Financial institutions		Government agencies		Other <sup>(e)</sup>		Total retained loans	
	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014
<b>Loans by risk ratings</b>												
Investment grade	\$ 59,648	\$ 61,846	\$ 74,317	\$ 60,987	\$ 24,787	\$ 30,108	\$ 10,266	\$ 7,064	\$ 97,902	\$ 81,754	\$ 266,920	\$ 241,759
Noninvestment grade:												
Noncriticized	45,451	43,887	17,001	16,522	7,616	7,092	237	283	11,467	10,086	81,772	77,870
Criticized performing	4,542	2,235	1,252	1,313	306	312	7	3	253	236	6,360	4,099
Criticized nonaccrual	608	188	222	253	10	18	—	—	139	140	979	599
<b>Total noninvestment grade</b>	<b>50,601</b>	<b>46,310</b>	<b>18,475</b>	<b>18,088</b>	<b>7,932</b>	<b>7,422</b>	<b>244</b>	<b>286</b>	<b>11,859</b>	<b>10,462</b>	<b>89,111</b>	<b>82,568</b>
<b>Total retained loans</b>	<b>\$110,249</b>	<b>\$108,156</b>	<b>\$92,792</b>	<b>\$79,075</b>	<b>\$32,719</b>	<b>\$37,530</b>	<b>\$10,510</b>	<b>\$7,350</b>	<b>\$109,761</b>	<b>\$92,216</b>	<b>\$356,031</b>	<b>\$324,327</b>
% of total criticized to total retained loans	4.67%	2.24%	1.59%	1.98%	0.97%	0.88%	0.07%	0.04%	0.36%	0.41%	2.06%	1.45%
% of nonaccrual loans to total retained loans	0.55	0.17	0.24	0.32	0.03	0.05	—	—	0.13	0.15	0.27	0.18
<b>Loans by geographic distribution<sup>(a)</sup></b>												
Total non-U.S.	\$ 30,063	\$ 33,738	\$ 3,003	\$ 2,099	\$ 17,167	\$ 20,944	\$ 1,788	\$ 1,122	\$ 42,029	\$ 42,935	\$ 94,050	\$ 100,838
Total U.S.	80,186	74,418	89,789	76,976	15,552	16,586	8,722	6,228	67,732	49,281	261,981	223,489
<b>Total retained loans</b>	<b>\$110,249</b>	<b>\$108,156</b>	<b>\$92,792</b>	<b>\$79,075</b>	<b>\$32,719</b>	<b>\$37,530</b>	<b>\$10,510</b>	<b>\$7,350</b>	<b>\$109,761</b>	<b>\$92,216</b>	<b>\$356,031</b>	<b>\$324,327</b>
Net charge-offs/ (recoveries)	\$ 27	\$ 24	\$ (15)	\$ (11)	\$ (10)	\$ (23)	\$ (8)	\$ 25	\$ 8	\$ (13)	\$ 2	\$ 2
% of net charge-offs/ (recoveries) to end-of-period retained loans	0.02%	0.02%	(0.02)%	(0.01)%	(0.03)%	(0.07)%	(0.08)%	0.34%	0.01%	(0.01)%	—%	—%
<b>Loan delinquency<sup>(b)</sup></b>												
Current and less than 30 days past due and still accruing	\$109,375	\$107,390	\$92,362	\$78,514	\$32,649	\$37,411	\$10,461	\$7,281	\$108,607	\$90,872	\$353,454	\$321,468
30-89 days past due and still accruing	259	564	193	275	49	101	43	69	988	1,175	1,532	2,184
90 or more days past due and still accruing <sup>(c)</sup>	7	14	15	33	11	—	6	—	27	29	66	76
Criticized nonaccrual	608	188	222	253	10	18	—	—	139	140	979	599
<b>Total retained loans</b>	<b>\$110,249</b>	<b>\$108,156</b>	<b>\$92,792</b>	<b>\$79,075</b>	<b>\$32,719</b>	<b>\$37,530</b>	<b>\$10,510</b>	<b>\$7,350</b>	<b>\$109,761</b>	<b>\$92,216</b>	<b>\$356,031</b>	<b>\$324,327</b>

(a) The U.S. and non-U.S. distribution is determined based predominantly on the domicile of the borrower.

(b) The credit quality of wholesale loans is assessed primarily through ongoing review and monitoring of an obligor's ability to meet contractual obligations rather than relying on the past due status, which is generally a lagging indicator of credit quality.

(c) Represents loans that are considered well-collateralized and therefore still accruing interest.

(d) Effective in the fourth quarter 2015, JPMorgan Chase Bank, N.A. realigned its wholesale industry divisions in order to better monitor and manage industry concentrations. Prior period amounts have been revised to conform with current period presentation.

(e) Other includes: individuals; SPEs; holding companies; and private education and civic organizations. For more information on exposures to SPEs, see Note 17.

The following table presents additional information on the real estate class of loans within the Wholesale portfolio segment for the periods indicated. The real estate class primarily consists of secured commercial loans mainly to borrowers for multifamily and commercial lessor properties. Multifamily lending specifically finances apartment buildings. Commercial lessors receive financing specifically for real estate leased to retail, office and industrial tenants. Commercial construction and development loans represent financing for the construction of apartments, office and professional buildings and malls. Other real estate loans include lodging, real estate investment trusts (“REITs”), single-family, homebuilders and other real estate.

December 31, (in millions, except ratios)	Multifamily		Commercial lessors		Commercial construction and development		Other		Total real estate loans	
	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014
Real estate retained loans	\$ 60,289	\$ 51,049	\$ 20,038	\$ 17,409	\$ 4,920	\$ 4,264	\$ 7,545	\$ 6,353	\$ 92,792	\$ 79,075
Criticized	520	652	835	841	43	42	76	31	1,474	1,566
% of criticized to total real estate retained loans	0.86%	1.28%	4.17%	4.83%	0.87%	0.98%	1.01%	0.49%	1.59%	1.98%
Criticized nonaccrual	\$ 85	\$ 126	\$ 92	\$ 110	\$ –	\$ –	\$ 45	\$ 17	\$ 222	\$ 253
% of criticized nonaccrual to total real estate retained loans	0.14%	0.25%	0.46%	0.63%	–%	–%	0.60%	0.27%	0.24%	0.32%

### Wholesale impaired loans and loan modifications

Wholesale impaired loans consist of loans that have been placed on nonaccrual status and/or that have been modified in a TDR. All impaired loans are evaluated for an asset-specific allowance as described in Note 16.

The table below sets forth information about JPMorgan Chase Bank, N.A.’s wholesale impaired loans.

December 31, (in millions)	Commercial and industrial		Real estate		Financial institutions		Government agencies		Other		Total retained loans	
	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014
<b>Impaired loans</b>												
With an allowance	\$ 522	\$ 174	\$ 139	\$ 193	\$ 10	\$ 15	\$ –	\$ –	\$ 46	\$ 89	\$ 717	\$ 471
Without an allowance <sup>(a)</sup>	98	24	106	87	–	3	–	–	94	52	298	166
<b>Total impaired loans</b>	<b>\$ 620</b>	<b>\$ 198</b>	<b>\$ 245</b>	<b>\$ 280</b>	<b>\$ 10</b>	<b>\$ 18</b>	<b>\$ –</b>	<b>\$ –</b>	<b>\$ 140</b>	<b>\$ 141</b>	<b>\$ 1,015</b>	<b>\$ 637</b>
Allowance for loan losses related to impaired loans	\$ 220	\$ 34	\$ 26	\$ 36	\$ 3	\$ 4	\$ –	\$ –	\$ 24	\$ 13	\$ 273	\$ 87
Unpaid principal balance of impaired loans <sup>(b)</sup>	669	266	352	345	13	22	–	–	164	202	1,198	835

(a) When the discounted cash flows, collateral value or market price equals or exceeds the recorded investment in the loan, the loan does not require an allowance. This typically occurs when the impaired loans have been partially charged-off and/or there have been interest payments received and applied to the loan balance.

(b) Represents the contractual amount of principal owed at December 31, 2015 and 2014. The unpaid principal balance differs from the impaired loan balances due to various factors, including charge-offs; interest payments received and applied to the carrying value; net deferred loan fees or costs; and unamortized discount or premiums on purchased loans.

(c) Based upon the domicile of the borrower, largely all wholesale impaired loans are in the U.S.

The following table presents JPMorgan Chase Bank, N.A.’s average impaired loans for the years ended 2015, 2014 and 2013.

Year ended December 31, (in millions)	2015	2014	2013
Commercial and industrial	\$ 453	\$ 241	\$ 409
Real estate	249	296	470
Financial institutions	13	16	11
Government agencies	1	–	–
Other	129	155	211
<b>Total<sup>(a)</sup></b>	<b>\$ 845</b>	<b>\$ 708</b>	<b>\$ 1,101</b>

(a) The related interest income on accruing impaired loans and interest income recognized on a cash basis were not material for the years ended December 31, 2015, 2014 and 2013.

Certain loan modifications are considered to be TDRs as they provide various concessions to borrowers who are experiencing financial difficulty. All TDRs are reported as impaired loans in the tables above. TDRs were not material as of December 31, 2015 and 2014.

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### Note 16 – Allowance for credit losses

JPMorgan Chase Bank, N.A.'s allowance for loan losses covers the consumer, including credit card, portfolio segments (primarily scored); and wholesale (risk-rated) portfolio, and represents management's estimate of probable credit losses inherent in JPMorgan Chase Bank, N.A.'s loan portfolio. The allowance for loan losses includes an asset-specific component, a formula-based component and a component related to PCI loans, as described below. Management also estimates an allowance for wholesale and consumer lending-related commitments using methodologies similar to those used to estimate the allowance on the underlying loans. During 2015, JPMorgan Chase Bank, N.A. did not make any significant changes to the methodologies or policies used to determine its allowance for credit losses; such policies are described in the following paragraphs.

The asset-specific component of the allowance relates to loans considered to be impaired, which includes loans that have been modified in TDRs as well as risk-rated loans that have been placed on nonaccrual status. To determine the asset-specific component of the allowance, larger loans are evaluated individually, while smaller loans are evaluated as pools using historical loss experience for the respective class of assets. Scored loans (i.e., consumer loans) are pooled by product type, while risk-rated loans (primarily wholesale loans) are segmented by risk rating.

JPMorgan Chase Bank, N.A. generally measures the asset-specific allowance as the difference between the recorded investment in the loan and the present value of the cash flows expected to be collected, discounted at the loan's original effective interest rate. Subsequent changes in impairment are reported as an adjustment to the provision for loan losses. In certain cases, the asset-specific allowance is determined using an observable market price, and the allowance is measured as the difference between the recorded investment in the loan and the loan's fair value. Impaired collateral-dependent loans are charged down to the fair value of collateral less costs to sell and therefore may not be subject to an asset-specific reserve as are other impaired loans. See Note 15 for more information about charge-offs and collateral-dependent loans.

The asset-specific component of the allowance for impaired loans that have been modified in TDRs incorporates the effects of foregone interest, if any, in the present value calculation and also incorporates the effect of the modification on the loan's expected cash flows, which considers the potential for redefault. For residential real estate loans modified in TDRs, JPMorgan Chase Bank, N.A. develops product-specific probability of default estimates, which are applied at a loan level to compute expected losses. In developing these probabilities of default, JPMorgan Chase Bank, N.A. considers the relationship between the credit quality characteristics of the underlying loans and certain assumptions about home prices and unemployment, based upon industry-wide data. JPMorgan Chase Bank, N.A. also considers its own historical loss experience to date based on actual redefaulted modified loans. For credit card loans modified in TDRs, expected losses incorporate projected redefaults based on JPMorgan Chase Bank, N.A.'s historical experience by type of modification program. For wholesale loans modified in TDRs, expected losses incorporate redefaults based on management's expectation of the borrower's ability to repay under the modified terms.

The formula-based component is based on a statistical calculation to provide for incurred credit losses in performing risk-rated loans and all consumer loans, except for any loans restructured in TDRs and PCI loans. See Note 15 for more information on PCI loans.

For scored loans, the statistical calculation is performed on pools of loans with similar risk characteristics (e.g., product type) and generally computed by applying loss factors to outstanding principal balances over an estimated loss emergence period. The loss emergence period represents the time period between the date at which the loss is estimated to have been incurred and the ultimate realization of that loss (through a charge-off). Estimated loss emergence periods may vary by product and may change over time; management applies judgment in estimating loss emergence periods, using available credit information and trends.



Loss factors are statistically derived and sensitive to changes in delinquency status, credit scores, collateral values and other risk factors. JPMorgan Chase Bank, N.A. uses a number of different forecasting models to estimate both the PD and the loss severity, including delinquency roll rate models and credit loss severity models. In developing PD and loss severity assumptions, JPMorgan Chase Bank, N.A. also considers known and anticipated changes in the economic environment, including changes in home prices, unemployment rates and other risk indicators.

A nationally recognized home price index measure is used to estimate both the PD and the loss severity on residential real estate loans at the metropolitan statistical areas (“MSA”) level. Loss severity estimates are regularly validated by comparison to actual losses recognized on defaulted loans, market-specific real estate appraisals and property sales activity. The economic impact of potential modifications of residential real estate loans is not included in the statistical calculation because of the uncertainty regarding the type and results of such modifications.

For risk-rated loans, the statistical calculation is the product of an estimated PD and an estimated LGD. These factors are determined based on the credit quality and specific attributes of JPMorgan Chase Bank, N.A.’s loans and lending-related commitments to each obligor. In assessing the risk rating of a particular loan, among the factors considered are the obligor’s debt capacity and financial flexibility, the level of the obligor’s earnings, the amount and sources for repayment, the level and nature of contingencies, management strength, and the industry and geography in which the obligor operates. These factors are based on an evaluation of historical and current information, and involve subjective assessment and interpretation. Emphasizing one factor over another or considering additional factors could impact the risk rating assigned by JPMorgan Chase Bank, N.A. PD estimates are based on observable external through-the-cycle data, using credit-rating agency default statistics. LGD estimates are based on JPMorgan Chase Bank, N.A.’s history of actual credit losses over more than one credit cycle. Estimates of PD and LGD are subject to periodic refinement based on changes to underlying external and JPMorgan Chase Bank, N.A.-specific historical data.

Management applies judgment within an established framework to adjust the results of applying the statistical calculation described above. The determination of the appropriate adjustment is based on management’s view of loss events that have occurred but that are not yet reflected in the loss factors and that relate to current macroeconomic and political conditions, the quality of underwriting standards and other relevant internal and external factors affecting the credit quality of the portfolio. For the scored loan portfolios, adjustments to the statistical calculation are made in part by analyzing the historical loss experience for each major product segment. Factors related to unemployment, home prices, borrower behavior and lien position, the estimated effects of the mortgage foreclosure-related settlement with federal and state officials and uncertainties regarding the ultimate success of loan modifications are incorporated into the calculation, as appropriate. For junior lien products, management considers the delinquency and/or modification status of any senior liens in determining the adjustment. In addition, for the risk-rated portfolios, any adjustments made to the statistical calculation take into consideration model imprecision, deteriorating conditions within an industry, product or portfolio type, geographic location, credit concentration, and current economic events that have occurred but that are not yet reflected in the factors used to derive the statistical calculation.

Management establishes an asset-specific allowance for lending-related commitments that are considered impaired and computes a formula-based allowance for performing consumer and wholesale lending-related commitments. These are computed using a methodology similar to that used for the wholesale loan portfolio, modified for expected maturities and probabilities of drawdown.

Determining the appropriateness of the allowance is complex and requires judgment by management about the effect of matters that are inherently uncertain. Subsequent evaluations of the loan portfolio, in light of the factors then prevailing, may result in significant changes in the allowances for loan losses and lending-related commitments in future periods. At least quarterly, the allowance for credit losses is reviewed by the Chief Risk Officer, the Chief Financial Officer and the Controller of JPMorgan Chase and discussed with the Risk Policy and Audit Committees of the Board of Directors of JPMorgan Chase Bank, N.A. As of December 31, 2015, JPMorgan Chase Bank, N.A. deemed the allowance for credit losses to be appropriate (i.e., sufficient to absorb probable credit losses inherent in the portfolio).

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JPMorgan Chase Bank, National Association  
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### Allowance for credit losses and related information

The table below summarizes information about the allowances for loan losses, and lending-related commitments, and includes a breakdown of loans and lending-related commitments by impairment methodology.

Year ended December 31, (in millions)	2015			
	Consumer, excluding credit card	Credit card	Wholesale	Total
<b>Allowance for loan losses</b>				
Beginning balance at January 1,	\$ 6,969	\$ 735	\$ 3,648	\$ 11,352
Gross charge-offs	1,640	752	88	2,480
Gross recoveries	(674)	(79)	(106)	(859)
<b>Net charge-offs/(recoveries)</b>	<b>966</b>	<b>673</b>	<b>(18)</b>	<b>1,621</b>
Write-offs of PCI loans <sup>(a)</sup>	208	—	—	208
Provision for loan losses	(64)	670	604	1,210
Other	72	(5)	7	74
<b>Ending balance at December 31,</b>	<b>\$ 5,803</b>	<b>\$ 727</b>	<b>\$ 4,277</b>	<b>\$ 10,807</b>
<b>Allowance for loan losses by impairment methodology</b>				
Asset-specific <sup>(b)</sup>	\$ 364	\$ 91 <sup>(c)</sup>	\$ 273	\$ 728
Formula-based	2,697	636	4,004	7,337
PCI	2,742	—	—	2,742
<b>Total allowance for loan losses</b>	<b>\$ 5,803</b>	<b>\$ 727</b>	<b>\$ 4,277</b>	<b>\$ 10,807</b>
<b>Loans by impairment methodology</b>				
Asset-specific	\$ 9,595	\$ 288	\$ 1,015	\$ 10,898
Formula-based	293,707	30,701	355,012	679,420
PCI	40,998	—	4	41,002
<b>Total retained loans</b>	<b>\$ 344,300</b>	<b>\$ 30,989</b>	<b>\$ 356,031</b>	<b>\$ 731,320</b>
<b>Impaired collateral-dependent loans</b>				
Net charge-offs	\$ 104	\$ —	\$ 16	\$ 120
Loans measured at fair value of collateral less cost to sell	2,564	—	283	2,847
<b>Allowance for lending-related commitments</b>				
Beginning balance at January 1,	\$ 13	\$ —	\$ 606	\$ 619
Provision for lending-related commitments	1	—	165	166
Other	—	—	1	1
<b>Ending balance at December 31,</b>	<b>\$ 14</b>	<b>\$ —</b>	<b>\$ 772</b>	<b>\$ 786</b>
<b>Allowance for lending-related commitments by impairment methodology</b>				
Asset-specific	\$ —	\$ —	\$ 73	\$ 73
Formula-based	14	—	699	713
<b>Total allowance for lending-related commitments</b>	<b>\$ 14</b>	<b>\$ —</b>	<b>\$ 772</b>	<b>\$ 786</b>
<b>Lending-related commitments by impairment methodology</b>				
Asset-specific	\$ —	\$ —	\$ 193	\$ 193
Formula-based	58,640	10,386	360,589	429,615
<b>Total lending-related commitments</b>	<b>\$ 58,640</b>	<b>\$ 10,386</b>	<b>\$ 360,782</b>	<b>\$ 429,808</b>

(a) Write-offs of PCI loans are recorded against the allowance for loan losses when actual losses for a pool exceed estimated losses that were recorded as purchase accounting adjustments at the time of acquisition. A write-off of a PCI loan is recognized when the underlying loan is removed from a pool (e.g., upon liquidation). During of 2014, JPMorgan Chase Bank, N.A. recorded a \$291 million adjustment to reduce the PCI allowance and the recorded investment in JPMorgan Chase Bank, N.A.'s PCI loan portfolio, primarily reflecting the cumulative effect of interest forgiveness modifications. This adjustment had no impact to JPMorgan Chase Bank, N.A.'s Consolidated statements of income.

(b) Includes risk-rated loans that have been placed on nonaccrual status and loans that have been modified in a TDR.

(c) The asset-specific credit card allowance for loan losses is related to loans that have been modified in a TDR; such allowance is calculated based on the loans' original contractual interest rates and does not consider any incremental penalty rates.

(d) Effective January 1, 2015, JPMorgan Chase Bank, N.A. no longer includes within its disclosure of wholesale lending-related commitments the unused amounts of advised uncommitted lines of credit as it is within JPMorgan Chase Bank, N.A.'s discretion whether or not to make a loan under these lines, and JPMorgan Chase Bank, N.A.'s approval is generally required prior to funding. Prior period amounts have been revised to conform with the current period presentation.

(table continued from previous page)

2014				2013			
Consumer, excluding credit card	Credit card	Wholesale	Total	Consumer, excluding credit card	Credit card	Wholesale	Total
\$ 8,354	\$ 832	\$ 3,948	\$ 13,134	\$ 12,018	\$ 1,101	\$ 4,072	\$ 17,191
2,100	886	138	3,124	2,675	904	241	3,820
(739)	(96)	(136)	(971)	(767)	(130)	(222)	(1,119)
1,361	790	2	2,153	1,908	774	19	2,701
533	—	—	533	53	—	—	53
478	699	(262)	915	(1,699)	511	(106)	(1,294)
31	(6)	(36)	(11)	(4)	(6)	1	(9)
\$ 6,969	\$ 735	\$ 3,648	\$ 11,352	\$ 8,354	\$ 832	\$ 3,948	\$ 13,134
\$ 521	\$ 95 <sup>(c)</sup>	\$ 87	\$ 703	\$ 581	\$ 173 <sup>(c)</sup>	\$ 170	\$ 924
3,123	640	3,561	7,324	3,615	659	3,778	8,052
3,325	—	—	3,325	4,158	—	—	4,158
\$ 6,969	\$ 735	\$ 3,648	\$ 11,352	\$ 8,354	\$ 832	\$ 3,948	\$ 13,134
\$ 11,056	\$ 378	\$ 637	\$ 12,071	\$ 12,491	\$ 560	\$ 832	\$ 13,883
231,153	29,367	323,686	584,206	214,835	30,317	306,727	551,879
46,696	—	4	46,700	53,055	—	6	53,061
\$ 288,905	\$ 29,745	\$ 324,327	\$ 642,977	\$ 280,381	\$ 30,877	\$ 307,565	\$ 618,823
\$ 129	\$ —	\$ 21	\$ 150	\$ 227	\$ —	\$ 38	\$ 265
2,861	—	326	3,187	2,888	—	361	3,249
\$ 8	\$ —	\$ 693	\$ 701	\$ 7	\$ —	\$ 647	\$ 654
5	—	(88)	(83)	1	—	46	47
—	—	1	1	—	—	—	—
\$ 13	\$ —	\$ 606	\$ 619	\$ 8	\$ —	\$ 693	\$ 701
\$ —	\$ —	\$ 60	\$ 60	\$ —	\$ —	\$ 60	\$ 60
13	—	546	559	8	—	633	641
\$ 13	\$ —	\$ 606	\$ 619	\$ 8	\$ —	\$ 693	\$ 701
\$ —	\$ —	\$ 103	\$ 103	\$ —	\$ —	\$ 206	\$ 206
58,185	29,065	360,565 <sup>(d)</sup>	447,815	56,069	33,844	338,421 <sup>(d)</sup>	428,334
\$ 58,185	\$ 29,065	\$ 360,668	\$ 447,918	\$ 56,069	\$ 33,844	\$ 338,627	\$ 428,540

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### Note 17 – Variable interest entities

For a further description of JPMorgan Chase Bank, N.A.’s accounting policies regarding consolidation of VIEs, see Note 1.

The following table summarizes the most significant types of JPMorgan Chase Bank, N.A.-sponsored VIEs by each JPMorgan Chase Bank, N.A. business. JPMorgan Chase Bank, N.A. considers a “sponsored” VIE to include any entity where: (1) JPMorgan Chase Bank, N.A. is the primary beneficiary of the structure; (2) the VIE is used by JPMorgan Chase Bank, N.A. to securitize JPMorgan Chase Bank, N.A. assets; (3) the VIE issues financial instruments with the JPMorgan Chase Bank, N.A. name; or (4) the entity is a JPMorgan Chase Bank, N.A.-administered asset-backed commercial paper conduit.

JPMorgan Chase Bank, N.A. business	Transaction Type	Activity	Consolidated Financial Statements page reference
Consumer & community bank	Mortgage securitization trusts	Servicing and securitization of both originated and purchased residential mortgages	98-100
	Credit card securitization trusts	Securitization of both originated and purchased credit card receivables	100-101
Corporate & investment bank	Mortgage and other securitization trusts	Securitization of both originated and purchased residential and commercial mortgages and student loans	98-100
	Multi-seller conduits	Assist clients in accessing the financial markets in a cost-efficient manner and structures transactions to meet investor needs	101-103
	Investor intermediation activities: Municipal bond vehicles		101-102

JPMorgan Chase Bank, N.A.’s other businesses are also involved with VIEs, but to a lesser extent, as follows:

- Commercial banking business: The commercial banking business makes investments in and provides lending to community development entities that may meet the definition of a VIE. In addition, the commercial banking business provides financing and lending-related services to certain client-sponsored VIEs. In general, the commercial banking business does not control the activities of these entities, and therefore, the financial results of these entities are not consolidated by JPMorgan Chase Bank, N.A.

JPMorgan Chase Bank, N.A. also invests in and provides financing and other services to VIEs sponsored by third parties, as described on page 103 of this Note.

#### Significant JPMorgan Chase Bank, N.A.-sponsored variable interest entities

##### ***Mortgage and other securitization trusts***

JPMorgan Chase Bank, N.A. securitizes (or has securitized) originated and purchased residential mortgages, commercial mortgages and other consumer loans (including student loans) primarily in its consumer & community banking and corporate & investment banking businesses. Depending on the particular transaction, as well as the respective business involved, JPMorgan Chase Bank, N.A. may act as the servicer of the loans and/or retain certain beneficial interests in the securitization trusts.

The following table presents the total unpaid principal amount of assets held in JPMorgan Chase Bank, N.A.-sponsored private-label securitization entities, including those in which JPMorgan Chase Bank, N.A. has continuing involvement, and those that are consolidated by JPMorgan Chase Bank, N.A. Continuing involvement includes servicing the loans; holding senior interests or subordinated interests; recourse or guarantee arrangements; and derivative transactions. In certain instances, JPMorgan Chase Bank, N.A.'s only continuing involvement is servicing the loans. See Securitization activity on page 104 of this Note for further information regarding JPMorgan Chase Bank, N.A.'s cash flows with and interests retained in nonconsolidated VIEs, and page 105 of this Note for information on JPMorgan Chase Bank, N.A.'s loan sales to U.S. government agencies.

December 31, 2015 <sup>(a)</sup> (in billions)	Principal amount outstanding			JPMorgan Chase Bank, N.A. interest in securitized assets in nonconsolidated VIEs <sup>(c)(d)</sup>		
	Total assets held by securitization VIEs	Assets held in consolidated securitization VIEs	Assets held in nonconsolidated securitization VIEs with continuing involvement	Trading assets	AFS securities	Total interests held by JPMorgan Chase Bank, N.A.
<b>Securitization-related</b>						
Residential mortgage:						
Prime/Alt-A and option ARMs	\$ 56.6	\$ 0.8	\$ 51.7	\$ 0.1	\$ 1.4	\$ 1.5
Subprime	16.0	–	15.1	–	–	–
Commercial and other <sup>(b)</sup>	104.3	0.1	65.3	–	2.5	2.5
<b>Total</b>	<b>\$ 176.9</b>	<b>\$ 0.9</b>	<b>\$ 132.1</b>	<b>\$ 0.1</b>	<b>\$ 3.9</b>	<b>\$ 4.0</b>

December 31, 2014 <sup>(a)</sup> (in billions)	Principal amount outstanding			JPMorgan Chase Bank, N.A. interest in securitized assets in nonconsolidated VIEs <sup>(c)(d)</sup>		
	Total assets held by securitization VIEs	Assets held in consolidated securitization VIEs	Assets held in nonconsolidated securitization VIEs with continuing involvement	Trading assets	AFS securities	Total interests held by JPMorgan Chase Bank, N.A.
<b>Securitization-related</b>						
Residential mortgage:						
Prime/Alt-A and option ARMs	\$ 62.6	\$ 0.7	\$ 59.7	\$ 0.2	\$ 0.5	\$ 0.7
Subprime	18.2	–	17.0	–	–	–
Commercial and other <sup>(b)</sup>	101.4	0.2	73.9	–	2.4	2.4
<b>Total</b>	<b>\$ 182.2</b>	<b>\$ 0.9</b>	<b>\$ 150.6</b>	<b>\$ 0.2</b>	<b>\$ 2.9</b>	<b>\$ 3.1</b>

(a) Excludes U.S. government agency securitizations. See page 105 of this Note for information on JPMorgan Chase Bank, N.A.'s loan sales to U.S. government agencies.

(b) Consists of securities backed by commercial loans (predominantly real estate) and non-mortgage-related consumer receivables purchased from third parties. JPMorgan Chase Bank, N.A. generally does not retain a residual interest in its sponsored commercial mortgage securitization transactions.

(c) The table above excludes the following: retained servicing (see Note 18 for a discussion of MSRs); securities retained from loan sales to U.S. government agencies; interest rate and foreign exchange derivatives primarily used to manage interest rate and foreign exchange risks of securitization entities (See Note 7 for further information on derivatives). There were no senior and subordinated securities purchased in connection with the corporate & investment banking business's secondary market-making activities at December 31, 2015 and 2014, respectively.

(d) As of December 31, 2015 and 2014, 96% and 93%, respectively, of JPMorgan Chase Bank, N.A.'s retained securitization interests, which are carried at fair value, were risk-rated "A" or better, on an S&P-equivalent basis. The retained interests in prime residential mortgages consisted of \$1.5 billion and \$634 million of investment-grade and \$20 million and \$43 million of noninvestment-grade retained interests at December 31, 2015 and 2014, respectively. The retained interests in commercial and other securitizations trusts consisted of \$2.5 billion and \$2.4 billion of investment-grade and \$0.2 million and zero of noninvestment-grade retained interests at December 31, 2015 and 2014, respectively.

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### *Residential mortgage*

JPMorgan Chase Bank, N.A. securitizes residential mortgage loans originated by the consumer & community banking business, as well as residential mortgage loans purchased from third parties by either the consumer & community banking business or the corporate & investment banking business. The consumer & community banking business generally retains servicing for all residential mortgage loans it originated or purchased, and for certain mortgage loans purchased by the corporate & investment banking business. For securitizations holding loans serviced by the consumer & community banking business, JPMorgan Chase Bank, N.A. has the power to direct the significant activities of the VIE because it is responsible for decisions related to loan modifications and workouts. The consumer & community banking business may also retain an interest upon securitization.

In addition, the corporate & investment banking business engages in underwriting and trading activities involving securities issued by JPMorgan Chase Bank, N.A.-sponsored securitization trusts. As a result, the corporate & investment banking business at times retains senior and/or subordinated interests (including residual interests) in residential mortgage securitizations at the time of securitization, and/or reacquires positions in the secondary market in the normal course of business. In certain instances, as a result of the positions retained or reacquired by the corporate & investment banking business or held by the consumer & community banking business, when considered together with the servicing arrangements entered into by the consumer & community banking business, JPMorgan Chase Bank, N.A. is deemed to be the primary beneficiary of certain securitization trusts. See the table on page 103 of this Note for more information on consolidated residential mortgage securitizations.

JPMorgan Chase Bank, N.A. does not consolidate a residential mortgage securitization (JPMorgan Chase Bank, N.A.-sponsored or third-party-sponsored) when it is not the servicer (and therefore does not have the power to direct the most significant activities of the trust) or does not hold a beneficial interest in the trust that could potentially be significant to the trust. At December 31, 2015 and 2014, JPMorgan Chase Bank, N.A. did not consolidate the assets of certain JPMorgan Chase Bank, N.A.-sponsored residential mortgage securitization VIEs, in which it had continuing involvement, primarily due to the fact that JPMorgan Chase Bank, N.A. did not hold an interest in these trusts that could potentially be significant to the trusts. See the table on page 103 of this Note for more information on the consolidated residential mortgage securitizations, and the table on the previous page of this Note for further information on interests held in nonconsolidated residential mortgage securitizations.

### *Commercial mortgages and other consumer securitizations*

The corporate & investment banking business originates and securitizes commercial mortgage loans, and engages in underwriting and trading activities involving the securities issued by securitization trusts. The corporate & investment banking business may retain unsold senior and/or subordinated interests in commercial mortgage securitizations at the time of securitization but, generally, JPMorgan Chase Bank, N.A. does not service commercial loan securitizations. For commercial mortgage securitizations the power to direct the significant activities of the VIE generally is held by the servicer or investors in a specified class of securities (“controlling class”). See the table on page 103 of this Note for more information on the consolidated commercial mortgage securitizations, and the table on the previous page of this Note for further information on interests held in nonconsolidated securitizations.

JPMorgan Chase Bank, N.A. retains servicing responsibilities for certain student loan securitizations. JPMorgan Chase Bank, N.A. has the power to direct the activities of these VIEs through these servicing responsibilities. See the table on page 103 of this Note for more information on the consolidated student loan securitizations, and the table on the previous page of this Note for further information on interests held in nonconsolidated securitizations.

### *Credit card securitizations*

#### *JPMorgan Chase Bank, N.A.'s involvement with credit card affiliated securitization entities sponsored by an affiliate*

On an ongoing basis, JPMorgan Chase Bank, N.A. sells credit card receivables to various credit card securitization trusts (“Trusts”) sponsored by an affiliate. The consideration received for the sales is an undivided interest in the respective Trusts. These Trusts are consolidated by the affiliate as it is the primary beneficiary of the Trusts.

At December 31, 2015 and 2014, JPMorgan Chase Bank, N.A. had recorded \$5.6 billion and \$4.6 billion, respectively, of undivided interests in the Trusts. These undivided interests are measured at fair value and classified as other assets. JPMorgan Chase Bank, N.A. also retains senior and subordinated securities issued by the Trusts. The retained securities totaled zero and \$50 million at December 31, 2015 and 2014, respectively, and were classified as AFS securities.

#### *Consolidation of JPMorgan Chase Bank, N.A.-sponsored credit card securitization trust*

In addition to the securitization activity with the Trusts, JPMorgan Chase Bank, N.A. had previously securitized originated and purchased credit card loans in a JPMorgan Chase Bank, N.A. sponsored entity (“SCORE Trust”). JPMorgan Chase Bank, N.A. was considered the primary beneficiary based on its ability to direct the activities of the SCORE Trust and, therefore, consolidated the assets and liabilities of the SCORE Trust. During 2014, the SCORE Trust

made its final principal note payment and was subsequently terminated.

#### **Multi-seller conduits**

Multi-seller conduit entities are separate bankruptcy remote entities that provide secured financing, collateralized by pools of receivables and other financial assets, to customers of JPMorgan Chase Bank, N.A. The conduits fund their financing facilities through the issuance of highly rated commercial paper. The primary source of repayment of the commercial paper is the cash flows from the pools of assets. In most instances, the assets are structured with deal-specific credit enhancements provided to the conduits by the customers (i.e., sellers) or other third parties. Deal-specific credit enhancements are generally structured to cover a multiple of historical losses expected on the pool of assets, and are typically in the form of overcollateralization provided by the seller. The deal-specific credit enhancements mitigate JPMorgan Chase Bank, N.A.'s potential losses on its agreements with the conduits.

To ensure timely repayment of the commercial paper, and to provide the conduits with funding to provide financing to customers in the event that the conduits do not obtain funding in the commercial paper market, each asset pool financed by the conduits has a minimum 100% deal-specific liquidity facility associated with it provided by JPMorgan Chase Bank, N.A. JPMorgan Chase Bank, N.A. also provides the multi-seller conduit vehicles with uncommitted program-wide liquidity facilities and program-wide credit enhancement in the form of standby letters of credit. The amount of program-wide credit enhancement required is based upon commercial paper issuance and approximates 10% of the outstanding balance.

JPMorgan Chase Bank, N.A. consolidates its JPMorgan Chase Bank, N.A.-administered multi-seller conduits, as it has both the power to direct the significant activities of the conduits and a potentially significant economic interest in the conduits. As administrative agent and in its role in structuring transactions, JPMorgan Chase Bank, N.A. makes decisions regarding asset types and credit quality, and manages the commercial paper funding needs of the conduits. JPMorgan Chase Bank, N.A.'s interests that could potentially be significant to the VIEs include the fees received as administrative agent and liquidity and program-wide credit enhancement provider, as well as the potential exposure created by the liquidity and credit enhancement facilities provided to the conduits. See page 103 of this Note for further information on consolidated VIE assets and liabilities.

In the normal course of business, JPMorgan Chase Bank, N.A. makes markets in and invests in commercial paper issued by JPMorgan Chase Bank, N.A.-administered multi-seller conduits. JPMorgan Chase Bank, N.A. held \$15.7 billion and \$5.7 billion of the commercial paper issued by JPMorgan Chase Bank, N.A.-administered multi-seller

conduits at December 31, 2015 and 2014, respectively. JPMorgan Chase Bank, N.A.'s investments reflect its funding needs and capacity and were not driven by market illiquidity. JPMorgan Chase Bank, N.A. is not obligated under any agreement to purchase the commercial paper issued by JPMorgan Chase Bank, N.A.-administered multi-seller conduits.

JPMorgan Chase Bank, N.A. provides deal-specific liquidity as well as program-wide liquidity and credit enhancement to its administered multi-seller conduits, which have been eliminated in consolidation. The administered multi-seller conduits then provide certain of their clients with lending-related commitments. The unfunded portion of these commitments was \$5.6 billion and \$9.9 billion at December 31, 2015 and 2014, respectively, and are reported as off-balance sheet lending-related commitments. For more information on off-balance sheet lending-related commitments, see Note 27.

#### **VIEs associated with investor intermediation activities**

As a financial intermediary, JPMorgan Chase Bank, N.A. creates certain types of VIEs and also structures transactions with these VIEs, typically using derivatives, to meet investor needs. JPMorgan Chase Bank, N.A. may also provide liquidity and other support. The risks inherent in the derivative instruments or liquidity commitments are managed similarly to other credit, market or liquidity risks to which JPMorgan Chase Bank, N.A. is exposed. The principal types of VIEs for which JPMorgan Chase Bank, N.A. is engaged in on behalf of clients are municipal bond vehicles.

#### **Municipal bond vehicles**

Municipal bond vehicles or tender option bond ("TOB") trusts allow investors to finance their municipal bond investments at short-term rates. In a typical TOB transaction, the trust purchases highly rated municipal bond(s) of a single issuer and funds the purchase by issuing two types of securities: (1) puttable floating-rate certificates ("Floaters") and (2) inverse floating-rate residual interests ("Residuals"). The Floaters are typically purchased by money market funds or other short-term investors and may be tendered, with requisite notice, to the TOB trust. The Residuals are retained by the investor seeking to finance its municipal bond investment. TOB transactions where the Residual is held by a third party investor are typically known as Customer TOB trusts, and Non-Customer TOB trusts are transactions where the Residual is retained by JPMorgan Chase Bank, N.A. JPMorgan Chase Bank, N.A. serves as sponsor for all Non-Customer TOB transactions and certain Customer TOB transactions established prior to 2014. JPMorgan Chase Bank, N.A. may provide various services to a TOB trust, including liquidity or tender option provider, and/or sponsor.

JPMorgan Chase Bank, N.A. often serves as the sole liquidity or tender option provider for the TOB trusts. The liquidity provider's obligation to perform is conditional and is limited by certain events ("Termination Events"), which include

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bankruptcy or failure to pay by the municipal bond issuer or credit enhancement provider, an event of taxability on the municipal bonds or the immediate downgrade of the municipal bond to below investment grade. In addition, the liquidity provider's exposure is typically further limited by the high credit quality of the underlying municipal bonds, the excess collateralization in the vehicle, or, in certain transactions, the reimbursement agreements with the Residual holders.

Holders of the Floaters may "put," or tender, their Floaters to the TOB trust. If the remarketing agent cannot successfully remarket the Floaters to another investor, the liquidity provider either provides a loan to the TOB trust for the purchase of or directly purchases the tendered Floaters. In certain Customer TOB transactions, JPMorgan Chase Bank, N.A., as liquidity provider, has entered into a reimbursement agreement with the Residual holder. In those transactions, upon the termination of the vehicle, if the proceeds from the sale of the underlying municipal bonds are not sufficient to repay amounts owed to JPMorgan Chase Bank, N.A., as liquidity or tender option provider, JPMorgan Chase Bank, N.A. has recourse to the third party Residual holders for any shortfall. Residual holders with reimbursement agreements are required to post collateral with JPMorgan Chase Bank, N.A. to support such reimbursement obligations should the market value of the underlying municipal bonds decline. JPMorgan Chase Bank, N.A. does not have any intent to protect Residual holders from potential losses on any of the underlying municipal bonds.

TOB trusts are considered to be variable interest entities. JPMorgan Chase Bank, N.A. consolidates Non-Customer TOB trusts because as the Residual holder, JPMorgan Chase Bank, N.A. has the right to make decisions that significantly impact the economic performance of the municipal bond vehicle, and have the right to receive benefits and bear losses that could potentially be significant to the municipal bond vehicle. JPMorgan Chase Bank, N.A. does not consolidate Customer TOB trusts, since JPMorgan Chase Bank, N.A. does not have the power to make decisions that significantly impact the economic performance of the municipal bond vehicle. Certain non-consolidated Customer TOB trusts are sponsored by a third party, and not JPMorgan Chase Bank, N.A. See page 103 of this Note for further information on consolidated municipal bond vehicles.

JPMorgan Chase Bank, N.A.'s exposure to nonconsolidated municipal bond VIEs at December 31, 2015 and 2014, including the ratings profile of the VIEs' assets, was as follows.

December 31, (in billions)	Fair value of assets held by VIEs	Liquidity facilities	Excess <sup>(a)</sup>	Maximum exposure
<b>Nonconsolidated municipal bond vehicles</b>				
<b>2015</b>	<b>\$ 6.9</b>	<b>\$ 3.8</b>	<b>\$ 3.1</b>	<b>\$ 3.8</b>
2014	11.5	6.3	5.2	6.3

December 31, (in billions, except where otherwise noted)	Ratings profile of VIE assets <sup>(b)</sup>						Fair value of assets held by VIEs	Wt. avg. expected life of assets (years)
	Investment-grade				Noninvestment- grade			
	AAA to AAA-	AA+ to AA-	A+ to A-	BBB+ to BBB-	BB+ and below			
<b>2015</b>	<b>\$ 1.7</b>	<b>\$ 4.6</b>	<b>\$ 0.5</b>	<b>\$ —</b>	<b>\$ 0.1</b>	<b>\$ 6.9</b>	<b>4.0</b>	
2014	2.7	8.4	0.4	—	—	11.5	4.9	

(a) Represents the excess/(deficit) of the fair values of municipal bond assets available to repay the liquidity facilities, if drawn.

(b) The ratings scale is presented on an S&P-equivalent basis.



### VIEs sponsored by third parties

JPMorgan Chase Bank, N.A. enters into transactions with VIEs structured by other parties. These include, for example, acting as a derivative counterparty, liquidity provider, investor, underwriter, placement agent, trustee or custodian. These transactions are conducted at arm's-length, and individual credit decisions are based on the analysis of the specific VIE, taking into consideration the

quality of the underlying assets. Where JPMorgan Chase Bank, N.A. does not have the power to direct the activities of the VIE that most significantly impact the VIE's economic performance, or a variable interest that could potentially be significant, JPMorgan Chase Bank, N.A. records and reports these positions on its Consolidated balance sheets similarly to the way it would record and report positions in respect of any other third-party transaction.

### Consolidated VIE assets and liabilities

The following table presents information on assets and liabilities related to VIEs consolidated by JPMorgan Chase Bank, N.A. as of December 31, 2015 and 2014.

December 31, 2015 (in billions) <sup>(a)</sup>	Assets				Liabilities		
	Trading assets	Loans	Other <sup>(d)</sup>	Total assets <sup>(e)</sup>	Beneficial interests in VIE assets <sup>(f)</sup>	Other <sup>(g)</sup>	Total liabilities
<b>VIE program type</b>							
JPMorgan Chase Bank, N.A.-administered multi-seller conduits	\$ —	\$ 24.4	\$ —	\$ 24.4	\$ 8.7	\$ —	\$ 8.7
Municipal bond vehicles	2.3	—	—	2.3	2.3	—	2.3
Student loan securitization entities	—	1.9	0.1	2.0	1.8	—	1.8
Mortgage securitization entities <sup>(b)</sup>	—	1.4	—	1.4	—	0.7	0.7
Other <sup>(c)</sup>	0.2	—	1.5	1.7	0.1	—	0.1
<b>Total</b>	<b>\$ 2.5</b>	<b>\$ 27.7</b>	<b>\$ 1.6</b>	<b>\$ 31.8</b>	<b>\$ 12.9</b>	<b>\$ 0.7</b>	<b>\$ 13.6</b>

  

December 31, 2014 (in billions) <sup>(a)</sup>	Assets				Liabilities		
	Trading assets	Loans	Other <sup>(d)</sup>	Total assets <sup>(e)</sup>	Beneficial interests in VIE assets <sup>(f)</sup>	Other <sup>(g)</sup>	Total liabilities
<b>VIE program type</b>							
JPMorgan Chase Bank, N.A.-administered multi-seller conduits	\$ —	\$ 17.7	\$ 0.1	\$ 17.8	\$ 12.0	\$ —	\$ 12.0
Municipal bond vehicles	4.9	—	—	4.9	4.6	—	4.6
Student loan securitization entities	—	2.2	—	2.2	2.0	—	2.0
Mortgage securitization entities <sup>(b)</sup>	0.9	0.7	—	1.6	—	0.8	0.8
Other <sup>(c)</sup>	0.2	—	0.2	0.4	—	—	—
<b>Total</b>	<b>\$ 6.0</b>	<b>\$ 20.6</b>	<b>\$ 0.3</b>	<b>\$ 26.9</b>	<b>\$ 18.6</b>	<b>\$ 0.8</b>	<b>\$ 19.4</b>

(a) Excludes intercompany transactions, which were eliminated in consolidation.

(b) Includes residential and commercial mortgage securitizations.

(c) Primarily includes credit-related notes and collateralized debt obligations.

(d) Includes assets classified as cash, AFS securities, and other assets within the Consolidated balance sheets.

(e) The assets of the consolidated VIEs included in the program types above are used to settle the liabilities of those entities. The difference between total assets and total liabilities recognized for consolidated VIEs represents JPMorgan Chase Bank, N.A.'s interest in the consolidated VIEs for each program type.

