JPMORGAN CHASE & CO
Form 10-K
February 23, 2016

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549
FORM 10-K
Annual report pursuant to Section 13 or 15(d) of
the Securities Exchange Act of 1934

For the fiscal year ended December 31, 2015	Commission file number 1-5805
JPMorgan Chase & Co. (Exact name of registrant as specified in its charter)	
Delaware (State or other jurisdiction of incorporation or organization)	13-2624428 (I.R.S. employer identification no.)
270 Park Avenue, New York, New York (Address of principal executive offices)	10017 (Zip code)

Registrant's telephone number, including area code: (212) 270-6000
Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common stock	The New York Stock Exchange The London Stock Exchange
Warrants, each to purchase one share of Common Stock	The New York Stock Exchange
Depositary Shares, each representing a one-four hundredth interest in a share of 5.50% Non-Cumulative Preferred Stock, Series O	The New York Stock Exchange
Depositary Shares, each representing a one-four hundredth interest in a share of 5.45% Non-Cumulative Preferred Stock, Series P	The New York Stock Exchange
Depositary Shares, each representing a one-four hundredth interest in a share of 6.70% Non-Cumulative Preferred Stock, Series T	The New York Stock Exchange
Depositary Shares, each representing a one-four hundredth interest in a share of 6.30% Non-Cumulative Preferred Stock, Series W	The New York Stock Exchange
Depositary Shares, each representing a one-four hundredth interest in a share of 6.125% Non-Cumulative Preferred Stock, Series Y	The New York Stock Exchange
Depositary Shares, each representing a one-four hundredth interest in a share of 6.10% Non-Cumulative Preferred Stock, Series AA	The New York Stock Exchange
Depositary Shares, each representing a one-four hundredth interest in a share of 6.15% Non-Cumulative Preferred Stock, Series BB	The New York Stock Exchange
Alerian MLP Index ETNs due May 24, 2024	NYSE Arca, Inc.

Securities registered pursuant to Section 12(g) of the Act: None
Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.
o Yes x No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. o Yes x No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. x Yes o No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). x Yes o No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ¨

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See definitions of "large accelerated filer," "accelerated filer," and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

x Large accelerated filer	o Accelerated filer	o Non-accelerated filer (Do not check if a smaller reporting company)	o Smaller reporting company

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). o Yes x No

The aggregate market value of JPMorgan Chase & Co. common stock held by non-affiliates as of June 30, 2015: $249,201,931,877

Number of shares of common stock outstanding as of January 31, 2016: 3,670,264,897

Documents incorporated by reference: Portions of the registrant's Proxy Statement for the annual meeting of stockholders to be held on May 17, 2016, are incorporated by reference in this Form 10-K in response to Items 10, 11, 12, 13 and 14 of Part III.

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Part I

ITEM 1: BUSINESS

Overview

JPMorgan Chase & Co., ("JPMorgan Chase" or the "Firm") a financial holding company incorporated under Delaware law in 1968, 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; the Firm had $2.4 trillion in assets and $247.6 billion in stockholders' equity as of December 31, 2015. The Firm is a leader in 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, the Firm serves millions of customers in the U.S. and many of the world's most prominent corporate, institutional and government clients.

JPMorgan Chase's principal bank subsidiaries are JPMorgan Chase Bank, National Association ("JPMorgan Chase Bank, N.A."), a national banking association with U.S. branches in 23 states, and Chase Bank USA, National Association ("Chase Bank USA, N.A."), a national banking association that is the Firm's credit card-issuing bank. JPMorgan Chase's principal nonbank subsidiary is J.P. Morgan Securities LLC ("JPMorgan Securities"), the Firm's U.S. investment banking firm. The bank and nonbank subsidiaries of JPMorgan Chase operate nationally as well as through overseas branches and subsidiaries, representative offices and subsidiary foreign banks. One of the Firm's principal operating subsidiaries in the United Kingdom ("U.K.") is J.P. Morgan Securities plc, a subsidiary of JPMorgan Chase Bank, N.A.

The Firm's website is www.jpmorganchase.com. JPMorgan Chase makes available free of charge, through its website, annual reports on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934, as soon as reasonably practicable after it electronically files such material with, or furnishes such material to, the U.S. Securities and Exchange Commission (the "SEC"). The Firm has adopted, and posted on its website, a Code of Conduct for all employees of the Firm and a Code of Ethics for its Chairman and Chief Executive Officer, Chief Financial Officer, Chief Accounting Officer and all other professionals of the Firm worldwide serving in a finance, accounting, tax or investor relations role.

Business segments

JPMorgan Chase's activities are organized, for management reporting purposes, into four major reportable business segments, as well as a Corporate segment. The Firm's consumer business is the Consumer & Community Banking ("CCB") segment. The Firm's wholesale business segments are Corporate & Investment Bank ("CIB"), Commercial Banking ("CB"), and Asset Management ("AM").

A description of the Firm's business segments and the products and services they provide to their respective client bases is provided in the "Business segment results" section of Management's discussion and analysis of financial condition and results of operations ("MD&A"), beginning on page 68 and in Note 33.

Competition

JPMorgan Chase and its subsidiaries and affiliates operate in a highly competitive environment. Competitors include other banks, brokerage firms, investment banking companies, merchant banks, hedge funds, commodity trading companies, private equity firms, insurance companies, mutual fund companies, investment managers, credit card companies, mortgage banking companies, trust companies, securities processing companies, automobile financing companies, leasing companies, e-commerce and other Internet-based companies, financial technology companies, and other companies engaged in providing similar products and services. The Firm's businesses generally compete on the basis of the quality and variety of the Firm's products and services, transaction execution, innovation, reputation and price. Competition also varies based on the types of clients, customers, industries and geographies served. With respect to some of its geographies and products, JPMorgan Chase competes globally; with respect to others, the Firm competes on a national or regional basis. The Firm's ability to compete also depends on its ability to attract and retain professional and other personnel, and on its reputation.

It is likely that competition in the financial services industry will become even more intense as the Firm's businesses continue to compete with other financial institutions that may have a stronger local presence in certain geographies or that operate under different rules and regulatory regimes than the Firm, or with companies that provide new or innovative products or services that the Firm is unable to provide.

Supervision and regulation

The Firm is 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 the Firm does business.

As a result of regulatory reforms enacted and proposed in the U.S. and abroad, the Firm has been experiencing a period of significant change in regulation which has had and could continue to have significant consequences for how the Firm conducts business. The Firm 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 the Firm’s business and operations, legal entity structure and capital and liquidity management. 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 the Firm's business and operations. Given the current status of the regulatory developments, the Firm cannot currently quantify all of the possible effects on its business and operations of the significant changes that are underway. For more information, see Risk Factors on pages 8–18.

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"). Certain non-bank subsidiaries, such as the Firm's U.S. broker-dealers, are subject to supervision and regulation by the SEC, and subsidiaries of the Firm that engage in certain futures-related and swaps-related activities are subject to supervision and regulation by the Commodity Futures Trading Commission ("CFTC"). See Securities and broker-dealer regulation, Investment management regulation and Derivatives regulation below. In addition, the Firm's consumer activities are subject to supervision and regulation by the Consumer Financial Protection Bureau ("CFPB") and to regulation under various state statutes which are enforced by the respective state's Attorney General.

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, including 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 depositary institution subsidiaries ceases to meet the applicable eligibility requirements (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 Federal Reserve may also impose corrective capital and/or managerial requirements on the financial holding company and may, for example, 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 the Firm, 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 the Firm 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 the Firm and evaluates its compliance with such requirements. The OCC establishes similar capital and leverage requirements for the Firm'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 Capital Management on pages 149–158 and Note 28. 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. 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, standardized credit and operational risk capital frameworks 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, the Firm 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 the Firm and the Federal Reserve. In reviewing the Firm'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 the Firm has satisfied certain supervisory matters related to the Firm's processes and analyses, including the design and operational effectiveness of the controls governing such processes. Moreover, the Firm 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. The Firm publishes each year the results of its mid-cycle stress tests under the Firm'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 the Firm, 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 the Firm, will publish results by November 4. The Federal Reserve has indicated that it is currently evaluating the inclusion of all or part of the global systemically important bank ("GSIB") surcharge into the 2017 CCAR test and the Firm is currently awaiting further guidance. For additional information on the Firm's CCAR, see Capital Management on pages 149–158.

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 conduct appropriate oversight of their risk management activities. For information on liquidity measures, see Liquidity Risk Management on pages 159–164. 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 GSIBs, including the Firm, on January 1, 2016.

Orderly liquidation authority and resolution and recovery. As a BHC with assets of $50 billion or more, the Firm 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 depositary institution with $50 billion or more in assets, such as JPMorgan Chase Bank, N.A. and Chase Bank USA, N.A., to provide a resolution plan. For more information about the Firm's resolution plan, see Risk Factors on pages 8–18. 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, the Firm, 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.

The Firm 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 the Firm'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

Part I

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 perception that large financial institutions, including the Firm, 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 Capital Management on pages 149–158 and Risk Factors on pages 8–18, 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 the Firm 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, 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, the Firm 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:

The Firm’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 used to calculate such assessments, resulting from the enactment of the Dodd-Frank Act, significantly increased the assessments that the Firm’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, 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 if another FDIC-insured institution that is under common control with such institution is in default or is deemed to be “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 (including subsidiaries of those banks) 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 such subsidiaries unless the loans are secured in specified amounts and comply with certain other requirements. For more information, see Note 27. 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. and Chase Bank USA, N.A. See Note 27 for the amount of dividends that the Firm's principal bank subsidiaries could pay, at January 1, 2016, to their respective bank holding companies without the approval of their banking regulators.

In addition to the dividend restrictions described above, the OCC and the Federal Reserve have authority to prohibit or limit the payment of dividends of the bank subsidiaries they supervise, 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 bank.

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 the Firm 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 the Firm 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 31.

Securities and broker-dealer regulation:

The Firm 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. The Firm 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 firms that are not so regulated by the PRA 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. Future rule-making under the Dodd-Frank Act and rules proposed by the Department of Labor may impose (among other things) a new standard of care applicable to broker-dealers when dealing with customers.

Investment management regulation:

The Firm’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 the Firm’s subsidiaries are registered with, and subject to oversight by, the SEC as investment advisers. As such, the Firm’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 31.

The Firm’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, effective October 14, 2016. As noted above, the Department of Labor has also proposed a rule that would significantly expand the universe of persons viewed as investment fiduciaries to retirement plans and IRAs. In addition, the SEC has issued proposed rules regarding enhanced liquidity risk management for open-end mutual funds and exchange-traded funds (“ETFs”); restrictions on the use of derivatives by mutual funds, ETFs and closed-end funds; and enhanced reporting for funds and advisors.

Derivatives regulation:

The Firm 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 Dodd-Frank 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 the Firm that either deal with U.S. persons or that are guaranteed by U.S. subsidiaries of the Firm; 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 the Firm, 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 the Firm’s derivatives businesses.

In November 2015, the Firm and other financial institutions agreed to adhere to an updated 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 the Firm 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:
The Firm 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 certain data protection reforms 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, the Firm entered into Consent Orders with its banking regulators relating to the Firm's Bank Secrecy Act/Anti-Money Laundering policies, procedures and controls; the Firm 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. The Firm 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:

The Firm 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, the Firm's hiring of persons referred by government officials and clients, see Note 31.

Compensation practices:

The Firm'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 the Firm, 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 the Firm. 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 the Firm 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 the Firm’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.

Item 1A: RISK FACTORS

The following discussion sets forth the material risk factors that could affect JPMorgan Chase’s financial condition and operations. Readers should not consider any descriptions of such factors to be a complete set of all potential risks that could affect the Firm.

Regulatory Risk

JPMorgan Chase operates within a highly regulated industry, and the Firm’s businesses and results are significantly affected by the laws and regulations to which the Firm 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 the Firm 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 the Firm’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 the Firm operates, and any required changes to the Firm’s business or operations resulting from such developments and actions, could result in a significant loss of revenue for the Firm, impose additional compliance and other costs on the Firm or otherwise reduce the Firm’s profitability, limit the products and services that the Firm offers or its ability to pursue business opportunities in which it might otherwise consider engaging, require the Firm to dispose of or curtail certain businesses, affect the value of assets that the Firm holds, require the Firm to increase its prices and therefore reduce demand for its products, or otherwise adversely affect the Firm’s 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 the Firm may be subject under such laws and regulations could require the Firm to restructure its businesses, or re-price or curtail the products or services that it offers to customers, which could result in the Firm 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 the Firm 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 the Firm to increased compliance and legal costs, as well as higher operational, capital and liquidity costs, all of which could have an adverse effect on the Firm’s business, results of operations and profitability.

Expanded regulatory and governmental oversight of JPMorgan Chase’s businesses may continue to increase the Firm’s costs and risks.

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

Certain regulators have taken measures in connection with specific enforcement actions against financial institutions (including the Firm) 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 the Firm, and have increasingly sought, and obtained, resolutions that include criminal pleas from those institutions, such as the Firm'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).

The Firm 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 the Firm 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 the Firm's exposure to legal and regulatory matters may be unpredictable and could, in some cases, substantially exceed the amount of reserves that the Firm has established for such matters.

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

Under Title I of the Dodd-Frank Act ("Title I") and Federal Reserve and FDIC rules, the Firm 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 the Firm. The agencies jointly identified specific shortcomings with the 2013 resolution plans, including the Firm's 2013 plan. The FDIC's board of directors determined under Title I that the 2013 resolution plans, including the Firm'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. The Firm 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 the Firm's 2015 plan, or any future update of that plan, is not credible, and the Firm is unable to remedy the identified deficiencies in a timely manner, the regulators may jointly impose more stringent capital,

leverage or liquidity requirements on the Firm or restrictions on growth, activities or operations of the Firm, and could, if such deficiencies are not remedied within two years after such a determination, require the Firm to restructure, reorganize or divest businesses, legal entities, operational systems and/or intercompany transactions in ways that could materially and adversely affect the Firm's operations and strategy. In addition, in order to develop a Title I resolution plan that the Federal Reserve and FDIC determine is credible, the Firm 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 the Firm's plan for orderly resolution, the Firm's resolution plan also recommends to the Federal Reserve and the FDIC its proposed optimal strategy to resolve the Firm under the special resolution procedure provided in Title II of the Dodd-Frank Act ("Title II"). The Firm'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 the Firm'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 the Firm 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 the Firm'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 the Firm'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 the Firm'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 the Firm.