(f) The interest-bearing beneficial interest liabilities issued by consolidated VIEs are classified in the line item on the Consolidated balance sheets titled, "Beneficial interests issued by consolidated variable interest entities." The holders of these beneficial interests do not have recourse to the general credit of JPMorgan Chase Bank, N.A. Included in beneficial interests in VIE assets are long-term beneficial interests of \$1.9 billion and \$2.0 billion at December 31, 2015 and 2014, respectively. The maturities of the long-term beneficial interests as of December 31, 2015, were as follows: \$45 million under one year, \$60 million between one and five years, and \$1.8 billion over five years, all respectively.

(g) Includes liabilities classified as accounts payable and other liabilities in the Consolidated balance sheets.

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### Loan securitizations

JPMorgan Chase Bank, N.A. has securitized and sold a variety of loans, including residential mortgage, credit card, student and commercial (primarily related to real estate) loans, as well as debt securities. The purposes of these securitization transactions were to satisfy investor demand and to generate liquidity for JPMorgan Chase Bank, N.A.

For loan securitizations in which JPMorgan Chase Bank, N.A. is not required to consolidate the trust, JPMorgan Chase Bank, N.A. records the transfer of the loan receivable to the trust as a sale when all of the following accounting criteria for a sale are met: (1) the transferred financial assets are legally isolated from JPMorgan Chase Bank, N.A.'s creditors; (2) the transferee or beneficial interest holder can pledge

or exchange the transferred financial assets; and (3) JPMorgan Chase Bank, N.A. does not maintain effective control over the transferred financial assets (e.g., JPMorgan Chase Bank, N.A. cannot repurchase the transferred assets before their maturity and it does not have the ability to unilaterally cause the holder to return the transferred assets).

For loan securitizations accounted for as a sale, JPMorgan Chase Bank, N.A. recognizes a gain or loss based on the difference between the value of proceeds received (including cash, beneficial interests, or servicing assets received) and the carrying value of the assets sold. Gains and losses on securitizations are reported in noninterest revenue.

### Securitization activity

The following table provides information related to JPMorgan Chase Bank, N.A.'s securitization activities for the years ended December 31, 2015, 2014 and 2013, related to assets held in JPMorgan Chase Bank, N.A.-sponsored securitization entities that were not consolidated by JPMorgan Chase Bank, N.A., and where sale accounting was achieved based on the accounting rules in effect at the time of the securitization.

Year ended December 31, (in millions, except rates) <sup>(a)</sup>	2015			2014			2013		
	Credit card <sup>(c)</sup>	Residential mortgage <sup>(d)</sup>	Commercial and other <sup>(e)</sup>	Credit card <sup>(c)</sup>	Residential mortgage <sup>(d)</sup>	Commercial and other <sup>(e)</sup>	Credit card <sup>(c)</sup>	Residential mortgage <sup>(d)</sup>	Commercial and other <sup>(e)</sup>
Principal securitized	\$ 3,330	\$ 3,008	\$ 11,983	\$ 3,340	\$ 2,558	\$ 11,911	\$ 4,023	\$ 1,404	\$ 11,318
Pretax gain/(loss)	(2)	— <sup>(f)</sup>	— <sup>(f)</sup>	2	— <sup>(f)</sup>	— <sup>(f)</sup>	5	— <sup>(f)</sup>	— <sup>(f)</sup>
<b>All cash flows during the period:</b>									
Proceeds from new securitizations <sup>(a)</sup>	\$ 3,330	\$ 3,022	\$ 12,011	\$ 3,340	\$ 2,569	\$ 12,079	\$ 4,023	\$ 1,410	\$ 11,507
Servicing fees collected		528	3	—	557	3	—	576	5
Proceeds from collections reinvested in revolving securitizations	44,734	—	—	44,364	—	—	37,062	—	—
Purchases of previously transferred financial assets (or the underlying collateral) <sup>(b)</sup>	—	2	—	—	109	—	—	233	—
Cash flows received on interests	15,309	321	533	14,397	97	183	18,757	50	121

(a) During 2015, proceeds from credit card securitizations were received as cash; proceeds from residential mortgage securitizations, \$2.1 billion was received as cash, and \$945 million was received as securities classified in level 2 of the fair value hierarchy; and proceeds from commercial mortgage securitizations, \$11.7 billion was received as cash, and \$350 million was received as securities classified in level 2 of the fair value hierarchy. During 2014, proceeds from credit card securitizations were received as cash; proceeds from residential mortgage securitizations, \$2.3 billion was received as cash, and \$245 million was received as securities classified in level 2 of the fair value hierarchy; and proceeds from commercial mortgage securitizations, \$11.7 billion was received as cash, and \$372 million was received as securities classified in level 2 of the fair value hierarchy. During 2013 proceeds from securitizations were received as cash.

(b) Includes cash paid by JPMorgan Chase Bank, N.A. to reacquire assets from off-balance sheet, nonconsolidated entities - for example, loan repurchases due to representation and warranties and servicer clean-up calls.

(c) Includes securitization activity related to JPMorgan Chase Bank, N.A.'s undivided interest in credit card securitization trusts.

(d) Includes prime, Alt-A, subprime, and option ARMs. Excludes certain loan securitization transactions entered into with Ginnie Mae, Fannie Mae and Freddie Mac.

(e) Includes commercial and student loan securitizations.

(f) JPMorgan Chase Bank, N.A. elected the fair value option for loans pending securitization. The carrying value of these loans accounted for at fair value approximated the proceeds received from securitization.

**Loans and excess MSR sold to U.S. government-sponsored enterprises (“U.S. GSEs”), loans in securitization transactions pursuant to Ginnie Mae guidelines, and other third-party-sponsored securitization entities**

In addition to the amounts reported in the securitization activity tables above, JPMorgan Chase Bank, N.A., in the normal course of business, sells originated and purchased mortgage loans and certain originated excess MSR on a nonrecourse basis, predominantly to U.S. GSEs. These loans and excess MSR are sold primarily for the purpose of securitization by the U.S. GSEs, who provide certain guarantee provisions (e.g., credit enhancement of the loans). JPMorgan Chase Bank, N.A. also sells loans into securitization transactions pursuant to Ginnie Mae guidelines; these loans are typically insured or guaranteed by another U.S. government agency. JPMorgan Chase Bank, N.A. does not consolidate the securitization vehicles underlying these transactions as it is not the primary beneficiary. For a limited number of loan sales, JPMorgan Chase Bank, N.A. is obligated to share a portion of the credit risk associated with the sold loans with the purchaser. See Note 27 for additional information about JPMorgan Chase Bank, N.A.’s loan sales- and securitization-related indemnifications.

See Note 18 for additional information about the impact of JPMorgan Chase Bank, N.A.’s sale of certain excess MSR.

The following table summarizes the activities related to loans sold to the U.S. GSEs, loans in securitization transactions pursuant to Ginnie Mae guidelines, and other third-party-sponsored securitization entities.

Year ended December 31, (in millions)	2015	2014	2013
Carrying value of loans sold	\$ 42,161	\$ 55,802	\$ 166,028
Proceeds received from loan sales as cash	\$ 313	\$ 260	\$ 782
Proceeds from loans sales as securities <sup>(a)</sup>	41,615	55,117	163,373
<b>Total proceeds received from loan sales<sup>(b)</sup></b>	<b>\$ 41,928</b>	<b>\$ 55,377</b>	<b>\$ 164,155</b>
Gains on loan sales <sup>(c)</sup>	\$ 299	\$ 316	\$ 302

- (a) Predominantly includes securities from U.S. GSEs and Ginnie Mae that are generally sold shortly after receipt.
- (b) Excludes the value of MSR retained upon the sale of loans. Gains on loan sales include the value of MSR.
- (c) The carrying value of the loans accounted for at fair value approximated the proceeds received upon loan sale.

*Options to repurchase delinquent loans*

In addition to JPMorgan Chase Bank, N.A.’s obligation to repurchase certain loans due to material breaches of representations and warranties as discussed in Note 27, JPMorgan Chase Bank, N.A. also has the option to repurchase delinquent loans that it services for Ginnie Mae loan pools, as well as for other U.S. government agencies under certain arrangements. JPMorgan Chase Bank, N.A. typically elects to repurchase delinquent loans from Ginnie Mae loan pools as it continues to service them and/or manage the foreclosure process in accordance with the applicable requirements, and such loans continue to be insured or guaranteed. When JPMorgan Chase Bank, N.A.’s repurchase option becomes exercisable, such loans must be reported on the Consolidated balance sheets as a loan with a corresponding liability. As of December 31, 2015 and 2014, JPMorgan Chase Bank, N.A. had recorded on its Consolidated balance sheets \$11.0 billion and \$12.4 billion, respectively, of loans that either had been repurchased or for which JPMorgan Chase Bank, N.A. had an option to repurchase. Predominantly all of these amounts relate to loans that have been repurchased from Ginnie Mae loan pools. Additionally, real estate owned resulting from voluntary repurchases of loans was \$343 million and \$464 million as of December 31, 2015 and 2014, respectively. Substantially all of these loans and real estate owned are insured or guaranteed by U.S. government agencies. For additional information, refer to Note 15.

**JPMorgan Chase Bank, N.A.’s interest in securitized assets held at fair value**

The following table outlines the key economic assumptions used to determine the fair value, as of December 31, 2015 and 2014, of certain of JPMorgan Chase Bank, N.A.’s retained interests in nonconsolidated VIEs (other than MSR), that are valued using modeling techniques. The table also outlines the sensitivities of those fair values to immediate 10% and 20% adverse changes in assumptions used to determine fair value. For a discussion of MSR, see Note 18.

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December 31, (in millions, except rates and where otherwise noted) <sup>(a)</sup>	Credit card <sup>(c)</sup>	
	2015	2014
JPMorgan Chase Bank, N.A. interests in securitized assets	\$ 5,643	\$ 4,580
Weighted-average life (in years)	0.3	0.3
Weighted-average constant prepayment rate <sup>(b)</sup>	28.6%	27.8%
	PPR	PPR
Impact of 10% adverse change	\$ (21)	\$ (21)
Impact of 20% adverse change	(42)	(42)
Weighted-average loss assumption	2.4%	2.4%
Impact of 10% adverse change	\$ (13)	\$ (13)
Impact of 20% adverse change	(25)	(26)
Weighted-average discount rate	12.0%	12.0%
Impact of 10% adverse change	\$ (1)	\$ (1)
Impact of 20% adverse change	(1)	(1)

(a) JPMorgan Chase Bank, N.A.'s interests in prime mortgage securitizations were \$58 million and \$172 million, as of December 31, 2015 and 2014, respectively. These include retained interests in Alt-A loans. JPMorgan Chase Bank, N.A.'s had no interests in subprime mortgage securitizations as of December 31, 2015 and 2014.

(b) PPR: principal payment rate

(c) Includes securitization activity related to JPMorgan Chase Bank, N.A.'s undivided interests in credit card securitization trusts.

### Loan delinquencies and liquidation losses

The table below includes information about components of nonconsolidated securitized financial assets, in which JPMorgan Chase Bank, N.A. has continuing involvement, and delinquencies as of December 31, 2015 and 2014.

As of or for the year ended December 31, (in millions)	Securitized assets		90 days past due		Liquidation losses	
	2015	2014	2015	2014	2015	2014
<b>Securitized loans<sup>(a)</sup></b>						
Residential mortgage:						
Prime/ Alt-A & option ARMs	\$ 51,654	\$ 59,733	\$ 5,411	\$ 7,301	\$ 1,194	\$ 1,299
Subprime	15,069	16,971	3,516	4,157	925	1,050
Commercial and other	65,337	73,893	1,634	1,176	324	851
<b>Total loans securitized<sup>(b)</sup></b>	<b>\$ 132,060</b>	<b>\$ 150,597</b>	<b>\$ 10,561</b>	<b>\$ 12,634</b>	<b>\$ 2,443</b>	<b>\$ 3,200</b>

(a) Total assets held in securitization-related SPEs were \$176.9 billion and \$182.2 billion, respectively, at December 31, 2015 and 2014. The \$132.1 billion and \$150.6 billion, respectively, of loans securitized at December 31, 2015 and 2014, excludes: \$43.9 billion and \$30.7 billion, respectively, of securitized loans in which JPMorgan Chase Bank, N.A. has no continuing involvement, and \$942 million and \$889 million, respectively, of loan securitizations consolidated on JPMorgan Chase Bank, N.A.'s Consolidated balance sheets at December 31, 2015 and 2014.

(b) Includes securitized loans that were previously recorded at fair value and classified as trading assets.

The sensitivity analysis in the preceding table is hypothetical. Changes in fair value based on a 10% or 20% variation in assumptions generally cannot be extrapolated easily, because the relationship of the change in the assumptions to the change in fair value may not be linear. Also, in the table, the effect that a change in a particular assumption may have on the fair value is calculated without changing any other assumption. In reality, changes in one factor may result in changes in another, which might counteract or magnify the sensitivities. The above sensitivities also do not reflect risk management practices JPMorgan Chase Bank, N.A. may undertake to mitigate such risks.

## Note 18 – Goodwill and other intangible assets

### Goodwill

Goodwill is recorded upon completion of a business combination as the difference between the purchase price and the fair value of the net assets acquired. Subsequent to initial recognition, goodwill is not amortized but is tested for impairment during the fourth quarter of each fiscal year, or more often if events or circumstances, such as adverse changes in the business climate, indicate there may be impairment.

The following table presents changes in the carrying amount of goodwill.

Year ended December 31, (in millions)	2015	2014	2013
Balance at beginning of period <sup>(a)</sup>	\$ 27,282	\$ 27,344	\$ 27,431
Changes during the period from:			
Business combinations	28	39	43
Dispositions	(59)	(1)	–
Other <sup>(b)</sup>	(151)	(100)	(130)
<b>Balance at December 31,<sup>(a)</sup></b>	<b>\$ 27,100</b>	<b>\$ 27,282</b>	<b>\$ 27,344</b>

(a) Reflects gross goodwill balances as JPMorgan Chase Bank, N.A. has not recognized any impairment losses to date.

(b) Includes foreign currency translation adjustments and other tax-related adjustments.

### Impairment testing

Goodwill was not impaired at December 31, 2015, or 2014.

The goodwill impairment test is performed in two steps. In the first step, the current fair value of JPMorgan Chase Bank, N.A. is compared with its carrying value, including goodwill. If the fair value is in excess of the carrying value (including goodwill), then the goodwill is considered not to be impaired. If the fair value is less than the carrying value (including goodwill), then a second step is performed. In the second step, the implied current fair value of the goodwill is determined by comparing the fair value of JPMorgan Chase Bank, N.A. (as determined in step one) to the fair value of the net assets of JPMorgan Chase Bank, N.A. as if it was being acquired in a business combination. The resulting implied current fair value of goodwill is then compared with the carrying value of JPMorgan Chase Bank, N.A.'s goodwill. If the carrying value of the goodwill exceeds its implied current fair value, then an impairment charge is recognized for the excess. If the carrying value of goodwill is less than its implied current fair value, then no goodwill impairment is recognized.

Declines in business performance, increases in credit losses, increases in equity capital requirements, as well as deterioration in economic or market conditions, adverse estimates of regulatory or legislative changes or increases in the estimated cost of equity, could cause the estimated fair values of JPMorgan Chase Bank, N.A., or its associated goodwill to decline in the future, which could result in a material impairment charge to earnings in a future period related to some portion of the associated goodwill.

### Mortgage servicing rights

Mortgage servicing rights represent the fair value of expected future cash flows for performing servicing activities for others. The fair value considers estimated future servicing fees and ancillary revenue, offset by estimated costs to service the loans, and generally declines over time as net servicing cash flows are received, effectively amortizing the MSR asset against contractual servicing and ancillary fee income. MSRs are either purchased from third parties or recognized upon sale or securitization of mortgage loans if servicing is retained.

As permitted by U.S. GAAP, JPMorgan Chase Bank, N.A. has elected to account for its MSRs at fair value. JPMorgan Chase Bank, N.A. treats its MSRs as a single class of servicing assets based on the availability of market inputs used to measure the fair value of its MSR asset and its treatment of MSRs as one aggregate pool for risk management purposes. JPMorgan Chase Bank, N.A. estimates the fair value of MSRs using an option-adjusted spread (“OAS”) model, which projects MSR cash flows over multiple interest rate scenarios in conjunction with JPMorgan Chase Bank, N.A.'s prepayment model, and then discounts these cash flows at risk-adjusted rates. The model considers portfolio characteristics, contractually specified servicing fees, prepayment assumptions, delinquency rates, costs to service, late charges and other ancillary revenue, and other economic factors. JPMorgan Chase Bank, N.A. compares fair value estimates and assumptions to observable market data where available, and also considers recent market activity and actual portfolio experience.

The fair value of MSRs is sensitive to changes in interest rates, including their effect on prepayment speeds. MSRs typically decrease in value when interest rates decline because declining interest rates tend to increase prepayments and therefore reduce the expected life of the net servicing cash flows that consist of the MSR asset. Conversely, securities (e.g., mortgage-backed securities), principal-only certificates and certain derivatives (i.e., those for which JPMorgan Chase Bank, N.A. receives fixed-rate interest payments) increase in value when interest rates decline. JPMorgan Chase Bank, N.A. uses combinations of derivatives and securities to manage changes in the fair value of MSRs. The intent is to offset any interest-rate related changes in the fair value of MSRs with changes in the fair value of the related risk management instruments.

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The following table summarizes MSR activity for the years ended December 31, 2015, 2014 and 2013.

As of or for the year ended December 31, (in millions, except where otherwise noted)	2015	2014	2013
Fair value at beginning of period	\$ 7,436	\$ 9,614	\$ 7,614
MSR activity:			
Originations of MSRs	550	757	2,214
Purchase of MSRs	435	11	1
Disposition of MSRs <sup>(a)</sup>	(486)	(209)	(725)
<b>Net additions</b>	<b>499</b>	<b>559</b>	<b>1,490</b>
Changes due to collection/realization of expected cash flows	(922)	(911)	(1,102)
Changes in valuation due to inputs and assumptions:			
Changes due to market interest rates and other <sup>(b)</sup>	(160)	(1,608)	2,122
Changes in valuation due to other inputs and assumptions:			
Projected cash flows (e.g., cost to service)	(112)	133	109
Discount rates	(10)	(459) <sup>(e)</sup>	(78)
Prepayment model changes and other <sup>(c)</sup>	(123)	108	(541)
<b>Total changes in valuation due to other inputs and assumptions</b>	<b>(245)</b>	<b>(218)</b>	<b>(510)</b>
<b>Total changes in valuation due to inputs and assumptions</b>	<b>\$ (405)</b>	<b>\$ (1,826)</b>	<b>\$ 1,612</b>
<b>Fair value at December 31,</b>	<b>\$ 6,608</b>	<b>\$ 7,436</b>	<b>\$ 9,614</b>
Change in unrealized gains/(losses) included in income related to MSRs held at December 31,	\$ (405)	\$ (1,826)	\$ 1,612
Contractual service fees, late fees and other ancillary fees included in income	\$ 2,533	\$ 2,884	\$ 3,309
Third-party mortgage loans serviced at December 31, (in billions)	\$ 677	\$ 756	\$ 822
Servicer advances, net of an allowance for uncollectible amounts, at December 31, (in billions) <sup>(d)</sup>	\$ 6.5	\$ 8.5	\$ 9.6

- (a) For 2014 and 2013, predominantly represents excess MSRs transferred to agency-sponsored trusts in exchange for stripped mortgage backed securities ("SMBS"). In each transaction, a portion of the SMBS was acquired by third parties at the transaction date; JPMorgan Chase Bank, N.A. acquired and has retained the remaining balance of those SMBS as trading securities. Also includes sales of MSRs.
- (b) Represents both the impact of changes in estimated future prepayments due to changes in market interest rates, and the difference between actual and expected prepayments.
- (c) Represents changes in prepayments other than those attributable to changes in market interest rates.
- (d) Represents amounts JPMorgan Chase Bank, N.A. pays as the servicer (e.g., scheduled principal and interest, taxes and insurance), which will generally be reimbursed within a short period of time after the advance from future cash flows from the trust or the underlying loans. JPMorgan Chase Bank, N.A.'s credit risk associated with these servicer advances is minimal because reimbursement of the advances is typically senior to all cash payments to investors. In addition, JPMorgan Chase Bank, N.A. maintains the right to stop payment to investors if the collateral is insufficient to cover the advance. However, certain of these servicer advances may not be recoverable if they were not made in accordance with applicable rules and agreements.
- (e) For the year ending December 31, 2014, the negative impact was primarily related to higher capital allocated to the Mortgage Servicing business, which, in turn, resulted in an increase in the OAS. The resulting OAS assumption was consistent with capital and return requirements JPMorgan

Chase Bank, N.A. believed a market participant would consider, taking into account factors such as the operating risk environment and regulatory and economic capital requirements.

The table below outlines the key economic assumptions used to determine the fair value of JPMorgan Chase Bank, N.A.'s MSRs at December 31, 2015 and 2014, and outlines the sensitivities of those fair values to immediate adverse changes in those assumptions, as defined below.

December 31, (in millions, except rates)	2015	2014
Weighted-average prepayment speed assumption ("CPR")	9.81%	9.80%
Impact on fair value of 10% adverse change	\$ (275)	\$ (337)
Impact on fair value of 20% adverse change	(529)	(652)
Weighted-average option adjusted spread	9.02%	9.43%
Impact on fair value of 100 basis points adverse change	\$ (258)	\$ (300)
Impact on fair value of 200 basis points adverse change	(498)	(578)

CPR: Constant prepayment rate.

The sensitivity analysis in the preceding table is hypothetical and should be used with caution. Changes in fair value based on variation in assumptions generally cannot be easily extrapolated, because the relationship of the change in the assumptions to the change in fair value are often highly interrelated and may not be linear. In this table, the effect that a change in a particular assumption may have on the fair value is calculated without changing any other assumption. In reality, changes in one factor may result in changes in another, which would either magnify or counteract the impact of the initial change.

## Note 19 – Premises and equipment

Premises and equipment, including leasehold improvements, are carried at cost less accumulated depreciation and amortization. JPMorgan Chase Bank, N.A. computes depreciation using the straight-line method over the estimated useful life of an asset. For leasehold improvements, JPMorgan Chase Bank, N.A. uses the straight-line method computed over the lesser of the remaining term of the leased facility or the estimated useful life of the leased asset.

JPMorgan Chase Bank, N.A. capitalizes certain costs associated with the acquisition or development of internal-use software. Once the software is ready for its intended use, these costs are amortized on a straight-line basis over the software's expected useful life and reviewed for impairment on an ongoing basis.

## Note 20 – Deposits

At December 31, 2015 and 2014, noninterest-bearing and interest-bearing deposits were as follows.

December 31, (in millions)	2015	2014
<b>U.S. offices</b>		
Noninterest-bearing	\$ 396,277	\$ 444,452
Interest-bearing		
Demand <sup>(a)</sup>	127,911	129,186
Savings <sup>(b)</sup>	486,018	466,709
Time (included \$11,247 and \$7,668 at fair value) <sup>(c)</sup>	67,174	73,832
<b>Total interest-bearing deposits</b>	<b>681,103</b>	<b>669,727</b>
<b>Total deposits in U.S. offices</b>	<b>1,077,380</b>	<b>1,114,179</b>
<b>Non-U.S. offices</b>		
Noninterest-bearing	19,041	19,203
Interest-bearing		
Demand	158,582	223,752
Savings	2,157	2,673
Time (included \$1,600 and \$1,306 at fair value) <sup>(c)</sup>	55,780	79,598
<b>Total interest-bearing deposits</b>	<b>216,519</b>	<b>306,023</b>
<b>Total deposits in non-U.S. offices</b>	<b>235,560</b>	<b>325,226</b>
<b>Total deposits</b>	<b>\$ 1,312,940</b>	<b>\$ 1,439,405</b>

(a) Includes Negotiable Order of Withdrawal (“NOW”) accounts, and certain trust accounts.

(b) Includes Money Market Deposit Accounts (“MMDAs”).

(c) Includes structured notes classified as deposits for which the fair value option has been elected. For further discussion, see Note 5.

At December 31, 2015 and 2014, time deposits in denominations of \$250,000 or more were as follows.

December 31, (in millions)	2015	2014
U.S. offices	\$ 44,473	\$ 49,811
Non-U.S. offices	55,731	79,559
<b>Total</b>	<b>\$ 100,204</b>	<b>\$ 129,370</b>

At December 31, 2015, the maturities of interest-bearing time deposits were as follows.

December 31, 2015 (in millions)	U.S.	Non-U.S.	Total
2016	\$ 41,988	\$ 55,360	\$ 97,348
2017	12,916	192	13,108
2018	2,262	65	2,327
2019	1,654	46	1,700
2020	1,877	117	1,994
After 5 years	6,477	–	6,477
<b>Total</b>	<b>\$ 67,174</b>	<b>\$ 55,780</b>	<b>\$ 122,954</b>

## Notes to consolidated financial statements

JPMorgan Chase Bank, National Association  
(a wholly-owned subsidiary of JPMorgan Chase & Co.)

### Note 21 – Long-term debt

JPMorgan Chase Bank, N.A. issues long-term debt denominated in various currencies, although predominantly U.S. dollars, with both fixed and variable interest rates. Included in senior and subordinated debt below are various equity-linked or other indexed instruments, which JPMorgan Chase Bank, N.A. has elected to measure at fair value. Changes in fair value are recorded in principal transactions revenue in the Consolidated statements of income. The following table is a summary of long-term debt carrying values (including unamortized premiums and discounts, issuance costs, valuation adjustments and fair value adjustments, where applicable) by remaining contractual maturity as of December 31, 2015.

By remaining maturity at December 31, (in millions, except rates)		2015				2014
		Under 1 year	1-5 years	After 5 years	Total	Total
<b>Long-term debt payable to JPMorgan Chase &amp; Co. and affiliates</b>						
Senior debt:	Variable rate	\$ 1,120	\$ 11,590	\$ 102	\$ 12,812	\$ 12,355
	Interest rates <sup>(a)</sup>	—%	0.73%	—%	0.73%	0.38%
Subordinated debt:	Variable rate	\$ —	\$ —	\$ 250	\$ 250	\$ —
	Interest rates <sup>(a)</sup>	—%	—%	2.40%	2.40%	—%
	<b>Subtotal</b>	<b>\$ 1,120</b>	<b>\$ 11,590</b>	<b>\$ 352</b>	<b>\$ 13,062</b>	<b>\$ 12,355</b>
<b>Long-term debt issued to unrelated parties</b>						
Federal Home Loan Banks ("FHLB") advances:	Fixed rate	\$ 5	\$ 30	\$ 156	\$ 191	\$ 204
	Variable rate	8,500	47,590	5,000	61,090	53,040
	Interest rates <sup>(a)</sup>	0.37-0.65%	0.17-0.72%	0.50-0.70%	0.17-0.72%	0.11-0.43%
Senior debt:	Fixed rate	\$ 631	\$ 1,247	\$ 3,584	\$ 5,462	\$ 5,600
	Variable rate	10,866	7,121	2,560	20,547	20,344
	Interest rates <sup>(a)</sup>	0.47-1.00%	0.53-4.61%	1.30-7.28%	0.47-7.28%	0.26-7.28%
Subordinated debt:	Fixed rate	\$ 1,473	\$ 3,647	\$ 1,461	\$ 6,581	\$ 6,921
	Variable rate	1,150	—	—	1,150	2,362
	Interest rates <sup>(a)</sup>	0.83-5.88%	6.00%	4.38-8.25%	0.83-8.25%	0.57-8.25%
	<b>Subtotal</b>	<b>\$ 22,625</b>	<b>\$ 59,635</b>	<b>\$ 12,761</b>	<b>\$ 95,021</b>	<b>\$ 88,471</b>
<b>Preferred securities of subsidiaries, issued to affiliates<sup>(b)</sup>:</b>						
	Fixed rate	\$ —	\$ —	\$ 600	\$ 600	\$ 600
	Interest rates <sup>(a)</sup>	—%	—%	7.00-8.20%	7.00-8.20%	7.00-8.20%
	<b>Subtotal</b>	<b>\$ —</b>	<b>\$ —</b>	<b>\$ 600</b>	<b>\$ 600</b>	<b>\$ 600</b>
<b>Total long-term debt<sup>(c)(d)(e)</sup></b>		<b>\$ 23,745</b>	<b>\$ 71,225</b>	<b>\$ 13,713</b>	<b>\$ 108,683</b>	<b>\$ 101,426<sup>(g)(h)</sup></b>
<b>Long-term beneficial interests:</b>						
	Variable rate	\$ 45	\$ 60	\$ 1,760	\$ 1,865	\$ 2,026
	Interest rates	2.82%	2.60%	0.67-0.94%	0.67-2.82%	0.31-2.31%
<b>Total long-term beneficial interests<sup>(e)</sup></b>		<b>\$ 45</b>	<b>\$ 60</b>	<b>\$ 1,760</b>	<b>\$ 1,865</b>	<b>\$ 2,026</b>

(a) The interest rates shown are the range of contractual rates in effect at year-end, including non-U.S. dollar fixed- and variable-rate issuances, which excludes the effects of the associated derivative instruments used in hedge accounting relationships, if applicable. The use of these derivative instruments modifies JPMorgan Chase Bank, N.A.'s exposure to the contractual interest rates disclosed in the table above. Including the effects of the hedge accounting derivatives, the range of modified rates in effect at December 31, 2015, for total long-term debt was 0.17% to 8.20%, versus the contractual range of 0.17% to 8.25% presented in the table above. The interest rate ranges shown exclude structured notes accounted for at fair value.

(b) At December 31, 2015 and 2014, two consolidated subsidiaries of JPMorgan Chase Bank, N.A. had issued and outstanding two series of redeemable preferred securities issued to a nonbank affiliate as follows: \$300 million, 8.20% maturing in 2030, and \$300 million, 7.00% maturing in 2032.

(c) Included long-term debt of \$65.8 billion and \$57.4 billion secured by assets totaling \$171.1 billion and \$152.1 billion at December 31, 2015 and 2014, respectively. The amount of long-term debt secured by assets does not include amounts related to hybrid instruments.

(d) Included \$14.7 billion and \$14.1 billion of long-term debt accounted for at fair value at December 31, 2015 and 2014, respectively.

(e) Included \$1.1 billion and \$988 million of outstanding zero-coupon notes at December 31, 2015 and 2014, respectively. The aggregate principal amount of these notes at their respective maturities is \$1.8 billion and \$1.3 billion, respectively. The aggregate principal amount reflects the contractual principal payment at maturity, which may exceed the contractual principal payment at JPMorgan Chase Bank, N.A.'s next call date, if applicable.

(f) Included on the Consolidated balance sheets in beneficial interests issued by consolidated VIEs. Also included zero and \$18 million accounted for at fair value at December 31, 2015 and 2014, respectively. Excluded short-term commercial paper and other short-term beneficial interests of \$11.0 billion and \$16.6 billion at December 31, 2015 and 2014, respectively.

(g) At December 31, 2015, long-term debt in the aggregate of \$29.0 billion was redeemable at the option of JPMorgan Chase Bank, N.A., in whole or in part, prior to maturity, based on the terms specified in the respective instruments.

(h) The aggregate carrying values of debt that matures in each of the five years subsequent to 2015 is \$23.7 billion in 2016, \$28.5 billion in 2017, \$15.1 billion in 2018, \$19.0 billion in 2019 and \$8.7 billion in 2020.



The weighted-average contractual interest rates for total long-term debt excluding structured notes accounted for at fair value were 0.94% and 0.82% as of December 31, 2015 and 2014, respectively. In order to modify exposure to interest rate movements, JPMorgan Chase Bank, N.A. utilizes derivative instruments, primarily interest rate swaps, in conjunction with some of its debt issues. The use of these instruments modifies JPMorgan Chase Bank, N.A.'s interest expense on the associated debt. The modified weighted-average interest rates for total long-term debt, including the effects of related derivative instruments, were

0.70% and 0.55% as of December 31, 2015 and 2014, respectively.

JPMorgan Chase Bank, N.A.'s unsecured debt does not contain requirements that would call for an acceleration of payments, maturities or changes in the structure of the existing debt, provide any limitations on future borrowings or require additional collateral, based on unfavorable changes in JPMorgan Chase Bank, N.A.'s credit ratings, financial ratios or earnings.

## Notes to consolidated financial statements

JPMorgan Chase Bank, National Association  
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### Note 22 – Related party transactions

JPMorgan Chase Bank, N.A. regularly enters into transactions with JPMorgan Chase and its various subsidiaries.

Significant revenue- and expense-related transactions with these related parties are listed below.

Year ended December 31, (in millions)	2015	2014	2013
<b>Interest income</b>	\$ 150	\$ 68	\$ 97
<b>Interest expense</b>	298	249	660
<b>Servicing agreements and fee arrangements</b>			
Noninterest revenue	6,321	6,926	5,689
Noninterest expense	3,875	3,846	3,243

Significant balances with these related parties are listed below.

December 31, (in millions)	2015	2014
<b>Assets</b>		
Federal funds sold and securities purchased under resale agreements	\$ 67,842	\$ 38,695
Accrued interest and accounts receivable	9,908	8,057
All other assets	21,693	15,937
<b>Liabilities</b>		
Deposits <sup>(a)</sup>	80,489	119,603
Federal funds purchased and securities loaned or sold under repurchase agreements	24,297	30,241
Other borrowed funds <sup>(b)</sup>	15,023	15,115
Accounts payable and other liabilities	11,054	5,054
Long-term debt	13,662	12,955

(a) At both December 31, 2015 and 2014, included \$20.0 billion pledged by JPMorgan Chase to support extensions of credit and other transactions requiring collateral with affiliates as defined by Section 23A under the Federal Reserve Act, which defines the constraints that apply to U.S. banks in certain of their interactions with affiliates.

(b) At both December 31, 2015 and 2014, included \$15.0 billion of borrowings under a short-term committed facility with JPMorgan Chase & Co.

In addition to the information presented in the tables above, JPMorgan Chase Bank, N.A. executes derivative transactions with affiliates as part of its client-driven market-making activities and to facilitate hedging certain risks for its affiliates. When facilitating hedging for affiliates, JPMorgan Chase Bank, N.A. also enters into mirror derivative transactions with third-parties; these two transactions substantially offset each other and are recorded in noninterest revenue. At December 31, 2015, after giving effect to legally enforceable master netting agreements, net derivative receivables and derivative payables to affiliates were \$1.3 billion and \$2.7 billion, respectively, (gross receivables and payables were approximately \$49.1 billion and \$50.4 billion, respectively). At December 31, 2014, after giving effect to legally enforceable master netting agreements, net derivative receivables and derivative payables to affiliates were \$327 million and \$5.3 billion, respectively, (gross receivables and payables were approximately \$35.0 billion and \$40.0 billion, respectively). The net positions primarily relate to interest rate and foreign exchange contracts that fall within level 2 of the fair value hierarchy.

## Note 23 – Accumulated other comprehensive income/(loss)

AOCI includes the after-tax change in unrealized gains and losses on investment securities, foreign currency translation adjustments (including the impact of related derivatives), cash flow hedging activities, and net loss and prior service costs/(credit) related to JPMorgan Chase Bank, N.A.'s defined benefit pension and OPEB plans.

Year ended December 31, (in millions)	Unrealized gains/ (losses) on investment securities <sup>(a)</sup>	Translation adjustments, net of hedges	Cash flow hedges	Defined benefit pension and OPEB plans	Accumulated other comprehensive income/(loss)
Balance at December 31, 2012	\$ 6,591	\$ 63	\$ 329	\$ (472)	\$ 6,511
Net change	(3,916)	(51)	(404)	39	(4,332)
Balance at December 31, 2013	\$ 2,675	\$ 12	\$ (75)	\$ (433)	\$ 2,179
Net change	1,862	(35)	(16)	(34)	1,777
Balance at December 31, 2014	\$ 4,537	\$ (23)	\$ (91)	\$ (467)	\$ 3,956
<b>Net change</b>	<b>(2,104)</b>	<b>(17)</b>	<b>46</b>	<b>139</b>	<b>(1,936)</b>
<b>Balance at December 31, 2015</b>	<b>\$ 2,433</b>	<b>\$ (40)</b>	<b>\$ (45)</b>	<b>\$ (328)</b>	<b>\$ 2,020</b>

(a) Represents the after-tax difference between the fair value and amortized cost of securities accounted for as AFS including, as of the date of transfer during 2014, \$9 million of net unrealized losses related to AFS securities that were transferred to HTM. Subsequent to transfer, includes any net unamortized unrealized gains and losses related to the transferred securities.

The following table presents the before- and after-tax changes in the components of other comprehensive income/(loss).

Year ended December 31, (in millions)	2015			2014			2013		
	Pretax	Tax effect	After- tax	Pretax	Tax effect	After- tax	Pretax	Tax effect	After- tax
<b>Unrealized gains/(losses) on investment securities:</b>									
Net unrealized gains/(losses) arising during the period	<b>\$(3,247)</b>	<b>\$ 1,269</b>	<b>\$(1,978)</b>	\$ 3,008	\$(1,104)	\$ 1,904	\$(5,750)	\$ 2,225	\$(3,525)
Reclassification adjustment for realized (gains)/losses included in net income <sup>(a)</sup>	<b>(202)</b>	<b>76</b>	<b>(126)</b>	(68)	26	(42)	(643)	252	(391)
<b>Net change</b>	<b>(3,449)</b>	<b>1,345</b>	<b>(2,104)</b>	2,940	(1,078)	1,862	(6,393)	2,477	(3,916)
<b>Translation adjustments:</b>									
Translation <sup>(b)</sup>	<b>(1,542)</b>	<b>562</b>	<b>(980)</b>	(1,402)	499	(903)	(862)	315	(547)
Hedges <sup>(b)</sup>	<b>1,541</b>	<b>(578)</b>	<b>963</b>	1,413	(545)	868	817	(321)	496
<b>Net change</b>	<b>(1)</b>	<b>(16)</b>	<b>(17)</b>	11	(46)	(35)	(45)	(6)	(51)
<b>Cash flow hedges:</b>									
Net unrealized gains/(losses) arising during the period	<b>(97)</b>	<b>36</b>	<b>(61)</b>	100	(40)	60	(507)	199	(308)
Reclassification adjustment for realized (gains)/losses included in net income <sup>(c)(e)</sup>	<b>174</b>	<b>(67)</b>	<b>107</b>	(123)	47	(76)	(156)	60	(96)
<b>Net change</b>	<b>77</b>	<b>(31)</b>	<b>46</b>	(23)	7	(16)	(663)	259	(404)
<b>Defined benefit pension and OPEB plans:</b>									
Prior service credits arising during the period	–	–	–	–	–	–	–	–	–
Net gains/(losses) arising during the period	<b>57</b>	<b>(21)</b>	<b>36</b>	(129)	48	(81)	14	(4)	10
Reclassification adjustments included in net income <sup>(d)</sup> :									
Amortization of net loss	<b>40</b>	<b>(15)</b>	<b>25</b>	53	(21)	32	59	(22)	37
Prior service costs/(credits)	<b>(2)</b>	<b>1</b>	<b>(1)</b>	(2)	1	(1)	(2)	1	(1)
Foreign exchange and other	<b>132</b>	<b>(53)</b>	<b>79</b>	36	(20)	16	(10)	3	(7)
<b>Net change</b>	<b>227</b>	<b>(88)</b>	<b>139</b>	(42)	8	(34)	61	(22)	39
<b>Total other comprehensive income/(loss)</b>	<b>\$(3,146)</b>	<b>\$ 1,210</b>	<b>\$(1,936)</b>	\$ 2,886	\$(1,109)	\$ 1,777	\$(7,040)	\$ 2,708	\$(4,332)

(a) The pretax amount is reported in securities gains in the Consolidated statements of income.

(b) Reclassifications of pretax realized gains/(losses) on translation adjustments and related hedges are reported in other income/expense in the Consolidated statements of income. The amounts were not material for the periods presented.

(c) The pretax amounts are predominantly recorded in net interest income in the Consolidated statements of income.

(d) The pretax amount is reported in compensation expense in the Consolidated statements of income.

(e) In 2015, JPMorgan Chase Bank, N.A. reclassified approximately \$150 million of net losses from AOCI to other income because JPMorgan Chase Bank, N.A. determined that it is probable that the forecasted interest payment cash flows will not occur. For additional information, see Note 7.

## Notes to consolidated financial statements

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### Note 24 – Income taxes

The results of operations of JPMorgan Chase Bank, N.A. are included in the consolidated federal, New York State, New York City and other state income tax returns filed by JPMorgan Chase. Pursuant to a tax sharing agreement, JPMorgan Chase allocates to JPMorgan Chase Bank, N.A. its share of the consolidated income tax expense or benefit based upon statutory rates applied to JPMorgan Chase Bank, N.A.'s earnings as if it were filing separate income tax returns. JPMorgan Chase Bank, N.A. uses the asset and liability method to provide for income taxes on all transactions recorded in the Consolidated Financial Statements. Valuation allowances are established when necessary to reduce deferred tax assets to an amount that in the opinion of management, is more likely than not to be realized. State and local income taxes are provided on JPMorgan Chase Bank, N.A.'s taxable income at the effective income tax rate applicable to the consolidated JPMorgan Chase entity.

The tax sharing arrangement between JPMorgan Chase and JPMorgan Chase Bank, N.A. allows for intercompany payments to or from JPMorgan Chase for outstanding current tax assets or liabilities.

Due to the inherent complexities arising from the nature of JPMorgan Chase Bank, N.A.'s businesses, and from conducting business and being taxed in a substantial number of jurisdictions, significant judgments and estimates are required to be made. Agreement of tax liabilities between JPMorgan Chase Bank, N.A. and the many tax jurisdictions in which JPMorgan Chase Bank, N.A. files tax returns may not be finalized for several years. Thus, JPMorgan Chase Bank, N.A.'s final tax-related assets and liabilities may ultimately be different from those currently reported.

#### Effective tax rate and expense

A reconciliation of the applicable statutory U.S. income tax rate to the effective tax rate for each of the years ended December 31, 2015, 2014 and 2013, is presented in the following table.

Year ended December 31,	2015	2014	2013
Statutory U.S. federal tax rate	35.0%	35.0%	35.0%
Increase/(decrease) in tax rate resulting from:			
U.S. state and local income taxes, net of U.S. federal income tax benefit	2.8	2.6	2.5
Tax-exempt income	(3.3)	(3.1)	(2.0)
Non-U.S. subsidiary earnings <sup>(a)</sup>	(5.2)	(3.1)	(5.5)
Business tax credits	(2.6)	(2.8)	(2.3)
Nondeductible legal expense	0.7	3.3	7.7
Other, net	(1.3)	(1.9)	(1.2)
<b>Effective tax rate</b>	<b>26.1%</b>	<b>30.0%</b>	<b>34.2%</b>

(a) Predominantly includes earnings of U.K. subsidiaries that are deemed to be reinvested indefinitely.

The components of income tax expense/(benefit) included in the Consolidated statements of income were as follows for each of the years ended December 31, 2015, 2014, and 2013.

#### Income tax expense/(benefit)

Year ended December 31, (in millions)	2015	2014	2013
<b>Current income tax expense/(benefit)</b>			
U.S. federal	\$ 3,109	\$ 1,101	\$ (696)
Non-U.S.	963	1,030	801
U.S. state and local	858	424	(59)
<b>Total current income tax expense/ (benefit)</b>	<b>4,930</b>	<b>2,555</b>	<b>46</b>
<b>Deferred income tax expense/(benefit)</b>			
U.S. federal	1,013	3,307	6,983
Non-U.S.	(94)	82	24
U.S. state and local	131	387	914
<b>Total deferred income tax expense/ (benefit)</b>	<b>1,050</b>	<b>3,776</b>	<b>7,921</b>
<b>Total income tax expense</b>	<b>\$ 5,980</b>	<b>\$ 6,331</b>	<b>\$ 7,967</b>

Total income tax expense includes \$311 million, \$399 million and \$388 million of tax benefits recorded in 2015, 2014, and 2013, respectively, as a result of tax audit resolutions. In 2013, the relationship between current and deferred income tax expense was largely driven by the reversal of significant deferred tax assets as well as prior-year tax adjustments and audit resolutions.

#### Tax effect of items recorded in Stockholder's equity

The preceding table does not reflect the tax effect of certain items that are recorded each period directly in stockholder's equity. The tax effect of all items recorded directly to stockholder's equity resulted in an increase of \$1.2 billion in 2015, a decrease of \$1.1 billion in 2014, and an increase of \$2.7 billion in 2013.

#### Results from Non-U.S. earnings

The following table presents the U.S. and non-U.S. components of income before income tax expense for the years ended December 31, 2015, 2014 and 2013.

Year ended December 31, (in millions)	2015	2014	2013
U.S.	\$ 16,691	\$ 14,959	\$ 16,330
Non-U.S. <sup>(a)</sup>	6,217	6,131	7,029
<b>Income before income tax expense</b>	<b>\$ 22,908</b>	<b>\$ 21,090</b>	<b>\$ 23,359</b>

(a) For purposes of this table, non-U.S. income is defined as income generated from operations located outside the U.S.

U.S. federal income taxes have not been provided on the undistributed earnings of certain non-U.S. subsidiaries, to the extent that such earnings have been reinvested abroad for an indefinite period of time. Based on JPMorgan Chase Bank, N.A.'s ongoing review of the business requirements and capital needs of its non-U.S. subsidiaries, combined with the formation of specific strategies and steps taken to fulfill these requirements and needs, JPMorgan Chase Bank,

N.A. has determined that the undistributed earnings of certain of its subsidiaries would be indefinitely reinvested to fund current and future growth of the related businesses. As management does not intend to use the earnings of these subsidiaries as a source of funding for its U.S. operations, such earnings will not be distributed to the U.S. in the foreseeable future. For 2015, pretax earnings of \$3.5 billion were generated and will be indefinitely reinvested in these subsidiaries. At December 31, 2015, the cumulative amount of undistributed pretax earnings in these subsidiaries were \$34.6 billion. If JPMorgan Chase Bank, N.A. were to record a deferred tax liability associated with these undistributed earnings, the amount would be approximately \$8.2 billion at December 31, 2015.

These undistributed earnings are related to subsidiaries located predominantly in the U.K. where the 2015 statutory tax rate was 20.25%.