Part I

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 the Firm’s businesses both directly and through their impact on the businesses and activities of the Firm’s clients and customers.

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

The Firm 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 the Firm’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 the Firm’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 the Firm’s ability to realize returns from such activities and adversely affect the Firm’s earnings.

The Firm 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 the Firm manages or holds in custody, which, in turn, could affect the Firm’s revenue. Macroeconomic or market concerns may also prompt outflows from the Firm’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 the Firm’s balance sheet and the revenue that the Firm earns from net interest income. A low interest rate environment may compress net interest margins,

reducing the amounts that the Firm earns on its investment securities portfolio, or reducing the value of its mortgage servicing rights (“MSR”) asset, thereby reducing the Firm’s 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 the Firm is unable to reinvest contemporaneously in higher-yielding assets), thereby adversely affecting the Firm’s revenues and capital levels.

The Firm’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 the Firm’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 the Firm’s earnings.

Widening of credit spreads makes it more expensive for the Firm to borrow on both a secured and unsecured basis, and may adversely affect the credit markets and the Firm’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 the Firm’s credit spreads will impact, positively or negatively, the Firm’s 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 the Firm's profitability, capital or liquidity, or increase the Firm's 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 for the Firm.

Credit Risk

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

The Firm 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 the Firm 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 the Firm. In addition, in recent years the perceived interrelationship among financial institutions has also led to claims by other market participants and regulators that the Firm 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, the Firm 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, the Firm 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, the Firm 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 the Firm provides such services becomes bankrupt or insolvent, the Firm 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 the Firm's operational and litigation costs and may result in losses if any collateral received by the Firm is insufficient to cover such losses.

During periods of market stress or illiquidity, the Firm's credit risk also may be further increased when the Firm 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 the Firm. Further, disputes with obligors as to the valuation of collateral could increase in times of significant market stress, volatility or illiquidity, and the Firm 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 the Firm'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 the Firm'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 the Firm'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 the Firm's consumer businesses living in such areas or working in such affected industries or related or dependent industries to meet their obligations to the Firm. As a result, the Firm regularly monitors various segments of its exposures to assess potential concentration or contagion risks. The Firm'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 the Firm's inability to sell, syndicate or realize the value of its positions, thereby leading to increased concentrations. The inability to reduce the Firm'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 the Firm's balance sheet, thereby increasing its capital requirements and funding costs, all of which could adversely affect the operations and profitability of the Firm's 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 the Firm'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 the Firm or financial markets in general. These conditions may be caused by events over which the Firm has little or no control. The widespread crisis in investor confidence and resulting liquidity crisis experienced in 2008 and into early 2009 increased the Firm'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 the Firm's access to stable and low cost sources of funding, such as bank deposits, is reduced, the Firm may need to raise alternative funding which may be more expensive or of limited availability. In addition, the Firm's cost of funding could be affected by actions that the Firm 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 the Firm 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, the Firm could be required to issue a substantial amount of new senior long-term debt which could significantly increase the Firm's funding costs.

Authorities in some non-U.S. jurisdictions in which the Firm has operations have enacted legislation or regulations requiring that certain subsidiaries of the Firm 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 the Firm, could hinder the Firm'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 the Firm.

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 the Firm closely monitors and manages, to the extent it is able, factors that could influence its credit ratings, there is no assurance that the Firm's credit ratings will not be lowered in the future, or that any such downgrade would not occur at times of broader market instability when the Firm's options for responding to events may be more limited and general investor confidence is low.

Furthermore, a reduction in the Firm's credit ratings could reduce the Firm's 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 the Firm, thereby curtailing the Firm's 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 the Firm.

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 the Firm may result in judgments, settlements, fines, penalties or other results adverse to the Firm, which could materially and adversely affect the Firm's business, financial condition or results of operations, or cause serious harm to the Firm's reputation. As a participant in the financial services industry, it is likely that the Firm will continue to experience a high level of litigation related to its businesses and operations.

In addition, and as noted above, the Firm'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 the Firm 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 the Firm 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 the Firm to further judgments, settlements, fines or penalties, or cause the Firm to be required to restructure its operations and activities or to cease offering certain products or services, all of which could harm the Firm's reputation or lead to higher operational costs, thereby reducing the Firm's 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 the Firm's control and may be difficult to predict, and consequently, unanticipated changes in these policies could have a negative impact on the Firm's activities and results of operations.

The Firm'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 the Firm'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 the Firm 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 the Firm's financial condition and results of operations.

Further, various countries or regions in which the Firm operates or invests, or in which the Firm 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 the Firm does not conduct business or have operations or engages in only limited activities, may adversely affect the Firm.

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 the Firm 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 the Firm’s operations or investments in such countries. Political, social or economic disruption or dislocation in certain countries or regions in which the Firm 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 the Firm’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, the Firm's operations and investments in another country or countries, including the Firm's operations in the U.S. As a result, any such unfavorable conditions or developments could have an adverse impact on the Firm's business and results of operations.
Conducting business in countries with less developed legal and regulatory regimes often requires the Firm 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 the Firm 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 the Firm will be able to develop effective working relationships with local regulators. In addition, the Firm 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 the Firm's operations.
JPMorgan Chase's businesses are dependent on the Firm'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. The Firm'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 the Firm's financial, accounting, trading or other data processing systems, or the operating systems of third parties on which the Firm's businesses are dependent, are unable to meet these increasingly demanding standards, or if they fail or have other significant shortcomings, the Firm 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 the Firm's operational systems and infrastructure. The Firm is similarly dependent on its employees. The Firm 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 the Firm's operations or systems. In addition, when the Firm changes processes or introduces new products and services or new connectivity solutions, the Firm may not fully appreciate or identify new operational risks that may arise from such changes. Any of these occurrences could diminish the Firm'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 the Firm.
Third parties with which the Firm does business, including retailers and other third parties with which the Firm's customers do business, can also be sources of operational risk to the Firm, particularly where activities of customers are beyond the Firm's security and control systems, such as through the use of the internet, personal smart phones and other mobile devices or services. As the Firm's interconnectivity with these third parties increases, the Firm increasingly faces the risk of operational failure with respect to their systems. Security breaches affecting the Firm's customers, or systems breakdowns or failures, security breaches or employee misconduct affecting such other third parties, may require the Firm to take steps to protect the integrity of its own operational systems or to safeguard confidential information of the Firm or its customers, thereby increasing the Firm's 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 the Firm’s ability to conduct business.

The Firm’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 the Firm and its suppliers and other third parties). Ensuring that the Firm’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 the Firm’s operating costs, impact the development of new products or services and require significant oversight by management, and may require the Firm to structure its businesses, operations and systems in less efficient ways. Furthermore, the Firm 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 the Firm, 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), the Firm could be exposed to litigation or regulatory sanctions. Concerns regarding the effectiveness of the Firm's measures to safeguard personal information, or even the perception that such measures are inadequate, could cause the Firm to lose customers or potential customers for its products and services and thereby reduce the Firm's revenues. Accordingly, any failure or perceived failure by the Firm 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 the Firm's reputation and otherwise adversely affect its businesses.

The Firm may be subject to disruptions of its operating systems arising from events that are wholly or partially beyond the Firm's control, which may include, for example, security breaches (as discussed further below); electrical or telecommunications outages; failures of computer servers or other damage to the Firm'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 the Firm 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 the Firm 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 the Firm or its customers and clients. Any failures or disruptions of the Firm's systems or operations could give rise to losses in service to customers and clients, adversely affect the Firm's business and results of operations by subjecting the Firm to losses or liability, or require the Firm to expend significant resources to correct the failure or disruption, as well as by exposing the Firm 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 the Firm's businesses, result in the disclosure of confidential information, damage its reputation and create significant financial and legal exposure for the Firm.

Although JPMorgan Chase devotes significant resources to maintain and regularly update its systems and processes that are designed to protect the security of the Firm's computer systems, software, networks and other technology assets, as well as the confidentiality, integrity and availability of information belonging to the Firm and its customers and clients, there is no assurance that all of the Firm'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. The Firm 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 the Firm's efforts to ensure the integrity of its systems, it is possible that the Firm 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 the Firm, 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 the Firm 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 the Firm's systems to disclose sensitive information in order to gain access to the Firm's data or that of its customers or clients. These risks may increase in the future as the Firm 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 the Firm's systems or the systems of another market participant could cause serious negative consequences for the Firm, including significant disruption of the Firm's operations, misappropriation of confidential information of the Firm or that of its customers, or damage to computers or systems of the Firm and those of its customers and counterparties, and could result in violations of applicable privacy and other laws, financial loss to the Firm or to its customers, loss of confidence in the Firm’s security measures, customer dissatisfaction, significant litigation exposure and harm to the Firm’s reputation, all of which could have a material adverse effect on the Firm.

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 the Firm, thereby resulting in losses.

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

The Firm’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 the Firm to credit risk. The Firm has exposures arising from its many different products and counterparties, and the credit quality of the Firm’s exposures can have a significant impact on its earnings. The Firm establishes allowances for probable credit losses inherent in its credit exposure, including unfunded lending-related commitments. The Firm also employs stress testing and other techniques to determine the capital and liquidity necessary to protect the Firm in the event of adverse economic or market events. These processes are critical to the Firm’s financial results and condition, and require difficult, subjective and complex judgments, including forecasts of how economic conditions might impair the ability of the Firm’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 the Firm will fail to identify the proper factors or that the Firm will fail to accurately estimate the impact of factors that it identifies.

JPMorgan Chase’s market-making businesses may expose the Firm to unexpected market, credit and operational risks that could cause the Firm 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 the Firm’s trading transactions require the physical settlement by delivery of securities or other obligations that the Firm does not own; if the Firm is unable to obtain such securities or obligations within the required timeframe for delivery, this could cause the Firm to forfeit payments otherwise due to it and could result in settlement delays, which could damage the Firm’s reputation and ability to transact future business. In addition, in situations

where trades are not settled or confirmed on a timely basis, the Firm may be subject to heightened credit and operational risk, and in the event of a default, the Firm may be exposed to market and operational losses. In particular, 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 the Firm to incur unexpected costs, including transaction, operational, legal and litigation costs, or result in credit losses, all of which may impair the Firm’s ability to manage effectively its risk exposure from these products.

In a difficult or less liquid market environment, the Firm’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 the Firm to reduce its risk positions due to the activity of such other market participants or widespread market dislocations.

Many of the Firm’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 the Firm 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 the Firm’s risk management strategies, causing the Firm to incur losses.

Many of the models used by the Firm are subject to review not only by the Firm's Model Risk function but also by the Firm's regulators in order that the Firm may utilize such models in connection with the Firm's calculations of market risk risk-weighted assets ("RWA"), credit risk RWA and operational risk RWA under the Advanced Approach of Basel III. The Firm 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, the Firm must comply with enhanced standards for the assessment and management of risks associated with vendors and other third parties that provide services to the Firm. These requirements apply to the Firm both under general guidance issued by its banking regulators and, more specifically, under certain of the consent orders to which the Firm has been subject. The Firm 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 the Firm 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 the Firm's regulators, increased operating expenses and harm to the Firm's reputation, any of which could materially and adversely affect the Firm.

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 the Firm expects that competition in the U.S. and global financial services industry will continue to be intense. Competitors of the Firm 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 the Firm 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 the Firm's products and services or may cause the Firm to lose market share. In addition, the failure of any of the Firm'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 the Firm's ability to retain clients and customers or attract new clients and customers, thereby reducing the Firm's revenues. Increased competition also may require the Firm 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. The Firm 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 the Firm'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 the Firm at a competitive disadvantage to its non-U.S. competitors, including prohibiting the Firm from engaging in certain transactions, imposing higher capital and liquidity requirements on the Firm, making the Firm's pricing of certain transactions more expensive for clients or adversely affecting the Firm's cost structure for providing certain products, all of which can reduce the revenue and profitability of the Firm's wholesale businesses.

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

JPMorgan Chase's employees are the Firm's most important resource, and in many areas of the financial services industry, competition for qualified personnel is intense. The Firm endeavors to attract talented and diverse new employees and retain and motivate its existing employees. The Firm 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 the Firm's Operating Committee, including the Chief Executive Officer position, and senior positions below the Operating Committee. The Firm regularly reviews candidates for senior management positions to assess whether they currently are ready for a next-level role. In addition, the Firm'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 the Firm were unable to continue to attract or retain qualified employees, including successors to the Chief Executive Officer or members of the Operating Committee, the Firm'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 the Firm'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 the Firm's financial statements. Where quoted market prices are not available, the Firm 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 the Firm's financial statements are incorrect, the Firm may experience material losses.

Lapses in disclosure controls and procedures or internal control over financial reporting could materially and adversely affect the Firm's operations, profitability or reputation.

There can be no assurance that the Firm'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 the Firm’s business and results of operations or financial condition, restrict its ability to access the capital markets, require the Firm to expend significant resources to correct the lapses or deficiencies, expose the Firm to regulatory or legal proceedings, subject it to fines, penalties or judgments, harm the Firm’s 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 the Firm’s ability to attract and maintain customers, investors and employees. Damage to the Firm’s reputation can therefore cause significant harm to the Firm’s business and prospects. Harm to the Firm’s reputation can arise from numerous sources, including, among others, employee misconduct, security breaches, compliance failures, litigation or regulatory outcomes or governmental investigations. The Firm’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 the Firm 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 the Firm’s reputation. Adverse publicity or negative information posted on social media websites regarding the Firm, whether or not true, may result in harm to the Firm’s prospects.

Management of potential conflicts of interests has become increasingly complex as the Firm continues to expand its business activities through more numerous transactions, obligations and interests with and among the Firm’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 the Firm, as well as cause serious harm to the Firm’s reputation.

Actions by the financial services industry generally or by certain members of or individuals in the industry can also affect the Firm’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 the Firm’s reputation occur, there is no assurance that the additional costs and expenses that the Firm may need to incur to address the issues giving rise to the damage to its reputation could not adversely affect the Firm’s earnings and results of operations, or that damage to the Firm’s reputation will not impair the Firm’s ability to retain its existing or attract new customers, investors and employees.

ITEM 1B: UNRESOLVED SEC STAFF COMMENTS

None.

ITEM 2: PROPERTIES

JPMorgan Chase's headquarters is located in New York City at 270 Park Avenue, a 50-story office building it owns. The Firm owned or leased facilities in the following locations at December 31, 2015.

December 31, 2015 (in millions)	Approximate square footage
United States[(a)]	
New York City, New York	
270 Park Ave, New York, New York	1.3
All other New York City locations	9.0
Total New York City, New York	10.3
Other U.S. locations	
Columbus/Westerville, Ohio	3.7
Chicago, Illinois	3.4
Wilmington/Newark, Delaware	2.2
Houston, Texas	2.2
Dallas/Fort Worth, Texas	2.0
Phoenix/Tempe, Arizona	1.8
Jersey City, New Jersey	1.6
All other U.S. locations	37.1
Total United States	64.3
Europe, the Middle East and Africa ("EMEA")[(b)]	
25 Bank Street, London, U.K.	1.4
All other U.K. locations	3.2
All other EMEA locations	0.9
Total EMEA	5.5
Asia Pacific, Latin America and Canada	
India	2.3
All other locations	3.9
Total Asia Pacific, Latin America and Canada	6.2
Total	76.0

(a) At December 31, 2015, the Firm owned or leased 5,413 retail branches in 23 states.

(b) In 2008, JPMorgan Chase acquired a 999-year leasehold interest in land at London's Canary Wharf. JPMorgan Chase has a building agreement in place through October 30, 2016, to develop the Canary Wharf site for future use.

The properties occupied by JPMorgan Chase are used across all of the Firm's business segments and for corporate purposes. JPMorgan Chase continues to evaluate its current and projected space requirements and may determine from time to time that certain of its premises and facilities are no longer necessary for its operations. There is no assurance that the Firm will be able to dispose of any such excess premises or that it will not incur charges in connection with such dispositions. Such disposition costs may be material to the Firm's results of operations in a given period. For information on occupancy expense, see the Consolidated Results of Operations on pages 72–74.

ITEM 3: LEGAL PROCEEDINGS

For a description of the Firm's material legal proceedings, see Note 31.

ITEM 4: MINE SAFETY DISCLOSURES

Not applicable.

Part II

ITEM 5: MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Market for registrant's common equity

The outstanding shares of JPMorgan Chase common stock are listed and traded on the New York Stock Exchange and the London Stock Exchange. For the quarterly high and low prices of and cash dividends declared on JPMorgan Chase's common stock for the last two years, see the section entitled "Supplementary information – Selected quarterly financial data (unaudited)" on pages 309–310. For a comparison of the cumulative total return for JPMorgan Chase common stock with the comparable total return of the S&P 500 Index, the KBW Bank Index and the S&P Financial Index over the five-year period ended December 31, 2015, see "Five-year stock performance", on page 67.

For information on the common dividend payout ratio, see Capital actions in the Capital Management section of Management's discussion and analysis on page 157. For a discussion of restrictions on dividend payments, see Note 22 and Note 27. At January 31, 2016, there were 200,881 holders of record of JPMorgan Chase common stock. For information regarding securities authorized for issuance under the Firm's employee stock-based compensation plans, see Part III, Item 12 on page 23.

Repurchases under the common equity repurchase program

For information regarding repurchases under the Firm's common equity repurchase program, see Capital actions in the Capital Management section of Management's discussion and analysis on page 157.

Shares repurchased, on a settlement-date basis, pursuant to the common equity repurchase program during 2015 were as follows.

Year ended December 31, 2015	Total shares of common stock repurchased	Average price paid per share of common stock[(b)]	Aggregate repurchases of common equity (in millions)[(b)]	Dollar value of remaining authorized repurchase (in millions)[(b)]	
First quarter	32,531,294	$58.40	$1,900	$1,984	(a)
Second quarter[(a)]	19,129,714	65.32	1,249	5,180	
Third quarter	19,100,389	65.30	1,248	3,932	
October	9,247,060	61.42	567	3,365	
November	4,511,071	66.44	300	3,065	
December	5,321,146	66.12	352	2,713	
Fourth quarter	19,079,277	63.92	1,219	2,713	
Year-to-date	89,840,674	$62.51	$5,616	$2,713	(c)

(a) The unused portion under the prior Board authorization was canceled when the $6.4 billion program was authorized. Repurchases during the second quarter included $29 million under the prior program.

(b) Excludes commissions cost.

(c) Dollar value remaining under the $6.4 billion program.

ITEM 6: SELECTED FINANCIAL DATA

For five-year selected financial data, see "Five-year summary of consolidated financial highlights (unaudited)" on page 66.

ITEM 7: MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Management's discussion and analysis of financial condition and results of operations, entitled "Management's discussion and analysis," appears on pages 68–173. Such information should be read in conjunction with the

Consolidated Financial Statements and Notes thereto, which appear on pages 176–308.

ITEM 7A: QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

For a discussion of the quantitative and qualitative disclosures about market risk, see the Market Risk Management section of Management's discussion and analysis on pages 133–139.

ITEM 8: FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The Consolidated Financial Statements, together with the Notes thereto and the report thereon dated February 23, 2016, of PricewaterhouseCoopers LLP, the Firm's independent registered public accounting firm, appear on pages 175–308.

Supplementary financial data for each full quarter within the two years ended December 31, 2015, are included on pages 309–310 in the table entitled "Selected quarterly financial data (unaudited)." Also included is a "Glossary of terms'' on pages 311–315.

ITEM 9: CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A: CONTROLS AND PROCEDURES

The internal control framework promulgated by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"), "Internal Control — Integrated Framework" ("COSO 2013") provides guidance for designing, implementing and conducting internal control and assessing its effectiveness. The Firm used the COSO 2013 framework to assess the effectiveness of the Firm's internal control over financial reporting as of December 31, 2015. See "Management's report on internal control over financial reporting" on page 174.

As of the end of the period covered by this report, an evaluation was carried out under the supervision and with the participation of the Firm's management, including its Chairman and Chief Executive Officer and its Chief Financial Officer, of the effectiveness of its disclosure controls and procedures (as defined in Rule 13a-15(e) under the Securities Exchange Act of 1934). Based on that evaluation, the Chairman and Chief Executive Officer and the Chief Financial Officer concluded that these disclosure controls and procedures were effective. See Exhibits 31.1 and 31.2 for the Certification statements issued by the Chairman and Chief Executive Officer and Chief Financial Officer.

The Firm is committed to maintaining high standards of internal control over financial reporting. Nevertheless, because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. In addition, in a firm as large and complex as JPMorgan Chase, lapses or deficiencies in internal controls may occur from time to time, and there can be no assurance that any such deficiencies will not result in significant deficiencies or material weaknesses in internal control in the future. For further information, see "Management's report on internal control over financial reporting" on page 174. There was no change in the Firm's internal control over financial reporting (as defined in Rule 13a-15(f) under the Securities Exchange Act of 1934) that occurred during the three months ended December 31,

2015, that has materially affected, or is reasonably likely to materially affect, the Firm's internal control over financial reporting.

ITEM 9B: OTHER INFORMATION

Pursuant to Section 219 of the Iran Threat Reduction and Syria Human Rights Act of 2012, which added Section 13(r) to the Securities Exchange Act of 1934, an issuer is required to disclose in its annual or quarterly reports, as applicable, whether it or any of its affiliates knowingly engaged in certain activities, transactions or dealings relating to Iran or with individuals or entities designated pursuant to certain Executive Orders. Disclosure is generally required even where the activities, transactions or dealings were conducted in compliance with applicable law. Except as set forth below, as of the date of this report, the Firm is not aware of any other activity, transaction or dealing by any of its affiliates during the year ended December 31, 2015 that requires disclosure under Section 219.

During 2015, JPMorgan Chase Bank, N.A. processed one payment from Iran Airtours on behalf of a U.S. client into such client's account at JPMorgan Chase Bank, N.A. Iran Airtours is a subsidiary of Iran Air, which, at the time of the payment, was designated pursuant to Executive Order 13382. This transaction was authorized by and conducted pursuant to a license from the Treasury Department's OFAC. JPMorgan Chase Bank, N.A. charged a fee of U.S. dollar $4.25 for this transaction. JPMorgan Chase Bank, N.A. may in the future engage in similar transactions for its clients to the extent permitted by U.S. law.

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Part III

ITEM 10: DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

Executive officers of the registrant

Name	Age (at December 31, 2015)	Positions and offices
James Dimon	59	Chairman of the Board, Chief Executive Officer and President.
Ashley Bacon	46	Chief Risk Officer since June 2013. He had been Deputy Chief Risk Officer since June 2012, prior to which he had been Global Head of Market Risk for the Investment Bank (now part of Corporate & Investment Bank).
Stephen M. Cutler[(a)]	54	Vice Chairman since January 1, 2016, prior to which he had been General Counsel.
John L. Donnelly	59	Head of Human Resources.
Mary Callahan Erdoes	48	Chief Executive Officer of Asset Management.
Stacey Friedman[(a)]	47	General Counsel since January 1, 2016, prior to which she was Deputy General Counsel since July 2015 and General Counsel for the Corporate & Investment Bank since August 2012. Prior to joining JPMorgan Chase in 2012, she was a partner at the law firm of Sullivan & Cromwell LLP.
Marianne Lake	46	Chief Financial Officer since January 1, 2013, prior to which she had been Chief Financial Officer of Consumer & Community Banking since 2009.
Douglas B. Petno	50	Chief Executive Officer of Commercial Banking since January 2012. He had been Chief Operating Officer of Commercial Banking since October 2010, prior to which he had been Global Head of Natural Resources in the Investment Bank (now part of Corporate & Investment Bank).
Daniel E. Pinto	53	Chief Executive Officer of the Corporate & Investment Bank since March 2014 and Chief Executive Officer of Europe, the Middle East and Africa since June 2011. He had been Co-Chief Executive Officer of the Corporate & Investment Bank from July 2012 until March 2014, prior to which he had been head or co-head of the Global Fixed Income business from November 2009 until July 2012.
Gordon A. Smith	57	Chief Executive Officer of Consumer & Community Banking since December 2012 prior to which he had been Co-Chief Executive Officer since July 2012. He had been Chief Executive Officer of Card Services since 2007 and of the Auto Finance and Student Lending businesses since 2011.
Matthew E. Zames	45	Chief Operating Officer since April 2013 and head of Mortgage Banking Capital Markets since January 2012. He had been Co-Chief Operating Officer from July 2012 until April 2013. He had been Chief Investment Officer from May until September 2012, co-head of the Global Fixed Income business from November 2009 until May 2012 and co-head of Mortgage Banking Capital Markets from July 2011 until January 2012, prior to which he had served in a number of senior Investment Banking Fixed Income management roles.

(a) On January 1, 2016, Ms. Friedman was named General Counsel and appointed to the Operating Committee. At that date, Mr. Cutler became Vice Chairman of JPMorgan Chase and retired from the Operating Committee; he is no longer an executive officer of the registrant.

Unless otherwise noted, during the five fiscal years ended December 31, 2015, all of JPMorgan Chase's above-named executive officers have continuously held senior-level positions with JPMorgan Chase. There are no family relationships among the foregoing executive officers. Information to be provided in Items 10, 11, 12, 13 and 14 of the Form 10-K and not otherwise included herein is incorporated by reference to the Firm's definitive proxy statement for its 2016 Annual Meeting of Stockholders to be held on May 17, 2016, which will be filed with the SEC within 120 days of the end of the Firm's fiscal year ended December 31, 2015.

ITEM 11: EXECUTIVE COMPENSATION
See Item 10.

ITEM 12: SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS
For security ownership of certain beneficial owners and management, see Item 10.
The following table sets forth the total number of shares available for issuance under JPMorgan Chase's employee stock-based incentive plans (including shares available for issuance to nonemployee directors). The Firm is not authorized to grant stock-based incentive awards to nonemployees, other than to nonemployee directors.

December 31, 2015	Number of shares to be issued upon exercise of outstanding options/stock appreciation rights	Weighted-average exercise price of outstanding options/stock appreciation rights	Number of shares remaining available for future issuance under stock compensation plans
Plan category			
Employee stock-based incentive plans approved by shareholders	43,466,314	$43.51	93,491,401 (a)
Total	43,466,314	$43.51	93,491,401

(a) Represents future shares available under the shareholder-approved Long-Term Incentive Plan, as amended and restated effective May 19, 2015.

All future shares will be issued under the shareholder-approved Long-Term Incentive Plan, as amended and restated effective May 19, 2015. For further discussion, see Note 10.
ITEM 13: CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE
See Item 10.
ITEM 14: PRINCIPAL ACCOUNTING FEES AND SERVICES
See Item 10.

Part IV

ITEM 15: EXHIBITS, FINANCIAL STATEMENT SCHEDULES

Exhibits, financial statement schedules

1	Financial statements The Consolidated Financial Statements, the Notes thereto and the report of the Independent Registered Public Accounting Firm thereon listed in Item 8 are set forth commencing on page 176.
2	Financial statement schedules
3	Exhibits
3.1	Restated Certificate of Incorporation of JPMorgan Chase & Co., effective April 5, 2006 (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K of JPMorgan Chase & Co. (File No. 1-5805) filed April 7, 2006).
3.2	Amendment to the Restated Certificate of Incorporation of JPMorgan Chase & Co., effective June 7, 2013 (incorporated by reference to Appendix F to the Proxy Statement on Schedule 14A of JPMorgan Chase & Co. (File No. 1-5805) filed April 10, 2013).
3.3	Certificate of Designations for Fixed-to-Floating Rate Non-Cumulative Preferred Stock, Series I (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K of JPMorgan Chase & Co. (File No. 1-5805) filed April 24, 2008).
3.4	Certificate of Designations for 5.50% Non-Cumulative Preferred Stock, Series O (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K of JPMorgan Chase & Co. (File No. 1-5805) filed August 27, 2012).
3.5	Certificate of Designations for 5.45% Non-Cumulative Preferred Stock, Series P (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K of JPMorgan Chase & Co. (File No. 1-5805) filed February 5, 2013).
3.6	Certificate of Designations for Fixed-to-Floating Rate Non-Cumulative Preferred Stock, Series Q (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K of JPMorgan Chase & Co. (File No. 1-5805) filed April 23, 2013).
3.7	Certificate of Designations for Fixed-to-Floating Rate Non-Cumulative Preferred Stock, Series R (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K of JPMorgan Chase & Co. (File No. 1-5805) filed July 29, 2013).
3.8	Certificate of Designations for Fixed-to-Floating Rate Non-Cumulative Preferred Stock, Series S (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K of JPMorgan Chase & Co. (File No. 1-5805) filed January 22, 2014).
3.9	Certificate of Designations for 6.70% Non-Cumulative Preferred Stock, Series T (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K of JPMorgan Chase & Co. (File No. 1-5805) filed January 30, 2014).