#### Affordable housing tax credits

JPMorgan Chase Bank, N.A. recognized \$1.5 billion, \$1.4 billion and \$1.4 billion of tax credits and other tax benefits associated with investments in affordable housing projects within income tax expense for the years 2015, 2014 and 2013, respectively. The amount of amortization of such investments reported in income tax expense under the current period presentation during these years was \$1.0 billion, \$955 million and \$850 million, respectively. The carrying value of these investments, which are reported in other assets on JPMorgan Chase Bank, N.A.'s Consolidated balance sheets, was \$7.3 billion and \$6.9 billion at December 31, 2015 and 2014, respectively. The amount of commitments related to these investments, which are reported in accounts payable and other liabilities on JPMorgan Chase Bank, N.A.'s Consolidated balance sheets, was \$2.0 billion and \$1.7 billion at December 31, 2015 and 2014, respectively.

#### Deferred taxes

Deferred income tax expense/(benefit) results from differences between assets and liabilities measured for financial reporting purposes versus income tax return purposes. Deferred tax assets are recognized if, in management's judgment, their realizability is determined to be more likely than not. If a deferred tax asset is determined to be unrealizable, a valuation allowance is established. The significant components of deferred tax assets and liabilities are reflected in the following table as of December 31, 2015 and 2014.

December 31, (in millions)	2015	2014
<b>Deferred tax assets</b>		
Allowance for loan losses	\$ 4,311	\$ 4,618
Employee benefits	831	1,049
Accrued expenses and other	3,722	4,218
Non-U.S. operations	3,766	1,322
Tax attribute carryforwards	58	9
<b>Gross deferred tax assets</b>	<b>12,688</b>	<b>11,216</b>
Valuation allowance	(14)	–
<b>Deferred tax assets, net of valuation allowance</b>	<b>\$ 12,674</b>	<b>\$ 11,216</b>
<b>Deferred tax liabilities</b>		
Depreciation and amortization	\$ 1,856	\$ 1,785
Mortgage servicing rights, net of hedges	4,968	5,489
Leasing transactions	2,842	2,323
Non-U.S. operations	3,190	1,236
Other, net	2,138	3,314
<b>Gross deferred tax liabilities</b>	<b>14,994</b>	<b>14,147</b>
<b>Net deferred tax (liabilities)/assets</b>	<b>\$ (2,320)</b>	<b>\$ (2,931)</b>

JPMorgan Chase Bank, N.A. has recorded deferred tax assets of \$58 million at December 31, 2015, in connection with non-U.S. net operating loss ("NOL") carryforwards. At December 31, 2015, total non-U.S. NOL carryforwards were \$288 million. If not utilized, the non-U.S. NOL carryforwards will expire between 2016 and 2017.

#### Unrecognized tax benefits

At December 31, 2015, 2014 and 2013, JPMorgan Chase Bank, N.A.'s unrecognized tax benefits, excluding related interest expense and penalties, were \$2.0 billion, \$2.2 billion and \$3.0 billion, respectively, of which \$1.6 billion, \$1.5 billion and \$1.9 billion, respectively, if recognized, would reduce the annual effective tax rate. Included in the amount of unrecognized tax benefits are certain items that would not affect the effective tax rate if they were recognized in the Consolidated statements of income. These unrecognized items include the tax effect of certain temporary differences, the portion of gross state and local unrecognized tax benefits that would be offset by the benefit from associated U.S. federal income tax deductions, and the portion of gross non-U.S. unrecognized tax benefits that would have offsets in other jurisdictions. JPMorgan Chase is presently under audit by a number of taxing authorities, most notably by the Internal Revenue Service, as summarized in the Tax examination status table below.

As JPMorgan Chase is presently under audit by a number of taxing authorities, it is reasonably possible that over the next 12 months the resolution of these examinations may increase or decrease the gross balance of unrecognized tax benefits by as much as approximately \$700 million or \$300 million, respectively. Upon settlement of an audit, the change in the unrecognized tax benefit balance would result from payment or income statement recognition.

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The following table presents a reconciliation of the beginning and ending amount of unrecognized tax benefits for the years ended December 31, 2015, 2014 and 2013.

Year ended December 31, (in millions)	2015	2014	2013
Balance at January 1,	\$ 2,195	\$ 3,001	\$ 4,684
Increases based on tax positions related to the current period	265	688	313
Increases based on tax positions related to prior periods	393	453	70
Decreases based on tax positions related to prior periods	(672)	(1,942)	(2,065)
Decreases related to cash settlements with taxing authorities	(149)	(5)	(1)
<b>Balance at December 31,</b>	<b>\$ 2,032</b>	<b>\$ 2,195</b>	<b>\$ 3,001</b>

After-tax interest expense/(benefit) and penalties related to income tax liabilities recognized in income tax expense were \$4 million, \$47 million and \$(178) million in 2015, 2014 and 2013, respectively.

At December 31, 2015 and 2014, in addition to the liability for unrecognized tax benefits, JPMorgan Chase Bank, N.A. had accrued \$354 million and \$556 million, respectively, for income tax-related interest and penalties.

### Tax examination status

JPMorgan Chase Bank, N.A. is continually under examination by the Internal Revenue Service, by taxing authorities throughout the world, and by many states throughout the U.S. The following table summarizes the status of significant income tax examinations of JPMorgan Chase Bank, N.A. and its consolidated subsidiaries as of December 31, 2015.

December 31, 2015	Periods under examination	Status
JPMorgan Chase - U.S.	2003 - 2005	Field examination completed, at Appellate level
JPMorgan Chase - U.S.	2006 - 2010	Field examination completed, JPMorgan Chase filed amended returns and intends to appeal
JPMorgan Chase - U.S.	2011 - 2013	Field Examination
JPMorgan Chase - New York State	2008 - 2011	Field Examination
JPMorgan Chase - California	2011 - 2012	Field Examination
JPMorgan Chase - United Kingdom	2006 - 2012	Field examination of certain select entities

### Note 25 - Restrictions on cash and intercompany funds transfers

The business of JPMorgan Chase Bank, N.A. is subject to examination and regulation by the OCC. JPMorgan Chase Bank, N.A. is a member of the U.S. Federal Reserve System, and its deposits in the U.S. are insured by the FDIC.

The Federal Reserve requires depository institutions to maintain cash reserves with a Federal Reserve Bank. The average required amount of reserve balances deposited by JPMorgan Chase Bank, N.A. with various Federal Reserve Banks was approximately \$14.4 billion and \$10.6 billion in 2015 and 2014, respectively.

Restrictions imposed by U.S. federal law prohibit JPMorgan Chase & Co. and certain of its affiliates from borrowing from JPMorgan Chase Bank, N.A. and other banking subsidiaries unless the loans are secured in specified amounts. Such secured loans by JPMorgan Chase Bank, N.A. to any particular affiliate, together with certain other transactions with such affiliate, (collectively referred to as "covered transactions"), are generally limited to 10% of JPMorgan Chase Bank, N.A.'s total capital, as determined by the risk-based capital guidelines; the aggregate amount of covered transactions between JPMorgan Chase Bank, N.A. and all affiliates is limited to 20% of JPMorgan Chase Bank, N.A.'s total capital.

In addition to dividend restrictions set forth in statutes and regulations, the OCC, and under certain circumstances the FDIC, have authority under the Financial Institutions Supervisory Act to prohibit or to limit the payment of dividends by the banking organizations they supervise, including JPMorgan Chase Bank, N.A. if, in the banking regulator's opinion, payment of a dividend would constitute an unsafe or unsound practice in light of the financial condition of the banking organization.

At January 1, 2016, JPMorgan Chase Bank, N.A. could pay, in the aggregate, approximately \$24 billion in dividends to JPMorgan Chase without the prior approval of its relevant banking regulators. The capacity to pay dividends in 2016 will be supplemented by JPMorgan Chase Bank, N.A.'s earnings during the year.

In compliance with rules and regulations established by U.S. and non-U.S. regulators, as of December 31, 2015 and 2014, cash in the amount of \$5.6 billion and \$9.6 billion, respectively, were segregated in special bank accounts for the benefit of securities and futures brokerage customers. Also, as of December 31, 2015 and 2014, JPMorgan Chase Bank, N.A. had receivables within other assets of \$4.9 billion and \$4.2 billion, respectively, consisting of cash deposited with clearing organizations for the benefit of customers. In addition, as of December 31, 2015 and 2014, JPMorgan Chase Bank, N.A. had other restricted cash of \$3.2 billion and \$2.8 billion, respectively, primarily representing cash reserves held at non-U.S. central banks and held for other general purposes.

## Note 26 – Regulatory capital

JPMorgan Chase Bank, N.A.'s banking regulator, the OCC, establishes capital requirements, including well-capitalized standards for national banks.

### *Basel III overview*

Basel III capital rules for JPMorgan Chase Bank, N.A., revised, among other things, the definition of capital and introduced a new common equity tier 1 capital ("CET1 capital") requirement. Basel III presents two comprehensive methodologies for calculating risk-weighted assets ("RWA"), a general (Standardized) approach, which replaced Basel I RWA effective January 1, 2015 ("Basel III Standardized") and an advanced approach, which replaced Basel II RWA ("Basel III Advanced"); and sets out minimum capital ratios and overall capital adequacy standards. Certain of the requirements of Basel III are subject to phase-in periods that began on January 1, 2014 and continue through the end of 2018 ("transitional period").

### Definition of capital

Basel III revised Basel I and II by narrowing the definition of capital and increasing the capital requirements for specific exposures. Under Basel III, CET1 capital predominantly includes common stockholder's equity (including capital for AOCI related to debt and equity securities classified as AFS as well as for defined benefit pension and other postretirement employee benefit ("OPEB") plans), less certain deductions for goodwill, MSRs and deferred tax assets that arise from net operating loss ("NOL") and tax credit carryforwards. Tier 1 capital is predominantly comprised of CET1 capital as well as qualifying perpetual preferred stock. Tier 2 capital includes long-term debt qualifying as Tier 2 and qualifying allowance for credit losses. Total capital is Tier 1 capital plus Tier 2 capital. The revisions to CET1 capital, Tier 1 capital and Tier 2 capital are subject to phase-in periods that began January 1, 2014, and continue through the end of 2018, and during that period, CET1 capital, Tier 1 capital and Tier 2 capital represent Basel III Transitional capital.

### Risk-weighted assets

Basel III establishes two comprehensive methodologies for calculating RWA (a Standardized approach and an Advanced approach) which include capital requirements for credit risk, market risk, and in the case of Basel III Advanced, also operational risk. Key differences in the calculation of credit risk RWA between the Standardized and Advanced approaches are that for Basel III Advanced, credit risk RWA is based on risk-sensitive approaches which largely rely on the use of internal credit models and parameters, whereas for Basel III Standardized, credit risk RWA is generally based on supervisory risk-weightings which vary primarily by counterparty type and asset class. Market risk RWA is calculated on a generally consistent basis between Basel III Standardized and Basel III Advanced, both of which incorporate the requirements set forth in Basel 2.5. In addition to the RWA calculated under these methodologies, JPMorgan Chase Bank, N.A. may supplement such amounts

to incorporate management judgment and feedback from its bank regulators.

### *Risk-based capital regulatory minimums*

The Basel III rules include minimum capital ratio requirements that are also subject to phase-in periods and will become fully phased-in on January 1, 2019. Basel III also establishes a minimum 6.5% CET1 standard for the definition of "well-capitalized" under the Prompt Corrective Action ("PCA") requirements of the FDIC Improvement Act ("FDICIA"). The CET1 standard was effective beginning with the first reporting period of 2015.

Under the risk-based capital guidelines of the OCC, JPMorgan Chase Bank, N.A. is required to maintain minimum ratios of CET1, Tier 1 and Total capital to risk-weighted assets, as well as a minimum leverage ratio (which is defined as Tier 1 capital divided by adjusted quarterly average assets). Failure to meet these minimum requirements could cause the OCC to take action. The following table presents the minimum ratios to which JPMorgan Chase Bank, N.A. is subject to as of December 31, 2015.

	Minimum capital ratios <sup>(a)</sup>	Well-capitalized ratios <sup>(b)</sup>
<b>Capital ratios</b>		
CET1	4.5%	6.5%
Tier 1	6.0	8.0
Total	8.0	10.0
Tier 1 leverage	4.0	5.0

- (a) As defined by the regulations issued by the OCC and FDIC and to which JPMorgan Chase Bank, N.A. and its subsidiaries are subject.
- (b) Represents requirements for bank subsidiaries pursuant to regulations issued under the FDIC Improvement Act.

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As of December 31, 2015, and 2014, JPMorgan Chase Bank, N.A. was well-capitalized and met all capital requirements to which it was subject.

The following table presents the regulatory capital, assets and risk-based capital ratios for JPMorgan Chase Bank, N.A. under both Basel III Standardized Transitional and Basel III Advanced Transitional at December 31, 2015 and 2014.

JPMorgan Chase Bank, N.A. <sup>(f)</sup>				
(in millions, except ratios)	Basel III Standardized Transitional		Basel III Advanced Transitional	
	Dec 31, 2015	Dec 31, 2014	Dec 31, 2015	Dec 31, 2014
<b>Regulatory capital</b>				
CET1 capital	\$ 168,857	\$ 156,567	\$ 168,857	\$ 156,567
Tier 1 capital <sup>(a)</sup>	169,222	156,891	169,222	156,891
Total capital	183,262	173,322	176,423	166,326
<b>Assets</b>				
Risk-weighted <sup>(b)</sup>	1,264,056 <sup>(f)</sup>	1,230,358	1,249,607	1,330,175
Adjusted average <sup>(c)</sup>	1,913,448	1,968,131	1,913,448	1,968,131
<b>Capital ratios<sup>(d)</sup></b>				
CET1	13.4%	12.7%	13.5%	11.8%
Tier 1 <sup>(a)</sup>	13.4	12.8	13.5	11.8
Total	14.5	14.1	14.1	12.5
Tier 1 leverage <sup>(e)</sup>	8.8	8.0	8.8	8.0

- (a) At December 31, 2015, preferred securities of subsidiaries included in Basel III Tier 1 capital were \$420 million for JPMorgan Chase Bank, N.A.
- (b) Effective January 1, 2015, the Basel III Standardized RWA is calculated under the Basel III definition of the Standardized approach. Prior periods were based on Basel I (inclusive of Basel 2.5).
- (c) Adjusted average assets, for purposes of calculating the Tier 1 leverage ratio, includes total quarterly average assets adjusted for unrealized gains/(losses) on securities, less deductions for goodwill and other intangible assets, defined benefit pension plan assets, and deferred tax assets related to net operating loss carryforwards.
- (d) For each of the risk-based capital ratios, the capital adequacy of JPMorgan Chase Bank, N.A. and its subsidiaries are evaluated against the Basel III approach, Standardized or Advanced, resulting in the lower ratio (the "Collins Floor"), as required by the Collins Amendment of the Dodd-Frank Act.
- (e) The Tier 1 leverage ratio is not a risk-based measure of capital. This ratio is calculated by dividing Tier 1 capital by adjusted average assets.
- (f) Assets and capital amounts for JPMorgan Chase Bank, N.A. and its subsidiaries reflect intercompany transactions.

Note: Rating agencies allow measures of capital to be adjusted upward for deferred tax liabilities, which have resulted from both non-taxable business combinations and from tax-deductible goodwill. JPMorgan Chase Bank, N.A. had deferred tax liabilities resulting from non-taxable business combinations of \$46 million and \$63 million at December 31, 2015, and 2014, respectively; and deferred tax liabilities resulting from tax-deductible goodwill of \$1.7 billion and \$1.5 billion at December 31, 2015, and 2014, respectively.

### Supplementary leverage ratio ("SLR")

Basel III also includes a requirement for Advanced Approach banking organizations to calculate a SLR. The SLR is defined as Tier 1 capital under Basel III divided by JPMorgan Chase Bank, N.A.'s total leverage exposure. Total leverage exposure is calculated by taking JPMorgan Chase Bank, N.A.'s total average on-balance sheet assets, less amounts permitted to be deducted for Tier 1 capital, and adding certain off-balance sheet exposures, such as undrawn commitments and derivatives potential future exposure.

On September 3, 2014, the U.S. banking regulators adopted a final rule for the calculation of the SLR. The U.S. final rule requires public disclosure of the SLR beginning with the first quarter of 2015, and also requires JPMorgan Chase Bank, N.A. to have a minimum SLR of 6%, beginning January 1, 2018.

### Repayment of subordinated debt payable to JPMorgan Chase and JPMorgan Chase's capital contribution

During 2014, JPMorgan Chase Bank, N.A. prepaid to JPMorgan Chase \$5.9 billion (carrying value) of subordinated debt for cash of \$5.4 billion (fair value). The difference between the fair and carrying values of the subordinated debt was accounted for in accordance with U.S. GAAP for transactions between related parties as an equity transaction, which is reported as a contribution of capital from JPMorgan Chase to JPMorgan Chase Bank, N.A. in the Consolidated statements of changes in stockholder's equity. The capital contribution increased the CET 1 capital and Tier 1 capital of JPMorgan Chase Bank, N.A. and was used for general banking purposes.



## **Note 27 – Off-balance sheet lending-related financial instruments, guarantees, and other commitments**

JPMorgan Chase Bank, N.A. provides lending-related financial instruments (e.g., commitments and guarantees) to meet the financing needs of its customers. The contractual amount of these financial instruments represents the maximum possible credit risk to JPMorgan Chase Bank, N.A. should the counterparty draw upon the commitment or JPMorgan Chase Bank, N.A. be required to fulfill its obligation under the guarantee, and should the counterparty subsequently fail to perform according to the terms of the contract. Most of these commitments and guarantees expire without being drawn or a default occurring. As a result, the total contractual amount of these instruments is not, in JPMorgan Chase Bank, N.A.'s view, representative of its actual future credit exposure or funding requirements.

To provide for probable credit losses inherent in wholesale and certain consumer lending-commitments, an allowance for credit losses on lending-related commitments is maintained. See Note 16 for further information regarding the allowance for credit losses on lending-related commitments. The following table summarizes the contractual amounts and carrying values of off-balance sheet lending-related financial instruments, guarantees and other commitments at December 31, 2015 and 2014. The amounts in the table below for credit card and home equity lending-related commitments represent the total available credit for these products. JPMorgan Chase Bank, N.A. has not experienced, and does not anticipate, that all available lines of credit for these products will be utilized at the same time. JPMorgan Chase Bank, N.A. can reduce or cancel credit card lines of credit by providing the borrower notice or, in some cases as permitted by law, without notice. In addition, JPMorgan Chase Bank, N.A. typically closes credit card lines when the borrower is 60 days or more past due. JPMorgan Chase Bank, N.A. may reduce or close home equity lines of credit when there are significant decreases in the value of the underlying property, or when there has been a demonstrable decline in the creditworthiness of the borrower.

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### Off-balance sheet lending-related financial instruments, guarantees and other commitments

By remaining maturity at December 31, (in millions)	Contractual amount					Carrying value <sup>(j)</sup>		
	2015					2014	2015	2014
	Expires in 1 year or less	Expires after 1 year through 3 years	Expires after 3 years through 5 years	Expires after 5 years	Total	Total		
<b>Lending-related</b>								
Consumer, excluding credit card:								
Home equity - senior lien	\$ 1,546	\$ 3,817	\$ 726	\$ 4,743	\$ 10,832	\$ 11,783	\$ -	\$ -
Home equity - junior lien	2,375	4,354	657	4,538	11,924	14,783	-	-
Prime mortgage <sup>(a)</sup>	12,992	-	-	-	12,992	8,579	-	-
Subprime mortgage	-	-	-	-	-	-	-	-
Auto	8,907	1,160	80	90	10,237	10,462	2	2
Business banking	11,247	699	92	475	12,513	12,052	12	11
Student and other	4	3	-	135	142	526	-	-
<b>Total consumer, excluding credit card<sup>(b)</sup></b>	<b>37,071</b>	<b>10,033</b>	<b>1,555</b>	<b>9,981</b>	<b>58,640</b>	<b>58,185</b>	<b>14</b>	<b>13</b>
Credit card	10,386	-	-	-	10,386	29,065	-	-
<b>Total consumer<sup>(b)</sup></b>	<b>47,457</b>	<b>10,033</b>	<b>1,555</b>	<b>9,981</b>	<b>69,026</b>	<b>87,250</b>	<b>14</b>	<b>13</b>
Wholesale:								
Other unfunded commitments to extend credit <sup>(c)(d)(e)(f)</sup>	80,289	89,833	140,474	6,898	317,494	311,841	649	490
Standby letters of credit and other financial guarantees <sup>(c)(e)(f)</sup>	16,297	14,287	5,819	2,944	39,347	44,496	548	669
Other letters of credit <sup>(c)</sup>	3,570	304	67	-	3,941	4,331	2	1
<b>Total wholesale<sup>(g)</sup></b>	<b>100,156</b>	<b>104,424</b>	<b>146,360</b>	<b>9,842</b>	<b>360,782</b>	<b>360,668</b>	<b>1,199</b>	<b>1,160</b>
<b>Total lending-related</b>	<b>\$ 147,613</b>	<b>\$ 114,457</b>	<b>\$ 147,915</b>	<b>\$ 19,823</b>	<b>\$ 429,808</b>	<b>\$ 447,918</b>	<b>\$ 1,213</b>	<b>\$ 1,173</b>
<b>Other guarantees and commitments</b>								
Securities lending indemnification agreements and guarantees <sup>(h)</sup>	\$ 187,850	\$ -	\$ -	\$ -	\$ 187,850	\$ 181,047	\$ -	\$ -
Derivatives qualifying as guarantees	3,194	285	11,160	39,144	53,783	53,068	222	56
Unsettled reverse repurchase and securities borrowing agreements	38,026	-	-	-	38,026	38,364	-	-
Unsettled repurchase and securities lending agreements	20,008	-	-	-	20,008	40,441	-	-
Loan sale and securitization-related indemnifications:								
Mortgage repurchase liability	NA	NA	NA	NA	NA	NA	144	252
Loans sold with recourse	NA	NA	NA	NA	3,751	5,517	45	71
<b>Other guarantees and commitments<sup>(i)</sup></b>	<b>1,179</b>	<b>11,673</b>	<b>987</b>	<b>1,074</b>	<b>14,913</b>	<b>16,247</b>	<b>(113)</b>	<b>(147)</b>

(a) Includes certain commitments to purchase loans from correspondents.

(b) Predominantly all consumer lending-related commitments are in the U.S.

(c) At December 31, 2015 and 2014, reflects the contractual amount net of risk participations totaling \$385 million and \$243 million, respectively, for other unfunded commitments to extend credit; \$11.2 billion and \$13.0 billion, respectively, for standby letters of credit and other financial guarantees; and \$341 million and \$469 million, respectively, for other letters of credit. In regulatory filings with the Federal Reserve these commitments are shown gross of risk participations.

(d) At both December 31, 2015 and 2014, included commitments to affiliates of \$16 million.

(e) At December 31, 2015 and 2014, included credit enhancements and bond and commercial paper liquidity commitments to U.S. states and municipalities, hospitals and other nonprofit entities of \$12.3 billion and \$14.8 billion, respectively, within other unfunded commitments to extend credit; and \$9.6 billion and \$13.3 billion, respectively, within standby letters of credit and other financial guarantees. Other unfunded commitments to extend credit also include liquidity facilities to nonconsolidated municipal bond VIEs; see Note 17.

(f) Effective in 2015, commitments to issue standby letters of credit, including those that could be issued under multipurpose facilities are, presented as other unfunded commitments to extend credit. Previously, such commitments were presented as standby letters of credit and other financial guarantees. At December 31, 2014, these commitments were \$45.6 billion. Prior period amounts have been revised to conform with current period presentation.

(g) Effective January 1, 2015, JPMorgan Chase Bank, N.A. no longer includes within its disclosure of wholesale lending-related commitments the unused amounts of advised uncommitted lines of credit as it is within JPMorgan Chase Bank, N.A.'s discretion whether or not to make a loan under these lines, and JPMorgan Chase Bank, N.A.'s approval is generally required prior to funding. Prior period amounts have been revised to conform with the current period presentation.

(h) At December 31, 2015 and 2014, collateral held by JPMorgan Chase Bank, N.A. in support of securities lending indemnification agreements was \$195.2 billion and \$187.4 billion, respectively. Securities lending collateral comprises primarily cash and securities issued by governments that are members of the Organisation for Economic Co-operation and Development ("OECD") and U.S. government agencies.

(i) At December 31, 2015 and 2014, included guarantees of the obligations of affiliates of \$10.3 billion and \$11.8 billion; and unfunded equity investment commitments of \$2 million and \$26 million, respectively. In addition, at both December 31, 2015 and 2014, included letters of credit hedged by derivative transactions and managed on a market risk basis of \$4.6 billion and \$4.5 billion, respectively.

(j) For lending-related products, the carrying value represents the allowance for lending-related commitments and the guarantee liability; for derivative-related products, the carrying value represents the fair value.

**Other unfunded commitments to extend credit**

Other unfunded commitments to extend credit generally consist of commitments for working capital and general corporate purposes, extensions of credit to support commercial paper facilities and bond financings in the event that those obligations cannot be remarketed to new investors, as well as committed liquidity facilities to clearing organizations. JPMorgan Chase Bank, N.A. also issues commitments under multipurpose facilities which could be drawn upon in several forms, including the issuance of a standby letter of credit.

Also included in other unfunded commitments to extend credit are commitments to noninvestment-grade counterparties in connection with leveraged finance activities, which were \$32.0 billion and \$23.2 billion at December 31, 2015 and 2014, respectively. For further information, see Note 4 and Note 5.

JPMorgan Chase Bank, N.A. acts as a settlement and custody bank in the U.S. tri-party repurchase transaction market. In its role as settlement and custody bank, JPMorgan Chase Bank, N.A. is exposed to the intra-day credit risk of its cash borrower clients, usually broker-dealers. This exposure arises under secured clearance advance facilities that JPMorgan Chase Bank, N.A. extends to its clients (i.e. cash borrowers); these facilities contractually limit JPMorgan Chase Bank, N.A.'s intra-day credit risk to the facility amount and must be repaid by the end of the day. As of December 31, 2015 and 2014, the secured clearance advance facility maximum outstanding commitment amount was \$4.9 billion and \$15.5 billion, respectively.

**Guarantees**

U.S. GAAP requires that a guarantor recognize, at the inception of a guarantee, a liability in an amount equal to the fair value of the obligation undertaken in issuing the guarantee. U.S. GAAP defines a guarantee as a contract that contingently requires the guarantor to pay a guaranteed party based upon: (a) changes in an underlying asset, liability or equity security of the guaranteed party; or (b) a third party's failure to perform under a specified agreement. JPMorgan Chase Bank, N.A. considers the following off-balance sheet lending-related arrangements to be guarantees under U.S. GAAP: standby letters of credit and financial guarantees, securities lending indemnifications, certain indemnification agreements included within third-party contractual arrangements and certain derivative contracts.

As required by U.S. GAAP, JPMorgan Chase Bank, N.A. initially records guarantees at the inception date fair value of the obligation assumed (e.g., the amount of consideration received or the net present value of the premium receivable). For certain types of guarantees, JPMorgan Chase Bank, N.A. records this fair value amount in other liabilities with an offsetting entry recorded in cash (for premiums received), or other assets (for premiums receivable). Any premium receivable recorded in other assets is reduced as cash is received under the contract, and the fair value of the liability recorded at inception is amortized into income as lending and deposit-related fees over the life of the guarantee contract. For indemnifications provided in sales agreements, a portion of the sale proceeds is allocated to the guarantee, which adjusts the gain or loss that would otherwise result from the transaction. For these indemnifications, the initial liability is amortized to income as JPMorgan Chase Bank, N.A.'s risk is reduced (i.e., over time or when the indemnification expires). Any contingent liability that exists as a result of issuing the guarantee or indemnification is recognized when it becomes probable and reasonably estimable. The contingent portion of the liability is not recognized if the estimated amount is less than the carrying amount of the liability recognized at inception (adjusted for any amortization). The recorded amounts of the liabilities related to guarantees and indemnifications at December 31, 2015 and 2014, excluding the allowance for credit losses on lending-related commitments, are discussed below.

**Standby letters of credit and other financial guarantees**

Standby letters of credit ("SBLC") and other financial guarantees are conditional lending commitments issued by JPMorgan Chase Bank, N.A. to guarantee the performance of a customer to a third party under certain arrangements, such as commercial paper facilities, bond financings, acquisition financings, trade and similar transactions. The carrying values of standby and other letters of credit were \$550 million and \$670 million at December 31, 2015 and 2014, respectively, which were classified in accounts payable and other liabilities on the Consolidated balance sheets; these carrying values included \$123 million and \$116 million, respectively, for the allowance for lending-related commitments, and \$427 million and \$554 million, respectively, for the guarantee liability and corresponding asset.

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The following table summarizes the types of facilities under which standby letters of credit and other letters of credit arrangements are outstanding by the ratings profiles of JPMorgan Chase Bank, N.A.'s customers, as of December 31, 2015 and 2014.

### Standby letters of credit, other financial guarantees and other letters of credit

December 31, (in millions)	2015		2014	
	Standby letters of credit and other financial guarantees <sup>(b)</sup>	Other letters of credit	Standby letters of credit and other financial guarantees <sup>(b)</sup>	Other letters of credit
Investment-grade <sup>(a)</sup>	\$ 31,751	\$ 3,290	\$ 37,708	\$ 3,476
Noninvestment-grade <sup>(a)</sup>	7,382	650	6,788	855
<b>Total contractual amount</b>	<b>\$ 39,133</b>	<b>\$ 3,940</b>	<b>\$ 44,496</b>	<b>\$ 4,331</b>
Allowance for lending-related commitments	\$ 121	\$ 2	\$ 115	\$ 1
<b>Commitments with collateral</b>	<b>18,825</b>	<b>996</b>	<b>20,750</b>	<b>1,509</b>

(a) The ratings scale is based on JPMorgan Chase Bank, N.A.'s internal ratings, which generally correspond to ratings as defined by S&P and Moody's.

(b) Effective in 2015, commitments to issue standby letters of credit, including those that could be issued under multipurpose facilities, are presented as other unfunded commitments to extend credit. Previously, such commitments were presented as standby letters of credit and other financial guarantees. At December 31, 2014, these commitments were \$45.6 billion. Prior period amounts have been revised to conform with current period presentation.

### Securities lending indemnifications

Through JPMorgan Chase Bank, N.A.'s securities lending program, customers' securities, via custodial and non-custodial arrangements, may be lent to third parties. As part of this program, JPMorgan Chase Bank, N.A. provides an indemnification in the lending agreements which protects the lender against the failure of the borrower to return the lent securities. To minimize its liability under these indemnification agreements, JPMorgan Chase Bank, N.A. obtains cash or other highly liquid collateral with a market value exceeding 100% of the value of the securities on loan from the borrower. Collateral is marked to market daily to help assure that collateralization is adequate. Additional collateral is called from the borrower if a shortfall exists, or collateral may be released to the borrower in the event of overcollateralization. If a borrower defaults, JPMorgan Chase Bank, N.A. would use the collateral held to purchase replacement securities in the market or to credit the lending customer with the cash equivalent thereof.

### Derivatives qualifying as guarantees

In addition to the contracts described above, JPMorgan Chase Bank, N.A. transacts certain derivative contracts that have the characteristics of a guarantee under U.S. GAAP. These contracts include written put options that require JPMorgan Chase Bank, N.A. to purchase assets upon exercise by the option holder at a specified price by a specified date in the future. JPMorgan Chase Bank, N.A. may enter into written put option contracts in order to meet client needs, or for other trading purposes. The terms of written put options are typically five years or less. Derivatives deemed to be guarantees also include contracts such as stable value derivatives that require JPMorgan Chase Bank, N.A. to make a payment of the difference between the market value and the book value of a counterparty's reference portfolio of assets in the event that market value is less than book value and certain other

conditions have been met. Stable value derivatives, commonly referred to as "stable value wraps", are transacted in order to allow investors to realize investment returns with less volatility than an unprotected portfolio and are typically longer-term or may have no stated maturity, but allow JPMorgan Chase Bank, N.A. to terminate the contract under certain conditions.

Derivatives deemed to be guarantees are recorded on the Consolidated balance sheets at fair value in trading assets and trading liabilities. The total notional value of the derivatives that JPMorgan Chase Bank, N.A. deems to be guarantees was \$53.8 billion and \$53.1 billion at December 31, 2015 and 2014, respectively. The notional amount generally represents JPMorgan Chase Bank, N.A.'s maximum exposure to derivatives qualifying as guarantees. However, exposure to certain stable value contracts is contractually limited to a substantially lower percentage of the notional amount; the notional amount on these stable value contracts was \$28.4 billion and \$27.5 billion at December 31, 2015 and 2014, respectively, and the maximum exposure to loss was \$3.0 billion and \$2.9 billion at December 31, 2015 and 2014, respectively. The fair values of the contracts reflect the probability of whether JPMorgan Chase Bank, N.A. will be required to perform under the contract. The fair value of derivatives that JPMorgan Chase Bank, N.A. deems to be guarantees were derivative payables of \$236 million and \$78 million and derivative receivables of \$14 million and \$22 million at December 31, 2015 and 2014, respectively. JPMorgan Chase Bank, N.A. reduces exposures to these contracts by entering into offsetting transactions, or by entering into contracts that hedge the market risk related to the derivative guarantees.

In addition to derivative contracts that meet the characteristics of a guarantee, JPMorgan Chase Bank, N.A. is both a purchaser and seller of credit protection in the

credit derivatives market. For a further discussion of credit derivatives, see Note 7.

#### **Unsettled reverse repurchase and securities borrowing agreements, and unsettled repurchase and securities lending agreements**

In the normal course of business, JPMorgan Chase Bank, N.A. enters into reverse repurchase agreements and securities borrowing agreements, which are secured financing agreements. Such agreements settle at a future date. At settlement, these commitments result in JPMorgan Chase Bank, N.A. advancing cash to and receiving securities collateral from the counterparty. JPMorgan Chase Bank, N.A. also enters into repurchase agreements and securities lending agreements. At settlement, these commitments result in JPMorgan Chase Bank N.A. receiving cash from and providing securities collateral to the counterparty. These agreements generally do not meet the definition of a derivative, and therefore, are not recorded on the Consolidated balance sheets until settlement date. These agreements predominantly consist of agreements with regular-way settlement periods. For a further discussion of securities purchased under resale agreements and securities borrowed, and securities sold under repurchase agreements and securities loaned, see Note 14.

#### **Loan sales- and securitization-related indemnifications**

##### *Mortgage repurchase liability*

In connection with JPMorgan Chase Bank, N.A.'s mortgage loan sale and securitization activities with U.S. GSEs, as described in Note 17, JPMorgan Chase Bank, N.A. has made representations and warranties that the loans sold meet certain requirements. JPMorgan Chase Bank, N.A. has been, and may be, required to repurchase loans and/or indemnify U.S. GSEs (e.g., with "make-whole" payments to reimburse U.S. GSEs for their realized losses on liquidated loans). To the extent that repurchase demands that are received relate to loans that JPMorgan Chase Bank, N.A. purchased from third parties that remain viable, JPMorgan Chase Bank, N.A. typically will have the right to seek a recovery of related repurchase losses from the third party. Generally, the maximum amount of future payments JPMorgan Chase Bank, N.A. would be required to make for breaches of these representations and warranties would be equal to the unpaid principal balance of such loans that are deemed to have defects that were sold to purchasers (including securitization-related SPEs) plus, in certain circumstances, accrued interest on such loans and certain expense. The carrying values of the repurchase liabilities were \$144 million and \$252 million at December 31, 2015 and 2014, respectively.

##### *Private label securitizations*

The liability related to repurchase demands associated with private label securitizations is separately evaluated by JPMorgan Chase Bank, N.A. in establishing its litigation reserves.

On November 15, 2013, JPMorgan Chase Bank, N.A. announced that it had reached a \$4.5 billion agreement

with 21 major institutional investors to make a binding offer to the trustees of 330 residential mortgage-backed securities trusts issued by J.P.Morgan, Chase, and Bear Stearns ("RMBS Trust Settlement") to resolve all representation and warranty claims, as well as all servicing claims, on all trusts issued by J.P. Morgan, Chase, and Bear Stearns between 2005 and 2008. For further information see Note 29.

In addition, from 2005 to 2008, Washington Mutual made certain loan level representations and warranties in connection with approximately \$165 billion of residential mortgage loans that were originally sold or deposited into private-label securitizations by Washington Mutual. Of the \$165 billion, approximately \$81 billion has been repaid. In addition, approximately \$50 billion of the principal amount of such loans has liquidated with an average loss severity of 59%. Accordingly, the remaining outstanding principal balance of these loans as of December 31, 2015, was approximately \$33 billion, of which \$6 billion was 60 days or more past due. JPMorgan Chase Bank, N.A. believes that any repurchase obligations related to these loans remain with the FDIC receivership.

For additional information regarding litigation, see Note 29.

##### *Loans sold with recourse*

JPMorgan Chase Bank, N.A. provides servicing for mortgages and certain commercial lending products on both a recourse and nonrecourse basis. In nonrecourse servicing, the principal credit risk to JPMorgan Chase Bank, N.A. is the cost of temporary servicing advances of funds (i.e., normal servicing advances). In recourse servicing, the servicer agrees to share credit risk with the owner of the mortgage loans, such as Fannie Mae or Freddie Mac or a private investor, insurer or guarantor. Losses on recourse servicing predominantly occur when foreclosure sales proceeds of the property underlying a defaulted loan are less than the sum of the outstanding principal balance, plus accrued interest on the loan and the cost of holding and disposing of the underlying property. JPMorgan Chase Bank, N.A.'s securitizations are predominantly nonrecourse, thereby effectively transferring the risk of future credit losses to the purchaser of the mortgage-backed securities issued by the trust. At December 31, 2015 and 2014, the unpaid principal balance of loans sold with recourse totaled \$3.8 billion and \$5.5 billion, respectively. The carrying value of the related liability that JPMorgan Chase Bank, N.A. has recorded, which is representative of JPMorgan Chase Bank, N.A.'s view of the likelihood it will have to perform under its recourse obligations, was \$45 million and \$71 million at December 31, 2015 and 2014, respectively.

#### **Other off-balance sheet arrangements**

##### *Indemnification agreements - general*

In connection with issuing securities to investors, JPMorgan Chase Bank, N.A. may enter into contractual arrangements with third parties that require JPMorgan Chase Bank, N.A.

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to make a payment to them in the event of a change in tax law or an adverse interpretation of tax law. In certain cases, the contract also may include a termination clause, which would allow JPMorgan Chase Bank, N.A. to settle the contract at its fair value in lieu of making a payment under the indemnification clause. JPMorgan Chase Bank, N.A. may also enter into indemnification clauses in connection with the licensing of software to clients (“software licensees”) or when it sells a business or assets to a third party (“third-party purchasers”), pursuant to which it indemnifies software licensees for claims of liability or damages that may occur subsequent to the licensing of the software, or third-party purchasers for losses they may incur due to actions taken by JPMorgan Chase Bank, N.A. prior to the sale of the business or assets. It is difficult to estimate JPMorgan Chase Bank, N.A.’s maximum exposure under these indemnification arrangements, since this would require an assessment of future changes in tax law and future claims that may be made against JPMorgan Chase Bank, N.A. that have not yet occurred. However, based on historical experience, management expects the risk of loss to be remote.

### *Card charge-backs*

Commerce Solutions, Card’s merchant services business, is a global leader in payment processing and merchant acquiring.

Under the rules of Visa USA, Inc., and MasterCard International, JPMorgan Chase Bank, N.A., is primarily liable for the amount of each processed card sales transaction that is the subject of a dispute between a cardmember and a merchant. If a dispute is resolved in the cardmember’s favor, Commerce Solutions will (through the cardmember’s issuing bank) credit or refund the amount to the cardmember and will charge back the transaction to the merchant. If Commerce Solutions is unable to collect the amount from the merchant, Commerce Solutions will bear the loss for the amount credited or refunded to the cardmember. Commerce Solutions mitigates this risk by withholding future settlements, retaining cash reserve accounts or by obtaining other security. However, in the unlikely event that: (1) a merchant ceases operations and is unable to deliver products, services or a refund; (2) Commerce Solutions does not have sufficient collateral from the merchant to provide customer refunds; and (3) Commerce Solutions does not have sufficient financial resources to provide customer refunds, JPMorgan Chase Bank, N.A., would recognize the loss.

Commerce Solutions incurred aggregate losses of \$12 million, \$10 million, and \$14 million on \$949.3 billion, \$847.9 billion, and \$750.1 billion of aggregate volume processed for the years ended December 31, 2015, 2014 and 2013, respectively. Incurred losses from merchant charge-backs are charged to other expense, with the offset recorded in a valuation allowance against accrued interest and accounts receivable on the Consolidated balance

sheets. The carrying value of the valuation allowance was \$20 million and \$4 million at December 31, 2015 and 2014, respectively, which JPMorgan Chase Bank, N.A. believes, based on historical experience and the collateral held by Commerce Solutions of \$136 million and \$174 million at December 31, 2015 and 2014, respectively, is representative of the payment or performance risk to JPMorgan Chase Bank, N.A. related to charge-backs.

### *Clearing Services - Client Credit Risk*

JPMorgan Chase Bank, N.A. provides clearing services for clients by entering into securities purchases and sales and derivative transactions, with CCPs, including ETDs such as futures and options, as well as OTC-cleared derivative contracts. As a clearing member, JPMorgan Chase Bank, N.A. stands behind the performance of its clients, collects cash and securities collateral (margin) as well as any settlement amounts due from or to clients, and remits them to the relevant CCP or client in whole or part. There are two types of margin. Variation margin is posted on a daily basis based on the value of clients’ derivative contracts. Initial margin is posted at inception of a derivative contract, generally on the basis of the potential changes in the variation margin requirement for the contract.

As clearing member, JPMorgan Chase Bank, N.A. is exposed to the risk of nonperformance by its clients, but is not liable to clients for the performance of the CCPs. Where possible, JPMorgan Chase Bank, N.A. seeks to mitigate its risk to the client through the collection of appropriate amounts of margin at inception and throughout the life of the transactions. JPMorgan Chase Bank, N.A. can also cease providing clearing services if clients do not adhere to their obligations under the clearing agreement. In the event of non-performance by a client, JPMorgan Chase Bank, N.A. would close out the client’s positions and access available margin. The CCP would utilize any margin it holds to make itself whole, with any remaining shortfalls required to be paid by JPMorgan Chase Bank, N.A. as a clearing member.

JPMorgan Chase Bank, N.A. reflects its exposure to nonperformance risk of the client through the recognition of margin payables or receivables to clients and CCPs, but does not reflect the clients’ underlying securities or derivative contracts on its Consolidated Financial Statements.

It is difficult to estimate JPMorgan Chase Bank, N.A.’s maximum possible exposure through its role as a clearing member, as this would require an assessment of transactions that clients may execute in the future. However, based upon historical experience, and the credit risk mitigants available to JPMorgan Chase Bank, N.A., management believes it is unlikely that JPMorgan Chase Bank, N.A. will have to make any material payments under these arrangements and the risk of loss is expected to be remote.

For information on the derivatives that JPMorgan Chase Bank, N.A. executes for its own account and records in its Consolidated Financial Statements, see Note 7.

#### *Exchange & Clearing House Memberships*

JPMorgan Chase Bank, N.A. is a member of several securities and derivative exchanges and clearing houses, both in the U.S. and other countries, and it provides clearing services. Membership in some of these organizations requires JPMorgan Chase Bank, N.A. to pay a pro rata share of the losses incurred by the organization as a result of the default of another member. Such obligations vary with different organizations. These obligations may be limited to members who dealt with the defaulting member or to the amount (or a multiple of the amount) of JPMorgan Chase Bank, N.A.'s contribution to the guarantee fund maintained by a clearing house or exchange as part of the resources available to cover any losses in the event of a member default. Alternatively, these obligations may be a full pro-rata share of the residual losses after applying the guarantee fund. Additionally, certain clearing houses require JPMorgan Chase Bank, N.A. as a member to pay a pro rata share of losses resulting from the clearing house's investment of guarantee fund contributions and initial margin, unrelated to and independent of the default of another member. Generally a payment would only be required should such losses exceed the resources of the clearing house or exchange that are contractually required to absorb the losses in the first instance. It is difficult to estimate JPMorgan Chase Bank, N.A.'s maximum possible exposure under these membership agreements, since this would require an assessment of future claims that may be made against JPMorgan Chase Bank, N.A. that have not yet occurred. However, based on historical experience, management expects the risk of loss to be remote.

#### *Guarantees of subsidiaries and affiliates*

In the normal course of business, JPMorgan Chase Bank, N.A. may provide counterparties with guarantees of certain of the trading and other obligations of its subsidiaries and affiliates on a contract-by-contract basis, as negotiated with JPMorgan Chase Bank, N.A.'s counterparties. The obligations of the subsidiaries are included on JPMorgan Chase Bank, N.A.'s Consolidated balance sheets or are reflected as off-balance sheet commitments; therefore, JPMorgan Chase Bank, N.A. has not recognized a separate liability for these guarantees. As at December 31, 2015 and 2014, JPMorgan Chase Bank, N.A. had provided guarantees of \$10.3 billion and \$11.8 billion, respectively, of the obligations of affiliates. JPMorgan Chase Bank, N.A. believes that the occurrence of any event that would trigger payments by JPMorgan Chase Bank, N.A. under these guarantees is remote.

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### Note 28 – Commitments, pledged assets and collateral

#### Lease commitments

At December 31, 2015, JPMorgan Chase Bank, N.A. and its subsidiaries were obligated under a number of noncancelable operating leases for premises and equipment used primarily for banking purposes. Certain leases contain renewal options or escalation clauses providing for increased rental payments based on maintenance, utility and tax increases, or they require JPMorgan Chase Bank, N.A. to perform restoration work on leased premises. No lease agreement imposes restrictions on JPMorgan Chase Bank, N.A.'s ability to pay dividends, engage in debt or equity financing transactions or enter into further lease agreements.

The following table presents required future minimum rental payments under operating leases with noncancelable lease terms that expire after December 31, 2015.

Year ended December 31, (in millions)	
2016	\$ 1,311
2017	1,300
2018	1,231
2019	1,137
2020	1,021
After 2020	4,063
<b>Total minimum payments required</b>	<b>10,063</b>
Less: Sublease rentals under noncancelable subleases	(1,167)
<b>Net minimum payment required</b>	<b>\$ 8,896</b>

Total rental expense was as follows.