3.10	Certificate of Designations for Fixed-to-Floating Rate Non-Cumulative Preferred Stock, Series U (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K of JPMorgan Chase & Co. (File No. 1-5805) filed on March 10, 2014).
3.11	Certificate of Designations for Fixed-to-Floating Rate Non-Cumulative Preferred Stock, Series V (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K of JPMorgan Chase & Co. (File No. 1-5805) filed on June 9, 2014).
3.12	Certificate of Designations for 6.30% Non-Cumulative Preferred Stock, Series W (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K of JPMorgan Chase & Co. (File No. 1-5805) filed on June 23, 2014).
3.13	Certificate of Designations for Fixed-to-Floating Rate Non-Cumulative Preferred Stock, Series X (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K of JPMorgan Chase & Co. (File No. 1-5805) filed on September 23, 2014).
3.14	Certificate of Designations for 6.125% Non-Cumulative Preferred Stock, Series Y (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K of JPMorgan Chase & Co. (File No. 1-5805) filed February 17, 2015).
3.15	Certificate of Designations for Fixed-to-Floating Rate Non-Cumulative Preferred Stock, Series Z (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K of JPMorgan Chase & Co. (File No. 1-5805) filed April 21, 2015).
3.16	Certificate of Designations for 6.10% Non-Cumulative Preferred Stock, Series AA (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K of JPMorgan Chase & Co. (File No. 1-5805) filed June 4, 2015).
3.17	Certificate of Designations for 6.15% Non-Cumulative Preferred Stock, Series BB (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K of JPMorgan Chase & Co. (File No. 1-5805) filed July 29, 2015).

3.18	By-laws of JPMorgan Chase & Co., effective January 19, 2016 (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K of JPMorgan Chase & Co. (File No. 1-5805) filed January 21, 2016).
4.1	Indenture, dated as of October 21, 2010, between JPMorgan Chase & Co. and Deutsche Bank Trust Company Americas, as Trustee (incorporated by reference to Exhibit 4.1 to the Current Report on Form 8-K of JPMorgan Chase & Co. (File No.1-5805) filed October 21, 2010).
4.2	Subordinated Indenture, dated as of March 14, 2014, between JPMorgan Chase & Co. and U.S. Bank Trust National Association, as Trustee (incorporated by reference to Exhibit 4.1 to the Current Report on Form 8-K of JPMorgan Chase & Co. (File No.1-5805) filed March 14, 2014).
4.3	Indenture, dated as of May 25, 2001, between JPMorgan Chase & Co. and Bankers Trust Company (succeeded by Deutsche Bank Trust Company Americas), as Trustee (incorporated by reference to Exhibit 4(a)(1) to the Registration Statement on Form S-3 of JPMorgan Chase & Co. (File No. 333-52826) filed June 13, 2001).
4.4	Form of Deposit Agreement (incorporated by reference to Exhibit 4.3 to the Registration Statement on Form S-3 of JPMorgan Chase & Co. (File No. 333-191692) filed October 11, 2013).
4.5	Form of Warrant to purchase common stock (incorporated by reference to Exhibit 4.2 to the Form 8-A of JPMorgan Chase & Co. (File No. 1-5805) filed December 11, 2009).

Other instruments defining the rights of holders of long-term debt securities of JPMorgan Chase & Co. and its subsidiaries are omitted pursuant to Section (b)(4)(iii)(A) of Item 601 of Regulation S-K. JPMorgan Chase & Co. agrees to furnish copies of these instruments to the SEC upon request.

10.1	Deferred Compensation Plan for Non-Employee Directors of JPMorgan Chase & Co., as amended and restated July 2001 and as of December 31, 2004 (incorporated by reference to Exhibit 10.1 to the Annual Report on Form 10-K of JPMorgan Chase & Co. (File No. 1-5805) for the year ended December 31, 2007).[a]
10.2	2005 Deferred Compensation Plan for Non-Employee Directors of JPMorgan Chase & Co., effective as of January 1, 2005 (incorporated by reference to Exhibit 10.2 to the Annual Report on Form 10-K of JPMorgan Chase & Co. (File No. 1-5805) for the year ended December 31, 2007).[a]
10.3	2005 Deferred Compensation Program of JPMorgan Chase & Co., restated effective as of December 31, 2008 (incorporated by reference to Exhibit 10.4 to the Annual Report on Form 10-K of JPMorgan Chase & Co. (File No. 1-5805) for the year ended December 31, 2008).[a]
10.4	JPMorgan Chase & Co. Long-Term Incentive Plan as amended and restated effective May 19, 2015 (incorporated by reference to Appendix C of the Schedule 14A of JPMorgan Chase & Co. (File No. 1-5805) filed April 8, 2015).[a]
10.5	Key Executive Performance Plan of JPMorgan Chase & Co., as amended and restated effective January 1, 2014 (incorporated by reference to Appendix G of the Schedule 14A of JPMorgan Chase & Co. (File No. 1-5805) filed April 10, 2013).[a]

10.6	Excess Retirement Plan of JPMorgan Chase & Co., restated and amended as of December 31, 2008, as amended (incorporated by reference to Exhibit 10.7 to the Annual Report on Form 10-K of JPMorgan Chase & Co. (File No. 1-5805) for the year ended December 31, 2009).[a]
10.7	1995 Stock Incentive Plan of J.P. Morgan & Co. Incorporated and Affiliated Companies, as amended, dated December 11, 1996 (incorporated by reference to Exhibit 10.8 to the Annual Report on Form 10-K of JPMorgan Chase & Co. (File No. 1-5805) for the year ended December 31, 2008).[a]
10.8	Executive Retirement Plan of JPMorgan Chase & Co., as amended and restated December 31, 2008 (incorporated by reference to Exhibit 10.9 to the Annual Report on Form 10-K of JPMorgan Chase & Co. (File No. 1-5805) for the year ended December 31, 2008).[a]
10.9	Bank One Corporation Stock Performance Plan, as amended and restated effective February 20, 2001 (incorporated by reference to Exhibit 10.12 to the Annual Report on Form 10-K of JPMorgan Chase & Co. (File No. 1-5805) for the year ended December 31, 2008).[a]
10.10	Bank One Corporation Supplemental Savings and Investment Plan, as amended and restated effective December 31, 2008 (incorporated by reference to Exhibit 10.13 to the Annual Report on Form 10-K of JPMorgan Chase & Co. (File No. 1-5805) for the year ended December 31, 2008).[a]
10.11	Banc One Corporation Revised and Restated 1995 Stock Incentive Plan, effective April 17, 1995 (incorporated by reference to Exhibit 10.15 to the Annual Report on Form 10-K of JPMorgan Chase & Co. (File No. 1-5805) for the year ended December 31, 2008).[a]

Part IV

10.12	Form of JPMorgan Chase & Co. Long-Term Incentive Plan Award Agreement of January 22, 2008 stock appreciation rights (incorporated by reference to Exhibit 10.25 to the Annual Report on Form 10-K of JPMorgan Chase & Co. (File No. 1-5805) for the year ended December 31, 2007).[a]
10.13	Form of JPMorgan Chase & Co. Long-Term Incentive Plan Award Agreement of January 22, 2008 stock appreciation rights for James Dimon (incorporated by reference to Exhibit 10.27 to the Annual Report on Form 10-K of JPMorgan Chase & Co. (File No. 1-5805) for the year ended December 31, 2007).[a]
10.14	Form of JPMorgan Chase & Co. Long-Term Incentive Plan Terms and Conditions for stock appreciation rights, dated as of January 20, 2009 (incorporated by reference to Exhibit 10.20 to the Annual Report on Form 10-K of JPMorgan Chase & Co. (File No. 1-5805) for the year ended December 31, 2008).[a]
10.15	Form of JPMorgan Chase & Co. Long-Term Incentive Plan Terms and Conditions for Operating Committee member stock appreciation rights, dated as of January 20, 2009 (incorporated by reference to Exhibit 10.21 to the Annual Report on Form 10-K of JPMorgan Chase & Co. (File No. 1-5805) for the year ended December 31, 2008).[a]
10.16	Form of JPMorgan Chase & Co. Long-Term Incentive Plan Terms and Conditions for Operating Committee member stock appreciation rights, dated as of February 3, 2010 (incorporated by reference to Exhibit 10.23 to the Annual Report on Form 10-K of JPMorgan Chase & Co. (File No. 1-5805) for the year ended December 31, 2009).[a]
10.17	Forms of JPMorgan Chase & Co. Long-Term Incentive Plan Terms and Conditions for stock appreciation rights and restricted stock units, dated as of January 18, 2012 (incorporated by reference to Exhibit 10.25 to the Annual Report on Form 10-K of JPMorgan Chase & Co. (File No. 1-5805) for the year ended December 31, 2011).[a]
10.18	Forms of JPMorgan Chase & Co. Long-Term Incentive Plan Terms and Conditions for stock appreciation rights and restricted stock units for Operating Committee members, dated as of January 17, 2013 (incorporated by reference to Exhibit 10.23 to the Annual Report on Form 10-K of JPMorgan Chase & Co. (File No. 1-5805) for the year ended December 31, 2012).[a]
10.19	Form of JPMorgan Chase & Co. Long-Term Incentive Plan Terms and Conditions for restricted stock units for Operating Committee members, dated as of January 22, 2014 (incorporated by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q of JPMorgan Chase & Co. (File No. 1-5805) for the quarter ended March 31, 2014).[a]
10.20	Forms of JPMorgan Chase & Co. Long-Term Incentive Plan Terms & Conditions for restricted stock units for Operating Committee members (U.S., E.U. and U.K.), dated as of January 20, 2015 (incorporated by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q of JPMorgan Chase & Co. (File No. 1-5805) for the quarter ended March 31, 2015).[a]
10.21	Form of JPMorgan Chase & Co. Long-Term Incentive Plan Terms and Conditions for restricted stock units for Operating Committee members, dated as of January 19, 2016.[a][b]
10.22	

	Form of JPMorgan Chase & Co. Long-Term Incentive Plan Terms and Conditions for performance share units for Operating Committee members, dated as of January 19, 2016.[a][b]
10.23	Form of JPMorgan Chase & Co. Terms and Conditions of Fixed Allowance (UK) (incorporated by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q of JPMorgan Chase & Co. (File No. 1-5805) for the quarter ended June 30, 2014).[a]
10.24	Form of JPMorgan Chase & Co. Performance-Based Incentive Compensation Plan, effective as of January 1, 2006, as amended (incorporated by reference to Exhibit 10.27 to the Annual Report on Form 10-K of JPMorgan Chase & Co. (File No. 1-5805) for the year ended December 31, 2009).[a]
10.25	Plea Agreement dated May 20, 2015 between JPMorgan Chase & Co. and the U.S. Department of Justice (incorporated by reference to Exhibit 99.3 to the Current Report on Form 8-K of JPMorgan Chase & Co. (File No. 1-5805) filed May 20, 2015).
12.1	Computation of ratio of earnings to fixed charges.[b]
12.2	Computation of ratio of earnings to fixed charges and preferred stock dividend requirements.[b]
21	List of subsidiaries of JPMorgan Chase & Co.[b]
22.1	Annual Report on Form 11-K of The JPMorgan Chase 401(k) Savings Plan for the year ended December 31, 2015 (to be filed pursuant to Rule 15d-21 under the Securities Exchange Act of 1934).
23	Consent of independent registered public accounting firm.[b]
31.1	Certification.[b]
31.2	Certification.[b]
32	Certification pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.[c]

101.INS	XBRL Instance Document.(b)(d)
101.SCH	XBRL Taxonomy Extension Schema Document.(b)
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document.(b)
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document.(b)
101.LAB	XBRL Taxonomy Extension Label Linkbase Document.(b)
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document.(b)

(a) This exhibit is a management contract or compensatory plan or arrangement.

(b) Filed herewith.

(c) Furnished herewith. This exhibit shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, or otherwise subject to the liability of that Section. Such exhibit shall not be deemed incorporated into any filing under the Securities Act of 1933 or the Securities Exchange Act of 1934.

(d) Pursuant to Rule 405 of Regulation S-T, includes the following financial information included in the Firm's Annual Report on Form 10-K for the year ended December 31, 2015, formatted in XBRL (eXtensible Business Reporting Language) interactive data files: (i) the Consolidated statements of income for the years ended December 31, 2015, 2014 and 2013, (ii) the Consolidated statements of comprehensive income for the years ended December 31, 2015, 2014 and 2013, (iii) the Consolidated balance sheets as of December 31, 2015 and 2014, (iv) the Consolidated statements of changes in stockholders' equity for the years ended December 31, 2015, 2014 and 2013, (v) the Consolidated statements of cash flows for the years ended December 31, 2015, 2014 and 2013, and (vi) the Notes to Consolidated Financial Statements.