Year ended December 31, (in millions)	2015	2014	2013
Gross rental expense	\$ 1,672	\$ 1,720	\$ 1,634
Sublease rental income	(198)	(187)	(197)
<b>Net rental expense</b>	<b>\$ 1,474</b>	<b>\$ 1,533</b>	<b>\$ 1,437</b>

#### Pledged assets

JPMorgan Chase Bank, N.A. may pledge financial assets that it owns to maintain potential borrowing capacity with central banks and for other purposes, including to secure borrowings and public deposits, and to collateralize repurchase and other securities financing agreements. Certain of these pledged assets may be sold or repledged by the secured parties and are identified as financial instruments owned (pledged to various parties) on the Consolidated balance sheets. At December 31, 2015 and 2014, JPMorgan Chase Bank, N.A. had pledged assets of \$338.6 billion and \$274.8 billion, respectively, at Federal Reserve Banks and FHLBs. In addition, as of December 31, 2015 and 2014, JPMorgan Chase Bank, N.A. had pledged \$39.4 billion and \$46.1 billion, respectively, of financial assets that may not be sold or repledged by the secured parties. Total assets pledged do not include assets of consolidated VIEs; these assets are used to settle the liabilities of those entities. See Note 17 for additional information on assets and liabilities of consolidated VIEs. For additional information on JPMorgan Chase Bank, N.A.'s securities financing activities and long-term debt, see Note 14, and Note 21, respectively. The significant components of JPMorgan Chase Bank, N.A.'s pledged assets were as follows.

December 31, (in billions)	2015	2014
Securities	\$ 125.6	\$ 121.5
Loans	251.4	198.2
Trading assets and other	74.1	78.5
<b>Total assets pledged</b>	<b>\$ 451.1</b>	<b>\$ 398.2</b>

#### Collateral

At December 31, 2015 and 2014, JPMorgan Chase Bank, N.A. had accepted assets as collateral that it could sell or repledge, deliver or otherwise use with a fair value of approximately \$417.3 billion and \$412.9 billion, respectively. This collateral was generally obtained under resale agreements, securities borrowing agreements, customer margin loans and derivative agreements. Of the collateral received, approximately \$303.6 billion and \$326.3 billion, respectively, were sold or repledged, generally as collateral under repurchase agreements, securities lending agreements or to cover short sales and to collateralize deposits and derivative agreements.



## Note 29 – Litigation

### Contingencies

As of December 31, 2015, JPMorgan Chase and its subsidiaries, including but not limited to JPMorgan Chase Bank, N.A., are defendants or putative defendants in numerous legal proceedings, including private, civil litigations and regulatory/government investigations. The litigations range from individual actions involving a single plaintiff to class action lawsuits with potentially millions of class members. Investigations involve both formal and informal proceedings, by both governmental agencies and self-regulatory organizations. These legal proceedings are at varying stages of adjudication, arbitration or investigation, and involve each of JPMorgan Chase's lines of business and geographies and a wide variety of claims (including common law tort and contract claims and statutory antitrust, securities and consumer protection claims), some of which present novel legal theories.

Estimates of reasonably possible losses for legal proceedings are analyzed and managed at the JPMorgan Chase level and not at the subsidiary level (i.e., JPMorgan Chase Bank, N.A.). JPMorgan Chase believes the estimate of the aggregate range of reasonably possible losses, in excess of reserves established, for JPMorgan Chase's legal proceedings is from \$0 to approximately \$3.6 billion at December 31, 2015. This estimated aggregate range of reasonably possible losses is based upon currently available information for those proceedings in which JPMorgan Chase believes that an estimate of reasonably possible loss can be made. For certain matters, JPMorgan Chase does not believe that such an estimate can be made. JPMorgan Chase's estimate of the aggregate range of reasonably possible losses involves significant judgment, given the number, variety and varying stages of the proceedings (including the fact that many are in preliminary stages), the existence in many such proceedings of multiple defendants (including JPMorgan Chase and JPMorgan Chase Bank, N.A.) whose share of liability has yet to be determined, the numerous yet-unresolved issues in many of the proceedings (including issues regarding class certification and the scope of many of the claims) and the attendant uncertainty of the various potential outcomes of such proceedings, particularly proceedings that could result from government investigations. Accordingly, JPMorgan Chase's estimate will change from time to time, and actual losses may vary significantly.

Set forth below are descriptions of material legal proceedings in which JPMorgan Chase and its subsidiaries (which in certain instances include JPMorgan Chase Bank, N.A.) are involved or have been named as parties.

*Auto Dealer Regulatory Matter.* The U.S. Department of Justice ("DOJ") is investigating potential statistical disparities in markups charged to borrowers of different races and ethnicities by automobile dealers on loans

originated by those dealers and purchased by JPMorgan Chase.

*CIO Litigation.* JPMorgan Chase has been sued in a consolidated shareholder class action, a consolidated putative class action brought under the Employee Retirement Income Security Act ("ERISA") and seven shareholder derivative actions brought in Delaware state court and in New York federal and state courts relating to 2012 losses in the synthetic credit portfolio managed by JPMorgan Chase's Chief Investment Office ("CIO"). A settlement of the shareholder class action, under which JPMorgan Chase will pay \$150 million, has been preliminarily approved by the court. The putative ERISA class action has been dismissed, and plaintiffs have filed a notice of appeal. Six of the seven shareholder derivative actions have been dismissed.

*Credit Default Swaps Investigations and Litigation.* In July 2013, the European Commission (the "EC") filed a Statement of Objections against JPMorgan Chase (including various subsidiaries) and other industry members in connection with its ongoing investigation into the credit default swaps ("CDS") marketplace. The EC asserted that between 2006 and 2009, a number of investment banks acted collectively through the International Swaps and Derivatives Association ("ISDA") and Markit Group Limited ("Markit") to foreclose exchanges from the potential market for exchange-traded credit derivatives. In December 2015, the EC announced the closure of its investigation as to JPMorgan Chase and other investment banks.

Separately, JPMorgan Chase and other defendants have entered separate agreements to settle a consolidated putative class action filed in the United States District Court for the Southern District of New York on behalf of purchasers and sellers of CDS. The complaint in this action had alleged that the defendant investment banks and dealers, including JPMorgan Chase, as well as Markit and/or ISDA, collectively prevented new entrants into the market for exchange-traded CDS products. These settlements are subject to Court approval.

*Custody Assets Investigation.* The U.K. Financial Conduct Authority ("FCA") has closed its previously-reported investigation concerning compliance by JPMorgan Chase Bank, N.A., London branch and J.P. Morgan Europe Limited with the FCA's rules regarding the provision of custody services relating to the administration of client assets.

*Foreign Exchange Investigations and Litigation.* JPMorgan Chase previously reported settlements with certain government authorities relating to its foreign exchange ("FX") sales and trading activities and controls related to those activities. FX-related investigations and inquiries by other, non-U.S. government authorities, including competition authorities, remain ongoing, and JPMorgan Chase is cooperating with those matters.

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JPMorgan Chase is also one of a number of foreign exchange dealers defending a class action filed in the United States District Court for the Southern District of New York by U.S.-based plaintiffs, principally alleging violations of federal antitrust laws based on an alleged conspiracy to manipulate foreign exchange rates (the “U.S. class action”). In January 2015, JPMorgan Chase entered into a settlement agreement in the U.S. class action. Following this settlement, a number of additional putative class actions were filed seeking damages for persons who transacted FX futures and options on futures (the “exchanged-based actions”), consumers who purchased foreign currencies at allegedly inflated rates (the “consumer actions”), and participants or beneficiaries of qualified ERISA plans (the “ERISA actions”). In July 2015, the plaintiffs in the U.S. class action filed an amended complaint, and the Court consolidated the exchange-based actions into the U.S. class action. JPMorgan Chase has entered into a revised settlement agreement to resolve the consolidated U.S. class action, including the exchange-based actions, and that agreement is subject to Court approval. The consumer actions and ERISA actions remain pending.

In September 2015, two class actions were filed in Canada against JPMorgan Chase as well as a number of other FX dealers, principally for alleged violations of the Canadian Competition Act based on an alleged conspiracy to fix the prices of currency purchased in the FX market. The first action was filed in the province of Ontario, and seeks to represent all persons in Canada who transacted any FX instrument. The second action seeks to represent only those persons in Quebec who engaged in FX transactions.

*General Motors Litigation.* JPMorgan Chase Bank, N.A. participated in, and was the Administrative Agent on behalf of a syndicate of lenders on, a \$1.5 billion syndicated Term Loan facility (“Term Loan”) for General Motors Corporation (“GM”). In July 2009, in connection with the GM bankruptcy proceedings, the Official Committee of Unsecured Creditors of Motors Liquidation Company (“Creditors Committee”) filed a lawsuit against JPMorgan Chase Bank, N.A., in its individual capacity and as Administrative Agent for other lenders on the Term Loan, seeking to hold the underlying lien invalid based on the filing of a UCC-3 termination statement relating to the Term Loan. In March 2013, the Bankruptcy Court granted JPMorgan Chase Bank, N.A.’s motion for summary judgment and dismissed the Creditors Committee’s complaint on the grounds that JPMorgan Chase Bank, N.A. did not authorize the filing of the UCC-3 termination statement at issue. The Creditors Committee appealed the Bankruptcy Court’s dismissal of its claim to the United States Court of Appeals for the Second Circuit. In January 2015, the Court of Appeals reversed the Bankruptcy Court’s dismissal of the Creditors Committee’s claim and remanded the case to the Bankruptcy Court with instructions to enter partial summary judgment for the Creditors Committee as to the termination statement. The proceedings in the Bankruptcy Court continue with respect

to, among other things, additional defenses asserted by JPMorgan Chase Bank, N.A. and the value of additional collateral on the Term Loan that was unaffected by the filing of the termination statement at issue. In addition, certain Term Loan lenders filed cross-claims against JPMorgan Chase Bank, N.A. in the Bankruptcy Court seeking indemnification and asserting various claims.

*Interchange Litigation.* A group of merchants and retail associations filed a series of class action complaints alleging that Visa and MasterCard, as well as certain banks, conspired to set the price of credit and debit card interchange fees, enacted respective rules in violation of antitrust laws, and engaged in tying/bundling and exclusive dealing. The parties have entered into an agreement to settle the cases for a cash payment of \$6.1 billion to the class plaintiffs (of which JPMorgan Chase’s share is approximately 20%) and an amount equal to ten basis points of credit card interchange for a period of eight months to be measured from a date within 60 days of the end of the opt-out period. The agreement also provides for modifications to each credit card network’s rules, including those that prohibit surcharging credit card transactions. In December 2013, the Court issued a decision granting final approval of the settlement. A number of merchants appealed, and oral argument was held in September 2015. Certain merchants and trade associations have also filed a motion with the District Court seeking to set aside the approval of the class settlement on the basis of alleged improper communications between one of MasterCard’s former outside counsel and one of plaintiffs’ outside counsel. That motion remains pending. Certain merchants that opted out of the class settlement have filed actions against Visa and MasterCard, as well as against JPMorgan Chase and other banks. Defendants’ motion to dismiss those actions was denied in July 2014.

*Investment Management Litigation.* JPMorgan Chase is defending two pending cases that are being coordinated for pre-trial purposes, alleging that investment portfolios managed by J.P. Morgan Investment Management (“JPMIM”) were inappropriately invested in securities backed by residential real estate collateral. Plaintiffs Assured Guaranty (U.K.) and Ambac Assurance UK Limited claim that JPMIM is liable for total losses of more than \$1 billion in market value of these securities. Discovery has been completed. In January 2016, plaintiffs filed a joint partial motion for summary judgment in the coordinated actions.

*Lehman Brothers Bankruptcy Proceedings.* In May 2010, Lehman Brothers Holdings Inc. (“LBHI”) and its Official Committee of Unsecured Creditors (the “Committee”) filed a complaint (and later an amended complaint) against JPMorgan Chase Bank, N.A. in the United States Bankruptcy Court for the Southern District of New York that asserted both federal bankruptcy law and state common law claims, and sought, among other relief, to recover \$7.9 billion in collateral (after deducting \$700 million of returned

collateral) that was transferred to JPMorgan Chase Bank, N.A. in the weeks preceding LBHI's bankruptcy. The amended complaint also sought unspecified damages on the grounds that JPMorgan Chase Bank, N.A.'s collateral requests hastened LBHI's bankruptcy. The Bankruptcy Court dismissed the claims in the amended complaint that sought to void the allegedly constructively fraudulent and preferential transfers made to JPMorgan Chase during September 2008, but did not dismiss the other claims, including claims for duress and fraud. JPMorgan Chase filed counterclaims against LBHI, including alleging that LBHI fraudulently induced JPMorgan Chase to make large extensions of credit against inappropriate collateral in connection with JPMorgan Chase's role as the clearing bank for Lehman Brothers Inc. ("LBI"), LBHI's broker-dealer subsidiary. These extensions of credit left JPMorgan Chase with more than \$25 billion in claims against the estate of LBI, which was repaid principally through collateral posted by LBHI and LBI. In September 2015, the District Court, to which the case had been transferred from the Bankruptcy Court, granted summary judgment in favor of JPMorgan Chase Bank, N.A. on most of the claims against it that the Bankruptcy Court had not previously dismissed, including the claims for duress and fraud. The District Court also denied LBHI's motion for summary judgment on certain of its claims and for dismissal of JPMorgan Chase's counterclaims. The claims that remained following the District Court's ruling challenged the propriety of JPMorgan Chase's post-petition payment, from collateral posted by LBHI, of approximately \$1.9 billion of derivatives, repo and securities lending claims.

In the Bankruptcy Court proceedings, LBHI and several of its subsidiaries that had been Chapter 11 debtors had filed a separate complaint and objection to derivatives claims asserted by JPMorgan Chase alleging that the amount of the derivatives claims had been overstated and challenging certain set-offs taken by JPMorgan Chase entities to recover on the claims. In January 2015, LBHI filed claims objections with respect to guaranty claims asserted by JPMorgan Chase arising from close-outs of derivatives transactions with LBI and one of its affiliates, and a claim objection with respect to derivatives close-out claims acquired by JPMorgan Chase in the Washington Mutual transaction.

In January 2016, the parties reached an agreement, approved by the Bankruptcy Court, under which JPMorgan Chase will pay \$1.42 billion to settle all of the claims, counterclaims and claims objections, including all appeal rights, except for the claims specified in the following paragraph. One *pro se* objector is seeking to appeal the settlement.

The settlement did not resolve the following remaining matters: In the Bankruptcy Court proceedings, LBHI and the Committee filed an objection to the claims asserted by JPMorgan Chase Bank, N.A. against LBHI with respect to clearing advances made to LBI, principally on the grounds

that JPMorgan Chase had not conducted the sale of the securities collateral held for its claims in a commercially reasonable manner. In January 2015, LBHI brought two claims objections relating to securities lending claims and a group of other smaller claims. Discovery with respect to these objections is ongoing.

*LIBOR and Other Benchmark Rate Investigations and Litigation.* JPMorgan Chase has received subpoenas and requests for documents and, in some cases, interviews, from federal and state agencies and entities, including the DOJ, the U.S. Commodity Futures Trading Commission ("CFTC"), the U.S. Securities and Exchange Commission ("SEC") and various state attorneys general, as well as the EC, the FCA, the Canadian Competition Bureau, the Swiss Competition Commission and other regulatory authorities and banking associations around the world relating primarily to the process by which interest rates were submitted to the British Bankers Association ("BBA") in connection with the setting of the BBA's London Interbank Offered Rate ("LIBOR") for various currencies, principally in 2007 and 2008. Some of the inquiries also relate to similar processes by which information on rates is submitted to the European Banking Federation ("EBF") in connection with the setting of the EBF's Euro Interbank Offered Rates ("EURIBOR") and to the Japanese Bankers' Association for the setting of Tokyo Interbank Offered Rates ("TIBOR"), as well as processes for the setting of U.S. dollar ISDAFIX rates and other reference rates in various parts of the world during similar time periods. JPMorgan Chase is responding to and continuing to cooperate with these inquiries. As previously reported, JPMorgan Chase has resolved EC inquiries relating to Yen LIBOR and Swiss Franc LIBOR. In May 2014, the EC issued a Statement of Objections outlining its case against JPMorgan Chase (and others) as to EURIBOR, to which JPMorgan Chase has filed a response and made oral representations. Other inquiries have been discontinued without any action against JPMorgan Chase, including by the FCA and the Canadian Competition Bureau.

In addition, JPMorgan Chase has been named as a defendant along with other banks in a series of individual and putative class actions filed in various United States District Courts, in which plaintiffs make varying allegations that in various periods, starting in 2000 or later, defendants either individually or collectively manipulated the U.S. dollar LIBOR, Yen LIBOR, Swiss franc LIBOR, Euroyen TIBOR and/or EURIBOR rates by submitting rates that were artificially low or high. Plaintiffs allege that they transacted in loans, derivatives or other financial instruments whose values are affected by changes in U.S. dollar LIBOR, Yen LIBOR, Swiss franc LIBOR, Euroyen TIBOR or EURIBOR and assert a variety of claims including antitrust claims seeking treble damages. These matters are in various stages of litigation.

The U.S. dollar LIBOR-related putative class actions and most U.S. dollar LIBOR-related individual actions were

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consolidated for pre-trial purposes in the United States District Court for the Southern District of New York. The Court dismissed certain claims, including the antitrust claims, and permitted other claims under the Commodity Exchange Act and common law to proceed. Certain plaintiffs appealed the dismissal of the antitrust claims, and the United States Court of Appeals for the Second Circuit dismissed the appeal for lack of jurisdiction. In January 2015, the United States Supreme Court reversed the decision of the Court of Appeals, holding that plaintiffs have the jurisdictional right to appeal, and remanded the case to the Court of Appeals for further proceedings. The Court of Appeals heard oral argument on remand in November 2015.

JPMorgan Chase is one of the defendants in a number of putative class actions alleging that defendant banks and ICAP conspired to manipulate the U.S. dollar ISDAFIX rates. Plaintiffs primarily assert claims under the federal antitrust laws and Commodities Exchange Act.

*Madoff Litigation.* Various subsidiaries of JPMorgan Chase, including J.P. Morgan Securities plc, have been named as defendants in lawsuits filed in Bankruptcy Court in New York arising out of the liquidation proceedings of Fairfield Sentry Limited and Fairfield Sigma Limited, so-called Madoff feeder funds. These actions seek to recover payments made by the funds to defendants totaling approximately \$155 million. All but two of these actions have been dismissed.

In addition, a putative class action was brought by investors in certain feeder funds against JPMorgan Chase in the United States District Court for the Southern District of New York, as was a motion by separate potential class plaintiffs to add claims against JPMorgan Chase and certain subsidiaries to an already pending putative class action in the same court. The allegations in these complaints largely track those previously raised -- and resolved as to JPMorgan Chase -- by the court-appointed trustee for Bernard L. Madoff Investment Securities LLC. The District Court dismissed these complaints and the United States Court of Appeals for the Second Circuit affirmed the District Court's decision. The United States Supreme Court denied plaintiffs' petition for a writ of certiorari in March 2015. Plaintiffs subsequently served a motion in the Court of Appeals seeking to have the Court reconsider its prior decision in light of another recent appellate decision. That motion was denied in June 2015.

JPMorgan Chase is a defendant in five other Madoff-related individual investor actions pending in New York state court. The allegations in all of these actions are essentially identical, and involve claims against JPMorgan Chase for, among other things, aiding and abetting breach of fiduciary duty, conversion and unjust enrichment. In August 2014, the Court dismissed all claims against JPMorgan Chase. In January 2016, the Appellate Court affirmed the dismissal.

A putative class action was filed in the United States District Court for the District of New Jersey by investors who were net winners (i.e., Madoff customers who had taken more money out of their accounts than had been invested) in Madoff's Ponzi scheme and were not included in a prior class action settlement. These plaintiffs allege violations of the federal securities law, federal and state racketeering statutes and multiple common law and statutory claims including breach of trust, aiding and abetting embezzlement, unjust enrichment, conversion and commercial bad faith. A similar action was filed in the United States District Court for the Middle District of Florida, although it was not styled as a class action, and included claims pursuant to Florida statutes. JPMorgan Chase moved to transfer both the Florida and New Jersey actions to the United States District Court for the Southern District of New York. The Florida court denied the transfer motion, but subsequently granted JPMorgan Chase's motion to dismiss the case in September 2015. Plaintiffs have filed a notice of appeal, which is pending. In addition, the same plaintiffs have re-filed their dismissed state claims in Florida state court. The New Jersey court granted the transfer motion to the Southern District of New York, and JPMorgan Chase has moved to dismiss the case pending in New York.

Three shareholder derivative actions have also been filed in New York federal and state court against JPMorgan Chase, as nominal defendant, and certain of its current and former Board members, alleging breach of fiduciary duty in connection with JPMorgan Chase's relationship with Bernard Madoff and the alleged failure to maintain effective internal controls to detect fraudulent transactions. The actions seek declaratory relief and damages. All three actions have been dismissed. The plaintiff in one action did not appeal, the dismissal has been affirmed on appeal in another action, and one appeal remains pending.

*Mortgage-Backed Securities and Repurchase Litigation and Related Regulatory Investigations.* JPMorgan Chase and affiliates (together, "JPMC"), Bear Stearns and affiliates (together, "Bear Stearns") and certain Washington Mutual affiliates (together, "Washington Mutual") have been named as defendants in a number of cases in their various roles in offerings of mortgage-backed securities ("MBS"). These cases include actions by individual MBS purchasers and actions by monoline insurance companies that guaranteed payments of principal and interest for particular tranches of MBS offerings. Following the settlements referred to below, there are currently pending and tolled investor claims involving MBS with an original principal balance of approximately \$4.2 billion, of which \$2.6 billion involves JPMC, Bear Stearns or Washington Mutual as issuer and \$1.6 billion involves JPMC, Bear Stearns or Washington Mutual solely as underwriter. JPMorgan Chase and certain of its current and former officers and Board members have also been sued in shareholder derivative actions relating to JPMorgan Chase's MBS activities, and trustees have

asserted or have threatened to assert claims that loans in securitization trusts should be repurchased.

Issuer Litigation – Class Actions. JPMC has fully resolved all pending putative class actions on behalf of purchasers of MBS.

Issuer Litigation – Individual Purchaser Actions. JPMorgan Chase is defending individual actions brought against JPMC, Bear Stearns and Washington Mutual as MBS issuers (and, in some cases, also as underwriters of their own MBS offerings). JPMorgan Chase has settled a number of these actions. Several actions remain pending in federal and state courts across the U.S. and are in various stages of litigation.

Monoline Insurer Litigation. JPMorgan Chase has settled two pending actions relating to a monoline insurer's guarantees of principal and interest on certain classes of 11 different Bear Stearns MBS offerings. This settlement fully resolves all pending actions by monoline insurers against JPMorgan Chase relating to RMBS issued and/or sponsored by JPMorgan Chase.

Underwriter Actions. In actions against JPMorgan Chase involving offerings where JPMorgan Chase was solely an underwriter of other issuers' MBS offerings, JPMorgan Chase has contractual rights to indemnification from the issuers. However, those indemnity rights may prove effectively unenforceable in various situations, such as where the issuers are now defunct. Currently there is one such action pending against JPMorgan Chase relating to a single offering of another issuer.

Repurchase Litigation. JPMorgan Chase is defending a number of actions brought by trustees, securities administrators or master servicers of various MBS trusts on behalf of purchasers of securities issued by those trusts. These cases generally allege breaches of various representations and warranties regarding securitized loans and seek repurchase of those loans or equivalent monetary relief, as well as indemnification of attorneys' fees and costs and other remedies. Deutsche Bank National Trust Company, acting as trustee for various MBS trusts, has filed such a suit against JPMorgan Chase Bank, N.A. and the Federal Deposit Insurance Corporation (the "FDIC") in connection with a significant number of MBS issued by Washington Mutual; that case is described in the Washington Mutual Litigations section below. Other repurchase actions, each specific to one or more MBS transactions issued by JPMC and/or Bear Stearns, are in various stages of litigation.

In addition, JPMorgan Chase and a group of 21 institutional MBS investors made a binding offer to the trustees of MBS issued by JPMC and Bear Stearns providing for the payment of \$4.5 billion and the implementation of certain servicing changes by JPMC, to resolve all repurchase and servicing claims that have been asserted or could have been asserted with respect to 330 MBS trusts created between 2005 and 2008. The offer does not resolve claims relating to

Washington Mutual MBS. The trustees (or separate and successor trustees) for this group of 330 trusts have accepted the settlement for 319 trusts in whole or in part and excluded from the settlement 16 trusts in whole or in part. The trustees' acceptance is subject to a judicial approval proceeding initiated by the trustees and pending in New York state court. The judicial approval hearing was held in January 2016, and the parties are awaiting a decision. An investor in some of the trusts for which the settlement has been accepted has intervened in the judicial approval proceeding to challenge the trustees' allocation of the settlement among the trusts. Separately, in October 2015, JPMC reached agreements to resolve repurchase and servicing claims for four trusts among the 16 that were previously excluded from the trustee settlement. In December 2015, the court approved the trustees' decision to accept these separate settlements. The trustees are seeking to obtain certain remaining approvals necessary to effectuate these settlements.

Additional actions have been filed against third-party trustees that relate to loan repurchase and servicing claims involving trusts sponsored by JPMC, Bear Stearns and Washington Mutual.

Derivative Actions. Shareholder derivative actions relating to JPMorgan Chase's MBS activities have been filed against JPMorgan Chase, as nominal defendant, and certain of its current and former officers and members of its Board of Directors, in New York state court and California federal court. Two of the New York actions have been dismissed, one of which is on appeal. A consolidated action in California federal court has been dismissed without prejudice for lack of personal jurisdiction and plaintiffs are pursuing discovery relating to jurisdiction.

Government Enforcement Investigations and Litigation. JPMorgan Chase is responding to an ongoing investigation being conducted by the DOJ's Criminal Division and two United States Attorney's Offices relating to MBS offerings securitized and sold by JPMorgan Chase and its subsidiaries. JPMorgan Chase has also received subpoenas and informal requests for information from state authorities concerning the issuance and underwriting of MBS-related matters. JPMorgan Chase continues to respond to these MBS-related regulatory inquiries.

In addition, JPMorgan Chase continues to cooperate with investigations by the DOJ, including the United States Attorney's Office for the District of Connecticut, and by the SEC Division of Enforcement and the Office of the Special Inspector General for the Troubled Asset Relief Program, all of which relate to, among other matters, communications with counterparties in connection with certain secondary market trading in residential and commercial MBS.

JPMorgan Chase has entered into agreements with a number of entities that purchased MBS that toll applicable limitations periods with respect to their claims, and has

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settled, and in the future may settle, tolled claims. There is no assurance that JPMorgan Chase will not be named as a defendant in additional MBS-related litigation.

*Mortgage-Related Investigations and Litigation.* One shareholder derivative action has been filed in New York Supreme Court against JPMorgan Chase's Board of Directors alleging that the Board failed to exercise adequate oversight as to wrongful conduct by JPMorgan Chase regarding mortgage servicing. In December 2014, the court granted defendants' motion to dismiss the complaint and in January 2016, the dismissal was affirmed on appeal.

The Civil Division of the United States Attorney's Office for the Southern District of New York is conducting an investigation concerning JPMorgan Chase's compliance with the Fair Housing Act and Equal Credit Opportunity Act in connection with its mortgage lending practices. In addition, three municipalities have commenced litigation against JPMorgan Chase alleging violations of an unfair competition law or the Fair Housing Act. The municipalities seek, among other things, civil penalties for the unfair competition claim, and, for the Fair Housing Act claims, damages resulting from lost tax revenue and increased municipal costs associated with foreclosed properties. Two of the municipal actions are stayed, and a motion to dismiss is pending in the remaining action.

In March 2015, JPMorgan Chase Bank, N.A. entered into a settlement agreement with the Executive Office for United States Bankruptcy Trustees and the United States Trustee Program (collectively, the "Bankruptcy Trustee") to resolve issues relating to mortgage payment change notices and escrow statements in bankruptcy proceedings. In January 2016, the OCC determined that, among other things, the mortgage payment change notices issues that were the subject of the settlement with the Bankruptcy Trustee violated the 2011 mortgage servicing-related consent order entered into by JPMorgan Chase Bank, N.A. and the OCC (as amended in 2013 and 2015), and assessed a \$48 million civil money penalty. The OCC concurrently terminated that consent order.

*Municipal Derivatives Litigation.* Several civil actions were commenced in New York and Alabama courts against JPMorgan Chase relating to certain Jefferson County, Alabama (the "County") warrant underwritings and swap transactions. The claims in the civil actions generally alleged that JPMorgan Chase made payments to certain third parties in exchange for being chosen to underwrite more than \$3 billion in warrants issued by the County and to act as the counterparty for certain swaps executed by the County. The County filed for bankruptcy in November 2011. In June 2013, the County filed a Chapter 9 Plan of Adjustment, as amended (the "Plan of Adjustment"), which provided that all the above-described actions against JPMorgan Chase would be released and dismissed with prejudice. In November 2013, the Bankruptcy Court confirmed the Plan of Adjustment, and in December 2013,

certain sewer rate payers filed an appeal challenging the confirmation of the Plan of Adjustment. All conditions to the Plan of Adjustment's effectiveness, including the dismissal of the actions against JPMorgan Chase, were satisfied or waived and the transactions contemplated by the Plan of Adjustment occurred in December 2013. Accordingly, all the above-described actions against JPMorgan Chase have been dismissed pursuant to the terms of the Plan of Adjustment. The appeal of the Bankruptcy Court's order confirming the Plan of Adjustment remains pending.

*Petters Bankruptcy and Related Matters.* JPMorgan Chase and certain of its affiliates, including One Equity Partners ("OEP"), have been named as defendants in several actions filed in connection with the receivership and bankruptcy proceedings pertaining to Thomas J. Petters and certain affiliated entities (collectively, "Petters") and the Polaroid Corporation. The principal actions against JPMorgan Chase and its affiliates have been brought by a court-appointed receiver for Petters and the trustees in bankruptcy proceedings for three Petters entities. These actions generally seek to avoid certain putative transfers in connection with (i) the 2005 acquisition by Petters of Polaroid, which at the time was majority-owned by OEP; (ii) two credit facilities that JPMorgan Chase and other financial institutions entered into with Polaroid; and (iii) a credit line and investment accounts held by Petters. The actions collectively seek recovery of approximately \$450 million. Defendants have moved to dismiss the complaints in the actions filed by the Petters bankruptcy trustees.

*Proprietary Products Investigations and Litigation.* In December 2015, JPMorgan Chase Bank, N.A. and J.P. Morgan Securities LLC agreed to a settlement with the SEC, and JPMorgan Chase Bank, N.A. agreed to a settlement with the CFTC, regarding disclosures to clients concerning conflicts associated with JPMorgan Chase's sale and use of proprietary products, such as J.P. Morgan mutual funds, in JPMorgan Chase's wealth management businesses, and the U.S. Private Bank's disclosures concerning the use of hedge funds that pay placement agent fees to JPMorgan Chase broker-dealer affiliates. As part of the settlements, JPMorgan Chase Bank, N.A. and J.P. Morgan Securities LLC paid penalties, disgorgement and interest totaling approximately \$307 million. JPMorgan Chase continues to cooperate with inquiries from other government authorities concerning disclosure of conflicts associated with JPMorgan Chase's sale and use of proprietary products. A putative class action filed in the United States District Court for the Northern District of Illinois on behalf of financial advisory clients from 2007 to the present whose funds were invested in proprietary funds and who were charged investment management fees, was dismissed by the Court. Plaintiffs' appeal of the dismissal is pending.

*Referral Hiring Practices Investigations.* Various regulators are investigating, among other things, JPMorgan Chase's compliance with the Foreign Corrupt Practices Act and other

laws with respect to JPMorgan Chase's hiring practices related to candidates referred by clients, potential clients and government officials, and its engagement of consultants in the Asia Pacific region. JPMorgan Chase is responding to and cooperating with these investigations.

*Washington Mutual Litigations.* Proceedings related to Washington Mutual's failure are pending before the United States District Court for the District of Columbia and include a lawsuit brought by Deutsche Bank National Trust Company, initially against the FDIC and amended to include JPMorgan Chase Bank, N.A. as a defendant, asserting an estimated \$6 billion to \$10 billion in damages based upon alleged breaches of certain representations and warranties given by certain Washington Mutual affiliates in connection with mortgage securitization agreements. The case includes assertions that JPMorgan Chase Bank, N.A. may have assumed liabilities for the alleged breaches of representations and warranties in the mortgage securitization agreements. In June 2015, the court ruled in favor of JPMorgan Chase Bank, N.A. on the question of whether JPMorgan Chase or the FDIC bears responsibility for Washington Mutual Bank's repurchase obligations, holding that JPMorgan Chase Bank, N.A. assumed only those liabilities that were reflected on Washington Mutual Bank's financial accounting records as of September 25, 2008, and only up to the amount of the book value reflected therein. The FDIC is appealing that ruling and the case has otherwise been stayed pending the outcome of that appeal.

Certain holders of Washington Mutual Bank debt filed an action against JPMorgan Chase which alleged that by acquiring substantially all of the assets of Washington Mutual Bank from the FDIC, JPMorgan Chase Bank, N.A. caused Washington Mutual Bank to default on its bond obligations. JPMorgan Chase and the FDIC moved to dismiss this action and the District Court dismissed the case except as to the plaintiffs' claim that JPMorgan Chase tortiously interfered with the plaintiffs' bond contracts with Washington Mutual Bank prior to its closure. The action has been stayed pending a decision on JPMorgan Chase's motion to dismiss the plaintiffs' remaining claim.

JPMorgan Chase has also filed complaints in the United States District Court for the District of Columbia against the FDIC, in its corporate capacity as well as in its capacity as receiver for Washington Mutual Bank, asserting multiple claims for indemnification under the terms of the Purchase & Assumption Agreement between JPMorgan Chase and the FDIC relating to JPMorgan Chase's purchase of most of the assets and certain liabilities of Washington Mutual Bank.

*Wendel.* Since 2012, the French criminal authorities have been investigating a series of transactions entered into by senior managers of Wendel Investissement ("Wendel") during the period from 2004 through 2007 to restructure their shareholdings in Wendel. JPMorgan Chase Bank, N.A., Paris branch provided financing for the transactions to a

number of managers of Wendel in 2007. In April 2015, JPMorgan Chase Bank, N.A. was notified that the authorities were formally investigating the role of its Paris branch in the transactions, including alleged criminal tax abuse. JPMorgan Chase is responding to and cooperating with the investigation. In addition, civil proceedings have been commenced against JPMorgan Chase Bank, N.A. by a number of the managers. The claims are separate, involve different allegations and are at various stages of proceedings.

\* \* \*

In addition to the various legal proceedings discussed above, JPMorgan Chase and its subsidiaries, including in certain cases, JPMorgan Chase Bank, N.A., are named as defendants or are otherwise involved in a substantial number of other legal proceedings and inquiries. JPMorgan Chase and JPMorgan Chase Bank, N.A. believes it has meritorious defenses to the claims asserted against it in its currently outstanding legal proceedings and inquiries, and it intends to defend itself vigorously in all such matters. Additional legal proceedings and inquiries may be initiated from time to time in the future.

JPMorgan Chase Bank, N.A. has established reserves for several hundred of its currently outstanding legal proceedings. In accordance with the provisions of U.S. GAAP for contingencies, JPMorgan Chase Bank, N.A. accrues for a litigation-related liability when it is probable that such a liability has been incurred and the amount of the loss can be reasonably estimated. JPMorgan Chase Bank, N.A. evaluates its outstanding legal proceedings each quarter to assess its litigation reserves, and makes adjustments in such reserves, upwards or downward, as appropriate, based on management's best judgment after consultation with counsel. During the years ended December 31, 2015, 2014 and 2013, JPMorgan Chase Bank, N.A. incurred legal expense of \$2.0 billion, \$2.3 billion and \$2.2 billion, respectively. Where a particular litigation matter involves one or more subsidiaries or affiliates of JPMorgan Chase, JPMorgan Chase determines the appropriate allocation of legal expense among those subsidiaries or affiliates (including, where applicable, JPMorgan Chase Bank, N.A.). There is no assurance that JPMorgan Chase Bank, N.A.'s litigation reserves will not need to be adjusted in the future.

In view of the inherent difficulty of predicting the outcome of legal proceedings, particularly where the claimants seek very large or indeterminate damages, or where the matters present novel legal theories, involve a large number of parties or are in early stages of discovery, JPMorgan Chase and JPMorgan Chase Bank, N.A. cannot state with confidence what will be the eventual outcomes of the currently pending matters, the timing of their ultimate resolution or the eventual losses, fines, penalties or impact related to those matters. JPMorgan Chase Bank, N.A. believes, based upon its current knowledge, after

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consultation with counsel and after taking into account its current litigation reserves, that the legal proceedings currently pending against it should not have a material adverse effect on JPMorgan Chase Bank, N.A.'s consolidated financial condition. JPMorgan Chase Bank, N.A. notes, however, that in light of the uncertainties involved in such proceedings, there is no assurance the ultimate resolution of these matters will not significantly exceed the reserves it has currently accrued; as a result, the outcome of a particular matter may be material to JPMorgan Chase Bank, N.A.'s operating results for a particular period, depending on, among other factors, the size of the loss or liability imposed and the level of JPMorgan Chase Bank, N.A.'s income for that period.



## Supplementary information: Glossary of Terms

### **Beneficial interests issued by consolidated VIEs:**

Represents the interest of third-party holders of debt, equity securities, or other obligations, issued by VIEs that JPMorgan Chase Bank, N.A. consolidates.

**Benefit obligation:** Refers to the projected benefit obligation for pension plans and the accumulated postretirement benefit obligation for OPEB plans.

**Central clearing party (“CCP”):** A CCP is a clearing house that interposes itself between counterparties to contracts traded in one or more financial markets, becoming the buyer to every seller and the seller to every buyer and thereby ensuring the future performance of open contracts. A CCP becomes counterparty to trades with market participants through novation, an open offer system, or another legally binding arrangement.

**Credit cycle:** A period of time over which credit quality improves, deteriorates and then improves again (or vice versa). The duration of a credit cycle can vary from a couple of years to several years.

**Credit derivatives:** Financial instruments whose value is derived from the credit risk associated with the debt of a third party issuer (the reference entity) which allow one party (the protection purchaser) to transfer that risk to another party (the protection seller). Upon the occurrence of a credit event by the reference entity, which may include, among other events, the bankruptcy or failure to pay its obligations, or certain restructurings of the debt of the reference entity, neither party has recourse to the reference entity. The protection purchaser has recourse to the protection seller for the difference between the face value of the CDS contract and the fair value at the time of settling the credit derivative contract. The determination as to whether a credit event has occurred is generally made by the relevant International Swaps and Derivatives Association (“ISDA”) Determinations Committee.

**Exchange-traded derivatives:** Derivative contracts that are executed on an exchange and settled via a central clearing house.

**FICO score:** A measure of consumer credit risk provided by credit bureaus, typically produced from statistical models by Fair Isaac Corporation utilizing data collected by the credit bureaus.

**Forward points:** Represents the interest rate differential between two currencies, which is either added to or subtracted from the current exchange rate (i.e., “spot rate”) to determine the forward exchange rate.

**Group of Seven (“G7”) nations:** Countries in the G7 are Canada, France, Germany, Italy, Japan, the U.K. and the U.S.

**G7 government bonds:** Bonds issued by the government of one of the G7 nations.

**Home equity – senior lien:** Represents loans and commitments where JPMorgan Chase Bank, N.A. holds the first security interest on the property.

**Home equity – junior lien:** Represents loans and commitments where JPMorgan Chase Bank, N.A. holds a security interest that is subordinate in rank to other liens.

**Impaired loan:** Impaired loans are loans measured at amortized cost, for which it is probable that JPMorgan Chase Bank, N.A. will be unable to collect all amounts due, including principal and interest, according to the contractual terms of the agreement. Impaired loans include the following:

- All wholesale nonaccrual loans
- All TDRs (both wholesale and consumer), including ones that have returned to accrual status

**Interchange income:** A fee paid to a credit card issuer in the clearing and settlement of a sales or cash advance transaction.

**Investment-grade:** An indication of credit quality based on JPMorgan Chase Bank, N.A.’s internal risk assessment system. “Investment grade” generally represents a risk profile similar to a rating of a “BBB-”/“Baa3” or better, as defined by independent rating agencies.

**LLC:** Limited Liability Company.

**Loan-to-value (“LTV”) ratio:** For residential real estate loans, the relationship, expressed as a percentage, between the principal amount of a loan and the appraised value of the collateral (i.e., residential real estate) securing the loan.

### *Origination date LTV ratio*

The LTV ratio at the origination date of the loan. Origination date LTV ratios are calculated based on the actual appraised values of collateral (i.e., loan-level data) at the origination date.

## Glossary of Terms

### *Current estimated LTV ratio*

An estimate of the LTV as of a certain date. The current estimated LTV ratios are calculated using estimated collateral values derived from a nationally recognized home price index measured at the metropolitan statistical area (“MSA”) level. These MSA-level home price indices consist of actual data to the extent available and forecasted data where actual data is not available. As a result, the estimated collateral values used to calculate these ratios do not represent actual appraised loan-level collateral values; as such, the resulting LTV ratios are necessarily imprecise and should therefore be viewed as estimates.

### *Combined LTV ratio*

The LTV ratio considering all available lien positions, as well as unused lines, related to the property. Combined LTV ratios are used for junior lien home equity products.

**Master netting agreement:** An agreement between two counterparties who have multiple contracts with each other that provides for the net settlement of all contracts, as well as cash collateral, through a single payment, in a single currency, in the event of default on or termination of any one contract.

### **Mortgage product types:**

#### *Alt-A*

Alt-A loans are generally higher in credit quality than subprime loans but have characteristics that would disqualify the borrower from a traditional prime loan. Alt-A lending characteristics may include one or more of the following: (i) limited documentation; (ii) a high combined loan-to-value (“CLTV”) ratio; (iii) loans secured by non-owner occupied properties; or (iv) a debt-to-income ratio above normal limits. A substantial proportion of JPMorgan Chase Bank, N.A.’s Alt-A loans are those where a borrower does not provide complete documentation of his or her assets or the amount or source of his or her income.

#### *Option ARMs*

The option ARM real estate loan product is an adjustable-rate mortgage loan that provides the borrower with the option each month to make a fully amortizing, interest-only or minimum payment. The minimum payment on an option ARM loan is based on the interest rate charged during the introductory period. This introductory rate is usually significantly below the fully indexed rate. The fully indexed rate is calculated using an index rate plus a margin. Once the introductory period ends, the contractual interest rate charged on the loan increases to the fully indexed rate and adjusts monthly to reflect movements in the index. The minimum payment is typically insufficient to cover interest accrued in the prior month, and any unpaid interest is deferred and added to the principal balance of the loan. Option ARM loans are subject to payment recast, which converts the loan to a variable-rate fully amortizing loan

upon meeting specified loan balance and anniversary date triggers.

#### *Prime*

Prime mortgage loans are made to borrowers with good credit records who meet specific underwriting requirements, including prescriptive requirements related to income and overall debt levels. New prime mortgage borrowers provide full documentation and generally have reliable payment histories.

#### *Subprime*

Subprime loans are loans that, prior to mid-2008, were offered to certain customers with one or more high risk characteristics, including but not limited to: (i) unreliable or poor payment histories; (ii) a high LTV ratio of greater than 80% (without borrower-paid mortgage insurance); (iii) a high debt-to-income ratio; (iv) an occupancy type for the loan is other than the borrower’s primary residence; or (v) a history of delinquencies or late payments on the loan.

**N/A:** Data is not applicable or available for the period presented.

**NM:** Not meaningful.

**Nonaccrual loans:** Loans for which interest income is not recognized on an accrual basis. Loans (other than credit card loans and certain consumer loans insured by U.S. government agencies) are placed on nonaccrual status when full payment of principal and interest is not expected or when principal and interest has been in default for a period of 90 days or more unless the loan is both well-secured and in the process of collection. Collateral-dependent loans are typically maintained on nonaccrual status.

**Over-the-counter (“OTC”) derivatives :** Derivative contracts that are negotiated, executed and settled bilaterally between two derivative counterparties, where one or both counterparties is a derivatives dealer.

**Over-the-counter cleared (“OTC cleared”) derivatives :** Derivative contracts that are negotiated and executed bilaterally, but subsequently settled via a central clearing house, such that each derivative counterparty is only exposed to the default of that clearing house.

**Participating securities:** Represents unvested stock-based compensation awards containing nonforfeitable rights to dividends or dividend equivalents (collectively, “dividends”). JPMorgan Chase grants restricted stock and RSUs to certain employees under its stock-based compensation programs, which entitle the recipients to receive nonforfeitable dividends during the vesting period on a basis equivalent to the dividends paid to holders of common stock.

## Glossary of Terms

**Principal transactions revenue:** Principal transactions revenue includes realized and unrealized gains and losses recorded on derivatives, other financial instruments, private equity investments, and physical commodities used in market making and client-driven activities. In addition, Principal transactions revenue also includes certain realized and unrealized gains and losses related to hedge accounting and specified risk management activities including: (a) certain derivatives designated in qualifying hedge accounting relationships (primarily fair value hedges of commodity and foreign exchange risk), (b) certain derivatives used for specified risk management purposes, primarily to mitigate credit risk, foreign exchange risk and commodity risk, and (c) other derivatives.

**Purchased credit-impaired (“PCI”) loans:** Represents loans that were acquired in the Washington Mutual transaction and deemed to be credit-impaired on the acquisition date in accordance with the guidance of the Financial Accounting Standards Board (“FASB”). The guidance allows purchasers to aggregate credit-impaired loans acquired in the same fiscal quarter into one or more pools, provided that the loans have common risk characteristics (e.g., product type, LTV ratios, FICO scores, past due status, geographic location). A pool is then accounted for as a single asset with a single composite interest rate and an aggregate expectation of cash flows.

**Real estate investment trust (“REIT”):** A special purpose investment vehicle that provides investors with the ability to participate directly in the ownership or financing of real-estate related assets by pooling their capital to purchase and manage income property (i.e., equity REIT) and/or mortgage loans (i.e., mortgage REIT). REITs can be publicly- or privately-held and they also qualify for certain favorable tax considerations.

**Receivables from customers:** Primarily represents margin loans to prime and retail brokerage customers which are included in accrued interest and accounts receivable on the Consolidated balance sheets.

**Retained loans:** Loans that are held-for-investment (i.e. excludes loans held-for-sale and loans at fair value).

**Risk-weighted assets (“RWA”):** Basel III establishes two comprehensive methodologies for calculating RWA (a Standardized approach and an Advanced approach) which include capital requirements for credit risk, market risk, and in the case of Basel III Advanced, also operational risk. Key differences in the calculation of credit risk RWA between the Standardized and Advanced approaches are that for Basel III Advanced, credit risk RWA is based on risk-sensitive approaches which largely rely on the use of internal credit models and parameters, whereas for Basel III Standardized, credit risk RWA is generally based on supervisory risk-weightings which vary primarily by counterparty type and asset class. Market risk RWA is calculated on a generally

consistent basis between Basel III Standardized and Basel III Advanced, both of which incorporate the requirements set forth in Basel 2.5.

**Structured notes:** Structured notes are predominantly financial instruments containing embedded derivatives. Where present, the embedded derivative is the primary driver of risk.

**Troubled debt restructuring (“TDR”):** A TDR is deemed to occur when JPMorgan Chase Bank, N.A. modifies the original terms of a loan agreement by granting a concession to a borrower that is experiencing financial difficulty.

**Unaudited:** Financial statements and information that have not been subjected to auditing procedures sufficient to permit an independent certified public accountant to express an opinion.

**U.S. GAAP:** Accounting principles generally accepted in the U.S.

**U.S. government-sponsored enterprises (“U.S. GSEs”) and U.S. GSE obligations:** In the U.S., GSEs are quasi-governmental, privately-held entities established by Congress to improve the flow of credit to specific sectors of the economy and provide certain essential services to the public. U.S. GSEs include Fannie Mae and Freddie Mac, but do not include Ginnie Mae, which is directly owned by the U.S. Department of Housing and Urban Development. U.S. GSE obligations are not explicitly guaranteed as to the timely payment of principal and interest by the full faith and credit of the U.S. government.

**U.S. Treasury:** U.S. Department of the Treasury.

**Warehouse loans:** Consist of prime mortgages originated with the intent to sell that are accounted for at fair value and classified as trading assets.

**Washington Mutual transaction:** On September 25, 2008, JPMorgan Chase acquired certain of the assets of the banking operations of Washington Mutual Bank (“Washington Mutual”) from the FDIC.

## **STATUTORY AND GENERAL INFORMATION ABOUT US AND THE GUARANTOR**

### **STATUTORY CONSENTS**

As a national banking association organised under the federal laws of the United States of America, the guarantor is empowered to give guarantees. Each issue of structured products will have the benefit of the guarantee.

### **NO MATERIAL ADVERSE CHANGE AND LITIGATION**

Save as disclosed in this base listing document, there has been no material adverse change in the guarantor's financial position since the date of the most recently published audited consolidated financial statements of the guarantor that would have a material adverse effect on the guarantor's ability to perform its obligations in the context of any issue of structured products.

Save as disclosed in this base listing document, we and the guarantor are not aware, to the best of our and the guarantor's knowledge and belief, of any litigation or claims of material importance in the context of any issue of structured products pending or threatened against us or the guarantor.

### **FINANCIAL INFORMATION ABOUT THE GUARANTOR**

As at the date of this base listing document, PricewaterhouseCoopers LLP, auditor of the guarantor, has given and has not withdrawn its written consent to the inclusion in this base listing document of its audit report dated 24 February 2016 (which relates to the guarantor's financial statements for the year ended 31 December 2015 comprising consolidated balance sheets at 31 December 2015 and 2014 and the related consolidated statements of income, changes in stockholder's equity, comprehensive income and cash flows for each of the three years ended 31 December 2015) in the form and context in which it is included. Its report was not prepared exclusively for incorporation in this base listing document.

PricewaterhouseCoopers LLP does not have any shareholding in the guarantor or any of the guarantor's subsidiaries, nor does it have the right (whether legally enforceable or not) to subscribe for or to nominate persons to subscribe for securities of the guarantor or any of the guarantor's subsidiaries.

### **OUR SERVICE OF PROCESS AGENT**

We have authorised J.P. Morgan Securities (Asia Pacific) Limited, 25/F, Chater House, 8 Connaught Road Central, Hong Kong to accept on our behalf and on behalf of the guarantor service of process and any other notices required to be served on either us or the guarantor in Hong Kong.

### **OUR AUTHORISED REPRESENTATIVES**

Our authorised representatives are Elaine Hue Mei Chan, Vice President (who can be contacted at J.P. Morgan Securities (Asia Pacific) Limited, 25/F, Chater House, 8 Connaught Road Central, Hong Kong) and Colette Har Chou Kwong, Vice President (who can be contacted at J.P. Morgan Securities (Asia Pacific) Limited, One Island East, 33/F, 18 Westlands Road, Quarry Bay, Island East, Hong Kong). The guarantor's authorised representative is Camille Modiano, Managing Director who can be contacted at J.P. Morgan Securities (Asia Pacific) Limited, 25/F, Chater House, 8 Connaught Road Central, Hong Kong.

## ANNEX 1

### TERMS AND CONDITIONS OF THE CASH-SETTLED STOCK WARRANTS

*The relevant Conditions will, together with the supplemental provisions contained in the relevant supplemental listing document and subject to completion and amendment, be endorsed on the back of the global warrant certificate. The applicable supplemental listing document in relation to the issue of any series of Warrants may specify other terms and conditions which shall, to the extent so specified or to the extent inconsistent with the relevant Conditions, replace or modify the relevant Conditions for the purpose of such series of Warrants. Capitalised terms used in the relevant Conditions and not otherwise defined therein shall have the meanings given to them in the relevant supplemental listing document.*

#### 1 Form; Status; Guarantee; Transfer and Title

- (A) The Warrants (which expression shall, unless the context otherwise requires, include any further warrants issued pursuant to Condition 13) relating to the Shares of the Company are issued in registered form subject to and with the benefit of the amended and restated instrument dated 3 May 2010 (the “**Instrument**”) made by J.P. Morgan Structured Products B.V. (the “**Issuer**”) and JPMorgan Chase Bank, National Association (the “**Guarantor**”) and the guarantee dated 5 April 2016 (the “**Guarantee**”) made by the Guarantor.

Copies of the Instrument and the Guarantee are available for inspection at the office of J.P. Morgan Securities (Asia Pacific) Limited as specified below. The Warrantholders (as hereinafter defined) are entitled to the benefit of, are bound by and are deemed to have notice of, all the provisions of the Instrument and the Guarantee.

- (B) The settlement obligation of the Issuer in respect of the Warrants represent general unsecured contractual obligations of the Issuer and of no other person which rank, and will rank, equally among themselves and pari passu with all other present and future unsecured and unsubordinated contractual obligations of the Issuer, except for obligations accorded preference by mandatory provisions of applicable law.

Warrants represent general contractual obligations of the Issuer, and are not, nor is it the intention (expressed, implicit or otherwise) of the Issuer to create by the issue of warrants deposit liabilities of the Issuer or a debt obligation of any kind.

In the Guarantee, the Guarantor has, subject to the terms of the Guarantee, unconditionally and irrevocably guaranteed to the Warrantholders the due and punctual settlement in full of all obligations due and owing by the Issuer arising under the issuance of the Warrants after taking account of any set off, combination of accounts, netting or similar arrangement from time to time exercisable by the Issuer against any person to whom obligations are from time to time being owed, when and as due (whether at maturity, by acceleration or otherwise).

- (C) Transfers of Warrants may be effected only in Board Lots or integral multiples thereof in the Central Clearing and Settlement System (“**CCASS**”) in accordance with the General Rules of CCASS and the CCASS Operational Procedures in effect from time to time (“**CCASS Rules**”).
- (D) Each person who is for the time being shown in the register kept by or on behalf of the Issuer outside of Hong Kong as the holder shall be treated by the Issuer, the Guarantor and the Agent as the absolute owner and holder of the Warrants. The expression “**Warrantholder**” shall be construed accordingly.

- (E) Trading in Warrants on The Stock Exchange of Hong Kong Limited (the “**Stock Exchange**”) shall be suspended prior to the Expiry Date in accordance with the requirements of the Stock Exchange.

## **2 Warrant Rights and Exercise Expenses**

- (A) Every Board Lot entitles the Warrantholder, upon compliance with Condition 4, to payment of the Cash Settlement Amount (as defined in Condition 4(C)).
- (B) The Warrantholder will be required to pay any charges or expenses including any taxes or duties which are incurred or withheld in respect of the exercise of the Warrants (the “**Exercise Expenses**”). To effect such payment, an amount equivalent to the Exercise Expenses will be deducted by the Issuer from the Cash Settlement Amount in accordance with Condition 4(C).

## **3 Automatic Exercise**

- (A) Any Warrant in respect of which the Cash Settlement Amount which would be payable by the Issuer if exercised on the Expiry Date shall be deemed to be automatically exercised on the Expiry Date (“**Automatic Exercise**”).
- (B) Any Warrant which has not been automatically exercised in accordance with Condition 3(A) shall expire immediately without value thereafter and all rights of the Warrantholder and obligations of the Issuer with respect to such Warrant shall cease.
- (C) In these Conditions, “**Business Day**” means a day (excluding Saturdays) on which the Stock Exchange is scheduled to open for dealings in Hong Kong and banks are open for business in Hong Kong.

## **4 Exercise of Warrants**

- (A) Warrants may only be exercised in Board Lots or integral multiples thereof.
- (B) Following the Expiry Date the Issuer will, with effect from the first Business Day following the Expiry Date cancel the Global Warrant Certificate.
- (C) Subject to an Automatic Exercise in accordance with Condition 3(A), the Issuer will as soon as practicable and not later than the third CCASS Settlement Day after the later of: (i) the Expiry Date; and (ii) the day on which the Average Price is determined in accordance with these Conditions (the “**Settlement Date**”) in accordance with these Conditions procure payment of the aggregate Cash Settlement Amount (following deduction of determined Exercise Expenses) for all Warrants exercised or deemed exercised, electronically through CCASS by crediting the relevant bank account of the Warrantholder as appearing in the register kept by or on behalf of the Issuer.

Subject to adjustment as provided in Condition 6, “**Cash Settlement Amount**” means:

In the case of a series of call Warrants:

$$\text{Cash Settlement Amount per Board Lot (if any) payable at expiry} = \frac{\text{Entitlement} \times (\text{Average Price} - \text{Exercise Price}) \times \text{one Board Lot}}{\text{Number of Warrant(s) per Entitlement}}$$

In the case of a series of put Warrants:

$$\text{Cash Settlement Amount per Board Lot (if any) payable at expiry} = \frac{\text{Entitlement} \times (\text{Exercise Price} - \text{Average Price}) \times \text{one Board Lot}}{\text{Number of Warrant(s) per Entitlement}}$$

“**Average Price**” shall be the arithmetic mean of the closing prices of one Share (as derived from the Daily Quotation Sheet of the Stock Exchange, subject to any adjustment to such closing prices as may be necessary to reflect any event as contemplated in Condition 6 such as capitalisation, rights issue, distribution or the like) in respect of each Valuation Date.

“**CCASS Settlement Day**” has the meaning ascribed to the term “**Settlement Day**” in the CCASS Rules, subject to such modification and amendment prescribed by Hong Kong Securities Clearing Company Limited from time to time.

“**Entitlement**” means the number of Shares to which the Warrants relate, as specified in the relevant Supplemental Listing Document, subject to any adjustment in accordance with Condition 6.

“**Market Disruption Event**” means:

- (i) the occurrence or existence on any Valuation Date during the one-half hour period that ends at the close of trading of any suspension of, or limitation imposed on, trading (by reason of movements in price exceeding limits permitted by the Stock Exchange or otherwise) on the Stock Exchange in (1) the Shares; or (2) any options or futures contracts relating to the Shares if, in any such case, such suspension or limitation is, in the determination of the Issuer and/or Agent, material;
- (ii) the issuance of the tropical cyclone warning signal number 8 or above or the issuance of a “BLACK” rainstorm signal on any day which either (i) result in the Stock Exchange being closed for trading for the entire day; or (ii) results in the Stock Exchange being closed prior to its regular time for close of trading for the relevant day (for the avoidance of doubt, in the case when the Stock Exchange is scheduled to open for the morning trading session only, closed prior to its regular time for close of trading for the morning session), PROVIDED THAT there shall be no Market Disruption Event solely by reason of the Stock Exchange opening for trading later than its regular time for opening of trading on any day as a result of the tropical cyclone warning signal number 8 or above or the “BLACK” rainstorm signal having been issued; or
- (iii) a limitation or closure of the Stock Exchange due to unforeseen circumstances.

“**Valuation Date**” means, subject as provided above in relation to a Market Disruption Event, each of the five Business Days immediately preceding the Expiry Date.

If the Agent determines, in its sole discretion, that a Market Disruption Event has occurred on any Valuation Date, then that Valuation Date shall be postponed until the first succeeding Business Day on which there is no Market Disruption Event irrespective of whether that postponed Valuation Date would fall on a Business Day that already is or is deemed to be a Valuation Date. For the avoidance of doubt, in the event that a Market Disruption Event has occurred and a Valuation Date is postponed as aforesaid, the closing price of the Shares on the first succeeding Business Day will be used more than once in determining the Average Price, so that in no event shall there be less than five closing prices used to determine the Average Price.

If the postponement of a Valuation Date as aforesaid would result in the Valuation Date falling on or after the Expiry Date, then:

- (i) the Business Day immediately preceding the Expiry Date (the “Last Valuation Date”) shall be deemed to be the Valuation Date notwithstanding the Market Disruption Event; and
- (ii) the Agent shall determine the closing price of the Shares on the basis of its good faith estimate of the price that would have prevailed on the Last Valuation Date but for the Market Disruption Event.

Any payment made pursuant to this Condition 4(C) shall be delivered at the risk and expense of the Warrantholder to the Warrantholder, or such bank, broker or agent in Hong Kong (if any) as recorded on the register.

- (D) If as a result of an event beyond the control of the Issuer (“**Settlement Disruption Event**”), it is not possible for the Issuer to procure payment electronically through CCASS by crediting the relevant bank account of the Warrantholder on the original Settlement Date, the Issuer shall use its reasonable endeavours to procure payment electronically through CCASS by crediting the relevant bank account of the Warrantholder as soon as reasonably practicable after the original Settlement Date. The Issuer will not be liable to the Warrantholder for any interest in respect of the amount due or any loss or damage that such Warrantholder may suffer as a result of the existence of a Settlement Disruption Event.
- (E) These Conditions shall not be construed so as to give rise to any relationship of agency or trust between the Guarantor, the Issuer or its agent or nominee and the Warrantholder and neither the Guarantor, the Issuer nor its agent or nominee shall owe any duty of a fiduciary nature to the Warrantholder.

None of the Issuer, the Guarantor or the Agent shall have any responsibility for any errors or omissions in the calculation and dissemination of any variables published by a third party and used in any calculation made pursuant to these terms and conditions or in the calculation of the Cash Settlement Amount arising from such errors or omissions.

The Issuer’s obligations to pay the Cash Settlement Amount shall be discharged by payment in accordance with Condition 4(C) above.

## 5 Agent

- (A) The Agent will be acting as agent of the Issuer in respect of the Warrants and will not assume any obligation or duty to or any relationship or agency or trust for the Warrantholder.



- (B) The Issuer reserves the right, subject to the appointment of a successor, at any time to vary or terminate the appointment of the initial Agent and to appoint another agent provided that it will at all times maintain an agent in Hong Kong for so long as the Warrants are listed on the Stock Exchange. Notice of any such termination or appointment will be given to the Warrantholder in accordance with Condition 10.

## 6 Adjustments

Adjustments may be made by the Agent to the terms of the Warrants (including, but not limited to, the Exercise Price and the Entitlement) on the basis of the following provisions:

- (A) (i) If and whenever the Company shall, by way of Rights (as defined below), offer new Shares for subscription at a fixed subscription price to the holders of existing Shares pro rata to existing holdings (a “**Rights Offer**”), the Entitlement shall be adjusted on the Business Day on which the trading in the Shares of the Company becomes ex-entitlement in accordance with the following formula:

$$\text{Adjusted Entitlement} = \text{Adjustment Factor} \times E$$

Where:

$$\text{Adjustment Factor} = \frac{1 + M}{1 + (R/S) \times M}$$

- E: Existing Entitlement immediately prior to the relevant event giving rise to the adjustment
- S: Cum-Rights Share price, being the closing price of an existing Share, as derived from the Daily Quotation Sheet of the Stock Exchange on the last Business Day on which the Shares are traded on a cum-Rights basis
- R: Subscription price per new Share specified in the Rights Offer plus an amount equal to any dividends or other benefits foregone to exercise the Rights
- M: Number of new Shares (whether a whole or a fraction) per existing Share each holder of an existing Share is entitled to subscribe

For the purposes of these Conditions, “**Rights**” means the right(s) attached to each existing Share or needed to acquire one new Share (as the case may be) which are given to a holder of existing Shares to subscribe at a fixed subscription price for new Shares pursuant to the Rights Offer (whether by the exercise of one Right, a part of a Right or an aggregate number of Rights).

- (ii) The Exercise Price (which shall be rounded to the nearest 0.001) shall be adjusted by the reciprocal of the Adjustment Factor, where the reciprocal of the Adjustment Factor means one divided by the relevant Adjustment Factor. The adjustment to the Exercise Price shall take effect on the same day that the Entitlement is adjusted.
- (iii) For the purposes of Conditions 6(A) and 6(B), the Agent may determine that no adjustment will be made if the adjustment to the Entitlement is one per cent. or less of the Entitlement immediately prior to the adjustment, all as determined by the Agent.

- (B) If and whenever the Company shall make an issue of Shares credited as fully paid to holders of Shares generally by way of capitalisation of profits or reserves (other than pursuant to a scrip dividend or similar scheme for the time being operated by the Company or otherwise in lieu of a cash dividend) (and without any payment or other consideration being made or given by such holders) (a “Bonus Issue”), the Entitlement will be adjusted, subject to Condition 6(A)(iii), on the Business Day on which the trading in the Shares of the Company becomes ex-entitlement in accordance with the following formula:

$$\text{Adjusted Entitlement} = \text{Adjustment Factor} \times E$$

Where:

$$\text{Adjustment Factor} = 1 + N$$

E: Existing Entitlement immediately prior to the relevant event giving rise to the adjustment

N: Number of additional Shares (whether a whole or a fraction) per existing Share each holder of an existing Share is entitled to receive

In addition, the Issuer shall adjust the Exercise Price (which shall be rounded to the nearest 0.001) by the reciprocal of the Adjustment Factor, where the reciprocal of the Adjustment Factor means one divided by the relevant Adjustment Factor. The adjustment to the Exercise Price shall take effect on the same day that the Entitlement is adjusted.

- (C) If and whenever the Company shall subdivide its outstanding share capital into a greater number of shares (a “**Subdivision**”) or consolidate its outstanding share capital into a smaller number of shares (a “**Consolidation**”), then:

(i) in the case of a Subdivision, the Entitlement shall be increased whereas the Exercise Price (which shall be rounded to the nearest 0.001) shall be decreased in the same ratio as the Subdivision; and

(ii) in the case of a Consolidation, the Entitlement shall be decreased whereas the Exercise Price (which shall be rounded to the nearest 0.001) shall be increased in the same ratio as the Consolidation,

in each case on the day on which the relevant Subdivision or Consolidation (as the case may be) shall have taken effect.

- (D) If it is announced that the Company is to or may merge or consolidate with or into any other corporation (including becoming, by agreement or otherwise, a subsidiary of or controlled by any person or corporation) (except where the Company is the surviving corporation in a merger) or that it is to or may sell or transfer all or substantially all of its assets, the rights attaching to the Warrants may in the absolute discretion of the Agent be amended no later than the Business Day preceding the consummation of such merger, consolidation, sale or transfer (each a “**Restructuring Event**”) (as determined by the Agent in its absolute discretion).

The rights attaching to the Warrants after the adjustment shall, after such Restructuring Event, relate to the number of shares of the corporation(s) resulting from or surviving such Restructuring Event or other securities (the “**Substituted Securities**”) and/or cash offered in substitution for the affected Shares, as the case may be, to which the holder of such number of Shares to which the Warrants related immediately before such Restructuring Event would

have been entitled upon such Restructuring Event. Thereafter the provisions hereof shall apply to such Substituted Securities, provided that any Substituted Securities may, in the absolute discretion of the Agent, be deemed to be replaced by an amount in the relevant currency equal to the market value or, if no market value is available, fair value, of such Substituted Securities in each case as determined by the Agent as soon as practicable after such Restructuring Event is effected.

For the avoidance of doubt, any remaining Shares shall not be affected by this paragraph (D) and, where cash is offered in substitution for Shares or is deemed to replace Substituted Securities as described above, references in these Conditions to the Shares shall include any such cash.

- (E) No adjustment will be made for an ordinary cash dividend (whether or not it is offered with a scrip alternative) (“**Ordinary Dividend**”). For any other forms of cash distribution (“**Cash Distribution**”) announced by the Company, such as a cash bonus, special dividend or extraordinary dividend, no adjustment will be made unless the value of the Cash Distribution accounts for 2 per cent. or more of the Share’s closing price on the day of announcement by the Company.

If and whenever the Company shall make a Cash Distribution credited as fully paid to the holders of Shares generally, the Entitlement shall be adjusted to take effect on the Business Day on which trading in the Shares becomes ex-entitlement in respect of the relevant Cash Distribution in accordance with the following formula:

$$\text{Adjusted Entitlement} = \text{Adjustment Factor} \times E$$

Where:

$$\text{Adjustment Factor} = \frac{S - OD}{S - OD - CD}$$

E: Existing Entitlement immediately prior to the relevant event giving rise to the adjustment

S: Cum-Cash Distribution Share price, being the closing price of an existing Share, as derived from the Daily Quotation Sheet of the Stock Exchange on the last Business Day on which the Shares are traded on a cum-Cash Distribution basis

CD: The Cash Distribution per Share

OD: The Ordinary Dividend per Share, provided that the Ordinary Dividend and the Cash Distribution have the same ex-entitlement date. For the avoidance of doubt, the OD shall be zero if the Ordinary Dividend and the Cash Distribution have different ex-entitlement dates

In addition, the Issuer shall adjust the Exercise Price (which shall be rounded to the nearest 0.001) by the reciprocal of the Adjustment Factor, where the reciprocal of the Adjustment Factor means one divided by the relevant Adjustment Factor. The adjustment to the Exercise Price shall take effect on the same date that the Entitlement is adjusted.

- (F) Without prejudice to and notwithstanding any prior adjustment(s) made pursuant to the applicable Conditions, the Issuer and/or the Agent may (but shall not be obliged to) make such other adjustments to the terms and conditions of the Warrants as appropriate where any event (including the events as contemplated in the applicable Conditions) occurs and

irrespective of, in substitution for, or in addition to the provisions contemplated in the applicable Conditions, provided that such adjustment is: (i) not materially prejudicial to the interests of the Warrantheholders generally (without considering the circumstances of any individual Warrantheholder or the tax or other consequences of such adjustment in any particular jurisdiction); or (ii) determined by the Issuer and/or Agent in good faith to be appropriate and commercially reasonable.

- (G) The Issuer and/or the Agent shall determine any adjustment or amendment and its determination shall be conclusive and binding on the Warrantheholder save in the case of manifest error. Notice of any adjustments or amendments shall be given to the Warrantheholder in accordance with Condition 10 as soon as practicable after the determination thereof.

## **7 Purchase by the Issuer**

The Issuer and any of its affiliates may purchase Warrants at any time on or after the date of their issue and any Warrants which are so purchased may be surrendered for cancellation or offered from time to time in one or more transactions in the over-the-counter market or otherwise at prevailing market prices or in negotiated transactions, at the discretion of the Issuer or any such affiliate, as the case may be.

## **8 Global Warrant Certificate**

A global warrant certificate (the “**Global Warrant Certificate**”) representing the Warrants will be deposited within CCASS and registered in the name of HKSCC Nominees Limited (or its successors). The Global Warrant Certificate will not be exchangeable for definitive warrant certificates.

## **9 Meeting of Warrantheholder and Modification**

- (A) *Meetings of Warrantheholder.* Notices for convening meetings to consider any matter affecting the Warrantheholder’s interests will be given to the Warrantheholder in accordance with the provisions of Condition 10.

Every question submitted to a meeting of the Warrantheholder shall be decided by poll. A meeting may be convened by the Issuer or by the Warrantheholder holding not less than 10 per cent. of the Warrants for the time being remaining unexercised. The quorum at any such meeting for passing an Extraordinary Resolution will be two or more persons (including any nominee appointed by the Warrantheholder) holding or representing not less than 25 per cent. of the Warrants for the time being remaining unexercised, or at any adjourned meeting two or more persons (including any nominee appointed by the Warrantheholder) being or representing Warrantheholder whatever the number of Warrants so held or represented.

A resolution will be an Extraordinary Resolution when it has been passed at a duly convened meeting by not less than three-quarters of the votes cast by such Warrantheholder as, being entitled to do so, vote in person or by proxy.

An Extraordinary Resolution passed at any meeting of the Warrantheholder shall be binding on all the holders of the Warrants, whether or not they are present at the meeting.

Resolutions can be passed in writing without a meeting of the Warrantheholder being held if passed unanimously.

(B) *Modification.* The Issuer may, without the consent of the Warrantholders, effect any modification of the terms and conditions of the Warrants or the Instrument which, in the opinion of the Issuer, is:

- (i) not materially prejudicial to the interests of the Warrantholders generally (without considering the circumstances of any individual Warrantholder or the tax or other consequences of such modification in any particular jurisdiction);
- (ii) of a formal, minor or technical nature;
- (iii) made to correct a manifest error; or
- (iv) necessary in order to comply with mandatory provisions of the laws or regulations of Hong Kong.

Any such modification shall be binding on the Warrantholders and shall be notified to them by the Agent as soon as practicable thereafter in accordance with Condition 10.

## **10 Notices**

All notices in English and Chinese to the Warrantholder will be validly given if published on the website of the Hong Kong Exchanges and Clearing Limited. In such circumstances, the Issuer shall not be required to dispatch copies of the notice to the Warrantholders.

## **11 Liquidation**

In the event of a liquidation or dissolution or winding up of the Company or the appointment of a receiver or administrator or analogous person under applicable law in respect of the whole or substantially the whole of the undertaking, property or assets of the Company, all unexercised Warrants will lapse and shall cease to be valid for any purpose, in the case of a voluntary liquidation, on the effective date of the resolution and, in the case of an involuntary liquidation or dissolution, on the date of the relevant court order or, in the case of the appointment of a liquidator or receiver or administrator or analogous person under applicable law in respect of the whole or substantially the whole of the undertaking, property or assets, on the date when such appointment is effective but subject (in any such case) to any contrary mandatory requirement of law.

## **12 Delisting of Company**

- (A) If at any time the Shares cease to be listed on the Stock Exchange, the Issuer shall give effect to these Conditions in such manner and make such adjustments to the rights attaching to the Warrants as it shall, in its absolute discretion, consider appropriate to ensure, so far as it is reasonably able to do so, that the interests of the Warrantholder generally are not materially prejudiced as a consequence of such delisting (without considering the individual circumstances of the Warrantholder or the tax or other consequences that may result in any particular jurisdiction).
- (B) Without prejudice to the generality of Condition 12(A), where the Shares are or, upon the delisting, become, listed on any other stock exchange, these Conditions may, in the absolute discretion of the Issuer, be amended to the extent necessary to allow for the substitution of that other stock exchange in place of the Stock Exchange and the Issuer may, without the consent of the Warrantholder, make such adjustments to the entitlements of the Warrantholder on exercise (including, if appropriate, by converting foreign currency amounts at prevailing market rates into the relevant currency) as it shall consider appropriate in the circumstances.

- (C) Any adjustment, amendment or determination made by the Issuer pursuant to this Condition 12 shall be conclusive and binding on the Warrantholder save in the case of manifest error. Notice of any adjustments or amendments shall be given to the Warrantholder in accordance with Condition 10 as soon as practicable after they are determined.

### **13 Further Issues**

The Issuer shall be at liberty from time to time, without the consent of the Warrantholder, to create and issue further warrants, upon such terms as to issue price, commencement of the exercise period and otherwise as the Issuer may determine so as to form a single series with the Warrants.

### **14 Illegality or Impracticability**

The Issuer is entitled to terminate the Warrants if it determines in good faith and in a commercially reasonable manner that, for reasons beyond its control, it has become or it will become illegal or impracticable:

- (A) for it to perform its obligations under the Warrants, or for the Guarantor to perform its obligations under the Guarantee, in whole or in part as a result of:
- (i) the adoption of, or any change in, any relevant law or regulation (including any tax law); or
  - (ii) the promulgation of, or any change in, the interpretation by any court, tribunal, governmental, administrative, legislative, regulatory or judicial authority or power with competent jurisdiction of any relevant law or regulation (including any tax law),
- (each of (i) and (ii), a “**Change in Law Event**”); or
- (B) for it or any of its affiliates to maintain the Issuer’s hedging arrangements with respect to the Warrants due to a Change in Law Event.

Upon the occurrence of a Change in Law Event, the Issuer will, if and to the extent permitted by the applicable law or regulation, pay to each Warrantholder a cash amount that the Issuer determines in good faith and in a commercially reasonable manner to be the fair market value in respect of each Warrant held by such Warrantholder immediately prior to such termination (ignoring such illegality or impracticability) less the cost to the Issuer of unwinding any related hedging arrangement as determined by the Issuer in its sole and absolute discretion. Payment will be made to each Warrantholder in such manner as shall be notified to the Warrantholders in accordance with Condition 10.

### **15 Good Faith and Commercially Reasonable Manner**

Any exercise of discretion by the Issuer or the Agent under these Conditions will be made in good faith and in a commercially reasonable manner.

### **16 Contracts (Rights of Third Parties) Ordinance**

A person who is not a party to these Conditions has no right under the Contracts (Rights of Third Parties) Ordinance (Cap. 623 of the Laws of Hong Kong) to enforce or to enjoy the benefit of any term of the Warrants.

## **17 Governing Law**

The Warrants, the Guarantee and the Instrument will be governed by and construed in accordance with the laws of the Hong Kong Special Administrative Region of the People's Republic of China ("**Hong Kong**"). The Issuer, the Guarantor and the Warrantholder (by its acquisition of the Warrants) shall be deemed to have submitted for all purposes in connection with the Warrants, the Guarantee and the Instrument to the non-exclusive jurisdiction of the courts of Hong Kong.

## **18 Language**

A Chinese translation of these Conditions is available upon request during usual business hours on any weekday (Saturdays, Sundays and holidays excepted) at the offices of the Agent. In the event of any inconsistency between the English version and Chinese translation of these Conditions, the English version shall prevail and be governing.

### **Agent**

J.P. Morgan Securities (Asia Pacific) Limited  
25/F, Chater House  
8 Connaught Road Central  
Hong Kong

## **TERMS AND CONDITIONS OF THE CASH-SETTLED WARRANTS OVER SINGLE UNIT TRUST**

*The relevant Conditions will, together with the supplemental provisions contained in the relevant supplemental listing document and subject to completion and amendment, be endorsed on the back of the global warrant certificate. The applicable supplemental listing document in relation to the issue of any series of Warrants may specify other terms and conditions which shall, to the extent so specified or to the extent inconsistent with the relevant Conditions, replace or modify the relevant Conditions for the purpose of such series of Warrants. Capitalised terms used in the relevant Conditions and not otherwise defined therein shall have the meanings given to them in the relevant supplemental listing document.*

### **1 Form; Status; Guarantee; Transfer and Title**

- (A) The Warrants (which expression shall, unless the context otherwise requires, include any further warrants issued pursuant to Condition 13) relating to the Units of the Trust are issued in registered form subject to and with the benefit of the amended and restated instrument dated 3 May 2010 (the “**Instrument**”) made by J.P. Morgan Structured Products B.V. (the “**Issuer**”) and JPMorgan Chase Bank, National Association (the “**Guarantor**”) and the guarantee dated 5 April 2016 (the “**Guarantee**”) made by the Guarantor.

Copies of the Instrument and the Guarantee are available for inspection at the office of J.P. Morgan Securities (Asia Pacific) Limited as specified below. The Warrantholders (as hereinafter defined) are entitled to the benefit of, are bound by and are deemed to have notice of, all the provisions of the Instrument and the Guarantee.

- (B) The settlement obligation of the Issuer in respect of the Warrants represent general unsecured contractual obligations of the Issuer and of no other person which rank, and will rank, equally among themselves and pari passu with all other present and future unsecured and unsubordinated contractual obligations of the Issuer, except for obligations accorded preference by mandatory provisions of applicable law.

Warrants represent general contractual obligations of the Issuer, and are not, nor is it the intention (expressed, implicit or otherwise) of the Issuer to create by the issue of warrants deposit liabilities of the Issuer or a debt obligation of any kind.

In the Guarantee, the Guarantor has, subject to the terms of the Guarantee, unconditionally and irrevocably guaranteed to the Warrantholders the due and punctual settlement in full of all obligations due and owing by the Issuer arising under the issuance of the Warrants after taking account of any set off, combination of accounts, netting or similar arrangement from time to time exercisable by the Issuer against any person to whom obligations are from time to time being owed, when and as due (whether at maturity, by acceleration or otherwise).

- (C) Transfers of Warrants may be effected only in Board Lots or integral multiples thereof in the Central Clearing and Settlement System (“**CCASS**”) in accordance with the General Rules of CCASS and the CCASS Operational Procedures in effect from time to time (“**CCASS Rules**”).
- (D) Each person who is for the time being shown in the register kept by or on behalf of the Issuer outside of Hong Kong as the holder shall be treated by the Issuer, the Guarantor and the Agent as the absolute owner and holder of the Warrants. The expression “**Warrantholder**” shall be construed accordingly.



- (E) Trading in Warrants on The Stock Exchange of Hong Kong Limited (the “Stock Exchange”) shall be suspended prior to the Expiry Date in accordance with the requirements of the Stock Exchange.

## 2 Warrant Rights and Exercise Expenses

- (A) Every Board Lot entitles the Warrantholder, upon compliance with Condition 4, to payment of the Cash Settlement Amount (as defined in Condition 4(C)).
- (B) The Warrantholder will be required to pay any charges or expenses including any taxes or duties which are incurred or withheld in respect of the exercise of the Warrants (the “**Exercise Expenses**”). To effect such payment, an amount equivalent to the Exercise Expenses will be deducted by the Issuer from the Cash Settlement Amount in accordance with Condition 4(C).

## 3 Automatic Exercise

- (A) Any Warrant in respect of which the Cash Settlement Amount which would be payable by the Issuer if exercised on the Expiry Date shall be deemed to be automatically exercised on the Expiry Date (“**Automatic Exercise**”).
- (B) Any Warrant which has not been automatically exercised in accordance with Condition 3(A) shall expire immediately without value thereafter and all rights of the Warrantholder and obligations of the Issuer with respect to such Warrant shall cease.
- (C) In these Conditions, “**Business Day**” means a day (excluding Saturdays) on which the Stock Exchange is scheduled to open for dealings in Hong Kong and banks are open for business in Hong Kong.

## 4 Exercise of Warrants

- (A) Warrants may only be exercised in Board Lots or integral multiples thereof.
- (B) Following the Expiry Date the Issuer will, with effect from the first Business Day following the Expiry Date cancel the Global Warrant Certificate.
- (C) Subject to an Automatic Exercise in accordance with Condition 3(A), the Issuer will as soon as practicable and not later than the third CCASS Settlement Day after the later of: (i) the Expiry Date; and (ii) the day on which the Average Price is determined in accordance with these Conditions (the “**Settlement Date**”) in accordance with these Conditions procure payment of the aggregate Cash Settlement Amount (following deduction of determined Exercise Expenses) for all Warrants exercised or deemed exercised, electronically through CCASS by crediting the relevant bank account of the Warrantholder as appearing in the register kept by or on behalf of the Issuer.

Subject to adjustment as provided in Condition 6, “**Cash Settlement Amount**” means:

In the case of a series of call Warrants:

$$\text{Cash Settlement Amount per Board Lot (if any) payable at expiry} = \frac{\text{Entitlement} \times (\text{Average Price} - \text{Exercise Price}) \times \text{one Board Lot}}{\text{Number of Warrant(s) per Entitlement}}$$

In the case of a series of put Warrants:

$$\text{Cash Settlement Amount per Board Lot (if any) payable at expiry} = \frac{\text{Entitlement} \times (\text{Exercise Price} - \text{Average Price}) \times \text{one Board Lot}}{\text{Number of Warrant(s) per Entitlement}}$$

“**Average Price**” shall be the arithmetic mean of the closing prices of one Unit (as derived from the Daily Quotation Sheet of the Stock Exchange, subject to any adjustment to such closing prices as may be necessary to reflect any event as contemplated in Condition 6 such as capitalisation, rights issue, distribution or the like) in respect of each Valuation Date.

“**CCASS Settlement Day**” has the meaning ascribed to the term “Settlement Day” in the CCASS Rules, subject to such modification and amendment prescribed by Hong Kong Securities Clearing Company Limited from time to time.

“**Entitlement**” means the number of Units to which the Warrants relate, as specified in the relevant Supplemental Listing Document, subject to any adjustment in accordance with Condition 6.

“**Market Disruption Event**” means:

- (i) the occurrence or existence on any Valuation Date during the one-half hour period that ends at the close of trading of any suspension of, or limitation imposed on, trading (by reason of movements in price exceeding limits permitted by the Stock Exchange or otherwise) on the Stock Exchange in (1) the Units; or (2) any options or futures contracts relating to the Units if, in any such case, such suspension or limitation is, in the determination of the Issuer and/or Agent, material;
- (ii) the issuance of the tropical cyclone warning signal number 8 or above or the issuance of a “BLACK” rainstorm signal on any day which either (i) result in the Stock Exchange being closed for trading for the entire day; or (ii) results in the Stock Exchange being closed prior to its regular time for close of trading for the relevant day (for the avoidance of doubt, in the case when the Stock Exchange is scheduled to open for the morning trading session only, closed prior to its regular time for close of trading for the morning session), PROVIDED THAT there shall be no Market Disruption Event solely by reason of the Stock Exchange opening for trading later than its regular time for opening of trading on any day as a result of the tropical cyclone warning signal number 8 or above or the “BLACK” rainstorm signal having been issued; or
- (iii) a limitation or closure of the Stock Exchange due to unforeseen circumstances.

“**Valuation Date**” means, subject as provided above in relation to a Market Disruption Event, each of the five Business Days immediately preceding the Expiry Date.

If the Agent determines, in its sole discretion, that a Market Disruption Event has occurred on any Valuation Date, then that Valuation Date shall be postponed until the first succeeding Business Day on which there is no Market Disruption Event irrespective of whether that postponed Valuation Date would fall on a Business Day that already is or is deemed to be a Valuation Date. For the avoidance of doubt, in the event that a Market Disruption Event has occurred and a Valuation Date is postponed as aforesaid, the closing price of the Units on the first succeeding Business Day will be used more than once in determining the Average Price, so that in no event shall there be less than five closing prices used to determine the Average Price.

If the postponement of a Valuation Date as aforesaid would result in the Valuation Date falling on or after the Expiry Date, then:

- (i) the Business Day immediately preceding the Expiry Date (the “**Last Valuation Date**”) shall be deemed to be the Valuation Date notwithstanding the Market Disruption Event; and
- (ii) the Agent shall determine the closing price of the Units on the basis of its good faith estimate of the price that would have prevailed on the Last Valuation Date but for the Market Disruption Event.

Any payment made pursuant to this Condition 4(C) shall be delivered at the risk and expense of the Warrantholder to the Warrantholder, or such bank, broker or agent in Hong Kong (if any) as recorded on the register.

- (D) If as a result of an event beyond the control of the Issuer (“**Settlement Disruption Event**”), it is not possible for the Issuer to procure payment electronically through CCASS by crediting the relevant bank account of the Warrantholder on the original Settlement Date, the Issuer shall use its reasonable endeavours to procure payment electronically through CCASS by crediting the relevant bank account of the Warrantholder as soon as reasonably practicable after the original Settlement Date. The Issuer will not be liable to the Warrantholder for any interest in respect of the amount due or any loss or damage that such Warrantholder may suffer as a result of the existence of a Settlement Disruption Event.
- (E) These Conditions shall not be construed so as to give rise to any relationship of agency or trust between the Guarantor, the Issuer or its agent or nominee and the Warrantholder and neither the Guarantor, the Issuer nor its agent or nominee shall owe any duty of a fiduciary nature to the Warrantholder.

None of the Issuer, the Guarantor or the Agent shall have any responsibility for any errors or omissions in the calculation and dissemination of any variables published by a third party and used in any calculation made pursuant to these terms and conditions or in the calculation of the Cash Settlement Amount arising from such errors or omissions.

The Issuer’s obligations to pay the Cash Settlement Amount shall be discharged by payment in accordance with Condition 4(C) above.

## **5 Agent**

- (A) The Agent will be acting as agent of the Issuer in respect of the Warrants and will not assume any obligation or duty to or any relationship or agency or trust for the Warrantholder.

- (B) The Issuer reserves the right, subject to the appointment of a successor, at any time to vary or terminate the appointment of the initial Agent and to appoint another agent provided that it will at all times maintain an agent in Hong Kong for so long as the Warrants are listed on the Stock Exchange. Notice of any such termination or appointment will be given to the Warrantholder in accordance with Condition 10.

## 6 Adjustments

Adjustments may be made by the Agent to the terms of the Warrants (including, but not limited to, the Exercise Price and the Entitlement) on the basis of the following provisions:

- (A) (i) If and whenever the Trust shall, by way of Rights (as defined below), offer new Units for subscription at a fixed subscription price to the holders of existing Units pro rata to existing holdings (a “**Rights Offer**”), the Entitlement shall be adjusted on the Business Day on which the trading in the Units of the Trust becomes ex-entitlement in accordance with the following formula:

$$\text{Adjusted Entitlement} = \text{Adjustment Factor} \times E$$

Where:

$$\text{Adjustment Factor} = \frac{1 + M}{1 + (R/S) \times M}$$

- E: Existing Entitlement immediately prior to the relevant event giving rise to the adjustment
- S: Cum-Rights Unit price, being the closing price of an existing Unit, as derived from the Daily Quotation Sheet of the Stock Exchange on the last Business Day on which the Units are traded on a cum-rights basis
- R: Subscription price per new Unit specified in the Rights Offer plus an amount equal to any distributions or other benefits foregone to exercise the Rights
- M: Number of new Unit(s) (whether a whole or a fraction) per existing Unit each holder of an existing Unit is entitled to subscribe

For the purposes of these Conditions, “**Rights**” means the right(s) attached to each existing Unit or needed to acquire one new Unit (as the case may be) which are given to a holder of existing Units to subscribe at a fixed subscription price for new Units pursuant to the Rights Offer (whether by the exercise of one Right, a part of a Right or an aggregate number of Rights).

- (ii) The Exercise Price (which shall be rounded to the nearest 0.001) shall be adjusted by the reciprocal of the Adjustment Factor, where the reciprocal of the Adjustment Factor means one divided by the relevant Adjustment Factor. The adjustment to the Exercise Price shall take effect on the same day that the Entitlement is adjusted.
- (iii) For the purposes of Conditions 6(A) and 6(B), the Agent may determine that no adjustment will be made if the adjustment to the Entitlement is one per cent. or less of the Entitlement immediately prior to the adjustment, all as determined by the Agent.

- (B) If and whenever the Trust shall make an issue of Units credited as fully paid to holders of Units generally by way of capitalisation of profits or reserves (other than pursuant to a scrip distribution or similar scheme for the time being operated by the Trust or otherwise in lieu of a cash distribution) (and without any payment or other consideration being made or given by such holders) (a “**Bonus Issue**”), the Entitlement will be adjusted, subject to Condition 6(A)(iii), on the Business Day on which the trading in the Units of the Trust becomes entitlement in accordance with the following formula:

$$\text{Adjusted Entitlement} = \text{Adjustment Factor} \times E$$

Where:

$$\text{Adjustment Factor} = 1 + N$$

E: Existing Entitlement immediately prior to the relevant event giving rise to the adjustment

N: Number of additional Units (whether a whole or a fraction) per existing Unit each holder of an existing Unit is entitled to receive

In addition, the Issuer shall adjust the Exercise Price (which shall be rounded to the nearest 0.001) by the reciprocal of the Adjustment Factor, where the reciprocal of the Adjustment Factor means one divided by the relevant Adjustment Factor. The adjustment to the Exercise Price shall take effect on the same day that the Entitlement is adjusted.

- (C) If and whenever the Trust shall subdivide its Units or any class of its outstanding Units into a greater number of units (a “**Subdivision**”) or consolidate the Units or any class of its outstanding Units into a smaller number of units (a “**Consolidation**”), then:

(i) in the case of a Subdivision, the Entitlement shall be increased whereas the Exercise Price (which shall be rounded to the nearest 0.001) shall be decreased in the same ratio as the Subdivision; and

(ii) in the case of a Consolidation, the Entitlement shall be decreased whereas the Exercise Price (which shall be rounded to the nearest 0.001) shall be increased in the same ratio as the Consolidation,

in each case on the day on which the relevant Subdivision or Consolidation (as the case may be) shall have taken effect.

- (D) If it is announced that the Trust is to or may merge or consolidate with or into any other trust or corporation (including becoming, by agreement or otherwise, a subsidiary of or controlled by any person or corporation) (except where the Trust is the surviving entity in a merger) or that it is to or may sell or transfer all or substantially all of its assets, the rights attaching to the Warrants may in the absolute discretion of the Agent be amended no later than the Business Day preceding the consummation of such merger, consolidation, sale or transfer (each a “**Restructuring Event**”) (as determined by the Agent in its absolute discretion).

The rights attaching to the Warrants after the adjustment shall, after such Restructuring Event, relate to the number of units of the trust(s) resulting from or surviving such Restructuring Event or other securities (the “**Substituted Securities**”) and/or cash offered in substitution for the affected Units, as the case may be, to which the holder of such number of Units to which the Warrants related immediately before such Restructuring Event would have been entitled upon such Restructuring Event. Thereafter the provisions hereof shall apply to

such Substituted Securities, provided that any Substituted Securities may, in the absolute discretion of the Agent, be deemed to be replaced by an amount in the relevant currency equal to the market value or, if no market value is available, fair value, of such Substituted Securities in each case as determined by the Agent as soon as practicable after such Restructuring Event is effected.

For the avoidance of doubt, any remaining Units shall not be affected by this paragraph (D) and, where cash is offered in substitution for Units or is deemed to replace Substituted Securities as described above, references in these Conditions to the Units shall include any such cash.

- (E) No adjustment will be made for an ordinary cash distribution (whether or not it is offered with a scrip alternative) (“**Ordinary Distribution**”). For any other forms of cash distribution (“**Cash Distribution**”) announced by the Trust, such as a cash bonus, special distribution or extraordinary distribution, no adjustment will be made unless the value of the Cash Distribution accounts for 2 per cent. or more of the Unit’s closing price on the day of announcement by the Trust.