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Financial

FIVE-YEAR SUMMARY OF CONSOLIDATED FINANCIAL HIGHLIGHTS
(unaudited)

As of or for the year ended December 31, (in millions, except per share, ratio, headcount data and where otherwise noted)	2015		2014		2013		2012		2011	
Selected income statement data										
Total net revenue	$93,543		$95,112		$97,367		$97,680		$97,843	
Total noninterest expense	59,014		61,274		70,467		64,729		62,911	
Pre-provision profit	34,529		33,838		26,900		32,951		34,932	
Provision for credit losses	3,827		3,139		225		3,385		7,574	
Income before income tax expense	30,702		30,699		26,675		29,566		27,358	
Income tax expense	6,260		8,954		8,789		8,307		8,402	
Net income	$24,442		$21,745		$17,886		$21,259		$18,956	
Earnings per share data										
Net income: Basic	$6.05		$5.33		$4.38		$5.21		$4.50	
Diluted	6.00		5.29		4.34		5.19		4.48	
Average shares: Basic	3,700.4		3,763.5		3,782.4		3,809.4		3,900.4	
Diluted	3,732.8		3,797.5		3,814.9		3,822.2		3,920.3	
Market and per common share data										
Market capitalization	$241,899		$232,472		$219,657		$167,260		$125,442	
Common shares at period-end	3,663.5		3,714.8		3,756.1		3,804.0		3,772.7	
Share price[(a)]										
High	$70.61		$63.49		$58.55		$46.49		$48.36	
Low	50.07		52.97		44.20		30.83		27.85	
Close	66.03		62.58		58.48		43.97		33.25	
Book value per share	60.46		56.98		53.17		51.19		46.52	
Tangible book value per share (“TBVPS”)[(b)]	48.13		44.60		40.72		38.68		33.62	
Cash dividends declared per share	1.72		1.58		1.44		1.20		1.00	
Selected ratios and metrics										
Return on common equity (“ROE”)	11	%	10	%	9	%	11	%	11	%
Return on tangible common equity (“ROTCE”)[(b)]	13		13		11		15		15	
Return on assets (“ROA”)	0.99		0.89		0.75		0.94		0.86	
Overhead ratio	63		64		72		66		64	
Loans-to-deposits ratio	65		56		57		61		64	
High quality liquid assets (“HQLA“) (in billions)[(c)]	$496		$600		$522		341		NA	
Common equity tier 1 (“CET1”) capital ratio[(d)]	11.8	%	10.2	%	10.7	%	11.0	%	10.0	%
Tier 1 capital ratio[(d)]	13.5		11.6		11.9		12.6		12.3	
Total capital ratio[(d)]	15.1		13.1		14.3		15.2		15.3	
Tier 1 leverage ratio[(d)]	8.5		7.6		7.1		7.1		6.8	
Selected balance sheet data (period-end)										
Trading assets	$343,839		$398,988		$374,664		$450,028		$443,963	
Securities	290,827		348,004		354,003		371,152		364,793	
Loans	837,299		757,336		738,418		733,796		723,720	
Core Loans	732,093		628,785		583,751		555,351		518,095	
Total assets	2,351,698		2,572,274		2,414,879		2,358,323		2,264,976	
Deposits	1,279,715		1,363,427		1,287,765		1,193,593		1,127,806	
Long-term debt[(e)]	288,651		276,379		267,446		248,521		255,962	
Common stockholders’ equity	221,505		211,664		199,699		194,727		175,514	
Total stockholders’ equity	247,573		231,727		210,857		203,785		183,314	

Headcount	234,598	241,359	251,196	258,753	259,940
Credit quality metrics					
Allowance for credit losses	$14,341	$14,807	$16,969	$22,604	$28,282
Allowance for loan losses to total retained loans	1.63 %	1.90 %	2.25 %	3.02 %	3.84 %
Allowance for loan losses to retained loans excluding purchased credit-impaired loans(f)	1.37	1.55	1.80	2.43	3.35
Nonperforming assets	$7,034	$7,967	$9,706	$11,906	$11,315
Net charge-offs	4,086	4,759	5,802	9,063	12,237
Net charge-off rate	0.52 %	0.65 %	0.81 %	1.26 %	1.78 %

Note: Effective October 1, 2015, and January 1, 2015, JPMorgan Chase & Co. adopted new accounting guidance, retrospectively, related to (1) the presentation of debt issuance costs, and (2) investments in affordable housing projects that qualify for the low-income housing tax credit, respectively. For additional information, see Explanation and Reconciliation of the Firm’s Use of Non-GAAP Financial Measures on pages 80–82 , Accounting and Reporting Developments on page 170 , and Note 1.

(a) Share prices shown for JPMorgan Chase’s common stock are from the New York Stock Exchange.

(b) TBVPS and ROTCE are non-GAAP financial measures. For further discussion of these measures, see Explanation and Reconciliation of the Firm’s Use of Non-GAAP Financial Measures on pages 80–82.

(c) HQLA represents the amount of assets that qualify for inclusion in the liquidity coverage ratio under the final U.S. rule (“U.S. LCR”) for December 31, 2015 and the Firm’s estimated amount for December 31, 2014 prior to the effective date of the final rule, and under the Basel III liquidity coverage ratio (“Basel III LCR”) for prior periods. The Firm did not begin estimating HQLA until December 31, 2012. For additional information, see HQLA on page 160.

(d) Basel III Transitional rules became effective on January 1, 2014; prior period data is based on Basel I rules. As of December 31, 2014 the ratios presented are calculated under the Basel III Advanced Transitional Approach. CET1 capital under Basel III replaced Tier 1 common capital under Basel I. Prior to Basel III becoming effective on January 1, 2014, Tier 1 common capital under Basel I was a non-GAAP financial measure. See Capital Management on pages 149–158 for additional information on Basel III and non-GAAP financial measures of regulatory capital.

(e) Included unsecured long-term debt of $211.8 billion, $207.0 billion, $198.9 billion, $200.1 billion and $230.5 billion respectively, as of December 31, of each year presented.

(f) Excluded the impact of residential real estate purchased credit-impaired (“PCI”) loans, a non-GAAP financial measure. For further discussion of these measures, see Explanation and Reconciliation of the Firm’s Use of Non-GAAP Financial Measures on pages 80–82. For further discussion, see Allowance for credit losses on pages 130–132.

FIVE-YEAR STOCK PERFORMANCE

The following table and graph compare the five-year cumulative total return for JPMorgan Chase & Co. ("JPMorgan Chase" or the "Firm") common stock with the cumulative return of the S&P 500 Index, the KBW Bank Index and the S&P Financial Index. The S&P 500 Index is a commonly referenced United States of America ("U.S.") equity benchmark consisting of leading companies from different economic sectors. The KBW Bank Index seeks to reflect the performance of banks and thrifts that are publicly traded in the U.S. and is composed of 24 leading national money center and regional banks and thrifts. The S&P Financial Index is an index of 87 financial companies, all of which are components of the S&P 500. The Firm is a component of all three industry indices.

The following table and graph assume simultaneous investments of $100 on December 31, 2010, in JPMorgan Chase common stock and in each of the above indices. The comparison assumes that all dividends are reinvested.

December 31, (in dollars)	2010	2011	2012	2013	2014	2015
JPMorgan Chase	$100.00	$80.03	$108.98	$148.98	$163.71	$177.40
KBW Bank Index	100.00	76.82	102.19	140.77	153.96	154.71
S&P Financial Index	100.00	82.94	106.78	144.79	166.76	164.15
S&P 500 Index	100.00	102.11	118.44	156.78	178.22	180.67

December 31,
(in dollars)

This section of JPMorgan Chase's Annual Report for the year ended December 31, 2015 ("Annual Report"), provides Management's discussion and analysis of the financial condition and results of operations ("MD&A") of JPMorgan Chase. See the Glossary of Terms on pages 311–315 for definitions of terms used throughout this Annual Report. The MD&A included in this Annual Report contains statements that are forward-looking within the meaning of the Private Securities Litigation Reform Act of 1995. Such statements are based on the current beliefs and expectations of JPMorgan Chase's management and are subject to significant risks and uncertainties. These risks and uncertainties could cause the Firm's actual results to differ materially from those set forth in such forward-looking statements. Certain of such risks and uncertainties are described herein (see Forward-looking Statements on page 173) and in JPMorgan Chase's Annual Report on Form 10-K for the year ended December 31, 2015 ("2015 Form 10-K"), in Part I, Item 1A: Risk factors; reference is hereby made to both.

INTRODUCTION

JPMorgan Chase & Co., a financial holding company incorporated under Delaware law in 1968, is a leading global financial services firm and one of the largest banking institutions in the U.S., with operations worldwide; the Firm had $2.4 trillion in assets and $247.6 billion in stockholders' equity as of December 31, 2015. The Firm is a leader in 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, the Firm serves millions of customers in the U.S. and many of the world's most prominent corporate, institutional and government clients.

JPMorgan Chase's principal bank subsidiaries are JPMorgan Chase Bank, National Association ("JPMorgan Chase Bank, N.A."), a national banking association with U.S. branches in 23 states, and Chase Bank USA, National Association ("Chase Bank USA, N.A."), a national banking association that is the Firm's credit card-issuing bank. JPMorgan Chase's principal nonbank subsidiary is J.P. Morgan Securities LLC ("JPMorgan Securities"), the Firm's U.S. investment banking firm. The bank and nonbank subsidiaries of JPMorgan Chase operate nationally as well as through overseas branches and subsidiaries, representative offices and subsidiary foreign banks. One of the Firm's principal operating subsidiaries in the United Kingdom ("U.K.") is J.P. Morgan Securities plc, a subsidiary of JPMorgan Chase Bank, N.A.

For management reporting purposes, the Firm's activities are organized into four major reportable business segments, as well as a Corporate segment. The Firm's consumer business is the Consumer & Community Banking ("CCB") segment. The Firm's wholesale business segments are Corporate & Investment Bank ("CIB"), Commercial Banking ("CB"), and Asset Management ("AM"). For a description of the Firm's business segments, and the products and services they provide to their respective client bases, refer to Business Segment Results on pages 83–106, and Note 33.

EXECUTIVE OVERVIEW

This executive overview of the MD&A highlights selected information and may not contain all of the information that is important to readers of this Annual Report. For a complete description of the trends and uncertainties, as well as the risks and critical accounting estimates affecting the Firm and its various lines of business, this Annual Report should be read in its entirety.

Financial performance of JPMorgan Chase

Year ended December 31, (in millions, except per share data and ratios)	2015	2014	Change
Selected income statement data			
Total net revenue	$93,543	$95,112	(2)%
Total noninterest expense	59,014	61,274	(4)
Pre-provision profit	34,529	33,838	2
Provision for credit losses	3,827	3,139	22
Net income	24,442	21,745	12
Diluted earnings per share	6.00	5.29	13
Return on common equity	11%	10%	
Capital ratios[(a)]			
CET1	11.8	10.2	
Tier 1 capital	13.5	11.6	

(a) Ratios presented are calculated under the transitional Basel III rules and represent the Collins Floor. See Capital Management on pages 149–158 for additional information on Basel III.

Summary of 2015 Results

JPMorgan Chase reported record full-year 2015 net income of $24.4 billion, and record earnings per share of $6.00, on net revenue of $93.5 billion. Net income increased by $2.7 billion compared with net income of $21.7 billion in 2014. ROE for the year was 11%, up from 10% in the prior year.

The increase in net income in 2015 was driven by lower taxes and lower noninterest expense, partially offset by lower net revenue and a higher provision for credit losses. The decline in net revenue was predominantly driven by lower Corporate private equity gains, lower CIB revenue reflecting the impact of business simplification, and lower CCB Mortgage Banking revenue. These decreases were partially offset by a benefit from a legal settlement in Corporate and higher operating lease income, predominantly in CCB.

The decrease in noninterest expense was driven by lower CIB expense, reflecting the impact of business simplification, and lower CCB expense as a result of efficiencies, predominantly reflecting declines in headcount-related expense and lower professional fees, partially offset by investments in the business. As a result of these changes, the Firm’s overhead ratio in 2015 was lower compared with the prior year.

The provision for credit losses increased from the prior year as a result of an increase in the wholesale provision, reflecting the impact of downgrades, including in the Oil & Gas portfolio. The consumer provision declined, reflecting lower net charge-offs due to continued discipline in credit underwriting, as well as improvement in the economy driven by increasing home prices and lower unemployment levels. This was partially offset by a lower reduction in the allowance for loan losses.

Total firmwide allowance for credit losses in 2015 was $14.3 billion, resulting in a loan loss coverage ratio of 1.37%, excluding the PCI portfolio, compared with 1.55% in the prior year. The Firm’s allowance for loan losses to retained nonaccrual loans, excluding the PCI portfolio and credit card, was 117% compared with 106% in 2014. Firmwide, net charge-offs were $4.1 billion for the year, down $673 million from 2014. Nonperforming assets at year-end were $7.0 billion, down $933 million.

The Firm’s results reflected solid underlying performance across its four major reportable business segments, with continued strong lending and consumer deposit growth. Firmwide average core loans increased by 12% compared with the prior year. Within CCB, Consumer & Business Banking average deposits increased 9% over the prior year. The Firm had nearly 23 million active mobile customers at year end, an increase of 20% over the prior year. Credit card sales volume (excluding Commercial Card) was up 7% for the year and merchant processing volume was up 12%. The CIB maintained its #1 ranking in Global Investment Banking Fees according to Dealogic. CB had record average loans, with an 11% increase compared with the prior year. CB also had record gross investment banking revenue of $2.2 billion, up 10% from the prior year. AM had positive net long-term client inflows and continued to deliver strong investment performance with 80% of mutual fund assets under management ("AUM") ranked in the 1st or 2nd quartiles over the past five years. AM also increased average loan balances by 8% in 2015.

In 2015, the Firm continued to adapt its strategy and financial architecture toward meeting regulatory and capital requirements and the changing banking landscape, while serving its clients and customers, investing in its businesses, and delivering strong returns to its shareholders. Importantly, the Firm exceeded all of its 2015 financial targets including those related to balance sheet optimization and managing its capital, its GSIB surcharge and expense. On capital, the Firm exceeded its capital target of reaching Basel III Fully Phased-In Advanced and Standardized CET1 ratios of approximately 11%, ending the year with estimated Basel III Advanced Fully Phased-in CET1 capital and ratio of $173.2 billion and 11.6%, respectively. The Firm also exceeded its target of reducing its GSIB capital surcharge, ending the year at an estimated 3.5% GSIB surcharge, achieved through a combination of reducing wholesale non-operating deposits, level 3 assets and derivative notionals.

The Firm's fully phased-in supplementary leverage ratio ("SLR") was 6.5% and JPMorgan Chase Bank, N.A.'s fully phased-in SLR was 6.6%. The Firm was also compliant with the fully phased-in U.S. liquidity coverage ratio ("LCR") and had $496 billion of HQLA as of year-end 2015.

The Firm's tangible book value per share was $48.13, an increase of 8% from the prior year. Total stockholders' equity was $247.6 billion at December 31, 2015.