If and whenever the Trust shall make a Cash Distribution credited as fully paid to the holders of Units generally, the Entitlement shall be adjusted to take effect on the Business Day on which trading in the Units becomes ex-entitlement in respect of the relevant Cash Distribution in accordance with the following formula:

$$\text{Adjusted Entitlement} = \text{Adjustment Factor} \times E$$

Where:

$$\text{Adjustment Factor} = \frac{S - OD}{S - OD - CD}$$

E: Existing Entitlement immediately prior to the relevant event giving rise to the adjustment

S: Cum-Cash Distribution Unit price, being the closing price of an existing Unit, as derived from the Daily Quotation Sheet of the Stock Exchange on the last Business Day on which the Units are traded on a cum-Cash Distribution basis

CD: The Cash Distribution per Unit

OD: The Ordinary Distribution per Unit, provided that the Ordinary Distribution and the Cash Distribution have the same ex-entitlement date. For the avoidance of doubt, the OD shall be zero if the Ordinary Distribution and the Cash Distribution have different ex-entitlement dates

In addition, the Issuer shall adjust the Exercise Price (which shall be rounded to the nearest 0.001) by the reciprocal of the Adjustment Factor, where the reciprocal of the Adjustment Factor means one divided by the relevant Adjustment Factor. The adjustment to the Exercise Price shall take effect on the same date that the Entitlement is adjusted.

- (F) Without prejudice to and notwithstanding any prior adjustment(s) made pursuant to the applicable Conditions, the Issuer and/or the Agent may (but shall not be obliged to) make such other adjustments to the terms and conditions of the Warrants as appropriate where any event (including the events as contemplated in the applicable Conditions) occurs and irrespective of, in substitution for, or in addition to the provisions contemplated in the

applicable Conditions, provided that such adjustment is: (i) not materially prejudicial to the interests of the Warranholders generally (without considering the circumstances of any individual Warranholder or the tax or other consequences of such adjustment in any particular jurisdiction); or (ii) determined by the Issuer and/or Agent in good faith to be appropriate and commercially reasonable.

- (G) The Issuer and/or the Agent shall determine any adjustment or amendment and its determination shall be conclusive and binding on the Warranholder save in the case of manifest error. Notice of any adjustments or amendments shall be given to the Warranholder in accordance with Condition 10 as soon as practicable after the determination thereof.

## **7 Purchase by the Issuer**

The Issuer and any of its affiliates may purchase Warrants at any time on or after the date of their issue and any Warrants which are so purchased may be surrendered for cancellation or offered from time to time in one or more transactions in the over-the-counter market or otherwise at prevailing market prices or in negotiated transactions, at the discretion of the Issuer or any such affiliate, as the case may be.

## **8 Global Warrant Certificate**

A global warrant certificate (the “**Global Warrant Certificate**”) representing the Warrants will be deposited within CCASS and registered in the name of HKSCC Nominees Limited (or its successors). The Global Warrant Certificate will not be exchangeable for definitive warrant certificates.

## **9 Meeting of Warranholder and Modification**

- (A) *Meetings of Warranholder.* Notices for convening meetings to consider any matter affecting the Warranholder’s interests will be given to the Warranholder in accordance with the provisions of Condition 10.

Every question submitted to a meeting of the Warranholder shall be decided by poll. A meeting may be convened by the Issuer or by the Warranholder holding not less than 10 per cent. of the Warrants for the time being remaining unexercised. The quorum at any such meeting for passing an Extraordinary Resolution will be two or more persons (including any nominee appointed by the Warranholder) holding or representing not less than 25 per cent. of the Warrants for the time being remaining unexercised, or at any adjourned meeting two or more persons (including any nominee appointed by the Warranholder) being or representing Warranholder whatever the number of Warrants so held or represented.

A resolution will be an Extraordinary Resolution when it has been passed at a duly convened meeting by not less than three-quarters of the votes cast by such Warranholder as, being entitled to do so, vote in person or by proxy.

An Extraordinary Resolution passed at any meeting of the Warranholder shall be binding on all the holders of the Warrants, whether or not they are present at the meeting.

Resolutions can be passed in writing without a meeting of the Warranholder being held if passed unanimously.

- (B) *Modification.* The Issuer may, without the consent of the Warranholders, effect any modification of the terms and conditions of the Warrants or the Instrument which, in the opinion of the Issuer, is:

- (i) not materially prejudicial to the interests of the Warrantholders generally (without considering the circumstances of any individual Warrantholder or the tax or other consequences of such modification in any particular jurisdiction);
- (ii) of a formal, minor or technical nature;
- (iii) made to correct a manifest error; or
- (iv) necessary in order to comply with mandatory provisions of the laws or regulations of Hong Kong.

Any such modification shall be binding on the Warrantholders and shall be notified to them by the Agent as soon as practicable thereafter in accordance with Condition 10.

## 10 Notices

All notices in English and Chinese to the Warrantholder will be validly given if published on the website of the Hong Kong Exchanges and Clearing Limited. In such circumstances, the Issuer shall not be required to dispatch copies of the notice to the Warrantholders.

## 11 Termination or Liquidation

In the event of a Termination or the liquidation or dissolution of the trustee of the Trust (including any successor trustee appointed from time to time) (“**Trustee**”) (in its capacity as trustee of the Trust) or the appointment of a liquidator, receiver or administrator or analogous person under applicable law in respect of the whole or substantially the whole of the Trustee’s undertaking, property or assets all unexercised Warrants will lapse and shall cease to be valid for any purpose. In the case of a Termination the unexercised Warrants will lapse and shall cease to be valid on the effective date of the Termination, in the case of a voluntary liquidation, on the effective date of the resolution and, in the case of an involuntary liquidation or dissolution, on the date of the relevant court order or, in the case of the appointment of a liquidator or receiver or administrator or analogous person under applicable law in respect of the whole or substantially the whole of the Trustee’s undertaking, property or assets, on the date when such appointment is effective but subject (in any such case) to any contrary mandatory requirement of law.

For the purpose of this Condition 11, “**Termination**” means (i) the Trust is terminated, or the Trustee or the manager of the Trust (including any successor manager appointed from time to time) (“**Manager**”) is required to terminate the Trust under the trust deed (“**Trust Deed**”) constituting the Trust or applicable law, or the termination of the Trust commences; (ii) the Trust is held or is conceded by the Trustee or the Manager not to have been constituted or to have been imperfectly constituted; (iii) the Trustee ceases to be authorised under the Trust to hold the property of the Trust in its name and perform its obligations under the Trust Deed; or (iv) the Trust ceases to be authorised as an authorised collective investment scheme under the Securities and Futures Ordinance (Cap. 571 of the Laws of Hong Kong).

## 12 Delisting of Trust

- (A) If at any time the Units cease to be listed on the Stock Exchange, the Issuer shall give effect to these Conditions in such manner and make such adjustments to the rights attaching to the Warrants as it shall, in its absolute discretion, consider appropriate to ensure, so far as it is reasonably able to do so, that the interests of the Warrantholder generally are not materially prejudiced as a consequence of such delisting (without considering the individual circumstances of the Warrantholder or the tax or other consequences that may result in any particular jurisdiction).



- (B) Without prejudice to the generality of Condition 12(A), where the Units are or, upon the delisting, become, listed on any other stock exchange, these Conditions may, in the absolute discretion of the Issuer, be amended to the extent necessary to allow for the substitution of that other stock exchange in place of the Stock Exchange and the Issuer may, without the consent of the Warrantholder, make such adjustments to the entitlements of the Warrantholder on exercise (including, if appropriate, by converting foreign currency amounts at prevailing market rates into the relevant currency) as it shall consider appropriate in the circumstances.
- (C) Any adjustment, amendment or determination made by the Issuer pursuant to this Condition 12 shall be conclusive and binding on the Warrantholder save in the case of manifest error. Notice of any adjustments or amendments shall be given to the Warrantholder in accordance with Condition 10 as soon as practicable after they are determined.

### **13 Further Issues**

The Issuer shall be at liberty from time to time, without the consent of the Warrantholder, to create and issue further warrants, upon such terms as to issue price, commencement of the exercise period and otherwise as the Issuer may determine so as to form a single series with the Warrants.

### **14 Illegality or Impracticability**

The Issuer is entitled to terminate the Warrants if it determines in good faith and in a commercially reasonable manner that, for reasons beyond its control, it has become or it will become illegal or impracticable:

- (A) for it to perform its obligations under the Warrants, or for the Guarantor to perform its obligations under the Guarantee, in whole or in part as a result of:
  - (i) the adoption of, or any change in, any relevant law or regulation (including any tax law); or
  - (ii) the promulgation of, or any change in, the interpretation by any court, tribunal, governmental, administrative, legislative, regulatory or judicial authority or power with competent jurisdiction of any relevant law or regulation (including any tax law),(each of (i) and (ii), a “**Change in Law Event**”); or
- (B) for it or any of its affiliates to maintain the Issuer’s hedging arrangements with respect to the Warrants due to a Change in Law Event.

Upon the occurrence of a Change in Law Event, the Issuer will, if and to the extent permitted by the applicable law or regulation, pay to each Warrantholder a cash amount that the Issuer determines in good faith and in a commercially reasonable manner to be the fair market value in respect of each Warrant held by such Warrantholder immediately prior to such termination (ignoring such illegality or impracticability) less the cost to the Issuer of unwinding any related hedging arrangement as determined by the Issuer in its sole and absolute discretion. Payment will be made to each Warrantholder in such manner as shall be notified to the Warrantholders in accordance with Condition 10.

### **15 Good Faith and Commercially Reasonable Manner**

Any exercise of discretion by the Issuer or the Agent under these Conditions will be made in good faith and in a commercially reasonable manner.

## **16 Contracts (Rights of Third Parties) Ordinance**

A person who is not a party to these Conditions has no right under the Contracts (Rights of Third Parties) Ordinance (Cap. 623 of the Laws of Hong Kong) to enforce or to enjoy the benefit of any term of the Warrants.

## **17 Governing Law**

The Warrants, the Guarantee and the Instrument will be governed by and construed in accordance with the laws of the Hong Kong Special Administrative Region of the People's Republic of China ("**Hong Kong**"). The Issuer, the Guarantor and the Warrantholder (by its acquisition of the Warrants) shall be deemed to have submitted for all purposes in connection with the Warrants, the Guarantee and the Instrument to the non-exclusive jurisdiction of the courts of Hong Kong.

## **18 Language**

A Chinese translation of these Conditions is available upon request during usual business hours on any weekday (Saturdays, Sundays and holidays excepted) at the offices of the Agent. In the event of any inconsistency between the English version and Chinese translation of these Conditions, the English version shall prevail and be governing.

### **Agent**

J.P. Morgan Securities (Asia Pacific) Limited  
25/F, Chater House  
8 Connaught Road Central  
Hong Kong

## TERMS AND CONDITIONS OF THE CASH-SETTLED INDEX WARRANTS

*The relevant Conditions will, together with the supplemental provisions contained in the relevant supplemental listing document and subject to completion and amendment, be endorsed on the back of the global warrant certificate. The applicable supplemental listing document in relation to the issue of any series of Warrants may specify other terms and conditions which shall, to the extent so specified or to the extent inconsistent with the relevant Conditions, replace or modify the relevant Conditions for the purpose of such series of Warrants. Capitalised terms used in the relevant Conditions and not otherwise defined therein shall have the meanings given to them in the relevant supplemental listing document.*

### 1 Form; Status; Guarantee; Transfer and Title

- (A) The Warrants (which expression shall, unless the context otherwise requires, include any further warrants issued pursuant to Condition 11) relating to the Index as published by the Index Compiler are issued in registered form subject to and with the benefit of the amended and restated instrument dated 3 May 2010 (the “**Instrument**”), made by J.P. Morgan Structured Products B.V. (the “**Issuer**”) and JPMorgan Chase Bank, National Association (the “**Guarantor**”) and the guarantee dated 5 April 2016 (the “**Guarantee**”) made by the Guarantor.

Copies of the Instrument and the Guarantee are available for inspection at the office of J.P. Morgan Securities (Asia Pacific) Limited as specified below. The Warrantholders (as hereinafter defined) are entitled to the benefit of, are bound by and are deemed to have notice of, all the provisions of the Instrument and the Guarantee.

- (B) The settlement obligation of the Issuer in respect of the Warrants represent general unsecured contractual obligations of the Issuer and of no other person which rank, and will rank, equally among themselves and pari passu with all other present and future unsecured and unsubordinated contractual obligations of the Issuer, except for obligations accorded preference by mandatory provisions of applicable law.

Warrants represent general contractual obligations of the Issuer, and are not, nor is it the intention (expressed, implicit or otherwise) of the Issuer to create by the issue of warrants deposit liabilities of the Issuer or a debt obligation of any kind.

In the Guarantee, the Guarantor has, subject to the terms of the Guarantee, unconditionally and irrevocably guaranteed to the Warrantholders the due and punctual settlement in full of all obligations due and owing by the Issuer arising under the issuance of the Warrants after taking account of any set off, combination of accounts, netting or similar arrangement from time to time exercisable by the Issuer against any person to whom obligations are from time to time being owed, when and as due (whether at maturity, by acceleration or otherwise).

- (C) Transfers of Warrants may be effected only in Board Lots or integral multiples thereof in the Central Clearing and Settlement System (“**CCASS**”) in accordance with the General Rules of CCASS and the CCASS Operational Procedures in effect from time to time (“**CCASS Rules**”).
- (D) Each person who is for the time being shown in the register kept by or on behalf of the Issuer outside of Hong Kong as the holder shall be treated by the Issuer, the Guarantor and the Agent as the absolute owner and holder of the Warrants. The expression “**Warrantholder**” shall be construed accordingly.

- (E) Trading in Warrants on The Stock Exchange of Hong Kong Limited (the “Stock Exchange”) shall be suspended prior to the Expiry Date in accordance with the requirements of the Stock Exchange.

## 2 Warrant Rights and Exercise Expenses

- (A) Every Board Lot entitles the Warrantholder, upon compliance with Condition 4, to payment of the Cash Settlement Amount (as defined in Condition 4(C)).
- (B) The Warrantholder will be required to pay any charges or expenses including any taxes or duties which are incurred or withheld in respect of the exercise of the Warrants (the “**Exercise Expenses**”). To effect such payments, an amount equivalent to the Exercise Expenses will be deducted by the Issuer from the Cash Settlement Amount in accordance with Condition 4(C).

## 3 Automatic Exercise

- (A) Any Warrant in respect of which the Cash Settlement Amount which would be payable by the Issuer if exercised on the Expiry Date shall be deemed to be automatically exercised on the Expiry Date (“**Automatic Exercise**”).
- (B) Any Warrant which has not been automatically exercised in accordance with Condition 3(A) shall expire immediately without value thereafter and all rights of the Warrantholder and obligations of the Issuer with respect to such Warrant shall cease.
- (C) In these Conditions, “**Business Day**” means a day (excluding Saturdays) on which the Stock Exchange is scheduled to open for dealings in Hong Kong and banks are open for business in Hong Kong.

## 4 Exercise of Warrants

- (A) Warrants may only be exercised in Board Lots or integral multiples thereof.
- (B) Following the Expiry Date the Issuer will, with effect from the first Business Day following the Expiry Date cancel the Global Warrant Certificate.
- (C) Subject to an Automatic Exercise in accordance with Condition 3(A), the Issuer will as soon as practicable and not later than the third CCASS Settlement Day after the later of: (i) the Expiry Date; and (ii) the day on which the Closing Level is determined in accordance with these Conditions (the “**Settlement Date**”) in accordance with these Conditions procure payment of the aggregate Cash Settlement Amount (following deduction of determined Exercise Expenses) for all Warrants exercised or deemed exercised, electronically through CCASS by crediting the relevant bank account of the Warrantholder as appearing in the register kept by or on behalf of the Issuer.

Subject to adjustment as provided in Condition 6, “**Cash Settlement Amount**” means for every Board Lot, an amount calculated by the Issuer in accordance with the following formula, either (i) converted (if applicable) into the Settlement Currency at the Exchange Rate or, as the case may be, (ii) converted into the Interim Currency at the First Exchange Rate and then (if applicable) converted into Settlement Currency at the Second Exchange Rate:

In the case of a series of call Warrants:

$$\text{Cash Settlement Amount per Board Lot (if any) payable at expiry} = \frac{(\text{Closing Level} - \text{Strike Level}) \times \text{one Board Lot} \times \text{Index Currency Amount}}{\text{Divisor}}$$

In the case of a series of put Warrants:

$$\text{Cash Settlement Amount per Board Lot (if any) payable at expiry} = \frac{(\text{Strike Level} - \text{Closing Level}) \times \text{one Board Lot} \times \text{Index Currency Amount}}{\text{Divisor}}$$

“**CCASS Settlement Day**” has the meaning ascribed to the term “Settlement Day” in the CCASS Rules, subject to such modification and amendment prescribed by Hong Kong Securities Clearing Company Limited from time to time.

“**Index Business Day**” means a day on which the Index Exchange is scheduled to open for trading for its regular trading sessions.

“**Index Exchange**” means the Stock Exchange or any other exchange as specified in the relevant Supplemental Listing Document.

“**Market Disruption Event**” means:

- (1) the occurrence or existence, on the Valuation Date during the one-half hour period that ends at the close of trading on the Index Exchange, of any of:
  - (i) the suspension or material limitation of the trading of a material number of constituent securities that comprise the Index; or
  - (ii) the suspension or material limitation of the trading of options or futures contracts relating to the Index on any exchanges on which such contracts are traded; or
  - (iii) the imposition of any exchange controls in respect of any currencies involved in determining the Cash Settlement Amount;

for the purpose of paragraph (1), (x) the limitation of the number of hours or days of trading will not constitute a Market Disruption Event if it results from an announced change in the regular business hours of any relevant exchange, and (y) a limitation on trading imposed by reason of the movements in price exceeding the levels permitted by any relevant exchange will constitute a Market Disruption Event; or

- (2) where the Index Exchange is the Stock Exchange, the issuance of the tropical cyclone warning signal number 8 or above or the issuance of a “BLACK” rainstorm signal on any day which either (i) results in the Stock Exchange being closed for trading for the entire day; or (ii) results in the Stock Exchange being closed prior to its regular time for close of trading for the relevant day (for the avoidance of doubt, in the case when the Stock Exchange is scheduled to open for the morning trading session only, closed prior

to its regular time for close of trading for the morning session), PROVIDED THAT there shall be no Market Disruption Event solely by reason of the Stock Exchange opening for trading later than its regular time for opening of trading on any day as a result of the tropical cyclone warning signal number 8 or above or the “BLACK” rainstorm signal having been issued;

- (3) the limitation or closure of the Index Exchange due to any unforeseen circumstances; or
- (4) any circumstances beyond the control of the Issuer in which the Closing Level or, if applicable, the Exchange Rate, the First Exchange Rate or the Second Exchange Rate (as the case may be) cannot be determined by the Issuer in the manner set out in these Conditions or in such other manner as the Issuer considers appropriate at such time after taking into account all the relevant circumstances.

“**Settlement Currency**” has the meaning given to it in the relevant Supplemental Listing Document.

“**Valuation Date**” means the date specified as such in the relevant Supplemental Listing Document. If the Issuer determines, in its sole discretion, that a Market Disruption Event has occurred on the Valuation Date, then the Issuer shall determine the Closing Level on the basis of its good faith estimate of the Closing Level that would have prevailed on that day but for the occurrence of the Market Disruption Event provided that the Issuer, if applicable, may, but shall not be obliged to, determine such Closing Level by having regard to the manner in which futures contracts relating to the Index are calculated.

Any payment made pursuant to this Condition 4(C) shall be delivered at the risk and expense of the Warrantholder to the Warrantholder, or such bank, broker or other agent in Hong Kong (if any) as is recorded on the register.

- (D) If as a result of an event beyond the control of the Issuer (“**Settlement Disruption Event**”), it is not possible for the Issuer to procure payment electronically through CCASS by crediting the relevant bank account of the Warrantholder on the original Settlement Date, the Issuer shall use its reasonable endeavours to procure payment electronically through CCASS by crediting the relevant bank account of the Warrantholder as soon as reasonably practicable after the original Settlement Date. The Issuer will not be liable to the Warrantholder for any interest in respect of the amount due or any loss or damage that such Warrantholder may suffer as a result of the existence of a Settlement Disruption Event.
- (E) These Conditions shall not be construed so as to give rise to any relationship of agency or trust between the Guarantor, the Issuer or its agent or nominee and the Warrantholder and neither the Guarantor, the Issuer nor its agent or nominee shall owe any duty of a fiduciary nature to the Warrantholder.

None of the Issuer, the Guarantor or the Agent shall have any responsibility for any errors or omissions in the calculation and dissemination of any variables published by a third party and used in any calculation made pursuant to these terms and conditions or in the calculation of the Cash Settlement Amount arising from such errors or omissions.

The Issuer’s obligations to pay the Cash Settlement Amount shall be discharged by payment in accordance with Condition 4(C) above.

## 5 Agent

- (A) The Agent will be acting as agent of the Issuer in respect of the Warrants and will not assume any obligation or duty to or any relationship or agency or trust for the Warrantholder.
- (B) The Issuer reserves the right, subject to the appointment of a successor, at any time to vary or terminate the appointment of the initial Agent and to appoint another agent provided that it will at all times maintain an agent in Hong Kong for so long as the Warrants are listed on the Stock Exchange. Notice of any such termination or appointment will be given to the Warrantholder in accordance with Condition 10.

## 6 Adjustments

- (A) If the Index is (i) not calculated and announced by the Index Compiler but is calculated and published by a successor to the Index Compiler (the “**Successor Index Compiler**”) acceptable to the Agent or (ii) replaced by a successor index using, in the determination of the Agent, the same or a substantially similar formula for and method of calculation as used in the calculation of the Index, then the Index will be deemed to be the index so calculated and announced by the Successor Index Compiler or that successor index, as the case may be.
- (B) If (i) on or prior to the Valuation Date, the Index Compiler or (if applicable) the Successor Index Compiler makes a material change in the formula for or the method of calculating the Index or in any other way materially modifies the Index (other than a modification prescribed in that formula or method to maintain the Index in the event of changes in constituent securities, contracts or commodities and other routine events), or (ii) on the Valuation Date, the Index Compiler or (if applicable) the Successor Index Compiler fails to calculate and publish the Index (other than as a result of a Market Disruption Event), then the Agent shall determine the Closing Level using, in lieu of a published level for the Index, the level for the Index as at the Valuation Date as determined by the Agent in accordance with the formula for and method of calculating the Index last in effect prior to the change or failure, but using only those securities, contracts or commodities that comprised the Index immediately prior to that change or failure (other than those securities that have since ceased to be listed on the relevant exchange).
- (C) Without prejudice to and notwithstanding any prior adjustment(s) made pursuant to the applicable Conditions, the Issuer and/or the Agent may (but shall not be obliged to) make such other adjustments to the terms and conditions of the Warrants as appropriate where any event (including the events as contemplated in the applicable Conditions) occurs and irrespective of, in substitution for, or in addition to the provisions contemplated in the applicable Conditions, provided that such adjustment is: (i) not materially prejudicial to the interests of Warrantholders generally (without considering the circumstances of any individual Warrantholder or the tax or other consequences of such adjustment in any particular jurisdiction); or (ii) determined by the Issuer and/or Agent in good faith to be appropriate and commercially reasonable.
- (D) All determinations made by the Agent pursuant hereto will be conclusive and binding on the Warrantholders. The Issuer will give, or procure that there is given, notice as soon as practicable of any determinations by publication in accordance with Condition 10.

## 7 Purchase by the Issuer

The Issuer and any of its affiliates may purchase Warrants at any time on or after the date of their issue and any Warrants which are so purchased may be surrendered for cancellation or offered from time to time in one or more transactions in the over-the-counter market or otherwise at prevailing market prices or in negotiated transactions, at the discretion of the Issuer or any such affiliate, as the case may be.

## 8 Global Warrant Certificate

A global warrant certificate (the “**Global Warrant Certificate**”) representing the Warrants will be deposited within CCASS and registered in the name of HKSCC Nominees Limited (or its successors). The Global Warrant Certificate will not be exchangeable for definitive warrant certificates.

## 9 Meeting of Warrantholder and Modification

- (A) *Meetings of Warrantholder.* Notices for convening meetings to consider any matter affecting the Warrantholder’s interests will be given to the Warrantholder in accordance with the provisions of Condition 10.

Every question submitted to a meeting of the Warrantholder shall be decided by poll. A meeting may be convened by the Issuer or by the Warrantholder holding not less than 10 per cent. of the Warrants for the time being remaining unexercised. The quorum at any such meeting for passing an Extraordinary Resolution will be two or more persons (including any nominee appointed by the Warrantholder) holding or representing not less than 25 per cent. of the Warrants for the time being remaining unexercised, or at any adjourned meeting two or more persons (including any nominee appointed by the Warrantholder) being or representing Warrantholder whatever the number of Warrants so held or represented.

A resolution will be an Extraordinary Resolution when it has been passed at a duly convened meeting by not less than three-quarters of the votes cast by such Warrantholder as, being entitled to do so, vote in person or by proxy.

An Extraordinary Resolution passed at any meeting of the Warrantholder shall be binding on all the holders of the Warrants, whether or not they are present at the meeting.

Resolutions can be passed in writing without a meeting of the Warrantholder being held if passed unanimously.

- (B) *Modification.* The Issuer may, without the consent of the Warrantholders, effect any modification of the terms and conditions of the Warrants or the Instrument which, in the opinion of the Issuer, is:
- (i) not materially prejudicial to the interests of the Warrantholders generally (without considering the circumstances of any individual Warrantholder or the tax or other consequences of such modification in any particular jurisdiction);
  - (ii) of a formal, minor or technical nature;
  - (iii) made to correct a manifest error; or



- (iv) necessary in order to comply with mandatory provisions of the laws or regulations of Hong Kong.

Any such modification shall be binding on the Warrantheolders and shall be notified to them by the Agent as soon as practicable thereafter in accordance with Condition 10.

## **10 Notices**

All notices in English and Chinese to the Warrantheolder will be validly given if published on the website of the Hong Kong Exchanges and Clearing Limited. In such circumstances, the Issuer shall not be required to dispatch copies of the notice to the Warrantheolders.

## **11 Further Issues**

The Issuer shall be at liberty from time to time, without the consent of the Warrantheolder, to create and issue further warrants, upon such terms as to issue price, commencement of the exercise period and otherwise as the Issuer may determine so as to form a single series with the Warrants.

## **12 Illegality or Impracticability**

The Issuer is entitled to terminate the Warrants if it determines in good faith and in a commercially reasonable manner that, for reasons beyond its control, it has become or it will become illegal or impracticable:

- (A) for it to perform its obligations under the Warrants, or for the Guarantor to perform its obligations under the Guarantee, in whole or in part as a result of:
  - (i) the adoption of, or any change in, any relevant law or regulation (including any tax law); or
  - (ii) the promulgation of, or any change in, the interpretation by any court, tribunal, governmental, administrative, legislative, regulatory or judicial authority or power with competent jurisdiction of any relevant law or regulation (including any tax law),(each of (i) and (ii), a “**Change in Law Event**”); or
- (B) for it or any of its affiliates to maintain the Issuer’s hedging arrangements with respect to the Warrants due to a Change in Law Event.

Upon the occurrence of a Change in Law Event, the Issuer will, if and to the extent permitted by the applicable law or regulation, pay to each Warrantheolder a cash amount that the Issuer determines in good faith and in a commercially reasonable manner to be the fair market value in respect of each Warrant held by such Warrantheolder immediately prior to such termination (ignoring such illegality or impracticability) less the cost to the Issuer of unwinding any related hedging arrangement as determined by the Issuer in its sole and absolute discretion. Payment will be made to each Warrantheolder in such manner as shall be notified to the Warrantheolders in accordance with Condition 10.

## **13 Good Faith and Commercially Reasonable Manner**

Any exercise of discretion by the Issuer or the Agent under these Conditions will be made in good faith and in a commercially reasonable manner.

#### **14 Contracts (Rights of Third Parties) Ordinance**

A person who is not a party to these Conditions has no right under the Contracts (Rights of Third Parties) Ordinance (Cap. 623 of the Laws of Hong Kong) to enforce or to enjoy the benefit of any term of the Warrants.

#### **15 Governing Law**

The Warrants, the Guarantee and the Instrument will be governed by and construed in accordance with the laws of the Hong Kong Special Administrative Region of the People's Republic of China ("**Hong Kong**"). The Issuer, the Guarantor and the Warrantholder (by its acquisition of the Warrants) shall be deemed to have submitted for all purposes in connection with the Warrants, the Guarantee and the Instrument to the non-exclusive jurisdiction of the courts of Hong Kong.

#### **16 Language**

A Chinese translation of these Conditions is available upon request during usual business hours on any weekday (Saturdays, Sundays and holidays excepted) at the offices of the Agent. In the event of any inconsistency between the English version and Chinese translation of these Conditions, the English version shall prevail and be governing.

#### **Agent**

J.P. Morgan Securities (Asia Pacific) Limited  
25/F, Chater House  
8 Connaught Road Central  
Hong Kong

## **TERMS AND CONDITIONS OF THE CASH-SETTLED CALLABLE BULL/BEAR CONTRACTS OVER SINGLE STOCK**

*The relevant Conditions will, together with the supplemental provisions contained in the relevant supplemental listing document and subject to completion and amendment, be endorsed on the back of the global certificate. The applicable supplemental listing document in relation to the issue of any series of CBBCs may specify other terms and conditions which shall, to the extent so specified or to the extent inconsistent with the relevant Conditions, replace or modify the relevant Conditions for the purpose of such series of CBBCs. Capitalised terms used in the relevant Conditions and not otherwise defined therein shall have the meanings given to them in the relevant supplemental listing document.*

### **1 Form; Status; Guarantee; Transfer and Title**

- (A) The CBBCs (which expression shall, unless the context otherwise requires, include any further CBBCs issued pursuant to Condition 12) relating to the Shares of the Company are issued in registered form subject to and with the benefit of the amended and restated instrument dated 3 May 2010 (the “**Instrument**”) made by J.P. Morgan Structured Products B.V. (the “**Issuer**”) and JPMorgan Chase Bank, National Association (the “**Guarantor**”) and the guarantee dated 5 April 2016 (the “**Guarantee**”) made by the Guarantor.

Copies of the Instrument and the Guarantee are available for inspection at the office of J.P. Morgan Securities (Asia Pacific) Limited as specified below. The Holders (as hereinafter defined) are entitled to the benefit of, are bound by and are deemed to have notice of, all the provisions of the Instrument and the Guarantee.

- (B) The settlement obligation of the Issuer in respect of the CBBCs represent general unsecured contractual obligations of the Issuer and of no other person which rank, and will rank, equally among themselves and pari passu with all other present and future unsecured and unsubordinated contractual obligations of the Issuer, except for obligations accorded preference by mandatory provisions of applicable law.

CBBCs represent general contractual obligations of the Issuer, and are not, nor is it the intention (expressed, implicit or otherwise) of the Issuer to create by the issue of CBBCs deposit liabilities of the Issuer or a debt obligation of any kind.

In the Guarantee, the Guarantor has, subject to the terms of the Guarantee, unconditionally and irrevocably guaranteed to the Holders the due and punctual settlement in full of all obligations due and owing by the Issuer arising under the issuance of the CBBCs after taking account of any set off, combination of accounts, netting or similar arrangement from time to time exercisable by the Issuer against any person to whom obligations are from time to time being owed, when and as due (whether at maturity, by acceleration or otherwise).

- (C) Transfers of CBBCs may be effected only in Board Lots or integral multiples thereof in the Central Clearing and Settlement System (“**CCASS**”) in accordance with the General Rules of CCASS and the CCASS Operational Procedures in effect from time to time (“**CCASS Rules**”).
- (D) Each person who is for the time being shown in the register kept by or on behalf of the Issuer outside of Hong Kong as the holder shall be treated by the Issuer, the Guarantor and the Agent as the absolute owner and holder of the CBBCs. The expression “**Holder**” shall be construed accordingly.

- (E) Trading in CBBCs on The Stock Exchange of Hong Kong Limited (the “**Stock Exchange**”) shall be suspended immediately upon the occurrence of a Mandatory Call Event or at the close of trading for the Trading Day immediately preceding the Expiry Date (whichever is earlier) in accordance with the requirements of the Stock Exchange.

## 2 CBBC Rights and Exercise Expenses

- (A) Every Board Lot entitles the Holder, upon compliance with Condition 3, to payment of the Cash Settlement Amount.
- (B) The Holder will be required to pay any charges or expenses including any taxes or duties which are incurred or withheld in respect of the exercise of the CBBCs (the “**Exercise Expenses**”). To effect such payment, an amount equivalent to the Exercise Expenses will be deducted by the Issuer from the Cash Settlement Amount in accordance with Condition 3(E).
- (C) For the purposes of these Conditions:

“**Business Day**” means a day (excluding Saturdays) on which the Stock Exchange is scheduled to open for dealings in Hong Kong and banks are open for business in Hong Kong.

“**Cash Settlement Amount**” means, subject to adjustment as provided in Condition 5:

- (a) following a Mandatory Call Event:

- (i) in the case of a series of Category R CBBCs, the Residual Value; or
- (ii) in the case of a series of Category N CBBCs, zero; and

- (b) at expiry:

- (i) in the case of a series of bull CBBCs:

$$\text{Cash Settlement Amount per Board Lot (if any) payable at expiry} = \frac{\text{Entitlement} \times (\text{Closing Price} - \text{Strike Price}) \times \text{one Board Lot}}{\text{Number of CBBC(s) per Entitlement}}$$

- (ii) in the case of a series of bear CBBCs:

$$\text{Cash Settlement Amount per Board Lot (if any) payable at expiry} = \frac{\text{Entitlement} \times (\text{Strike Price} - \text{Closing Price}) \times \text{one Board Lot}}{\text{Number of CBBC(s) per Entitlement}}$$

For the avoidance of doubt, if the Cash Settlement Amount is a negative figure, it shall be deemed to be zero.

“**Category N CBBCs**” means a series of CBBCs where the Call Price is equal to the Strike Price.

“**Category R CBBCs**” means a series of CBBCs where the Call Price is different from the Strike Price.

“**CCASS Settlement Day**” has the meaning ascribed to the term “Settlement Day” in the CCASS Rules, subject to such modification and amendment prescribed by HKSCC from time to time.

“**Closing Price**” means the closing price of one Share (as derived from the Daily Quotation Sheet of the Stock Exchange, subject to any adjustment to such closing price as may be necessary to reflect any event as contemplated in Condition 5 such as capitalisation, rights issue, distribution or the like) on the Valuation Date.

“**Day of Notification**” means the Trading Day immediately following the day on which the Mandatory Call Event occurs.

“**Entitlement**” means the number of Shares to which the CBBCs relate, as specified in the relevant Supplemental Listing Document, subject to any adjustment in accordance with Condition 5.

“**HKEx**” means Hong Kong Exchanges and Clearing Limited.

“**HKSCC**” means Hong Kong Securities Clearing Company Limited.

“**Hong Kong**” means the Hong Kong Special Administrative Region of the People’s Republic of China.

“**Mandatory Call Event**” occurs when the Spot Price is, at any time on any Trading Day during the Observation Period:

- (a) in the case of a series of bull CBBCs, at or below the Call Price; and
- (b) in the case of a series of bear CBBCs, at or above the Call Price.

“**Market Disruption Event**” means:

- (1) the occurrence or existence on any Trading Day during the one-half hour period that ends at the close of trading of any suspension of, or limitation imposed on, trading (by reason of movements in price exceeding limits permitted by the Stock Exchange or otherwise) on the Stock Exchange in (1) the Shares; or (2) any options or futures contracts relating to the Shares if, in any such case, such suspension or limitation is, in the determination of the Issuer and/or Agent, material;
- (2) the issuance of the tropical cyclone warning signal number 8 or above or the issuance of a “BLACK” rainstorm signal by the Hong Kong Observatory on any day which (i) results in the Stock Exchange being closed for trading for the entire day; or (ii) results in the Stock Exchange being closed prior to its regular time for close of trading for the relevant day (for the avoidance of doubt, in the case when the Stock Exchange is scheduled to open for the morning trading session only, closed prior to its regular time for close of trading for the morning session), PROVIDED THAT there shall be no Market Disruption Event solely by reason of the Stock Exchange opening for trading later than its regular time for opening of trading on any day as a result of the tropical cyclone warning signal number 8 or above or the “BLACK” rainstorm signal having been issued; or
- (3) a limitation or closure of the Stock Exchange due to any unforeseen circumstances.

“**Maximum Trade Price**” means the highest Spot Price (subject to any adjustment to such Spot Price as may be necessary to reflect any event as contemplated in Condition 5 such as capitalisation, rights issue, distribution or the like) during the MCE Valuation Period.

“**MCE Valuation Period**” means the period commencing from and including the moment upon which the Mandatory Call Event occurs (the trading session during which the Mandatory Call Event occurs is the “**1st Session**”) and up to the end of the trading session on the Stock Exchange immediately following the 1st Session (“**2nd Session**”) unless, in the determination of the Issuer in its good faith, the 2nd Session for any reason (including, without limitation, a Market Disruption Event occurring and subsisting in the 2nd Session) does not contain any continuous period of 1 hour or more than 1 hour during which trading in the Shares is permitted on the Stock Exchange with no limitation imposed, the MCE Valuation Period shall be extended to the end of the subsequent trading session following the 2nd Session during which trading in the Shares is permitted on the Stock Exchange with no limitation imposed for a continuous period of at least 1 hour notwithstanding the existence or continuance of a Market Disruption Event in such postponed trading session, unless the Issuer determines in its good faith that each trading session on each of the four Trading Days immediately following the day on which the Mandatory Call Event occurs does not contain any continuous period of 1 hour or more than 1 hour during which trading in the Shares is permitted on the Stock Exchange with no limitation imposed. In that case:

- (a) the period commencing from the 1st Session up to, and including, the last trading session on the Stock Exchange of the fourth Trading Day immediately following the date on which the Mandatory Call Event occurs shall be deemed to be the MCE Valuation Period; and
- (b) the Issuer shall determine the Maximum Trade Price or the Minimum Trade Price (as the case may be) having regard to the then prevailing market conditions, the last reported Spot Price of the Shares and such other factors as the Issuer may determine to be relevant in its good faith.

For the avoidance of doubt, all Spot Prices available throughout the extended MCE Valuation Period shall be taken into account to determine the Maximum Trade Price or the Minimum Trade Price (as the case may be) for the calculation of the Residual Value.

For the purposes of this definition:

- (A) the pre-opening session, the morning session and, in the case of half day trading, the closing auction session (if applicable) of the same day; and
- (B) the afternoon session and the closing auction session (if applicable) of the same day,

shall each be considered as one trading session.

“**Minimum Trade Price**” means the lowest Spot Price (subject to any adjustment to such Spot Price as may be necessary to reflect any event as contemplated in Condition 5 such as capitalisation, rights issue, distribution or the like) during the MCE Valuation Period.

“**Observation Period**” means the period commencing from and including the Observation Commencement Date (Hong Kong time) and ending at and including the close of trading (Hong Kong time) on the Trading Day immediately preceding the Expiry Date.

“**Post MCE Trades**” has the meaning given to it in the relevant Supplemental Listing Document, subject to such modification and amendment prescribed by the Stock Exchange from time to time.

“**Residual Value**” means, subject to adjustment as provided in Condition 5:

(a) in the case of a series of bull CBBCs:

$$\text{Residual Value per Board Lot} = \frac{\text{Entitlement} \times (\text{Minimum Trade Price} - \text{Strike Price}) \times \text{one Board Lot}}{\text{Number of CBBC(s) per Entitlement}}$$

(b) in the case of a series of bear CBBCs:

$$\text{Residual Value per Board Lot} = \frac{\text{Entitlement} \times (\text{Strike Price} - \text{Maximum Trade Price}) \times \text{one Board Lot}}{\text{Number of CBBC(s) per Entitlement}}$$

“**Settlement Date**” means the third CCASS Settlement Day after (i) the end of the MCE Valuation Period or (ii) the later of: (a) the Expiry Date; and (b) the day on which the Closing Price is determined in accordance with these Conditions (as the case may be).

“**Spot Price**” means:

- (a) in respect of a continuous trading session of the Stock Exchange, the price per Share concluded by means of automatic order matching on the Stock Exchange as reported in the official realtime dissemination mechanism for the Stock Exchange during such continuous trading session of the Stock Exchange in accordance with the Trading Rules, excluding direct business (as defined in the Trading Rules); and
- (b) in respect of a pre-opening session or a closing auction session (if applicable) of the Stock Exchange (as the case may be), the final Indicative Equilibrium Price (IEP) (as defined in the Trading Rules) of the Share (if any) calculated at the end of the pre-order matching period of such pre-opening session or closing auction session (if applicable) (as the case may be) in accordance with the Trading Rules, excluding direct business (as defined in the Trading Rules),

subject to such modification and amendment prescribed by the Stock Exchange from time to time.

“**Trading Day**” means a day on which the Stock Exchange is scheduled to be open for trading for its regular trading sessions.

“**Trading Rules**” means the Rules and Regulations of the Exchange prescribed by the Stock Exchange from time to time.

“**Valuation Date**” means the Trading Day immediately preceding the Expiry Date unless the Issuer determines, in its sole discretion, that a Market Disruption Event has occurred, then that day shall be postponed until the first succeeding Trading Day on which there is no Market Disruption Event, unless the Issuer determines that there is a Market Disruption Event occurring on each of the four Trading Days immediately following the original date which (but for the Market Disruption Event) would have been the Valuation Date. In that case:

- (i) the fourth Trading Day immediately following the original date shall be deemed to be the Valuation Date (regardless of the Market Disruption Event); and
- (ii) the Issuer shall determine the Closing Price having regard to the then prevailing market conditions, the last reported trading price of the Share on the Stock Exchange and such other factors as the Issuer determines to be relevant.

### 3 Exercise of CBBCs

- (A) CBBCs may only be exercised in Board Lots or integral multiples thereof.
- (B) If no Mandatory Call Event has occurred during the Observation Period, the CBBCs will be deemed to be automatically exercised on the Expiry Date.
- (C) (i) Subject to Condition 3(C)(ii), following the occurrence of a Mandatory Call Event, the CBBCs will terminate automatically and the Issuer shall have no further obligation under the CBBCs except for the payment of the Cash Settlement Amount (if any) following the Mandatory Call Event on the relevant Settlement Date. The Issuer will give notice to the Holders in accordance with Condition 9. Trading in the CBBCs will be suspended immediately upon the occurrence of a Mandatory Call Event and any Post MCE Trades will be cancelled and will not be recognised by the Stock Exchange.
- (ii) A Mandatory Call Event is irrevocable unless it is triggered as a result of any of the following events:
- (1) system malfunction or other technical errors of HKEx (such as the setting up of wrong Call Price and other parameters); or
  - (2) manifest errors caused by the relevant third party price source where applicable;
- and
- (a) in the case of paragraph (1) above, such event is reported by the Stock Exchange to the Issuer and the Issuer and the Stock Exchange mutually agree that such Mandatory Call Event is to be revoked; and
  - (b) in the case of paragraph (2) above, such event is reported by the Issuer to the Stock Exchange and the Issuer and the Stock Exchange mutually agree that such Mandatory Call Event is to be revoked,
- in each case:
- (aa) such mutual agreement must be reached no later than 30 minutes before the commencement of trading (including the pre-opening session) (Hong Kong time) or such other time frame as prescribed by the Stock Exchange from time to time on the Day of Notification;
  - (bb) the Mandatory Call Event so triggered will be reversed; and
  - (cc) all cancelled trades (if any) will be reinstated and trading of the CBBCs will resume no later than the Trading Day immediately following the Day of Notification in accordance with the rules prescribed by the Stock Exchange from time to time.
- (D) Upon exercise following a Mandatory Call Event or on the Expiry Date in accordance with these Conditions, the Issuer will, with effect from the first Business Day following the MCE Valuation Period or the Expiry Date, as the case may be, cancel the Global Certificate.



- (E) Upon exercise following a Mandatory Call Event or on the Expiry Date in accordance with these Conditions, the Issuer will as soon as practicable and not later than the Settlement Date in accordance with these conditions procure payment of the aggregate Cash Settlement Amount (following deduction of determined Exercise Expenses) for all CBBCs exercised or deemed exercised, electronically through CCASS by crediting the relevant bank account of the Holder as appearing in the register kept by or on behalf of the Issuer.

Any payment made pursuant to this Condition 3(E) shall be delivered at the risk and expense of the Holder to the Holder, or such bank, broker or agent in Hong Kong (if any) as recorded on the register.

- (F) If as a result of an event beyond the control of the Issuer (“**Settlement Disruption Event**”), it is not possible for the Issuer to procure payment electronically through CCASS by crediting the relevant bank account of the Holder on the original Settlement Date, the Issuer shall use its reasonable endeavours to procure payment electronically through CCASS by crediting the relevant bank account of the Holder as soon as reasonably practicable after the original Settlement Date. The Issuer will not be liable to the Holder for any interest in respect of the amount due or any loss or damage that such Holder may suffer as a result of the existence of a Settlement Disruption Event.
- (G) These Conditions shall not be construed so as to give rise to any relationship of agency or trust between the Guarantor, the Issuer or its agent or nominee and the Holder and neither the Guarantor, the Issuer nor its agent or nominee shall owe any duty of a fiduciary nature to the Holder.

None of the Issuer, the Guarantor or the Agent shall have any responsibility for any errors or omissions in the calculation and dissemination of any variables published by a third party and used in any calculation made pursuant to these terms and conditions or in the calculation of the Cash Settlement Amount arising from such errors or omissions.

The Issuer’s obligations to pay the Cash Settlement Amount shall be discharged by payment in accordance with Condition 3(E) above.

#### **4 Agent**

- (A) The Agent will be acting as agent of the Issuer in respect of the CBBCs and will not assume any obligation or duty to or any relationship or agency or trust for the Holder.
- (B) The Issuer reserves the right, subject to the appointment of a successor, at any time to vary or terminate the appointment of the initial Agent and to appoint another agent provided that it will at all times maintain an agent in Hong Kong for so long as the CBBCs are listed on the Stock Exchange. Notice of any such termination or appointment will be given to the Holder in accordance with Condition 9.

## 5 Adjustments

Adjustments may be made by the Agent to the terms of the CBBCs (including, but not limited to, the Call Price, Strike Price and the Entitlement) on the basis of the following provisions:

- (A) (i) If and whenever the Company shall, by way of Rights (as defined below), offer new Shares for subscription at a fixed subscription price to the holders of existing Shares pro rata to existing holdings (a “**Rights Offer**”), the Entitlement shall be adjusted on the Business Day on which the trading in the Shares of the Company becomes ex-entitlement in accordance with the following formula:

$$\text{Adjusted Entitlement} = \text{Adjustment Factor} \times E$$

Where:

$$\text{Adjustment Factor} = \frac{1 + M}{1 + (R/S) \times M}$$

- E: Existing Entitlement immediately prior to the relevant event giving rise to the adjustment
- S: Cum-Rights Share price, being the closing price of an existing Share, as derived from the Daily Quotation Sheet of the Stock Exchange on the last Business Day on which the Shares are traded on a cum-Rights basis
- R: Subscription price per new Share specified in the Rights Offer plus an amount equal to any dividends or other benefits foregone to exercise the Rights
- M: Number of new Shares (whether a whole or a fraction) per existing Share each holder of an existing Share is entitled to subscribe

For the purposes of these Conditions, “**Rights**” means the right(s) attached to each existing Share or needed to acquire one new Share (as the case may be) which are given to a holder of existing Shares to subscribe at a fixed subscription price for new Shares pursuant to the Rights Offer (whether by the exercise of one Right, a part of a Right or an aggregate number of Rights).

- (ii) The Call Price and Strike Price (which shall be rounded to the nearest 0.001) shall be adjusted by the reciprocal of the Adjustment Factor, where the reciprocal of the Adjustment Factor means one divided by the relevant Adjustment Factor. The adjustment to the Call Price and Strike Price shall take effect on the same day that the Entitlement is adjusted.
- (iii) For the purposes of Conditions 5(A) and 5(B), the Agent may determine that no adjustment will be made if the adjustment to the Entitlement is one per cent. or less of the Entitlement immediately prior to the adjustment, all as determined by the Agent.

- (B) If and whenever the Company shall make an issue of Shares credited as fully paid to holders of Shares generally by way of capitalisation of profits or reserves (other than pursuant to a scrip dividend or similar scheme for the time being operated by the Company or otherwise in lieu of a cash dividend) (and without any payment or other consideration being made or given by such holders) (a “**Bonus Issue**”), the Entitlement will be adjusted, subject to Condition 5(A)(iii), on the Business Day on which the trading in the Shares of the Company becomes ex-entitlement in accordance with the following formula:

$$\text{Adjusted Entitlement} = \text{Adjustment Factor} \times E$$

Where:

$$\text{Adjustment Factor} = 1 + N$$

E: Existing Entitlement immediately prior to the relevant event giving rise to the adjustment

N: Number of additional Shares (whether a whole or a fraction) per existing Share each holder of an existing Share is entitled to receive

In addition, the Issuer shall adjust the Call Price and Strike Price (which shall be rounded to the nearest 0.001) by the reciprocal of the Adjustment Factor, where the reciprocal of the Adjustment Factor means one divided by the relevant Adjustment Factor. The adjustment to the Call Price and Strike Price shall take effect on the same day that the Entitlement is adjusted.

- (C) If and whenever the Company shall subdivide its outstanding share capital into a greater number of shares (a “**Subdivision**”) or consolidate its outstanding share capital into a smaller number of shares (a “**Consolidation**”), then:

(i) in the case of a Subdivision, the Entitlement shall be increased whereas the Call Price and Strike Price (which shall be rounded to the nearest 0.001) shall be decreased in the same ratio as the Subdivision; and

(ii) in the case of a Consolidation, the Entitlement shall be decreased whereas the Call Price and Strike Price (which shall be rounded to the nearest 0.001) shall be increased in the same ratio as the Consolidation,

in each case on the day on which the relevant Subdivision or Consolidation (as the case may be) shall have taken effect.

- (D) If it is announced that the Company is to or may merge or consolidate with or into any other corporation (including becoming, by agreement or otherwise, a subsidiary of or controlled by any person or corporation) (except where the Company is the surviving corporation in a merger) or that it is to or may sell or transfer all or substantially all of its assets, the rights attaching to the CBBCs may in the absolute discretion of the Agent be amended no later than the Business Day preceding the consummation of such merger, consolidation, sale or transfer (each a “**Restructuring Event**”) (as determined by the Agent in its absolute discretion).

The rights attaching to the CBBCs after the adjustment shall, after such Restructuring Event, relate to the number of shares of the corporation(s) resulting from or surviving such Restructuring Event or other securities (the “**Substituted Securities**”) and/or cash offered in substitution for the affected Shares, as the case may be, to which the holder of such number of Shares to which the CBBCs related immediately before such Restructuring Event would

have been entitled upon such Restructuring Event. Thereafter the provisions hereof shall apply to such Substituted Securities, provided that any Substituted Securities may, in the absolute discretion of the Agent, be deemed to be replaced by an amount in the relevant currency equal to the market value or, if no market value is available, fair value, of such Substituted Securities in each case as determined by the Agent as soon as practicable after such Restructuring Event is effected.

For the avoidance of doubt, any remaining Shares shall not be affected by this paragraph (D) and where cash is offered in substitution for Shares or is deemed to replace Substituted Securities as described above, references in these Conditions to the Shares shall include any such cash.

- (E) No adjustment will be made for an ordinary cash dividend (whether or not it is offered with a scrip alternative) (“**Ordinary Dividend**”). For any other forms of cash distribution (“**Cash Distribution**”) announced by the Company, such as a cash bonus, special dividend or extraordinary dividend, no adjustment will be made unless the value of the Cash Distribution accounts for 2 percent. or more of the Share’s closing price on the day of announcement by the Company.

If and whenever the Company shall make a Cash Distribution credited as fully paid to the holders of Shares generally, the Entitlement shall be adjusted to take effect on the Business Day on which trading in the Shares becomes ex-entitlement in respect of the relevant Cash Distribution in accordance with the following formula:

$$\text{Adjusted Entitlement} = \text{Adjustment Factor} \times E$$

Where:

$$\text{Adjustment Factor} = \frac{S - OD}{S - OD - CD}$$

E: Existing Entitlement immediately prior to the relevant event giving rise to the adjustment

S: Cum-Cash Distribution price, being the closing price of an existing Share, as derived from the Daily Quotation Sheet of the Stock Exchange on the last Business Day on which the Shares are traded on a cum-Cash Distribution basis

CD: The Cash Distribution per Share

OD: The Ordinary Dividend per Share, provided that the Ordinary Dividend and the Cash Distribution have the same ex-entitlement date. For the avoidance of doubt, the OD shall be zero if the Ordinary Dividend and the Cash Distribution have different ex-entitlement dates

In addition, the Issuer shall adjust the Strike Price and Call Price (which shall be rounded to the nearest 0.001) by the reciprocal of the Adjustment Factor, where the reciprocal of the Adjustment Factor means one divided by the relevant Adjustment Factor. The adjustment to the Strike Price and Call Price shall take effect on the same date that the Entitlement is adjusted.

- (F) Without prejudice to and notwithstanding any prior adjustment(s) made pursuant to the applicable Conditions, the Issuer and/or the Agent may (but shall not be obliged to) make such other adjustments to the terms and conditions of the CBBCs as appropriate where any event (including the events as contemplated in the applicable Conditions) occurs and irrespective of, in substitution for, or in addition to the provisions contemplated in the applicable Conditions, provided that such adjustment is: (i) not materially prejudicial to the interests of Holders generally (without considering the circumstances of any individual Holder or the tax or other consequences of such adjustment in any particular jurisdiction); or (ii) determined by the Issuer and/or Agent in good faith to be appropriate and commercially reasonable.
- (G) The Issuer and/or the Agent shall determine any adjustment or amendment and its determination shall be conclusive and binding on the Holder save in the case of manifest error. Notice of any adjustments or amendments shall be given to the Holder in accordance with Condition 9 as soon as practicable after the determination thereof.

## **6 Purchase by the Issuer**

The Issuer and any of its affiliates may purchase CBBCs at any time on or after the date of their issue and any CBBCs which are so purchased may be surrendered for cancellation or offered from time to time in one or more transactions in the over-the-counter market or otherwise at prevailing market prices or in negotiated transactions, at the discretion of the Issuer or any such affiliate, as the case may be.

## **7 Global Certificate**

A global certificate (the “**Global Certificate**”) representing the CBBCs will be deposited within CCASS and registered in the name of HKSCC Nominees Limited (or its successors). The Global Certificate will not be exchangeable for definitive certificates.

## **8 Meeting of Holder and Modification**

- (A) *Meetings of Holder.* Notices for convening meetings to consider any matter affecting the Holder’s interests will be given to the Holder in accordance with the provisions of Condition 9.

Every question submitted to a meeting of the Holder shall be decided by poll. A meeting may be convened by the Issuer or by the Holder holding not less than 10 per cent. of the CBBCs for the time being remaining unexercised. The quorum at any such meeting for passing an Extraordinary Resolution will be two or more persons (including any nominee appointed by the Holder) holding or representing not less than 25 per cent. of the CBBCs for the time being remaining unexercised, or at any adjourned meeting two or more persons (including any nominee appointed by the Holder) being or representing Holder whatever the number of CBBCs so held or represented.

A resolution will be an Extraordinary Resolution when it has been passed at a duly convened meeting by not less than three-quarters of the votes cast by such Holder as, being entitled to do so, vote in person or by proxy.

An Extraordinary Resolution passed at any meeting of the Holder shall be binding on all the holders of the CBBCs, whether or not they are present at the meeting.

Resolutions can be passed in writing without a meeting of the Holder being held if passed unanimously.

(B) *Modification.* The Issuer may, without the consent of the Holders, effect any modification of the terms and conditions of the CBBCs or the Instrument which, in the opinion of the Issuer, is:

- (i) not materially prejudicial to the interests of the Holders generally (without considering the circumstances of any individual Holder or the tax or other consequences of such modification in any particular jurisdiction);
- (ii) of a formal, minor or technical nature;
- (iii) made to correct a manifest error; or
- (iv) necessary in order to comply with mandatory provisions of the laws or regulations of Hong Kong.

Any such modification shall be binding on the Holders and shall be notified to them by the Agent as soon as practicable thereafter in accordance with Condition 9.

## **9 Notices**

All notices in English and Chinese to the Holder will be validly given if published on the HKEx website. In such circumstances, the Issuer shall not be required to dispatch copies of the notice to the Holders.

## **10 Liquidation**

In the event of a liquidation or dissolution or winding up of the Company or the appointment of a receiver or administrator or analogous person under applicable law in respect of the whole or substantially the whole of the undertaking, property or assets of the Company, all unexercised CBBCs will lapse and shall cease to be valid for any purpose, in the case of a voluntary liquidation, on the effective date of the resolution and, in the case of an involuntary liquidation or dissolution, on the date of the relevant court order or, in the case of the appointment of a liquidator or receiver or administrator or analogous person under applicable law in respect of the whole or substantially the whole of the undertaking, property or assets, on the date when such appointment is effective but subject (in any such case) to any contrary mandatory requirement of law.

## **11 Delisting of Company**

- (A) If at any time the Shares cease to be listed on the Stock Exchange, the Issuer shall give effect to these Conditions in such manner and make such adjustments to the rights attaching to the CBBCs as it shall, in its absolute discretion, consider appropriate to ensure, so far as it is reasonably able to do so, that the interests of the Holder generally are not materially prejudiced as a consequence of such delisting (without considering the individual circumstances of the Holder or the tax or other consequences that may result in any particular jurisdiction).
- (B) Without prejudice to the generality of Condition 11(A), where the Shares are or, upon the delisting, become, listed on any other stock exchange, these Conditions may, in the absolute discretion of the Issuer, be amended to the extent necessary to allow for the substitution of that other stock exchange in place of the Stock Exchange and the Issuer may, without the consent of the Holder, make such adjustments to the entitlements of the Holder on exercise (including, if appropriate, by converting foreign currency amounts at prevailing market rates into the relevant currency) as it shall consider appropriate in the circumstances.

- (C) Any adjustment, amendment or determination made by the Issuer pursuant to this Condition 11 shall be conclusive and binding on the Holder save in the case of manifest error. Notice of any adjustments or amendments shall be given to the Holder in accordance with Condition 9 as soon as practicable after they are determined.

## **12 Further Issues**

The Issuer shall be at liberty from time to time, without the consent of the Holder, to create and issue further callable bull/bear contracts, upon such terms as to issue price and otherwise as the Issuer may determine so as to form a single series with the CBBCs.

## **13 Illegality or Impracticability**

The Issuer is entitled to terminate the CBBCs if it determines in good faith and in a commercially reasonable manner that, for reasons beyond its control, it has become or will become illegal or impracticable:

- (A) for it to perform its obligations under the CBBCs, or for the Guarantor to perform its obligations under the Guarantee, in whole or in part as a result of:
- (i) the adoption of, or any change in, any relevant law or regulation (including any tax law); or
  - (ii) the promulgation of, or any change in, the interpretation by any court, tribunal, governmental, administrative, legislative, regulatory or judicial authority or power with competent jurisdiction of any relevant law or regulation (including any tax law),
- (each of (i) and (ii), a “**Change in Law Event**”); or
- (B) for it or any of its affiliates to maintain the Issuer’s hedging arrangements with respect to the CBBCs due to a Change in Law Event.

Upon the occurrence of a Change in Law Event, the Issuer will, if and to the extent permitted by the applicable law or regulation, pay to each Holder a cash amount that the Issuer determines in good faith and in a commercially reasonable manner to be the fair market value in respect of each CBBC held by such Holder immediately prior to such termination (ignoring such illegality or impracticability) less the cost to the Issuer of unwinding any related hedging arrangement as determined by the Issuer in its sole and absolute discretion. Payment will be made in such manner as shall be notified to the Holders in accordance with Condition 9.

## **14 Good Faith and Commercially Reasonable Manner**

Any exercise of discretion by the Issuer or the Agent under these Conditions will be made in good faith and in a commercially reasonable manner.

## **15 Contracts (Rights of Third Parties) Ordinance**

A person who is not a party to these Conditions of the CBBCs has no right under the Contracts (Rights of Third Parties) Ordinance (Cap. 623 of the Laws of Hong Kong) to enforce or to enjoy the benefit of any term of the CBBCs.

## **16 Governing Law**

The CBBC, the Guarantee and the Instrument will be governed by and construed in accordance with the laws of Hong Kong. The Issuer, the Guarantor and the Holder (by its acquisition of the CBBCs) shall be deemed to have submitted for all purposes in connection with the CBBCs, the Guarantee and the Instrument to the non-exclusive jurisdiction of the courts of Hong Kong.

## **17 Language**

A Chinese translation of these Conditions is available upon request during usual business hours on any weekday (Saturdays, Sundays and holidays excepted) at the offices of the Agent. In the event of any inconsistency between the English version and Chinese translation of these Conditions, the English version shall prevail and be governing.

### **Agent**

J.P. Morgan Securities (Asia Pacific) Limited  
25/F, Chater House  
8 Connaught Road Central  
Hong Kong



## **TERMS AND CONDITIONS OF THE CASH-SETTLED CALLABLE BULL/BEAR CONTRACTS OVER INDEX**

*The relevant Conditions will, together with the supplemental provisions contained in the relevant supplemental listing document and subject to completion and amendment, be endorsed on the back of the global certificate. The applicable supplemental listing document in relation to the issue of any series of CBBCs may specify other terms and conditions which shall, to the extent so specified or to the extent inconsistent with the relevant Conditions, replace or modify the relevant Conditions for the purpose of such series of CBBCs. Capitalised terms used in the relevant Conditions and not otherwise defined therein shall have the meanings given to them in the relevant supplemental listing document.*

### **1 Form; Status; Guarantee; Transfer and Title**

- (A) The CBBCs (which expression shall, unless the context otherwise requires, include any further CBBCs issued pursuant to Condition 10) relating to the Index as published by the Index Compiler are issued in registered form subject to and with the benefit of the amended and restated instrument dated 3 May 2010 (the “**Instrument**”), made by J.P. Morgan Structured Products B.V. (the “**Issuer**”) and JPMorgan Chase Bank, National Association (the “**Guarantor**”) and the guarantee dated 5 April 2016 (the “**Guarantee**”) made by the Guarantor.

Copies of the Instrument and the Guarantee are available for inspection at the office of J.P. Morgan Securities (Asia Pacific) Limited as specified below. The Holders (as hereinafter defined) are entitled to the benefit of, are bound by and are deemed to have notice of, all the provisions of the Instrument and the Guarantee.

- (B) The settlement obligation of the Issuer in respect of the CBBCs represent general unsecured contractual obligations of the Issuer and of no other person which rank, and will rank, equally among themselves and pari passu with all other present and future unsecured and unsubordinated contractual obligations of the Issuer, except for obligations accorded preference by mandatory provisions of applicable law.

CBBCs represent general contractual obligations of the Issuer, and are not, nor is it the intention (expressed, implicit or otherwise) of the Issuer to create by the issue of CBBCs deposit liabilities of the Issuer or a debt obligation of any kind.

In the Guarantee, the Guarantor has, subject to the terms of the Guarantee, unconditionally and irrevocably guaranteed to the Holders the due and punctual settlement in full of all obligations due and owing by the Issuer arising under the issuance of the CBBCs after taking account of any set off, combination of accounts, netting or similar arrangement from time to time exercisable by the Issuer against any person to whom obligations are from time to time being owed, when and as due (whether at maturity, by acceleration or otherwise).

- (C) Transfers of CBBCs may be effected only in Board Lots or integral multiples thereof in the Central Clearing and Settlement System (“**CCASS**”) in accordance with the General Rules of CCASS and the CCASS Operational Procedures in effect from time to time (“**CCASS Rules**”).
- (D) Each person who is for the time being shown in the register kept by or on behalf of the Issuer outside of Hong Kong as the holder shall be treated by the Issuer, the Guarantor and the Agent as the absolute owner and holder of the CBBCs. The expression “**Holder**” shall be construed accordingly.

- (E) Trading in CBBCs on The Stock Exchange of Hong Kong Limited (the “**Stock Exchange**”) shall be suspended immediately upon the occurrence of a Mandatory Call Event or at the close of trading for the Trading Day immediately preceding the Expiry Date (whichever is earlier) in accordance with the requirements of the Stock Exchange.

## 2 CBBC Rights and Exercise Expenses

- (A) Every Board Lot entitles the Holder, upon compliance with Condition 3, to payment of the Cash Settlement Amount.
- (B) The Holder will be required to pay any charges or expenses including any taxes or duties which are incurred or withheld in respect of the exercise of the CBBCs (the “**Exercise Expenses**”). To effect such payments, an amount equivalent to the Exercise Expenses will be deducted by the Issuer from the Cash Settlement Amount in accordance with Condition 3(E).
- (C) For the purposes of these Conditions:

“**Business Day**” means a day (excluding Saturdays) on which the Stock Exchange is scheduled to open for dealings in Hong Kong and banks are open for business in Hong Kong.

“**Cash Settlement Amount**” means, subject to adjustment as provided in Condition 5, an amount calculated by the Issuer in accordance with the following formula converted (if applicable) (i) into the Settlement Currency at the Exchange Rate or, as the case may be, (ii) into the Interim Currency at the First Exchange Rate and then (if applicable) converted into the Settlement Currency at the Second Exchange Rate:

- (a) a Mandatory Call Event:

- (i) in the case of a series of Category R CBBCs, the Residual Value; or
- (ii) in the case of a series of Category N CBBCs, zero; and

- (b) at expiry:

- (i) in the case of a series of bull CBBCs:

$$\text{Cash Settlement Amount per Board Lot (if any) payable at expiry} = \frac{(\text{Closing Level} - \text{Strike Level}) \times \text{one Board Lot} \times \text{Index Currency Amount}}{\text{Divisor}}$$

- (ii) in the case of a series of bear CBBCs:

$$\text{Cash Settlement Amount per Board Lot (if any) payable at expiry} = \frac{(\text{Strike Level} - \text{Closing Level}) \times \text{one Board Lot} \times \text{Index Currency Amount}}{\text{Divisor}}$$

For the avoidance of doubt, if the Cash Settlement Amount is a negative figure, it shall be deemed to be zero.

“**Category N CBBCs**” means a series of CBBCs where the Call Level is equal to the Strike Level.

“**Category R CBBCs**” means a series of CBBCs where the Call Level is different from the Strike Level.

“**CCASS Settlement Day**” has the meaning ascribed to the term “Settlement Day” in the CCASS Rules, subject to such modification and amendment prescribed by HKSCC from time to time.

“**Day of Notification**” means the Trading Day immediately following the day on which the Mandatory Call Event occurs.

“**HKEx**” means Hong Kong Exchanges and Clearing Limited.

“**HKSCC**” means Hong Kong Securities Clearing Company Limited.

“**Hong Kong**” means the Hong Kong Special Administrative Region of the People’s Republic of China.

“**Index Business Day**” means a day on which the Index Exchange is scheduled to open for trading for its regular trading sessions.

“**Index Exchange**” means the Stock Exchange or any other exchange as specified in the relevant Supplemental Listing Document.

“**Mandatory Call Event**” occurs when the Spot Level is, at any time on any Index Business Day during the Observation Period:

- (a) in the case of a series of bull CBBCs, at or below the Call Level; and
- (b) in the case of a series of bear CBBCs, at or above the Call Level.

“**Market Disruption Event**” means:

- (1) the occurrence or existence, on any Index Business Day during the one-half hour period that ends at the close of trading on the Index Exchange of any of:
  - (i) the suspension or material limitation of the trading of a material number of constituent securities that comprise the Index; or
  - (ii) the suspension or material limitation of the trading of options or futures contracts relating to the Index on any exchange on which such contracts are traded; or
  - (iii) the imposition of any exchange controls in respect of any currency involved in determining the Cash Settlement Amount.

For the purposes of this paragraph (1), (x) the limitation of the number of hours or days of trading will not constitute a Market Disruption Event if it results from an announced change in the regular business hours of any relevant exchange, and (y) a limitation on trading imposed by reason of the movements in price exceeding the levels permitted by any relevant exchange will constitute a Market Disruption Event; or

- (2) where the Index Exchange is the Stock Exchange, the issuance of the tropical cyclone warning signal number 8 or above or the issuance of a “BLACK” rainstorm signal on any day which (i) results in the Stock Exchange being closed for trading for the entire day; or (ii) results in the Stock Exchange being closed prior to its regular time for close of trading for the relevant day (for the avoidance of doubt, in the case when the Stock Exchange is scheduled to open for the morning trading session only, closed prior to its regular time for close of trading for the morning session), PROVIDED THAT there shall be no Market Disruption Event solely by reason of the Stock Exchange opening

for trading later than its regular time for opening of trading on any day as a result of the tropical cyclone warning signal number 8 or above or the “BLACK” rainstorm signal having been issued; or

- (3) a limitation or closure of the Index Exchange due to any unforeseen circumstances; or
- (4) any circumstances beyond the control of the Issuer in which the Closing Level or, if applicable, the Exchange Rate, the First Exchange Rate or the Second Exchange Rate (as the case may be) cannot be determined by the Issuer in the manner set out in these Conditions or in such other manner as the Issuer considers appropriate at such time after taking into account all the relevant circumstances.

“**Maximum Index Level**” means the highest Spot Level during the MCE Valuation Period.

“**MCE Valuation Period**” means:

- (a) in respect of an Index Exchange located in Hong Kong, the period commencing from and including the moment upon which the Mandatory Call Event occurs (the trading session during which the Mandatory Call Event occurs is the “**1st Session**”) and up to the end of the trading session on the Index Exchange immediately following the 1st Session (“**2nd Session**”) unless, in the determination of the Issuer in its good faith, the 2nd Session for any reason (including, without limitation, a Market Disruption Event occurring and subsisting in the 2nd Session) does not contain any continuous period of 1 hour or more than 1 hour during which Spot Levels are available, the MCE Valuation Period shall be extended to the end of the subsequent trading session on the Index Exchange following the 2nd Session during which Spot Level(s) is/are available for a continuous period of at least 1 hour notwithstanding the existence or continuance of a Market Disruption Event in such postponed trading session, unless the Issuer determines in its good faith that each trading session on each of the four Index Business Days immediately following the day on which the Mandatory Call Event occurs does not contain any continuous period of 1 hour or more than 1 hour during which Spot Level(s) is/are available. In that case:
  - (i) the period commencing from the 1st Session up to, and including, the last trading session of the fourth Index Business Day on the Index Exchange immediately following the date on which the Mandatory Call Event occurs shall be deemed to be the MCE Valuation Period; and
  - (ii) the Issuer shall determine the Maximum Index Level or the Minimum Index Level (as the case may be) having regard to the then prevailing market conditions, the last reported Spot Level of the Index and such other factors as the Issuer may determine to be relevant in its good faith.

For the avoidance of doubt, all Spot Levels available throughout the extended MCE Valuation Period shall be taken into account to determine the Maximum Index Level or the Minimum Index Level (as the case may be) for the calculation of the Residual Value.

For the purposes of this definition:

- (A) the pre-opening session, the morning session and, in the case of half day trading, the closing auction session (if applicable) of the same day; and

- (B) the afternoon session and the closing auction session (if applicable) of the same day, shall each be considered as one trading session.
- (b) in respect of an Index Exchange located outside Hong Kong, the period specified in the relevant supplement listing document.

“**Minimum Index Level**” means the lowest Spot Level during the MCE Valuation Period.

“**Observation Period**” means the period commencing from and including the Observation Commencement Date (Hong Kong time) and ending at and including the close of trading (Hong Kong time) on the Trading Day immediately preceding the Expiry Date.

“**Post MCE Trades**” has the meaning given to it in the relevant Supplemental Listing Document, subject to such modification and amendment prescribed by the Stock Exchange from time to time.

“**Residual Value**” means, subject to adjustment as provided in Condition 5, an amount calculated by the Issuer in accordance with the following formula converted (if applicable) (i) into the Settlement Currency at the Exchange Rate or, as the case may be, (ii) into the Interim Currency at the First Exchange Rate and then (if applicable) converted into the Settlement Currency at the Second Exchange Rate:

- (a) in the case of a series of bull CBBCs:

$$\text{Residual Value per Board Lot} = \frac{(\text{Minimum Index Level} - \text{Strike Level}) \times \text{one Board Lot} \times \text{Index Currency Amount}}{\text{Divisor}}$$

- (b) in the case of a series of bear CBBCs:

$$\text{Residual Value per Board Lot} = \frac{(\text{Strike Level} - \text{Maximum Index Level}) \times \text{one Board Lot} \times \text{Index Currency Amount}}{\text{Divisor}}$$

“**Settlement Currency**” has the meaning given to it in the relevant Supplemental Listing Document.

“**Settlement Date**” means the third CCASS Settlement Day after (i) the end of the MCE Valuation Period or (ii) the later of: (a) the Expiry Date; and (b) the day on which the Closing Level is determined in accordance with these Conditions (as the case may be).

“**Spot Level**” means the spot level of the Index as compiled and published by the Index Compiler or, as the case may be, the Successor Index Compiler.

“**Trading Day**” means a day on which the Stock Exchange is scheduled to be open for trading for its regular trading sessions.

“**Trading Rules**” means the Rules and Regulations of the Exchange prescribed by the Stock Exchange from time to time.

“**Valuation Date**” means the date specified as such in the relevant Supplemental Listing Document. If the Issuer determines, in its sole discretion, that a Market Disruption Event has occurred on the Valuation Date, then the Issuer shall determine the Closing Level on the basis of its good faith estimate of the Closing Level that would have prevailed on that day but for the occurrence of the Market Disruption Event provided that the Issuer, if applicable, may, but shall not be obliged to, determine such Closing Level by having regard to the manner in which futures contracts relating to the Index are calculated.

### **3 Exercise of CBBCs**

- (A) CBBCs may only be exercised in Board Lots or integral multiples thereof.
- (B) If no Mandatory Call Event has occurred during the Observation Period, the CBBCs will be deemed to be automatically exercised on the Expiry Date.
- (C) (i) Subject to Condition 3(C)(ii), following the occurrence of a Mandatory Call Event, the CBBCs will terminate automatically and the Issuer shall have no further obligation under the CBBCs except for the payment of the Cash Settlement Amount (if any) following the Mandatory Call Event on the relevant Settlement Date. The Issuer will give notice to the Holders in accordance with Condition 9. Trading in the CBBCs will be suspended immediately upon the occurrence of a Mandatory Call Event and any Post MCE Trades will be cancelled and will not be recognised by the Stock Exchange.
- (ii) A Mandatory Call Event is irrevocable unless it is triggered as a result of any of the following events:
  - (1) system malfunction or other technical errors of HKEx (such as the setting up of wrong Call Level and other parameters); or
  - (2) manifest errors caused by the relevant third party price source where applicable;and
  - (a) in the case of paragraph (1) above, such event is reported by the Stock Exchange to the Issuer and the Issuer and the Stock Exchange mutually agree that such Mandatory Call Event is to be revoked; and
  - (b) in the case of paragraph (2) above, such event is reported by the Issuer to the Stock Exchange and the Issuer and the Stock Exchange mutually agree that such Mandatory Call Event is to be revoked,in each case:
  - (aa) such mutual agreement must be reached no later than 30 minutes before the commencement of trading (including the pre-opening session) (Hong Kong time) or such other time frame as prescribed by the Stock Exchange from time to time on the Day of Notification;
  - (bb) the Mandatory Call Event so triggered will be reversed; and
  - (cc) all cancelled trades (if any) will be reinstated and trading of the CBBCs will resume no later than the Trading Day immediately following the Day of Notification in accordance with the rules prescribed by the Stock Exchange from time to time.

- (D) Upon exercise following a Mandatory Call Event or on the Expiry Date in accordance with these Conditions, the Issuer will, with effect from the first Business Day following the MCE Valuation Period or the Expiry Date, as the case may be, cancel the Global Certificate.
- (E) Upon exercise following a Mandatory Call Event or on the Expiry Date in accordance with these Conditions, the Issuer will as soon as practicable and not later than the Settlement Date in accordance with these Conditions procure payment of the aggregate Cash Settlement Amounts (following deduction of determined Exercise Expenses) for all CBBCs exercised or deemed exercised, electronically through CCASS by crediting the relevant bank account of the Holder as appearing in the register kept by or on behalf of the Issuer.

Any payment made pursuant to this Condition 3(E) shall be delivered at the risk and expense of the Holder to the Holder, or such bank, broker or other agent in Hong Kong (if any) as is recorded on the register.

- (F) If as a result of an event beyond the control of the Issuer (“**Settlement Disruption Event**”), it is not possible for the Issuer to procure payment electronically through CCASS by crediting the relevant bank account of the Holder on the original Settlement Date, the Issuer shall use its reasonable endeavours to procure payment electronically through CCASS by crediting the relevant bank account of the Holder as soon as reasonably practicable after the original Settlement Date. The Issuer will not be liable to the Holder for any interest in respect of the amount due or any loss or damage that such Holder may suffer as a result of the existence of a Settlement Disruption Event.
- (G) These Conditions shall not be construed so as to give rise to any relationship of agency or trust between the Guarantor, the Issuer or its agent or nominee and the Holder and neither the Guarantor, the Issuer nor its agent or nominee shall owe any duty of a fiduciary nature to the Holder.

None of the Issuer, the Guarantor or the Agent shall have any responsibility for any errors or omissions in the calculation and dissemination of any variables published by a third party and used in any calculation made pursuant to these terms and conditions or in the calculation of the Cash Settlement Amount arising from such errors or omissions.

The Issuer’s obligations to pay the Cash Settlement Amount shall be discharged by payment in accordance with Condition 3(E) above.

#### **4 Agent**

- (A) The Agent will be acting as agent of the Issuer in respect of the CBBCs and will not assume any obligation or duty to or any relationship or agency or trust for the Holder.
- (B) The Issuer reserves the right, subject to the appointment of a successor, at any time to vary or terminate the appointment of the initial Agent and to appoint another agent provided that it will at all times maintain an agent in Hong Kong for so long as the CBBCs are listed on the Stock Exchange. Notice of any such termination or appointment will be given to the Holder in accordance with Condition 9.

#### **5 Adjustments**

- (A) If the Index is (i) not calculated and announced by the Index Compiler but is calculated and published by a successor to the Index Compiler (the “**Successor Index Compiler**”) acceptable to the Agent or (ii) replaced by a successor index using, in the determination of

the Agent, the same or a substantially similar formula for and method of calculation as used in the calculation of the Index, then the Index will be deemed to be the index so calculated and announced by the Successor Index Compiler or that successor index, as the case may be.

- (B) If (i) on or prior to the Valuation Date, the Index Compiler or (if applicable) the Successor Index Compiler makes a material change in the formula for or the method of calculating the Index or in any other way materially modifies the Index (other than a modification prescribed in that formula or method to maintain the Index in the event of changes in constituent securities, contracts or commodities and other routine events), or (ii) on the Valuation Date, the Index Compiler or (if applicable) the Successor Index Compiler fails to calculate and publish the Index (other than as a result of a Market Disruption Event), then the Agent shall determine the Closing Level using, in lieu of a published level for the Index, the level for the Index as at the Valuation Date as determined by the Agent in accordance with the formula for and method of calculating the Index last in effect prior to the change or failure, but using only those securities, contracts or commodities that comprised the Index immediately prior to that change or failure (other than those securities that have since ceased to be listed on the relevant exchange).
- (C) Without prejudice to and notwithstanding any prior adjustment(s) made pursuant to the applicable Conditions, the Issuer and/or the Agent may (but shall not be obliged to) make such other adjustments to the terms and conditions of the CBBCs as appropriate where any event (including the events as contemplated in the applicable Conditions) occurs and irrespective of, in substitution for, or in addition to the provisions contemplated in the applicable Conditions, provided that such adjustment is: (i) not materially prejudicial to the interests of Holders generally (without considering the circumstances of any individual Holder or the tax or other consequences of such adjustment in any particular jurisdiction); or (ii) determined by the Issuer and/or Agent in good faith to be appropriate and commercially reasonable.
- (D) All determinations made by the Agent pursuant hereto will be conclusive and binding on the Holders. The Issuer will give, or procure that there is given, notice as soon as practicable of any determinations by publication in accordance with Condition 9.

## **6 Purchase by the Issuer**

The Issuer and any of its affiliates may purchase CBBCs at any time on or after the date of their issue and any CBBCs which are so purchased may be surrendered for cancellation or offered from time to time in one or more transactions in the over-the-counter market or otherwise at prevailing market prices or in negotiated transactions, at the discretion of the Issuer or any such affiliate, as the case may be.

## **7 Global Certificate**

A global certificate (the “**Global Certificate**”) representing the CBBCs will be deposited within CCASS and registered in the name of HKSCC Nominees Limited (or its successors). The Global Certificate will not be exchangeable for definitive certificates.

## **8 Meeting of Holder and Modification**

- (A) *Meetings of Holder.* Notices for convening meetings to consider any matter affecting the Holder’s interests will be given to the Holder in accordance with the provisions of Condition 9.



Every question submitted to a meeting of the Holder shall be decided by poll. A meeting may be convened by the Issuer or by the Holder holding not less than 10 per cent. of the CBBCs for the time being remaining unexercised. The quorum at any such meeting for passing an Extraordinary Resolution will be two or more persons (including any nominee appointed by the Holder) holding or representing not less than 25 per cent. of the CBBCs for the time being remaining unexercised, or at any adjourned meeting two or more persons (including any nominee appointed by the Holder) being or representing Holder whatever the number of CBBCs so held or represented.

A resolution will be an Extraordinary Resolution when it has been passed at a duly convened meeting by not less than three-quarters of the votes cast by such Holder as, being entitled to do so, vote in person or by proxy.

An Extraordinary Resolution passed at any meeting of the Holder shall be binding on all the holders of the CBBCs, whether or not they are present at the meeting.

Resolutions can be passed in writing without a meeting of the Holder being held if passed unanimously.

(B) *Modification.* The Issuer may, without the consent of the Holders, effect any modification of the terms and conditions of the CBBCs or the Instrument which, in the opinion of the Issuer, is:

- (i) not materially prejudicial to the interests of the Holders generally (without considering the circumstances of any individual Holder or the tax or other consequences of such modification in any particular jurisdiction);
- (ii) of a formal, minor or technical nature;
- (iii) made to correct a manifest error; or
- (iv) necessary in order to comply with mandatory provisions of the laws or regulations of Hong Kong.

Any such modification shall be binding on the Holders and shall be notified to them by the Agent as soon as practicable thereafter in accordance with Condition 9.

## **9 Notices**

All notices in English and Chinese to the Holder will be validly given if published on the HKEx website. In such circumstances, the Issuer shall not be required to dispatch copies of the notice to the Holders.

## **10 Further Issues**

The Issuer shall be at liberty from time to time, without the consent of the Holder, to create and issue further callable bull/bear contracts, upon such terms as to issue price and otherwise as the Issuer may determine so as to form a single series with the CBBCs.

## **11 Illegality or Impracticability**

The Issuer is entitled to terminate the CBBCs if it determines in good faith and in a commercially reasonable manner that, for reasons beyond its control, it has become or will become illegal or impracticable:

- (A) for it to perform its obligations under the CBBCs, or for the Guarantor to perform its obligations under the Guarantee, in whole or in part as a result of:
- (i) the adoption of, or any change in, any relevant law or regulation (including any tax law); or
  - (ii) the promulgation of, or any change in, the interpretation by any court, tribunal, governmental, administrative, legislative, regulatory or judicial authority or power with competent jurisdiction of any relevant law or regulation (including any tax law),
- (each of (i) and (ii), a “**Change in Law Event**”); or
- (B) for it or any of its affiliates to maintain the Issuer’s hedging arrangements with respect to the CBBCs due to a Change in Law Event.

Upon the occurrence of a Change in Law Event, the Issuer will, if and to the extent permitted by the applicable law or regulation, pay to each Holder a cash amount that the Issuer determines in good faith and in a commercially reasonable manner to be the fair market value in respect of each CBBC held by such Holder immediately prior to such termination (ignoring such illegality or impracticability) less the cost to the Issuer of unwinding any related hedging arrangement as determined by the Issuer in its sole and absolute discretion. Payment will be made in such manner as shall be notified to the Holders in accordance with Condition 9.

## **12 Good Faith and Commercially Reasonable Manner**

Any exercise of discretion by the Issuer or the Agent under these Conditions will be made in good faith and in a commercially reasonable manner.

## **13 Contracts (Rights of Third Parties) Ordinance**

A person who is not a party to these Conditions has no right under the Contracts (Rights of Third Parties) Ordinance (Cap. 623 of the Laws of Hong Kong) to enforce or to enjoy the benefit of any term of the CBBCs.

## **14 Governing Law**

The CBBCs, the Guarantee and the Instrument will be governed by and construed in accordance with the laws of Hong Kong. The Issuer, the Guarantor and the Holder (by its acquisition of the CBBCs) shall be deemed to have submitted for all purposes in connection with the CBBCs, the Guarantee and the Instrument to the non-exclusive jurisdiction of the courts of Hong Kong.

## **15 Language**

A Chinese translation of these Conditions is available upon request during usual business hours on any weekday (Saturdays, Sundays and holidays excepted) at the offices of the Agent. In the event of any inconsistency between the English version and Chinese translation of these Conditions, the English version shall prevail and be governing.

### **Agent**

J.P. Morgan Securities (Asia Pacific) Limited  
25/F, Chater House  
8 Connaught Road Central  
Hong Kong

## **TERMS AND CONDITIONS OF THE CASH-SETTLED CALLABLE BULL/BEAR CONTRACTS OVER SINGLE UNIT TRUST**

*The relevant Conditions will, together with the supplemental provisions contained in the relevant supplemental listing document and subject to completion and amendment, be endorsed on the back of the global certificate. The applicable supplemental listing document in relation to the issue of any series of CBBCs may specify other terms and conditions which shall, to the extent so specified or to the extent inconsistent with the relevant Conditions, replace or modify the relevant Conditions for the purpose of such series of CBBCs. Capitalised terms used in the relevant Conditions and not otherwise defined therein shall have the meanings given to them in the relevant supplemental listing document.*

### **1 Form; Status; Guarantee; Transfer and Title**

- (A) The CBBCs (which expression shall, unless the context otherwise requires, include any further CBBCs issued pursuant to Condition 12) relating to the Units of the Trust are issued in registered form subject to and with the benefit of the amended and restated instrument dated 3 May 2010 (the “**Instrument**”) made by J.P. Morgan Structured Products B.V. (the “**Issuer**”) and JPMorgan Chase Bank, National Association (the “**Guarantor**”) and the guarantee dated 5 April 2016 (the “**Guarantee**”) made by the Guarantor.

Copies of the Instrument and the Guarantee are available for inspection at the office of J.P. Morgan Securities (Asia Pacific) Limited as specified below. The Holders (as hereinafter defined) are entitled to the benefit of, are bound by and are deemed to have notice of, all the provisions of the Instrument and the Guarantee.

- (B) The settlement obligation of the Issuer in respect of the CBBCs represent general unsecured contractual obligations of the Issuer and of no other person which rank, and will rank, equally among themselves and pari passu with all other present and future unsecured and unsubordinated contractual obligations of the Issuer, except for obligations accorded preference by mandatory provisions of applicable law.

CBBCs represent general contractual obligations of the Issuer, and are not, nor is it the intention (expressed, implicit or otherwise) of the Issuer to create by the issue of CBBCs deposit liabilities of the Issuer or a debt obligation of any kind.

In the Guarantee, the Guarantor has, subject to the terms of the Guarantee, unconditionally and irrevocably guaranteed to the Holders the due and punctual settlement in full of all obligations due and owing by the Issuer arising under the issuance of the CBBCs after taking account of any set off, combination of accounts, netting or similar arrangement from time to time exercisable by the Issuer against any person to whom obligations are from time to time being owed, when and as due (whether at maturity, by acceleration or otherwise).

- (C) Transfers of CBBCs may be effected only in Board Lots or integral multiples thereof in the Central Clearing and Settlement System (“**CCASS**”) in accordance with the General Rules of CCASS and the CCASS Operational Procedures in effect from time to time (“**CCASS Rules**”).
- (D) Each person who is for the time being shown in the register kept by or on behalf of the Issuer outside of Hong Kong as the holder shall be treated by the Issuer, the Guarantor and the Agent as the absolute owner and holder of the CBBCs. The expression “**Holder**” shall be construed accordingly.

- (E) Trading in CBBCs on The Stock Exchange of Hong Kong Limited (the “**Stock Exchange**”) shall be suspended immediately upon the occurrence of a Mandatory Call Event or at the close of trading for the Trading Day immediately preceding the Expiry Date (whichever is earlier) in accordance with the requirements of the Stock Exchange.

## 2 CBBC Rights and Exercise Expenses

- (A) Every Board Lot entitles the Holder, upon compliance with Condition 3, to payment of the Cash Settlement Amount.
- (B) The Holder will be required to pay any charges or expenses including any taxes or duties which are incurred or withheld in respect of the exercise of the CBBCs (the “**Exercise Expenses**”). To effect such payment, an amount equivalent to the Exercise Expenses will be deducted by the Issuer from the Cash Settlement Amount in accordance with Condition 3(E).
- (C) For the purposes of these Conditions:

“**Business Day**” means a day (excluding Saturdays) on which the Stock Exchange is scheduled to open for dealings in Hong Kong and banks are open for business in Hong Kong.

“**Cash Settlement Amount**” means, subject to adjustment as provided in Condition 5:

- (a) following a Mandatory Call Event:
- (i) in the case of a series of Category R CBBCs, the Residual Value; or
- (ii) in the case of a series of Category N CBBCs, zero; and
- (b) at expiry:
- (i) in the case of a series of bull CBBCs:

$$\text{Cash Settlement Amount per Board Lot (if any) payable at expiry} = \frac{\text{Entitlement} \times (\text{Closing Price} - \text{Strike Price}) \times \text{one Board Lot}}{\text{Number of CBBC(s) per Entitlement}}$$

- (ii) in the case of a series of bear CBBCs:

$$\text{Cash Settlement Amount per Board Lot (if any) payable at expiry} = \frac{\text{Entitlement} \times (\text{Strike Price} - \text{Closing Price}) \times \text{one Board Lot}}{\text{Number of CBBC(s) per Entitlement}}$$

For the avoidance of doubt, if the Cash Settlement Amount is a negative figure, it shall be deemed to be zero.

“**Category N CBBCs**” means a series of CBBCs where the Call Price is equal to the Strike Price.

“**Category R CBBCs**” means a series of CBBCs where the Call Price is different from the Strike Price.

“**CCASS Settlement Day**” has the meaning ascribed to the term “Settlement Day” in the CCASS Rules, subject to such modification and amendment prescribed by HKSCC from time to time.

“**Closing Price**” means the closing price of one Unit (as derived from the Daily Quotation Sheet of the Stock Exchange, subject to any adjustment to such closing prices as may be necessary to reflect any event as contemplated in Condition 5 such as capitalisation, rights issue, distribution or the like) on the Valuation Date.

“**Day of Notification**” means the Trading Day immediately following the day on which the Mandatory Call Event occurs.

“**Entitlement**” means the number of Units to which the CBBCs relate, as specified in the relevant Supplemental Listing Document, subject to any adjustment in accordance with Condition 5.

“**HKEx**” means Hong Kong Exchanges and Clearing Limited.

“**HKSCC**” means Hong Kong Securities Clearing Company Limited.

“**Hong Kong**” means the Hong Kong Special Administrative Region of the People’s Republic of China.

“**Mandatory Call Event**” occurs when the Spot Price is, at any time on any Trading Day during the Observation Period:

- (a) in the case of a series of bull CBBCs, at or below the Call Price; and
- (b) in the case of a series of bear CBBCs, at or above the Call Price.

“**Market Disruption Event**” means:

- (1) the occurrence or existence on any Trading Day during the one-half hour period that ends at the close of trading of any suspension of, or limitation imposed on, trading (by reason of movements in price exceeding limits permitted by the Stock Exchange or otherwise) on the Stock Exchange in (1) the Units; or (2) any options or futures contracts relating to the Units if, in any such case, such suspension or limitation is, in the determination of the Issuer and/or Agent, material;
- (2) the issuance of the tropical cyclone warning signal number 8 or above or the issuance of a “BLACK” rainstorm signal by the Hong Kong Observatory on any day which (i) results in the Stock Exchange being closed for trading for the entire day; or (ii) results in the Stock Exchange being closed prior to its regular time for close of trading for the relevant day (for the avoidance of doubt, in the case when the Stock Exchange is scheduled to open for the morning trading session only, closed prior to its regular time for close of trading for the morning session), PROVIDED THAT there shall be no Market Disruption Event solely by reason of the Stock Exchange opening for trading later than its regular time for opening of trading on any day as a result of the tropical cyclone warning signal number 8 or above or the “BLACK” rainstorm signal having been issued; or;
- (3) a limitation or closure of the Stock Exchange due to any unforeseen circumstances.

“**Maximum Trade Price**” means the highest Spot Price (subject to any adjustment to such Spot Price as may be necessary to reflect any event as contemplated in Condition 5 such as capitalisation, rights issue, distribution or the like) during the MCE Valuation Period.