Tangible book value per share and each of these Basel III Advanced Fully Phased-In measures are non-GAAP financial measures; they are used by management, bank regulators, investors and analysts to assess and monitor the Firm's capital position and liquidity. For further discussion of Basel III Advanced Fully Phased-in measures and the SLR under the U.S. final SLR rule, see Capital Management on pages 149–158, and for further discussion of LCR and HQLA, see Liquidity Risk Management on pages 159–164.

The Firm provided credit to and raised capital of $2.0 trillion for its clients during 2015. This included $705 billion of credit to corporations, $233 billion of credit to consumers, and $22 billion to U.S. small businesses. During 2015, the Firm also raised $1.0 trillion of capital for clients. Additionally, $68 billion of credit was provided to, and capital was raised for, nonprofit and government entities, including states, municipalities, hospitals and universities.

The Firm has substantially completed its business simplification agenda, exiting businesses, products or clients that were non-core, not at scale or not returning the appropriate level of return in order to focus on core activities for its core clients and reduce risk to the Firm. While the business simplification initiative impacted revenue growth in 2015, it did not have a meaningful impact on the Firm's profitability. The Firm continues to focus on streamlining, simplifying and centralizing operational functions and processes in order to attain more consistencies and efficiencies across the Firm. To that end, the Firm continues to make progress on simplifying its legal entity structure, streamlining its Global Technology function, rationalizing its use of vendors, and optimizing its real estate location strategy.

Business outlook
These current expectations are forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Such forward-looking statements are based on the current beliefs and expectations of JPMorgan Chase’s management and are subject to significant risks and uncertainties. These risks and uncertainties could cause the Firm’s actual results to differ materially from those set forth in such forward-looking statements. See Forward-Looking Statements on page 173 and the Risk Factors section on pages 8–18.

Business Outlook
JPMorgan Chase’s outlook for the full-year 2016 should be viewed against the backdrop of the global and U.S. economies, financial markets activity, the geopolitical environment, the competitive environment, client activity levels, and regulatory and legislative developments in the U.S. and other countries where the Firm does business. Each of these inter-related factors will affect the performance of the Firm and its lines of business. The Firm expects it will continue to make appropriate adjustments to its businesses and operations in response to ongoing developments in the legal and regulatory, as well as business and economic, environment in which it operates.

In the first quarter of 2016, management expects net interest income and net interest margin to be relatively flat when compared with the fourth quarter of 2015. During 2016, if there are no changes in interest rates, management expects net interest income could be approximately $2 billion higher than in 2015, reflecting the Federal Reserve’s rate increase in December 2015 and loan growth.

Management expects core loan growth of approximately 10%-15% in 2016 as well as continued growth in retail deposits which are anticipated to lead to the Firm’s balance sheet growing to approximately $2.45 trillion in 2016. Management also expects managed noninterest revenue of approximately $50 billion in 2016, a decrease from 2015, primarily driven by lower Card revenue reflecting renegotiated co-brand partnership agreements and lower revenue in Mortgage Banking.

The Firm continues to experience charge-offs at levels lower than its through-the-cycle expectations reflecting favorable credit trends across the consumer and wholesale portfolios, excluding Oil & Gas. Management expects total net charge-offs of up to approximately $4.75 billion in 2016. Based on the changes in market expectations for oil prices since year-end 2015, management believes reserves during the first quarter of 2016 could increase by approximately $500 million for Oil & Gas, and by approximately $100 million for Metals & Mining.

The Firm continues to take a disciplined approach to managing its expenses, while investing in growth and innovation. The Firm intends to leverage its scale and improve its operating efficiencies, in order to reinvest its expense savings in additional technology and marketing investments and fund other growth initiatives. As a result, Firmwide adjusted expense in 2016 is expected to be approximately $56 billion (excluding Firmwide legal expense).

Additionally, the Firm will continue to adapt its capital assessment framework to review businesses and client relationships against multiple binding constraints, including GSIB and other applicable capital requirements, imposing internal limits on business activities to align or optimize the Firm’s balance sheet and risk-weighted assets (“RWA”) with regulatory requirements in order to ensure that business activities generate appropriate levels of shareholder value.

During 2016, the Firm expects the CET1 capital ratio calculated under the Basel III Standardized Approach to become its binding constraint. As a result of the anticipated growth in the balance sheet, management anticipates that the Firm will have, over time, $1.55 trillion in Standardized risk weighted assets, and is expecting that, over the next several years, its Basel III CET1 capital ratio will be between 11% and 12.5%. In the longer term, management expects to maintain a minimum Basel III CET1 ratio of 11%. It is the Firm’s current intention that the Firm’s capital ratios continue to exceed regulatory minimums as they are fully implemented in 2019 and thereafter. Likewise, the Firm will be evolving its funding framework to ensure it meets the current and proposed more stringent regulatory liquidity rules, including those relating to the availability of adequate Total Loss Absorbing Capacity (“TLAC”).

In Mortgage Banking within CCB, management expects noninterest revenue to decline by approximately $700 million in 2016 as servicing balances continue to decline from year-end 2015 levels. The Card net charge-off rate is expected to be approximately 2.5% in 2016.

In CIB, management expects Investment Banking revenue in the first quarter of 2016 to be approximately 25% lower than the prior year first quarter, driven by current market conditions in the underwriting businesses. In addition, Markets revenue to date in the first quarter of 2016 is down approximately 20%, when compared to a particularly strong period in the prior year and reflecting the current challenging market conditions. Prior year Markets revenue was positively impacted by macroeconomic events, including the Swiss franc decoupling from the Euro. Actual Markets revenue results for the first quarter will continue to be affected by market conditions, which can be volatile. In Securities Services, management expects revenue of approximately $875 million in the first quarter of 2016.

CONSOLIDATED RESULTS OF OPERATIONS

The following section of the MD&A provides a comparative discussion of JPMorgan Chase's Consolidated Results of Operations on a reported basis for the three-year period ended December 31, 2015. Factors that relate primarily to a single business segment are discussed in more detail within that business segment. For a discussion of the Critical Accounting Estimates Used by the Firm that affect the Consolidated Results of Operations, see pages 165–169.

Revenue

Year ended December 31, (in millions)	2015	2014	2013
Investment banking fees	$6,751	$6,542	$6,354
Principal transactions	10,408	10,531	10,141
Lending- and deposit-related fees	5,694	5,801	5,945
Asset management, administration and commissions	15,509	15,931	15,106
Securities gains	202	77	667
Mortgage fees and related income	2,513	3,563	5,205
Card income	5,924	6,020	6,022
Other income[(a)]	3,032	3,013	4,608
Noninterest revenue	50,033	51,478	54,048
Net interest income	43,510	43,634	43,319
Total net revenue	$93,543	$95,112	$97,367

(a) Included operating lease income of $2.1 billion, $1.7 billion and $1.5 billion for the years ended December 31, 2015, 2014 and 2013, respectively.

2015 compared with 2014

Total net revenue for 2015 was down by 2% compared with the prior year, predominantly driven by lower Corporate private equity gains, lower CIB revenue reflecting the impact of business simplification initiatives, and lower CCB Mortgage Banking revenue. These decreases were partially offset by a benefit from a legal settlement in Corporate, and higher operating lease income, predominantly in CCB.

Investment banking fees increased from the prior year, reflecting higher advisory fees, partially offset by lower equity and debt underwriting fees. The increase in advisory fees was driven by a greater share of fees for completed transactions as well as growth in industry-wide fee levels. The decrease in equity underwriting fees resulted from lower industry-wide issuance, and the decrease in debt underwriting fees resulted primarily from lower loan syndication and bond underwriting fees on lower industry-wide fee levels. For additional information on investment banking fees, see CIB segment results on pages 94–98 and Note 7.

Principal transactions revenue decreased from the prior year, reflecting lower private equity gains in Corporate driven by lower valuation gains and lower net gains on sales as the Firm exits this non-core business. The decrease was partially offset by higher client-driven market-making revenue, particularly in foreign exchange, interest rate and equity-related products in CIB, as well as a gain of approximately $160 million on CCB's investment in Square, Inc. upon its initial public offering. For additional information, see CIB and Corporate segment results on pages 94–98 and pages 105–106, respectively, and Note 7.

Asset management, administration and commissions revenue decreased compared with the prior year, largely as a result of lower fees in CIB and lower performance fees in AM. The decrease was partially offset by higher asset management fees as a result of net client inflows into assets under management and the impact of higher average market levels in AM and CCB. For additional information, see the segment discussions of CIB and AM on pages 94–98 and pages 102–104, respectively, and Note 7.

Mortgage fees and related income decreased compared with the prior year, reflecting lower servicing revenue largely as a result of lower average third-party loans serviced, and lower net production revenue reflecting a lower repurchase benefit. For further information on mortgage fees and related income, see the segment discussion of CCB on pages

85–93 and Notes 7 and 17.
For information on lending- and deposit-related fees, see the segment results for CCB on pages 85–93, CIB on pages 94–98, and CB on pages 99–101 and Note 7; securities gains, see the Corporate segment discussion on pages 105–106; and card income, see CCB segment results on pages 85–93.
Other income was relatively flat compared with the prior year, reflecting a $514 million benefit from a legal settlement in Corporate, higher operating lease income as a result of growth in auto operating lease assets in CCB, and the absence of losses related to the exit of non-core portfolios in Card. These increases were offset by the impact of business simplification in CIB; the absence of a benefit recognized in 2014 from a franchise tax settlement; and losses related to the accelerated amortization of cash flow hedges associated with the exit of certain non-operating deposits.
Net interest income was relatively flat compared with the prior year, as lower loan yields, lower investment securities net interest income, and lower trading asset balance and yields were offset by higher average loan balances and lower interest expense on deposits. The Firm’s average interest-earning assets were $2.1 trillion in 2015, and the net interest yield on these assets, on a fully taxable-equivalent (“FTE”) basis, was 2.14%, a decrease of 4 basis points from the prior year.
2014 compared with 2013
Total net revenue for 2014 was down by 2% compared with the prior year, predominantly due to lower mortgage fees and related income and lower other income. The decrease was partially offset by higher asset management, administration and commissions revenue.
Investment banking fees increased compared with the prior year, due to higher advisory and equity underwriting fees, largely offset by lower debt underwriting fees. The increase

in advisory fees was driven by the combined impact of a greater share of fees for completed transactions, and growth in industry-wide fees. The increase in equity underwriting fees was driven by higher industry-wide issuance. The decrease in debt underwriting fees was primarily related to lower bond underwriting fees compared with the prior year, and lower loan syndication fees on lower industry-wide fees.

Principal transactions revenue increased as the prior year included a $1.5 billion loss related to the implementation of the funding valuation adjustment ("FVA") framework for over-the-counter ("OTC") derivatives and structured notes. Private equity gains increased as a result of higher net gains on sales. These increases were partially offset by lower fixed income markets revenue in CIB, primarily driven by credit-related and rates products, as well as the impact of business simplification initiatives.

Lending- and deposit-related fees decreased compared with the prior year, reflecting the impact of business simplification initiatives and lower trade finance revenue in CIB.

Asset management, administration and commissions revenue increased compared with the prior year, reflecting higher asset management fees driven by net client inflows and higher market levels in AM and CCB. The increase was offset partially by lower commissions and other fee revenue in CCB as a result of the exit of a non-core product in 2013.

Securities gains decreased compared with the prior year, reflecting lower repositioning activity related to the Firm's investment securities portfolio.

Mortgage fees and related income decreased compared with the prior year, predominantly due to lower net production revenue driven by lower volumes due to higher mortgage interest rates, and tighter margins. The decline in net production revenue was partially offset by a lower loss on the risk management of mortgage servicing rights ("MSRs").

Card income was relatively flat compared with the prior year, but included higher net interchange income due to growth in credit and debit card sales volume, offset by higher amortization of new account origination costs.

Other income decreased from the prior year, predominantly from the absence of two significant items recorded in Corporate in 2013: gains of $1.3 billion and $493 million from sales of Visa shares and One Chase Manhattan Plaza, respectively. Lower valuations of seed capital investments in AM and losses related to the exit of non-core portfolios in Card also contributed to the decrease. These items were partially offset by higher auto lease income as a result of growth in auto lease volume, and a benefit from a tax settlement.

Net interest income increased slightly from the prior year, predominantly reflecting higher yields on investment securities, the impact of lower interest expense from lower rates, and higher average loan balances. The increase was partially offset by lower yields on loans due to the run-off of higher-yielding loans and new originations of lower-yielding loans, and lower average interest-earning trading asset balances. The Firm's average interest-earning assets were $2.0 trillion, and the net interest yield on these assets, on a FTE basis, was 2.18%, a decrease of 5 basis points from the prior year.

Provision for credit losses

Year ended December 31, (in millions)	2015	2014	2013
Consumer, excluding credit card	$(81)	$419	$(1,871)
Credit card	3,122	3,079	2,179
Total consumer	3,041	3,498	308
Wholesale	786	(359)	(83)
Total provision for credit losses	$3,827	$3,139	$225

2015 compared with 2014

The provision for credit losses increased from the prior year as a result of an increase in the wholesale provision, largely reflecting the impact of downgrades in the Oil & Gas portfolio. The increase was partially offset by a decrease in the consumer provision, reflecting lower net charge-offs due to continued discipline in credit underwriting, as well as improvement in the economy driven by increasing home prices and lower unemployment levels. The increase was partially offset by a lower reduction in the allowance for loan losses. For a more detailed discussion of the credit portfolio and the allowance for credit losses, see the segment discussions of CCB on pages 85–93, CB on pages 99–101,

and the Allowance For Credit Losses on pages 130–132.
2014 compared with 2013
The provision for credit losses increased by $2.9 billion from the prior year as result of a lower benefit from reductions in the consumer allowance for loan losses, partially offset by lower net charge-offs. The consumer allowance reduction in 2014 was primarily related to the consumer, excluding credit card, portfolio and reflected the continued improvement in home prices and delinquencies in the residential real estate portfolio. The wholesale provision reflected a continued favorable credit environment.