“**MCE Valuation Period**” means the period commencing from and including the moment upon which the Mandatory Call Event occurs (the trading session during which the Mandatory Call Event occurs is the “**1st Session**”) and up to the end of the trading session on the Stock Exchange immediately following the 1st Session (“**2nd Session**”) unless, in the determination of the Issuer in its good faith, the 2nd Session for any reason (including, without limitation, a Market Disruption Event occurring and subsisting in the 2nd Session) does not contain any continuous period of 1 hour or more than 1 hour during which trading in the Units is permitted on the Stock Exchange with no limitation imposed, the MCE Valuation Period shall be extended to the end of the subsequent trading session following the 2nd Session during which trading in the Units is permitted on the Stock Exchange with no limitation imposed for a continuous period of at least 1 hour notwithstanding the existence or continuance of a Market Disruption Event in such postponed trading session, unless the Issuer determines in its good faith that each trading session on each of the four Trading Days immediately following the day on which the Mandatory Call Event occurs does not contain any continuous period of 1 hour or more than 1 hour during which trading in the Units is permitted on the Stock Exchange with no limitation imposed. In that case:

- (a) the period commencing from the 1st Session up to, and including, the last trading session on the Stock Exchange of the fourth Trading Day immediately following the date on which the Mandatory Call Event occurs shall be deemed to be the MCE Valuation Period; and
- (b) the Issuer shall determine the Maximum Trade Price or the Minimum Trade Price (as the case may be) having regard to the then prevailing market conditions, the last reported Spot Price of the Units and such other factors as the Issuer may determine to be relevant in its good faith.

For the avoidance of doubt, all Spot Prices available throughout the extended MCE Valuation Period shall be taken into account to determine the Maximum Trade Price or the Minimum Trade Price (as the case may be) for the calculation of the Residual Value.

For the purposes of this definition:

- (A) the pre-opening session, the morning session and, in the case of half day trading, the closing auction session (if applicable) of the same day; and
- (B) the afternoon session and the closing auction session (if applicable) of the same day, shall each be considered as one trading session.

“**Minimum Trade Price**” means the lowest Spot Price (subject to any adjustment to such Spot Price as may be necessary to reflect any event as contemplated in Condition 5 such as capitalisation, rights issue, distribution or the like) during the MCE Valuation Period.

“**Observation Period**” means the period commencing from and including the Observation Commencement Date (Hong Kong time) and ending at and including the close of trading (Hong Kong time) on the Trading Day immediately preceding the Expiry Date.

“**Post MCE Trades**” has the meaning given to it in the relevant Supplemental Listing Document, subject to such modification and amendment prescribed by the Stock Exchange from time to time.

“**Residual Value**” means, subject to adjustment as provided in Condition 5:

- (a) in the case of a series of bull CBBCs:

$$\text{Residual Value per Board Lot} = \frac{\text{Entitlement} \times (\text{Minimum Trade Price} - \text{Strike Price}) \times \text{one Board Lot}}{\text{Number of CBBC(s) per Entitlement}}$$

- (b) in the case of a series of bear CBBCs:

$$\text{Residual Value per Board Lot} = \frac{\text{Entitlement} \times (\text{Strike Price} - \text{Maximum Trade Price}) \times \text{one Board Lot}}{\text{Number of CBBC(s) per Entitlement}}$$

“**Settlement Date**” means the third CCASS Settlement Day after (i) the end of the MCE Valuation Period or (ii) the later of: (a) the Expiry Date; and (b) the day on which the Closing Price is determined in accordance with these Conditions (as the case may be).

“**Spot Price**” means:

- (a) in respect of a continuous trading session of the Stock Exchange, the price per Unit concluded by means of automatic order matching on the Stock Exchange as reported in the official realtime dissemination mechanism for the Stock Exchange during such continuous trading session of the Stock Exchange in accordance with the Trading Rules, excluding direct business (as defined in the Trading Rules); and
- (b) in respect of a pre-opening session or a closing auction session (if applicable) of the Stock Exchange (as the case may be), the final Indicative Equilibrium Price (IEP) (as defined in the Trading Rules) of the Unit (if any) calculated at the end of the pre-order matching period of such pre-opening session or closing auction session (if applicable) (as the case may be) in accordance with the Trading Rules, excluding direct business (as defined in the Trading Rules),

subject to such modification and amendment prescribed by the Stock Exchange from time to time.

“**Trading Day**” means a day on which the Stock Exchange is scheduled to be open for trading for its regular trading sessions.

“**Trading Rules**” means the Rules and Regulations of the Exchange prescribed by the Stock Exchange from time to time.

“**Valuation Date**” means the Trading Day immediately preceding the Expiry Date unless the Issuer determines, in its sole discretion, that a Market Disruption Event has occurred, then that day shall be postponed until the first succeeding Trading Day on which there is no Market Disruption Event, unless the Issuer determines that there is a Market Disruption Event occurring on each of the four Trading Days immediately following the original date which (but for the Market Disruption Event) would have been the Valuation Date. In that case:

- (i) the fourth Trading Day immediately following the original date shall be deemed to be the Valuation Date (regardless of the Market Disruption Event); and
- (ii) the Issuer shall determine the Closing Price having regard to the then prevailing market conditions, the last reported trading price of the Unit on the Stock Exchange and such other factors as the Issuer determines to be relevant.

### 3 Exercise of CBBCs

- (A) CBBCs may only be exercised in Board Lots or integral multiples thereof.
- (B) If no Mandatory Call Event has occurred during the Observation Period, the CBBCs will be deemed to be automatically exercised on the Expiry Date.
- (C) (i) Subject to Condition 3(C)(ii), following the occurrence of a Mandatory Call Event, the CBBCs will terminate automatically and the Issuer shall have no further obligation under the CBBCs except for the payment of the Cash Settlement Amount (if any) following the Mandatory Call Event on the relevant Settlement Date. The Issuer will give notice to the Holders in accordance with Condition 9. Trading in the CBBCs will be suspended immediately upon the occurrence of a Mandatory Call Event and any Post MCE Trades will be cancelled and will not be recognised by the Stock Exchange.
- (ii) A Mandatory Call Event is irrevocable unless it is triggered as a result of any of the following events:
- (1) system malfunction or other technical errors of HKEx (such as the setting up of wrong Call Price and other parameters); or
  - (2) manifest errors caused by the relevant third party price source where applicable;
- and
- (a) in the case of paragraph (1) above, such event is reported by the Stock Exchange to the Issuer and the Issuer and the Stock Exchange mutually agree that such Mandatory Call Event is to be revoked; and
  - (b) in the case of paragraph (2) above, such event is reported by the Issuer to the Stock Exchange and the Issuer and the Stock Exchange mutually agree that such Mandatory Call Event is to be revoked,
- in each case:
- (aa) such mutual agreement must be reached no later than 30 minutes before the commencement of trading (including the pre-opening session) (Hong Kong time) or such other time frame as prescribed by the Stock Exchange from time to time on the Day of Notification;
  - (bb) the Mandatory Call Event so triggered will be reversed; and
  - (cc) all cancelled trades (if any) will be reinstated and trading of the CBBCs will resume no later than the Trading Day immediately following the Day of Notification in accordance with the rules prescribed by the Stock Exchange from time to time.
- (D) Upon exercise following a Mandatory Call Event or on the Expiry Date in accordance with these Conditions, the Issuer will, with effect from the first Business Day following the MCE Valuation Period or the Expiry Date, as the case may be, cancel the Global Certificate.



- (E) Upon exercise following a Mandatory Call Event or on the Expiry Date in accordance with these Conditions, the Issuer will as soon as practicable and not later than the Settlement Date in accordance with these conditions procure payment of the aggregate Cash Settlement Amount (following deduction of determined Exercise Expenses) for all CBBCs exercised or deemed exercised, electronically through CCASS by crediting the relevant bank account of the Holder as appearing in the register kept by or on behalf of the Issuer.

Any payment made pursuant to this Condition 3(E) shall be delivered at the risk and expense of the Holder to the Holder, or such bank, broker or agent in Hong Kong (if any) as recorded on the register.

- (F) If as a result of an event beyond the control of the Issuer (“**Settlement Disruption Event**”), it is not possible for the Issuer to procure payment electronically through CCASS by crediting the relevant bank account of the Holder on the original Settlement Date, the Issuer shall use its reasonable endeavours to procure payment electronically through CCASS by crediting the relevant bank account of the Holder as soon as reasonably practicable after the original Settlement Date. The Issuer will not be liable to the Holder for any interest in respect of the amount due or any loss or damage that such Holder may suffer as a result of the existence of a Settlement Disruption Event.
- (G) These Conditions shall not be construed so as to give rise to any relationship of agency or trust between the Guarantor, the Issuer or its agent or nominee and the Holder and neither the Guarantor, the Issuer nor its agent or nominee shall owe any duty of a fiduciary nature to the Holder.

None of the Issuer, the Guarantor or the Agent shall have any responsibility for any errors or omissions in the calculation and dissemination of any variables published by a third party and used in any calculation made pursuant to these terms and conditions or in the calculation of the Cash Settlement Amount arising from such errors or omissions.

The Issuer’s obligations to pay the Cash Settlement Amount shall be discharged by payment in accordance with Condition 3(E) above.

#### **4 Agent**

- (A) The Agent will be acting as agent of the Issuer in respect of the CBBCs and will not assume any obligation or duty to or any relationship or agency or trust for the Holder.
- (B) The Issuer reserves the right, subject to the appointment of a successor, at any time to vary or terminate the appointment of the initial Agent and to appoint another agent provided that it will at all times maintain an agent in Hong Kong for so long as the CBBCs are listed on the Stock Exchange. Notice of any such termination or appointment will be given to the Holder in accordance with Condition 9.

## 5 Adjustments

Adjustments may be made by the Agent to the terms of the CBBCs (including, but not limited to, the Call Price, Strike Price and the Entitlement) on the basis of the following provisions:

- (A) (i) If and whenever the Trust shall, by way of Rights (as defined below), offer new Units for subscription at a fixed subscription price to the holders of existing Units pro rata to existing holdings (a “**Rights Offer**”), the Entitlement shall be adjusted on the Business Day on which the trading in the Units of the Trust becomes ex-entitlement in accordance with the following formula:

$$\text{Adjusted Entitlement} = \text{Adjustment Factor} \times E$$

Where:

$$\text{Adjustment Factor} = \frac{1 + M}{1 + (R/S) \times M}$$

- E: Existing Entitlement immediately prior to the relevant event giving rise to the adjustment
- S: Cum-Rights Unit price, being the closing price of an existing Unit, as derived from the Daily Quotation Sheet of the Stock Exchange on the last Business Day on which the Units are traded on a cum-Rights basis
- R: Subscription price per new Unit specified in the Rights Offer plus an amount equal to any distributions or other benefits foregone to exercise the Rights
- M: Number of new Unit(s) (whether a whole or a fraction) per existing Unit each holder of an existing Unit is entitled to subscribe

For the purposes of these Conditions, “**Rights**” means the right(s) attached to each existing Unit or needed to acquire one new Unit (as the case may be) which are given to a holder of existing Units to subscribe at a fixed subscription price for new Units pursuant to the Rights Offer (whether by the exercise of one Right, a part of a Right or an aggregate number of Rights).

- (ii) The Call Price and Strike Price (which shall be rounded to the nearest 0.001) shall be adjusted by the reciprocal of the Adjustment Factor, where the reciprocal of the Adjustment Factor means one divided by the relevant Adjustment Factor. The adjustment to the Call Price and Strike Price shall take effect on the same day that the Entitlement is adjusted.
- (iii) For the purposes of Conditions 5(A) and 5(B), the Agent may determine that no adjustment will be made if the adjustment to the Entitlement is one per cent. or less of the Entitlement immediately prior to the adjustment, all as determined by the Agent.

- (B) If and whenever the Trust shall make an issue of Units credited as fully paid to holders of Units generally by way of capitalisation of profits or reserves (other than pursuant to a scrip distribution or similar scheme for the time being operated by the Trust or otherwise in lieu of a cash distribution) (and without any payment or other consideration being made or given by such holders) (a “Bonus Issue”), the Entitlement will be adjusted, subject to Condition 5(A)(iii), on the Business Day on which the trading in the Units of the Trust becomes ex-entitlement in accordance with the following formula:

$$\text{Adjusted Entitlement} = \text{Adjustment Factor} \times E$$

Where:

$$\text{Adjustment Factor} = 1 + N$$

E: Existing Entitlement immediately prior to the relevant event giving rise to the adjustment

N: Number of additional Unit(s) (whether a whole or a fraction) per existing Unit each holder of an existing Unit is entitled to receive

In addition, the Issuer shall adjust the Call Price and Strike Price (which shall be rounded to the nearest 0.001) by the reciprocal of the Adjustment Factor, where the reciprocal of the Adjustment Factor means one divided by the relevant Adjustment Factor. The adjustment to the Call Price and Strike Price shall take effect on the same day that the Entitlement is adjusted.

- (C) If and whenever the Trust shall subdivide its Units or any class of its outstanding Units into a greater number of units (a “**Subdivision**”) or consolidate the Units or any class of its outstanding Units into a smaller number of units (a “**Consolidation**”), then:
- (i) in the case of a Subdivision, the Entitlement shall be increased whereas the Call Price and Strike Price (which shall be rounded to the nearest 0.001) shall be decreased in the same ratio as the Subdivision; and
  - (ii) in the case of a Consolidation, the Entitlement shall be decreased whereas the Call Price and Strike Price (which shall be rounded to the nearest 0.001) shall be increased in the same ratio as the Consolidation,

in each case on the day on which the relevant Subdivision or Consolidation (as the case may be) shall have taken effect.

- (D) If it is announced that the Trust is to or may merge or consolidate with or into any other trust or corporation (including becoming, by agreement or otherwise, a subsidiary of or controlled by any person or corporation) (except where the Trust is the surviving entity in a merger) or that it is to or may sell or transfer all or substantially all of its assets, the rights attaching to the CBBCs may in the absolute discretion of the Agent be amended no later than the Business Day preceding the consummation of such merger, consolidation, sale or transfer (each a “**Restructuring Event**”) (as determined by the Agent in its absolute discretion).

The rights attaching to the CBBCs after the adjustment shall, after such Restructuring Event, relate to the number of units of the trust(s) resulting from or surviving such Restructuring Event or other securities (the “**Substituted Securities**”) and/or cash offered in substitution for the affected Units, as the case may be, to which the holder of such number of Units to which the CBBCs related immediately before such Restructuring Event would have been

entitled upon such Restructuring Event. Thereafter the provisions hereof shall apply to such Substituted Securities, provided that any Substituted Securities may, in the absolute discretion of the Agent, be deemed to be replaced by an amount in the relevant currency equal to the market value or, if no market value is available, fair value, of such Substituted Securities in each case as determined by the Agent as soon as practicable after such Restructuring Event is effected.

For the avoidance of doubt, any remaining Units shall not be affected by this paragraph (D) and, where cash is offered in substitution for Units or is deemed to replace Substituted Securities as described above, references in these Conditions to the Units shall include any such cash.

- (E) No adjustment will be made for an ordinary cash distribution (whether or not it is offered with a scrip alternative) (“**Ordinary Distribution**”). For any other forms of cash distribution (“**Cash Distribution**”) announced by the Trust, such as a cash bonus, special distribution or extraordinary distribution, no adjustment will be made unless the value of the Cash Distribution accounts for 2 percent. or more of the Unit’s closing price on the day of announcement by the Trust.

If and whenever the Trust shall make a Cash Distribution credited as fully paid to the holders of Units generally, the Entitlement shall be adjusted to take effect on the Business Day on which trading in the Units becomes ex-entitlement in respect of the relevant Cash Distribution in accordance with the following formula:

$$\text{Adjusted Entitlement} = \text{Adjustment Factor} \times E$$

Where:

$$\text{Adjustment Factor} = \frac{S - OD}{S - OD - CD}$$

E: Existing Entitlement immediately prior to the relevant event giving rise to the adjustment

S: Cum-Cash Distribution Unit price, being the closing price of an existing Unit, as derived from the Daily Quotation Sheet of the Stock Exchange on the last Business Day on which the Units are traded on a cum-Cash Distribution basis

CD: The Cash Distribution per Unit

OD: The Ordinary Distribution per Unit, provided that the Ordinary Distribution and the Cash Distribution have the same ex-entitlement date. For the avoidance of doubt, the OD shall be zero if the Ordinary Distribution and the Cash Distribution have different ex- entitlement dates

In addition, the Issuer shall adjust the Strike Price and Call Price (which shall be rounded to the nearest 0.001) by the reciprocal of the Adjustment Factor, where the reciprocal of the Adjustment Factor means one divided by the relevant Adjustment Factor. The adjustment to the Strike Price and Call Price shall take effect on the same date that the Entitlement is adjusted.

- (F) Without prejudice to and notwithstanding any prior adjustment(s) made pursuant to the applicable Conditions, the Issuer and/or the Agent may (but shall not be obliged to) make such other adjustments to the terms and conditions of the CBBCs as appropriate where any event (including the events as contemplated in the applicable Conditions) occurs and irrespective of, in substitution for, or in addition to the provisions contemplated in the applicable Conditions, provided that such adjustment is: (i) not prejudicial to the interests of Holders generally (without considering the circumstances of any individual Holder or the tax or other consequences of such adjustment in any particular jurisdiction); or (ii) determined by the Issuer and/or Agent in good faith to be appropriate and commercially reasonable.
- (G) The Issuer and/or the Agent shall determine any adjustment or amendment and its determination shall be conclusive and binding on the Holder save in the case of manifest error. Notice of any adjustments or amendments shall be given to the Holder in accordance with Condition 9 as soon as practicable after the determination thereof.

## **6 Purchase by the Issuer**

The Issuer and any of its affiliates may purchase CBBCs at any time on or after the date of their issue and any CBBCs which are so purchased may be surrendered for cancellation or offered from time to time in one or more transactions in the over-the-counter market or otherwise at prevailing market prices or in negotiated transactions, at the discretion of the Issuer or any such affiliate, as the case may be.

## **7 Global Certificate**

A global certificate (the “**Global Certificate**”) representing the CBBCs will be deposited within CCASS and registered in the name of HKSCC Nominees Limited (or its successors). The Global Certificate will not be exchangeable for definitive certificates.

## **8 Meeting of Holder and Modification**

- (A) *Meetings of Holder.* Notices for convening meetings to consider any matter affecting the Holder’s interests will be given to the Holder in accordance with the provisions of Condition 9. Every question submitted to a meeting of the Holder shall be decided by poll. A meeting may be convened by the Issuer or by the Holder holding not less than 10 per cent. of the CBBCs for the time being remaining unexercised. The quorum at any such meeting for passing an Extraordinary Resolution will be two or more persons (including any nominee appointed by the Holder) holding or representing not less than 25 per cent. of the CBBCs for the time being remaining unexercised, or at any adjourned meeting two or more persons (including any nominee appointed by the Holder) being or representing Holder whatever the number of CBBCs so held or represented. A resolution will be an Extraordinary Resolution when it has been passed at a duly convened meeting by not less than three-quarters of the votes cast by such Holder as, being entitled to do so, vote in person or by proxy.

An Extraordinary Resolution passed at any meeting of the Holder shall be binding on all the holders of the CBBCs, whether or not they are present at the meeting.

Resolutions can be passed in writing without a meeting of the Holder being held if passed unanimously.

(B) *Modification*. The Issuer may, without the consent of the Holders, effect any modification of the terms and conditions of the CBBCs or the Instrument which, in the opinion of the Issuer, is:

- (i) not materially prejudicial to the interests of the Holders generally (without considering the circumstances of any individual Holder or the tax or other consequences of such modification in any particular jurisdiction);
- (ii) of a formal, minor or technical nature;
- (iii) made to correct a manifest error; or
- (iv) necessary in order to comply with mandatory provisions of the laws or regulations of Hong Kong.

Any such modification shall be binding on the Holders and shall be notified to them by the Agent as soon as practicable thereafter in accordance with Condition 9.

## 9 Notices

All notices in English and Chinese to the Holder will be validly given if published on the HKEx website. In such circumstances, the Issuer shall not be required to dispatch copies of the notice to the Holders.

## 10 Termination or Liquidation

In the event of a Termination or the liquidation or dissolution of the trustee of the Trust (including any successor trustee appointed from time to time) (“**Trustee**”) (in its capacity as trustee of the Trust) or the appointment of a liquidator, receiver or administrator or analogous person under applicable law in respect of the whole or substantially the whole of the Trustee’s undertaking, property or assets all unexercised CBBCs will lapse and shall cease to be valid for any purpose. In the case of a Termination the unexercised CBBCs will lapse and shall cease to be valid on the effective date of the Termination, in the case of a voluntary liquidation, on the effective date of the resolution and, in the case of an involuntary liquidation or dissolution, on the date of the relevant court order or, in the case of the appointment of a liquidator or receiver or administrator or analogous person under applicable law in respect of the whole or substantially the whole of the Trustee’s undertaking, property or assets, on the date when such appointment is effective but subject (in any such case) to any contrary mandatory requirement of law.

For the purpose of this Condition 10, “**Termination**” means (i) the Trust is terminated, or the Trustee or the manager of the Trust (including any successor manager appointed from time to time) (“**Manager**”) is required to terminate the Trust under the trust deed (“**Trust Deed**”) constituting the Trust or applicable law, or the termination of the Trust commences; (ii) the Trust is held or is conceded by the Trustee or the Manager not to have been constituted or to have been imperfectly constituted; (iii) the Trustee ceases to be authorised under the Trust to hold the property of the Trust in its name and perform its obligations under the Trust Deed; or (iv) the Trust ceases to be authorised as an authorised collective investment scheme under the Securities and Futures Ordinance (Cap. 571 of the Laws of Hong Kong).

## 11 Delisting of Trust

- (A) If at any time the Units cease to be listed on the Stock Exchange, the Issuer shall give effect to these Conditions in such manner and make such adjustments to the rights attaching to the CBBCs as it shall, in its absolute discretion, consider appropriate to ensure, so far as it is

reasonably able to do so, that the interests of the Holder generally are not materially prejudiced as a consequence of such delisting (without considering the individual circumstances of the Holder or the tax or other consequences that may result in any particular jurisdiction).

- (B) Without prejudice to the generality of Condition 11(A), where the Units are or, upon the delisting, become, listed on any other stock exchange, these Conditions may, in the absolute discretion of the Issuer, be amended to the extent necessary to allow for the substitution of that other stock exchange in place of the Stock Exchange and the Issuer may, without the consent of the Holder, make such adjustments to the entitlements of the Holder on exercise (including, if appropriate, by converting foreign currency amounts at prevailing market rates into the relevant currency) as it shall consider appropriate in the circumstances.
- (C) Any adjustment, amendment or determination made by the Issuer pursuant to this Condition 11 shall be conclusive and binding on the Holder save in the case of manifest error. Notice of any adjustments or amendments shall be given to the Holder in accordance with Condition 9 as soon as practicable after they are determined.

## 12 Further Issues

The Issuer shall be at liberty from time to time, without the consent of the Holder, to create and issue further CBBCs, upon such terms as to issue price and otherwise as the Issuer may determine so as to form a single series with the CBBCs.

## 13 Illegality or Impracticability

The Issuer is entitled to terminate the CBBCs if it determines in good faith and in a commercially reasonable manner that, for reasons beyond its control, it has become or will become illegal or impracticable:

- (A) for it to perform its obligations under the CBBCs, or for the Guarantor to perform its obligations under the Guarantee, in whole or in part as a result of:
  - (i) the adoption of, or any change in, any relevant law or regulation (including any tax law); or
  - (ii) the promulgation of, or any change in, the interpretation by any court, tribunal, governmental, administrative, legislative, regulatory or judicial authority or power with competent jurisdiction of any relevant law or regulation (including any tax law),(each of (i) and (ii), a “**Change in Law Event**”); or
- (B) for it or any of its affiliates to maintain the Issuer’s hedging arrangements with respect to the CBBCs due to a Change in Law Event.

Upon the occurrence of a Change in Law Event, the Issuer will, if and to the extent permitted by the applicable law or regulation, pay to each Holder a cash amount that the Issuer determines in good faith and in a commercially reasonable manner to be the fair market value in respect of each CBBC held by such Holder immediately prior to such termination (ignoring such illegality or impracticability) less the cost to the Issuer of unwinding any related hedging arrangement as determined by the Issuer in its sole and absolute discretion. Payment will be made in such manner as shall be notified to the Holders in accordance with Condition 9.

#### **14 Good Faith and Commercially Reasonable Manner**

Any exercise of discretion by the Issuer or the Agent under these Conditions will be made in good faith and in a commercially reasonable manner.

#### **15 Contracts (Rights of Third Parties) Ordinance**

A person who is not a party to these Conditions has no right under the Contracts (Rights of Third Parties) Ordinance (Cap. 623 of the Laws of Hong Kong) to enforce or to enjoy the benefit of any term of the CBBCs.

#### **16 Governing Law**

The CBBC, the Guarantee and the Instrument will be governed by and construed in accordance with the laws of Hong Kong. The Issuer, the Guarantor and the Holder (by its acquisition of the CBBCs) shall be deemed to have submitted for all purposes in connection with the CBBCs, the Guarantee and the Instrument to the non-exclusive jurisdiction of the courts of Hong Kong.

#### **17 Language**

A Chinese translation of these Conditions is available upon request during usual business hours on any weekday (Saturdays, Sundays and holidays excepted) at the offices of the Agent. In the event of any inconsistency between the English version and Chinese translation of these Conditions, the English version shall prevail and be governing.

#### **Agent**

J.P. Morgan Securities (Asia Pacific) Limited  
25/F, Chater House  
8 Connaught Road Central  
Hong Kong



## ANNEX 2

### FORM OF GUARANTEE

#### Form of Guarantee

The following is the form of the Guarantee dated April 5, 2016 made by JPMorgan Chase Bank, National Association:

“J.P. Morgan Structured Products B.V. Hong Kong Structured Products Programme (the “**Programme**”).

J.P. Morgan Structured Products B.V., a private company with limited liability (*besloten vennootschap met beperkte aansprakelijkheid*) incorporated under the laws of The Netherlands (“**Obligor**”), from time to time issues warrants, callable bull/bear contracts and equity linked instruments (collectively, the “**Structured Products**”) (all holders of Structured Products, the “**Beneficiaries**”), (a) pursuant to an amended and restated instrument dated as of May 3rd 2010 between the Obligor and JPMorgan Chase Bank, National Association, a national banking association organised under the federal laws of the United States of America (the “**Guarantor**”), (b) with the benefit of this guarantee (the “**Guarantee**”) and (c) under the terms and conditions set out in the base listing document for the Programme to be dated on or about April 5, 2016 (the “**Base Listing Document**”) and the Supplemental Listing Document (as defined in the Base Listing Document) to be prepared for each series of Structured Products (the foregoing, together, as amended and/or supplemented and/or restated from time to time, the “**Programme Documents**”).

This Guarantee is made by way of deed poll by the Guarantor in favour of the Beneficiaries and dated as of April 5, 2016. This Guarantee amends, supplants and replaces in its entirety, for all Structured Products issued by the Obligor under the Programme on or after April 5, 2016 (the “**Effective Date**”), the guarantee referenced in the base listing document for the Programme dated April 17, 2015 (the “**Original Guarantee**”) save as provided in the immediately following sentence. The Original Guarantee applies to all Structured Products issued under the Programme on or after April 17, 2015 and before the Effective Date and to any Structured Products which are expressed to be consolidated and form a single series with any Structured Products issued prior to the Effective Date.

Now, therefore, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Guarantor hereby agrees as follows:

- (1) **Guarantee.** The Guarantor, subject to the terms hereof and except as specifically set forth herein, absolutely and unconditionally guarantees to the Beneficiaries, the timely and complete payment and performance, as and when due, whether by acceleration or otherwise, of all obligations and liabilities, whether now in existence or hereafter arising, of the Obligor to the Beneficiaries, under the Structured Products from and after the Effective Date and strictly in accordance with the Programme Documents, during the period from and including the Effective Date until no further obligations remain outstanding under such Structured Products (such obligations and liabilities the payment and performance of which are guaranteed by the Guarantor, the “**Obligations**”). If the Obligor fails to meet any of its Obligations in full as and when due, the Guarantor shall meet or cause to be met such Obligation to such Beneficiary strictly in accordance with all terms and provisions of such Obligation under the applicable Programme Documents (including, without limitation, place of payment), as if such Obligation were met by the Obligor.

- (2) **Guarantee of Obligation, not Collection.** This Guarantee is a guarantee of payment and performance and not of collection only. The Beneficiaries shall not be required to exhaust any right or remedy or to take any action against the Obligor or any other person or entity or any collateral as a condition to payment by the Guarantor hereunder.
- (3) **Guarantee Irrevocable.** This Guarantee is a continuing guarantee of all Obligations now or hereafter existing and shall remain in full force and effect until complete payment and performance of all Obligations and until no Structured Products enjoying the benefit of this Guarantee remains outstanding and no further Structured Products may be issued under the Programme. Notwithstanding anything to the contrary contained herein, this Guarantee shall not apply if, and to the extent that, the Guarantor or the Beneficiaries have so agreed in writing.
- (4) **Nature of Guarantee.** The Guarantor guarantees that the Obligations shall be timely performed and paid strictly in accordance with all applicable terms of the Programme Documents. The Guarantor's liability hereunder is irrespective of:
- (a) any change in the amount, time, manner or place of payment or performance of, or in any other term of, any Obligation, or any other amendment or waiver of or any consent to departure from any term of any Obligation;
  - (b) any release or amendment or waiver of, or consent to departure from, any other guarantee or support document, or any exchange, release or non-perfection of any collateral for any Obligation;
  - (c) the absence of any demand on the Obligor or any other person for payment or performance of any Obligation;
  - (d) the absence of any action to enforce any Obligation or any collateral therefor;
  - (e) any lack of validity, regularity or enforceability of any Programme Document or Obligation;
  - (f) the rendering of any judgment against the Obligor or any action to enforce the same;
  - (g) any liquidation, bankruptcy or insolvency of the Obligor or any proceeding relating thereto;
  - (h) any consolidation, merger, conveyance or transfer by the Obligor or other event which would afford to a guarantor relief, legal or equitable, from its obligation under the guarantee or other security; and
  - (i) any lack or limitation of status or of corporate power of the Obligor, or any incapacity or disability of any signatory for the Obligor, or of any other guarantor or obligor in respect of any Obligation, or any change whatsoever in the objects, capital structure, or business of the Obligor;

provided, however, that except as expressly set forth herein, (i) the Guarantor shall not be liable hereunder: (A) for any Obligation which the Obligor is excused from under and in accordance with the terms of the Programme Documents; (B) for any amount or performance in excess of the amount or performance actually due and owing by the Obligor to a Beneficiary, including but not limited to any set-off to which the Obligor would be entitled; or (C) if the Obligor is prohibited, unable or otherwise fails to make any payment, or any portion thereof or to perform any other obligation, because or arising out of an act of war,

insurrection or civil strife; an action by the government or any governmental authority or instrumentality thereof (whether de jure or de facto); legal constraint; terrorism; riots; or catastrophe; and (ii) any and all defences available to a guarantor under applicable law are reserved by the Guarantor and any defences, set-offs and counterclaims of the Obligor shall be available to the Guarantor to the same extent as such defences, set-offs or counterclaims are available to the Obligor and may be asserted by the Guarantor in respect of its obligations hereunder, in each case whether or not asserted by the Obligor.

- (5) **Formalities.** The Guarantor hereby waives diligence, presentment, demand of payment, any right to require a proceeding against the Obligor, protest or notice with respect to the Obligations or the amounts payable by the Obligor under the Programme Documents and all demands whatsoever, and covenants that this Guarantee shall not be discharged except by complete payment and performance of the Obligations. The grant of time or other indulgence to the Obligor shall in no manner release the Guarantor from any of its obligations hereunder.
- (6) **Reinstatement.** This Guarantee shall continue to be effective or be reinstated, as the case may be, if at any time any payment and performance of any of the Obligations is rescinded or must otherwise be returned by a Beneficiary upon the insolvency, bankruptcy or reorganisation of the Obligor or otherwise, all as though the payment and performance had not been made.
- (7) **Subrogation.** The Guarantor (1) shall have the right to assume the rights and payment obligations of the Obligor to such Beneficiary, together with any right of the Obligor to cure any event of default by or relating to the Obligor, notwithstanding any notice of default/termination previously sent by such Beneficiary to the Obligor, and thereby rescind any notice of default/termination given by such Beneficiary, and (2) shall be subrogated to all rights of the Beneficiaries against the Obligor in respect of any amounts paid by the Guarantor pursuant to the provisions of this Guarantee; provided, however, that the Guarantor shall not be entitled to enforce or to receive any payments arising out of, or based upon, such right of subrogation until all amounts due and payable by the Obligor to the Beneficiaries in respect of the Obligations, up to the time of such subrogation, have been paid in full.
- (8) **Representations/Warranties.** The Guarantor represents and warrants to each Beneficiary that, as of the date hereof:
  - (a) it is a national banking association, duly formed and validly existing under the federal laws of the United States of America;
  - (b) it has the full power and authority to execute and deliver this Guarantee and to perform its obligations hereunder; it has taken all necessary action to authorise such execution, delivery and performance; and this Guarantee has been duly executed and delivered by the Guarantor and the execution, delivery and performance of this Guarantee by the Guarantor does not contravene or constitute a default under any statute, regulation or rule of any applicable governmental authority or under any provision of the Guarantor's certificate of incorporation or by-laws or any contractual restriction binding on the Guarantor;
  - (c) this Guarantee constitutes a legal, valid and binding obligation of the Guarantor, enforceable against the Guarantor in accordance with its terms, except as such enforceability may be limited by bankruptcy, insolvency, receivership or other similar laws affecting the rights of creditors generally or by general principles of equity; and

- (d) no authorisation, approval or consent of, and no filing or registration with, any governmental authority is necessary for the execution, delivery or performance by the Guarantor of this Guarantee or for the validity or enforceability hereof.
- (9) **Captions.** The headings and captions in this Guarantee are for convenience only and shall not affect the interpretation or construction of this Guarantee.
- (10) **Not Insured.** This Guarantee is not insured by the Federal Deposit Insurance Corporation of the United States of America.
- (11) A person who is not a Beneficiary has no right under the Contracts (Rights of Third Parties) Ordinance (Cap. 623 of the Laws of Hong Kong) to enforce or to enjoy the benefit of any term of this Guarantee.
- (12) **Integration.** This Guarantee alone sets forth the entire understanding of the Guarantor and each Beneficiary relating to the guarantee of the Obligations and constitutes the entire contract between the parties relating to the subject matter hereof and supersedes any and all previous agreements and understandings, oral or written, express or implied, relating to the subject matter hereof.
- (13) **Service of Process.** The Guarantor agrees that service of process in Hong Kong may be made on it at the offices of J.P. Morgan Securities (Asia Pacific) Limited, which is currently at 25/F, Chater House, 8 Connaught Road Central, Hong Kong. Nothing in this Guarantee shall affect the right to serve process in any other manner permitted by law.
- (14) **GOVERNING LAW.** THIS GUARANTEE AND ALL MATTERS ARISING OUT OF OR RELATING TO THIS GUARANTEE SHALL BE GOVERNED BY, AND THIS GUARANTEE SHALL BE CONSTRUED IN ACCORDANCE WITH, THE LAWS OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION OF THE PEOPLE'S REPUBLIC OF CHINA ("HONG KONG"). THE GUARANTOR AGREES TO THE NON-EXCLUSIVE JURISDICTION OF THE COURTS OF HONG KONG OVER ANY DISPUTES ARISING UNDER OR RELATING TO THIS GUARANTEE.

**IN WITNESS WHEREOF**, this Guarantee has been executed by the Guarantor as a deed poll and delivered on the date specified below.

Dated as of April 5, 2016"

## ANNEX 3

### PURCHASE AND SALE

#### General

No action has been or will be taken by the Issuer or the Managers that would permit a public offering (other than Hong Kong) of any series of structured products or possession or distribution of any offering material in relation to any structured products in any jurisdiction where action for that purpose is required. No offers, sales, re-sales, transfers or deliveries of any structured products, or distribution of any offering material relating to structured products, may be made in or from any jurisdiction except in circumstances which will result in compliance with any applicable laws and regulations and will not impose any obligations on the Issuer.

#### United States of America

The structured products which are subject to the Base Listing Document and the relevant Supplemental Listing Document and the Guarantee have not been and will not be registered under the U.S. Securities Act of 1933, as amended (the “**Securities Act**”), or any state securities law. Trading in the structured products has not been approved by the U.S. Commodity Futures Trading Commission under the U.S. Commodities Exchange Act, as amended, any U.S. federal or state banking authority or any other U.S. or foreign regulatory authority. The Guarantee has not been and will not be registered under the rules of the U.S. Office of the Comptroller of the Currency (the “**OCC**”). The Issuer has not registered, and does not intend to register, as an investment company under the U.S. Investment Company Act of 1940, as amended (the “**Investment Company Act**”). The structured products which are subject to the Base Listing Document and the relevant Supplemental Listing Document and the Guarantee are being offered and sold only to non-U.S. Persons in offshore transactions in accordance with Regulation S under the Securities Act (“**Regulation S**”). Accordingly, the structured products may not be offered, sold, pledged, assigned, delivered, redeemed or otherwise transferred or exercised at any time within the United States or to, or for the account or benefit of, any U.S. Person. Each of the Managers has represented and agreed, and any other entity who is appointed by the Issuer as a manager in connection with an issue of the structured products will represent and agree, that it, its affiliates, and any person acting on its or their behalf has not offered or sold and will not offer or sell the structured products at any time, directly or indirectly, within the United States or its possessions or to, or for the account or benefit of, any U.S. Person, and that neither it, its affiliates nor any persons acting on its or their behalf have engaged or will engage in any directed selling efforts with respect to such structured products, and it and they have complied and will comply with the offering restrictions requirement of Regulation S. The Guarantee may also be offered or sold in reliance upon the exemption from the registration requirements of the Securities Act provided by Section 3(a)(2) thereof and will be offered and sold pursuant to an exemption from the registration requirements of the OCC (including in compliance with Regulation S as such regulation is incorporated into the regulations of the OCC pursuant to 12 C.F.R. Section 16.5(g)). The terms used in this paragraph have the meanings given to them under Regulation S.

Each of the Managers has also agreed, and any other entity who is appointed by the Issuer in connection with an issue of the structured products will agree, that, at or prior to confirmation of a sale of the structured products, it, its affiliates, and any person acting on its or their behalf will have sent to each distributor, dealer or person receiving a selling concession, fee or other remuneration that purchases such structured products from it (whether upon original issuance or in any secondary transaction) a written confirmation or notice stating that the purchaser is subject to the same restrictions on offers and sales and setting forth the restrictions on offers and sales of such structured products within the United States or its possessions or to, or for the account or benefit of, any U.S. Person.

## European Economic Area

In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (each, a “**Relevant Member State**”), each of the Issuer and the Managers represents and agrees, and each further dealer appointed in respect of the structured products will be required to represent and agree, that with effect from and including the date on which the Prospectus Directive is implemented in that Relevant Member State (the “**Relevant Implementation Date**”) it has not made and will not make an offer of structured products which are the subject of the offering contemplated by the Base Listing Document to the public in that Relevant Member State other than:

- (a) at any time to any legal entity which is a qualified investor as defined in the Prospectus Directive;
- (b) at any time to fewer than 150 natural or legal persons (other than qualified investors as defined in the Prospectus Directive), subject to obtaining the prior consent of the Issuer; or
- (c) at any time in any other circumstances falling within Article 3(2) of the Prospectus Directive,

provided that no such offer of structured products shall require the Issuer to publish a prospectus pursuant to Article 3 of the Prospectus Directive.

For the purposes of this provision, the expression an “**offer of structured products to the public**” in relation to any structured product in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and the structured products to be offered so as to enable an investor to decide to purchase or subscribe the structured products, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in that Member State and the expression “**Prospectus Directive**” means Directive 2003/71/EC (as amended, including by Directive 2010/73/EU), and includes any relevant implementing measure in the Relevant Member State.

## United Kingdom

The Issuer represents, warrants and agrees, and each further dealer appointed in respect of the structured products will be required to represent, warrant and agree, that:

- (a) it has only communicated or caused to be communicated and will only communicate or cause to be communicated an invitation or inducement to engage in investment activity (within the meaning of Section 21 (financial promotion) of the Financial Services and Markets Act 2000 (the “**FSMA**”)) received by it in connection with the issue or sale of any structured products in circumstances in which Section 21(1) of the FSMA does not apply to the Issuer or the Guarantor; and
- (b) it has complied with and will comply with all applicable provisions of the FSMA with respect to anything done by it in relation to any structured products in, from or otherwise involving the United Kingdom.

## The Netherlands

For selling restrictions in respect of The Netherlands, see “European Economic Area” above and the additional restrictions set forth below.

- (a) *Specific Dutch selling restriction for exempt offers:* Each of the Issuer and the Managers has represented and agreed, and any other entity who is appointed by the Issuer as a manager in connection with an issue of the structured products which are the subject of the offering contemplated by the Base Listing Document will represent and agree, that it will not make an offer unless:
- (i) such offer is made exclusively to persons or legal entities which are qualified investors (as defined in the Dutch Financial Supervision Act (*Wet op het financieel toezicht*, the “FSA”) and which includes authorised discretionary asset managers acting for the account of retail investors under a discretionary investment management contract) in The Netherlands; or
  - (ii) standard exemption logo and wording are disclosed as required by article 5:20(5) of the FSA; or
  - (iii) such offer is otherwise made in circumstances in which article 5:20(5) of the FSA is not applicable,

provided that no such offer of the structured products which are the subject of the offering contemplated by the Base Listing Document shall require the Issuer or any manager to publish a prospectus pursuant to Article 3 of the Prospectus Directive or supplement a prospectus pursuant to Article 16 of the Prospectus Directive.

For the purposes of this provision, the expressions (i) an “**offer of structured products to the public**” in relation to any structured products in The Netherlands; and (ii) “**Prospectus Directive**”, have the meanings given to them above in the paragraph entitled “European Economic Area”.

- (b) *Regulatory capacity to offer structured products in The Netherlands:* Each Manager has represented and agreed, and any other entity who is appointed by the Issuer as a manager in connection with an issue of the structured products which are the subject of the offering contemplated by the Base Listing Document will represent and agree, that it has not offered or sold and will not offer or sell any of the structured products which are the subject of the offering contemplated by the Base Listing Document in The Netherlands if it does not have the requisite Dutch regulatory capacity to make such offers or sales in The Netherlands.

## General

The offer and sale of structured products will also be subject to such other restrictions and requirements as may be set out in the relevant Supplemental Listing Document.

Persons interested in acquiring structured products should inform themselves and obtain appropriate professional advice as to (i) the legal requirements within the countries of their nationality, residence, ordinary residence or domicile for such acquisition; (ii) any foreign exchange restrictions or exchange control requirements which they might encounter on the acquisition of structured products or their redemption; or (iii) the acquisition, holding or disposal of structured products.

## ANNEX 4

### A BRIEF GUIDE TO CREDIT RATINGS

Information set out in this Annex 4 is based on, extracted or reproduced from the website of S&P at <https://ratings.standardandpoors.com> and the website of Moody's at <https://www.moodys.com>, as of the day immediately preceding the date of this base listing document. Information appearing on those websites does not form part of this base listing document, and we accept no responsibility for the accuracy or completeness of the information appearing on those websites, except that we have accurately extracted and reproduced such information in this Annex 4 and take responsibility for such extraction and reproduction. We have not separately verified such information. There can be no assurance that such information will not be revised by the relevant rating agency in the future and we have no responsibility to notify you of such change. If you are unsure about any information provided in this Annex 4 and/or what a credit rating means, you should seek independent professional advice.

#### **What is a credit rating?**

A credit rating is a forward looking opinion by a credit rating agency of a company's overall ability to meet its financial obligations. The focus is on the company's capacity to pay its debts as they become due. The rating does not necessarily apply to any specific obligation.

#### **What do the credit ratings mean?**

Below are guidelines issued by S&P and Moody's on what each of their investment-grade ratings means, as of the day immediately preceding the date of this base listing document.

#### **S&P long-term issuer credit ratings**

##### *AAA*

An obligor rated 'AAA' has extremely strong capacity to meet its financial commitments. 'AAA' is the highest issuer credit rating assigned by S&P.

##### *AA*

An obligor rated 'AA' has very strong capacity to meet its financial commitments. It differs from the highest-rated obligors only to a small degree.

##### *A*

An obligor rated 'A' has strong capacity to meet its financial commitments but is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than obligors in higher-rated categories.

##### *BBB*

An obligor rated 'BBB' has adequate capacity to meet its financial commitments. However, adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity of the obligor to meet its financial commitments.

##### *Plus (+) or minus (-)*

The above ratings (except for 'AAA') may be modified by the addition of a plus or minus sign to show relative standing within the major rating categories.

Please refer to <https://ratings.standardandpoors.com/about/about-credit-ratings> for further details.



## **Moody's long-term ratings definitions**

### *Aaa*

Obligations rated Aaa are judged to be of the highest quality, subject to the lowest level of credit risk.

### *Aa*

Obligations rated Aa are judged to be of high quality and are subject to very low credit risk.

### *A*

Obligations rated A are considered upper-medium grade and are subject to low credit risk.

### *Baa*

Obligations rated Baa are judged to be medium-grade and subject to moderate credit risk and as such may possess certain speculative characteristics.

### *Modifiers "1", "2" and "3"*

Moody's appends numerical modifiers 1, 2 and 3 to each of the above generic rating classifications (except for Aaa). The modifier 1 indicates that the obligation ranks in the higher end of its generic rating category; the modifier 2 indicates a mid-range ranking; and the modifier 3 indicates a ranking in the lower end of that generic rating category.

Please refer to <https://www.moody.com/Pages/amr002002.aspx> for further details.

## **Rating Outlooks**

A rating outlook indicates the potential direction of a long-term credit rating over the intermediate term (for example, this is typically six months to two years for S&P). A rating outlook issued by S&P or Moody's will usually indicate whether the potential direction is likely to be "positive", "negative", "stable" or "developing". Please refer to the abovementioned websites of the relevant credit rating agencies for further details regarding rating outlooks published by the relevant credit rating agencies.

## **PARTIES**

### **Issuer**

J.P. Morgan Structured Products B.V.  
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The Netherlands

### **Guarantor**

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United States of America

### **Managers**

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8 Connaught Road Central  
Hong Kong

### **Liquidity Provider**

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### **Legal Advisers to the Issuer and the Guarantor (as to Hong Kong law)**

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13/F, Gloucester Tower  
The Landmark  
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### **Guarantor's Auditor**

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