Management’s discussion and analysis

Noninterest expense

Year ended December 31, (in millions)	2015	2014	2013
Compensation expense	$29,750	$30,160	$30,810
Noncompensation expense:			
Occupancy	3,768	3,909	3,693
Technology, communications and equipment	6,193	5,804	5,425
Professional and outside services	7,002	7,705	7,641
Marketing	2,708	2,550	2,500
Other[(a)(b)]	9,593	11,146	20,398
Total noncompensation expense	29,264	31,114	39,657
Total noninterest expense	$59,014	$61,274	$70,467

(a) Included legal expense of $3.0 billion, $2.9 billion and $11.1 billion for the years ended December 31, 2015, 2014 and 2013, respectively.

(b) Included Federal Deposit Insurance Corporation (“FDIC”)-related expense of $1.2 billion, $1.0 billion and $1.5 billion for the years ended December 31, 2015, 2014 and 2013, respectively.

2015 compared with 2014

Total noninterest expense decreased by 4% from the prior year, as a result of lower CIB expense, predominantly reflecting the impact of business simplification; and lower CCB expense resulting from efficiencies related to declines in headcount-related expense and lower professional fees. These decreases were partially offset by investment in the businesses, including for infrastructure and controls.

Compensation expense decreased compared with the prior year, predominantly driven by lower performance-based incentives and reduced headcount, partially offset by higher postretirement benefit costs and investment in the businesses, including for infrastructure and controls.

Noncompensation expense decreased from the prior year, reflecting benefits from business simplification in CIB; lower professional and outside services expense, reflecting lower legal services expense and a reduced number of contractors in the businesses; lower amortization of intangibles; and the absence of a goodwill impairment in Corporate. These factors were partially offset by higher depreciation expense, largely associated with higher auto operating lease assets in CCB; higher marketing expense in CCB; and higher FDIC-related assessments. Legal expense was relatively flat compared with the prior year. For a further discussion of legal expense, see Note 31.

2014 compared with 2013

Total noninterest expense decreased by $9.2 billion, or 13%, from the prior year, as a result of lower other expense (in particular, legal expense) and lower compensation expense.

Compensation expense decreased compared with the prior year, predominantly driven by lower headcount in CCB Mortgage Banking, lower performance-based compensation expense in CIB, and lower postretirement benefit costs. The decrease was partially offset by investments in the businesses, including headcount for controls.

Noncompensation expense decreased compared with the prior year, due to lower other expense, predominantly reflecting lower legal expense. Lower expense for foreclosure-related matters and production and servicing-related expense in CCB Mortgage Banking, lower FDIC-related assessments, and lower amortization due to certain fully amortized intangibles, also contributed to the decline. The decrease was offset partially by investments in the businesses, including for controls, and costs related to business simplification initiatives across the Firm.

Income tax expense

Year ended December 31, (in millions, except rate)	2015	2014	2013
Income before income tax expense	$30,702	$30,699	$26,675
Income tax expense	6,260	8,954	8,789
Effective tax rate	20.4 %	29.2 %	32.9 %

2015 compared with 2014

The effective tax rate decreased compared with the prior year, predominantly due to the recognition in 2015 of tax benefits of $2.9 billion and other changes in the mix of income and expense subject to U.S. federal, state and local income taxes, partially offset by prior-year tax adjustments. The recognition of tax benefits in 2015 was due to the resolution of various tax audits, as well as the release of U.S. deferred taxes associated with the restructuring of certain non-U.S. entities. For further information see
Note 26.

2014 compared with 2013

The decrease in the effective tax rate from the prior year was largely attributable to the effect of the lower level of nondeductible legal-related penalties, partially offset by higher 2014 pretax income in combination with changes in the mix of income and expense subject to U.S. federal, state and local income taxes, and lower tax benefits associated with tax adjustments and the settlement of tax audits.

CONSOLIDATED BALANCE SHEETS ANALYSIS

Selected Consolidated balance sheets data

December 31, (in millions)	2015	2014	Change
Assets			
Cash and due from banks	$20,490	$27,831	(26)%
Deposits with banks	340,015	484,477	(30)
Federal funds sold and securities purchased under resale agreements	212,575	215,803	(1)
Securities borrowed	98,721	110,435	(11)
Trading assets:			
Debt and equity instruments	284,162	320,013	(11)
Derivative receivables	59,677	78,975	(24)
Securities	290,827	348,004	(16)
Loans	837,299	757,336	11
Allowance for loan losses	(13,555)	(14,185)	(4)
Loans, net of allowance for loan losses	823,744	743,151	11
Accrued interest and accounts receivable	46,605	70,079	(33)
Premises and equipment	14,362	15,133	(5)
Goodwill	47,325	47,647	(1)
Mortgage servicing rights	6,608	7,436	(11)
Other intangible assets	1,015	1,192	(15)
Other assets	105,572	102,098	3
Total assets	$2,351,698	$2,572,274	(9)%
Liabilities			
Deposits	$1,279,715	$1,363,427	(6)
Federal funds purchased and securities loaned or sold under repurchase agreements	152,678	192,101	(21)
Commercial paper	15,562	66,344	(77)
Other borrowed funds	21,105	30,222	(30)
Trading liabilities:			
Debt and equity instruments	74,107	81,699	(9)
Derivative payables	52,790	71,116	(26)
Accounts payable and other liabilities	177,638	206,939	(14)
Beneficial interests issued by consolidated variable interest entities (“VIEs”)	41,879	52,320	(20)
Long-term debt	288,651	276,379	4
Total liabilities	2,104,125	2,340,547	(10)
Stockholders’ equity	247,573	231,727	7
Total liabilities and stockholders’ equity	$2,351,698	$2,572,274	(9)%

The following is a discussion of the significant changes between December 31, 2015 and 2014.

Cash and due from banks and deposits with banks

The Firm’s excess cash is placed with various central banks, predominantly Federal Reserve Banks. The net decrease in cash and due from banks and deposits with banks was primarily due to the Firm’s actions to reduce wholesale non-operating deposits.

Securities borrowed

The decrease was largely driven by a lower demand for securities to cover short positions in CIB. For additional information, refer to Notes 3 and 13.

Trading assets–debt and equity instruments

The decrease was predominantly related to client-driven market-making activities in CIB, which resulted in lower levels of both debt and equity instruments. For additional information, refer to Note 3.

Trading assets and liabilities–derivative receivables and payables

The decrease in both receivables and payables was predominantly driven by declines in interest rate derivatives, commodity derivatives, foreign exchange derivatives and equity derivatives due to market movements, maturities and settlements related to client-driven market-making activities in CIB. For additional information, refer to Derivative contracts on pages 127–129, and Notes 3 and 6.

Securities

The decrease was largely due to paydowns and sales of non-U.S. residential mortgage-backed securities, non-U.S. government debt securities, and non-U.S. corporate debt securities reflecting a shift to loans. For additional information related to securities, refer to the discussion in the Corporate segment on pages 105–106, and Notes 3 and 12.

Loans and allowance for loan losses

The increase in loans was attributable to an increase in consumer loans due to higher originations and retention of prime mortgages in Mortgage Banking ("MB") and AM, and higher originations of auto loans in CCB, as well as an increase in wholesale loans driven by increased client activity, notably in commercial real estate.

The decrease in the allowance for loan losses was attributable to a lower consumer, excluding credit card, allowance for loan losses, driven by a reduction in the residential real estate portfolio allowance as a result of continued improvement in home prices and delinquencies and increased granularity in the impairment estimates. The wholesale allowance increased, largely reflecting the impact of downgrades in the Oil & Gas portfolio. For a more detailed discussion of loans and the allowance for loan losses, refer to Credit Risk Management on pages 112–132, and Notes 3, 4, 14 and 15.

Accrued interest and accounts receivable

The decrease was due to lower customer receivables related to client activity in CIB, and a reduction in unsettled securities transactions.

Mortgage servicing rights

For information on MSRs, see Note 17.

Other assets

Other assets increased modestly as a result of an increase in income tax receivables, largely associated with the resolution of certain tax audits, and higher auto operating lease assets from growth in business volume. These factors were mostly offset by lower private equity investments driven by the sale of a portion of the Private Equity business and other portfolio sales.

Deposits

The decrease was attributable to lower wholesale deposits, partially offset by higher consumer deposits. The decrease in wholesale deposits reflected the impact of the Firm's actions to reduce non-operating deposits. The increase in consumer deposits reflected continuing positive growth from strong customer retention. For more information, refer to the Liquidity Risk Management discussion on pages 159–164; and Notes 3 and 19.

Federal funds purchased and securities loaned or sold under repurchase agreements

The decrease was due to a decline in secured financing of trading assets-debt and equity instruments in CIB and of investment securities in the Chief Investment Office ("CIO"). For additional information on the Firm's Liquidity Risk Management, see pages 159–164.

Commercial paper

The decrease was associated with the discontinuation of a cash management product that offered customers the option of sweeping their deposits into commercial paper ("customer sweeps"), and lower issuances in the wholesale markets, consistent with Treasury's short-term funding plans. For additional information, see Liquidity Risk Management on pages 159–164.

Accounts payable and other liabilities

The decrease was due to lower brokerage customer payables related to client activity in CIB.

Beneficial interests issued by consolidated VIEs

The decrease was predominantly due to a reduction in commercial paper issued by conduits to third parties and to maturities of certain municipal bond vehicles in CIB, as well as net maturities of credit card securitizations. For further information on Firm-sponsored VIEs and loan securitization trusts, see Off-Balance Sheet Arrangements on pages 77–78 and Note 16.

Long-term debt

The increase was due to net issuances, consistent with Treasury's long-term funding plans. For additional information on the Firm's long-term debt activities, see Liquidity Risk Management on pages 159–164 and Note 21.

Stockholders' equity

The increase was due to net income and preferred stock issuances, partially offset by the declaration of cash dividends on common and preferred stock, and repurchases of common stock. For additional information on accumulated other comprehensive income/(loss) ("AOCI"), see Note 25; for the Firm's capital actions, see Capital Management on page 157 and Notes 22, 23 and 25.

OFF-BALANCE SHEET ARRANGEMENTS AND CONTRACTUAL CASH OBLIGATIONS

In the normal course of business, the Firm enters into various contractual obligations that may require future cash payments. Certain obligations are recognized on-balance sheet, while others are off-balance sheet under accounting principles generally accepted in the U.S ("U.S. GAAP"). The Firm is involved with several types of off–balance sheet arrangements, including through nonconsolidated special-purpose entities ("SPEs"), which are a type of VIE, and through lending-related financial instruments (e.g., commitments and guarantees).

Special-purpose entities

The most common type of VIE is an SPE. SPEs are commonly used in securitization transactions in order to isolate certain assets and distribute the cash flows from those assets to investors. SPEs are an important part of the financial markets, including the mortgage- and asset-backed securities and commercial paper markets, as they provide market liquidity by facilitating investors' access to specific portfolios of assets and risks. SPEs may be organized as trusts, partnerships or corporations and are typically established for a single, discrete purpose. SPEs are not typically operating entities and usually have a limited life and no employees. 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.

JPMorgan Chase uses SPEs as a source of liquidity for itself and its clients by securitizing financial assets, and by creating investment products for clients. The Firm is involved with SPEs through multi-seller conduits, investor intermediation activities, and loan securitizations. See Note 16 for further information on these types of SPEs.

The Firm holds capital, as deemed appropriate, against all SPE-related transactions and related exposures, such as derivative transactions and lending-related commitments and guarantees.

The Firm has no commitments to issue its own stock to support any SPE transaction, and its policies require that transactions with SPEs be conducted at arm's length and reflect market pricing. Consistent with this policy, no JPMorgan Chase employee is permitted to invest in SPEs with which the Firm is involved where such investment would violate the Firm's Code of Conduct. These rules prohibit employees from self-dealing and acting on behalf of the Firm in transactions with which they or their family have any significant financial interest.

Implications of a credit rating downgrade to JPMorgan Chase Bank, N.A.

For certain liquidity commitments to SPEs, JPMorgan Chase Bank, N.A. could be required to provide funding if its short-term credit rating were downgraded below specific levels,

primarily "P-1", "A-1" and "F1" for Moody's Investors Service ("Moody's"), Standard & Poor's and Fitch, respectively. These liquidity commitments support the issuance of asset-backed commercial paper by Firm-administered consolidated SPEs. In the event of a short-term credit rating downgrade, JPMorgan Chase Bank, N.A., absent other solutions, would be required to provide funding to the SPE if the commercial paper could not be reissued as it matured. The aggregate amounts of commercial paper outstanding held by third parties as of December 31, 2015 and 2014, was $8.7 billion and $12.1 billion, respectively. The aggregate amounts of commercial paper issued by these SPEs could increase in future periods should clients of the Firm-administered consolidated SPEs draw down on certain unfunded lending-related commitments. These unfunded lending-related commitments were $5.6 billion and $9.9 billion at December 31, 2015 and 2014, respectively. The Firm could facilitate the refinancing of some of the clients' assets in order to reduce the funding obligation. For further information, see the discussion of Firm-administered multi-seller conduits in Note 16.

The Firm also acts as liquidity provider for certain municipal bond vehicles. The Firm's obligation to perform as liquidity provider is conditional and is limited by certain termination events, which include bankruptcy or failure to pay by the municipal bond issuer and any credit enhancement provider, an event of taxability on the municipal bonds or the immediate downgrade of the municipal bond to below investment grade. See Note 16 for additional information.

Off–balance sheet lending-related financial instruments, guarantees, and other commitments

JPMorgan Chase 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 the Firm should the counterparty draw upon the commitment or the Firm 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 the Firm’s view, representative of its actual future credit exposure or funding requirements. For further discussion of lending-related financial instruments, guarantees and other commitments, and the Firm’s accounting for them, see Lending-related commitments on page 127 and Note 29. For a discussion of liabilities associated with loan sales and securitization-related indemnifications, see Note 29.

Contractual cash obligations

The accompanying table summarizes, by remaining maturity, JPMorgan Chase's significant contractual cash obligations at December 31, 2015. The contractual cash obligations included in the table below reflect the minimum contractual obligation under legally enforceable contracts with terms that are both fixed and determinable. Excluded from the below table are certain liabilities with variable cash flows and/or no obligation to return a stated amount of principal at maturity.

The carrying amount of on-balance sheet obligations on the Consolidated balance sheets may differ from the minimum contractual amount of the obligations reported below. For a discussion of mortgage repurchase liabilities and other obligations, see Note 29.

Contractual cash obligations						
By remaining maturity at December 31,	2015					2014
(in millions)	2016	2017-2018	2019-2020	After 2020	Total	Total
On-balance sheet obligations						
Deposits[a]	$1,262,865	$5,166	$3,553	$4,555	$1,276,139	$1,361,597
Federal funds purchased and securities loaned or sold under repurchase agreements	151,433	811	3	491	152,738	192,128
Commercial paper	15,562	—	—	—	15,562	66,344
Other borrowed funds[a]	11,331	—	—	—	11,331	15,734
Beneficial interests issued by consolidated VIEs	16,389	18,480	3,093	3,130	41,092	50,200
Long-term debt[a]	45,972	82,293	59,669	92,272	280,206	262,888
Other[b]	3,659	1,201	1,024	2,488	8,372	8,355
Total on-balance sheet obligations	1,507,211	107,951	67,342	102,936	1,785,440	1,957,246
Off-balance sheet obligations						
Unsettled reverse repurchase and securities borrowing agreements[c]	42,482	—	—	—	42,482	40,993
Contractual interest payments[d]	8,787	9,461	6,693	21,208	46,149	48,038
Operating leases[e]	1,668	3,094	2,388	4,679	11,829	12,441
Equity investment commitments[f]	387	—	75	459	921	1,108
Contractual purchases and capital expenditures	1,266	886	276	170	2,598	2,832
Obligations under affinity and co-brand programs	98	275	80	43	496	2,303
Total off-balance sheet obligations	54,688	13,716	9,512	26,559	104,475	107,715
Total contractual cash obligations	$1,561,899	$121,667	$76,854	$129,495	$1,889,915	$2,064,961

(a) Excludes structured notes on which the Firm is not obligated to return a stated amount of principal at the maturity of the notes, but is obligated to return an amount based on the performance of the structured notes.

(b) Primarily includes dividends declared on preferred and common stock, deferred annuity contracts, pension and postretirement obligations and insurance liabilities.

(c) For further information, refer to unsettled reverse repurchase and securities borrowing agreements in Note 29.

(d) Includes accrued interest and future contractual interest obligations. Excludes interest related to structured notes for which the Firm's payment obligation is based on the performance of certain benchmarks.

(e) Includes noncancelable operating leases for premises and equipment used primarily for banking purposes and for energy-related tolling service agreements. Excludes the benefit of noncancelable sublease rentals of $1.9 billion and $2.2 billion at December 31, 2015 and 2014, respectively.

(f) At December 31, 2015 and 2014, included unfunded commitments of $50 million and $147 million, respectively, to third-party private equity funds, and $871 million and $961 million of unfunded commitments, respectively, to other equity investments.

CONSOLIDATED CASH FLOWS ANALYSIS

(in millions)	Year ended December 31, 2015	2014	2013
Net cash provided by/(used in)			
Operating activities	$73,466	$36,593	$107,953
Investing activities	106,980	(165,636)	(150,501)
Financing activities	(187,511)	118,228	28,324
Effect of exchange rate changes on cash	(276)	(1,125)	272
Net decrease in cash and due from banks	$(7,341)	$(11,940)	$(13,952)

Operating activities

JPMorgan Chase's operating assets and liabilities support the Firm's lending and capital markets activities, including the origination or purchase of loans initially designated as held-for-sale. Operating assets and liabilities can vary significantly in the normal course of business due to the amount and timing of cash flows, which are affected by client-driven and risk management activities and market conditions. The Firm believes cash flows from operations, available cash balances and its capacity to generate cash through secured and unsecured sources are sufficient to meet the Firm's operating liquidity needs.

Cash provided by operating activities in 2015 resulted from a decrease in trading assets, predominantly due to client-driven market-making activities in CIB, resulting in lower levels of debt and equity securities. Additionally, cash was provided by a decrease in accounts receivable due to lower client receivables and higher net proceeds from loan sales activities. This was partially offset by cash used due to a decrease in accounts payable and other liabilities, resulting from lower brokerage customer payables related to client activity in CIB. In 2014 cash provided reflected higher net proceeds from loan securitizations and sales activities when compared with 2013. In 2013 cash provided reflected a decrease in trading assets from client-driven market-making activities in CIB, resulting in lower levels of debt securities, partially offset by net cash used in connection with loans originated or purchased for sale. Cash provided by operating activities for all periods also reflected net income after noncash operating adjustments.

Investing activities

The Firm's investing activities predominantly include loans originated to be held for investment, the investment securities portfolio and other short-term interest-earning assets. Cash provided by investing activities during 2015 predominantly resulted from lower deposits with banks due to the Firm's actions to reduce wholesale non-operating deposits; and net proceeds from paydowns, maturities, sales and purchases of investment securities. Partially offsetting these net inflows was cash used for net originations of consumer and wholesale loans, a portion of which reflected a shift from investment securities. Cash

used in investing activities during 2014 and 2013 resulted from increases in deposits with banks, attributable to higher levels of excess funds; cash was also used for growth in wholesale and consumer loans in 2014, while in 2013 cash used reflected growth only in wholesale loans. Partially offsetting these cash outflows in 2014 and 2013 was a net decline in securities purchased under resale agreements due to a shift in the deployment of the Firm's excess cash by Treasury, and a net decline in consumer loans in 2013 resulting from paydowns and portfolio runoff or liquidation of delinquent loans. Investing activities in 2014 and 2013 also reflected net proceeds from paydowns, maturities, sales and purchases of investment securities.

Financing activities

The Firm's financing activities includes cash related to customer deposits, long-term debt, and preferred and common stock. Cash used in financing activities in 2015 resulted from lower wholesale deposits partially offset by higher consumer deposits. Additionally, in 2015 cash outflows were attributable to lower levels of commercial paper due to the discontinuation of a cash management product that offered customers the option of sweeping their deposits into commercial paper; lower commercial paper issuances in the wholesale markets; and a decrease in securities loaned or sold under repurchase agreements due to a decline in secured financings. Cash provided by financing activities in 2014 and 2013 predominantly resulted from higher consumer and wholesale deposits; partially offset in 2013 by a decrease in securities loaned or sold under repurchase agreements, predominantly due to changes in the mix of the

Firm’s funding sources. For all periods, cash was provided by net proceeds from long-term borrowings and issuances of preferred stock; and cash was used for repurchases of common stock and cash dividends on common and preferred stock.

* * *

For a further discussion of the activities affecting the Firm’s cash flows, see Consolidated Balance Sheets Analysis on pages 75–76, Capital Management on pages 149–158, and Liquidity Risk Management on pages 159–164.

Management's discussion and analysis

EXPLANATION AND RECONCILIATION OF THE FIRM'S USE OF NON-GAAP FINANCIAL MEASURES

The Firm prepares its Consolidated Financial Statements using U.S. GAAP; these financial statements appear on pages 176–180. That presentation, which is referred to as "reported" basis, provides the reader with an understanding of the Firm's results that can be tracked consistently from year to year and enables a comparison of the Firm's performance with other companies' U.S. GAAP financial statements.

In addition to analyzing the Firm's results on a reported basis, management reviews the Firm's results, including the overhead ratio, and the results of the lines of business, on a "managed" basis, which are non-GAAP financial measures. The Firm's definition of managed basis starts with the reported U.S. GAAP results and includes certain reclassifications to present total net revenue for the Firm (and each of the reportable business segments) on an FTE basis. Accordingly, revenue from investments that receive tax credits and tax-exempt securities is presented in the managed results on a basis comparable to taxable investments and securities. This non-GAAP financial measure allows management to assess the comparability of revenue arising from both taxable and tax-exempt sources. The corresponding income tax impact related to tax-exempt items is recorded within income tax expense. These adjustments have no impact on net income as reported by the Firm as a whole or by the lines of business.

Effective January 1, 2015, the Firm adopted new accounting guidance for investments in affordable housing projects that qualify for the low-income housing tax credit, which impacted the CIB. As a result of the adoption of this new guidance, the Firm made an accounting policy election to amortize the initial cost of 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 adoption of the guidance did not materially change the Firm's results of operations on a managed basis as the Firm had previously presented and will continue to present the revenue from such investments on an FTE basis in other income for the purposes of managed basis reporting.

Management also uses certain non-GAAP financial measures at the business-segment level, because it believes these other non-GAAP financial measures provide information to investors about the underlying operational performance and trends of the particular business segment and, therefore, facilitate a comparison of the business segment with the performance of its competitors. Non- GAAP financial measures used by the Firm may not be comparable to similarly named non-GAAP financial measures used by other companies.

The following summary table provides a reconciliation from the Firm's reported U.S. GAAP results to managed basis.

	2015			2014			2013		
Year ended December 31, (in millions, except ratios)	Reported Results	Fully taxable-equivalent adjustments[a]	Managed basis	Reported Results	Fully taxable-equivalent adjustments[a]	Managed basis	Reported Results	Fully taxable-equivalent adjustments[a]	Managed basis
Other income	$3,032	$ 1,980	$5,012	$3,013	$ 1,788	$4,801	$4,608	$1,660	$6,268
Total noninterest revenue	50,033	1,980	52,013	51,478	1,788	53,266	54,048	1,660	55,708
Net interest income	43,510	1,110	44,620	43,634	985	44,619	43,319	697	44,016
Total net revenue	93,543	3,090	96,633	95,112	2,773	97,885	97,367	2,357	99,724
Pre-provision profit	34,529	3,090	37,619	33,838	2,773	36,611	26,900	2,357	29,257
Income before income tax	30,702	3,090	33,792	30,699	2,773	33,472	26,675	2,357	29,032

expense									
Income tax expense	6,260	3,090	9,350	8,954	2,773	11,727	8,789	2,357	11,146
Overhead ratio	63 %	NM	61 %	64 %	NM	63 %	72%	NM	71%

(a) Predominantly recognized in CIB and CB business segments and Corporate

Calculation of certain U.S. GAAP and non-GAAP financial measures
Certain U.S. GAAP and non-GAAP financial measures are calculated as follows:
Book value per share ("BVPS")
Common stockholders' equity at period-end /
Common shares at period-end
Overhead ratio
Total noninterest expense / Total net revenue
Return on assets ("ROA")
Reported net income / Total average assets
Return on common equity ("ROE")
Net income* / Average common stockholders' equity
Return on tangible common equity ("ROTCE")
Net income* / Average tangible common equity
Tangible book value per share ("TBVPS")
Tangible common equity at period-end / Common shares at period-end
* Represents net income applicable to common equity

Tangible common equity ("TCE"), ROTCE and TBVPS are each non-GAAP financial measures. TCE represents the Firm's common stockholders' equity (i.e., total stockholders' equity less preferred stock) less goodwill and identifiable intangible assets (other than MSRs), net of related deferred tax liabilities. ROTCE measures the Firm's earnings as a percentage of average TCE. TBVPS represents the Firm's TCE at period-end divided by common shares at period-end. TCE, ROTCE, and TBVPS are meaningful to the Firm, as well as investors and analysts, in assessing the Firm's use of equity.
Additionally, certain credit and capital metrics and ratios disclosed by the Firm are non-GAAP measures. For additional information on these non-GAAP measures, see Credit Risk Management on pages 112–132, and Capital Management on pages 149–158.

Tangible common equity

	Period-end		Average		
	Dec 31,	Dec 31,	Year ended December 31,		
(in millions, except per share and ratio data)	2015	2014	2015	2014	2013
Common stockholders' equity	$221,505	$211,664	$215,690	$207,400	$196,409
Less: Goodwill	47,325	47,647	47,445	48,029	48,102
Less: Certain identifiable intangible assets	1,015	1,192	1,092	1,378	1,950
Add: Deferred tax liabilities[(a)]	3,148	2,853	2,964	2,950	2,885
Tangible common equity	$176,313	$165,678	$170,117	$160,943	$149,242
Return on tangible common equity	NA	NA	13 %	13 %	11 %
Tangible book value per share	$48.13	$44.60	NA	NA	N/A

(a) Represents deferred tax liabilities related to tax-deductible goodwill and to identifiable intangibles created in nontaxable transactions, which are netted against goodwill and other intangibles when calculating TCE.

Net interest income excluding markets-based activities (formerly core net interest income)

In addition to reviewing net interest income on a managed basis, management also reviews net interest income excluding CIB's markets-based activities to assess the performance of the Firm's lending, investing (including asset-liability management) and deposit-raising activities. The data presented below are non-GAAP financial measures due to the exclusion of CIB's markets-based net interest income and related assets. Management believes this exclusion provides investors and analysts with another measure by which to analyze the non-markets-related business trends of the Firm and provides a comparable measure to other financial institutions that are primarily focused on lending, investing and deposit-raising activities.

Net interest income excluding CIB markets-based activities data

Year ended December 31, (in millions, except rates)	2015	2014	2013
Net interest income – managed basis[(a)(b)]	$44,620	$44,619	$44,016
Less: Markets-based net interest income	4,813	5,552	5,492
Net interest income excluding markets[(a)]	$39,807	$39,067	$38,524
Average interest-earning assets	$2,088,242	$2,049,093	$1,970,231
Less: Average markets-based interest-earning assets	493,225	510,261	504,218
Average interest-earning assets excluding markets	$1,595,017	$1,538,832	$1,466,013
Net interest yield on average interest-earning assets – managed basis	2.14 %	2.18 %	2.23 %
Net interest yield on average markets-based interest-earning assets	0.97	1.09	1.09
Net interest yield on average interest-earning assets excluding markets	2.50 %	2.54 %	2.63 %

(a) Interest includes the effect of related hedging derivatives. Taxable-equivalent amounts are used where applicable.

(b) For a reconciliation of net interest income on a reported and managed basis, see reconciliation from the Firm's reported U.S. GAAP results to managed basis on page 80.

2015 compared with 2014

Net interest income excluding CIB's markets-based activities increased by $740 million in 2015 to $39.8 billion, and average interest-earning assets increased by $56.2 billion to $1.6 trillion. The increase in net interest income in 2015 predominantly reflected higher average loan balances and lower interest expense on deposits. The increase was partially offset by lower loan yields and lower investment securities net interest income. The increase in average interest-earning assets largely reflected the impact of higher average deposits with banks. These changes in net interest income and interest-earning assets resulted in the net interest yield decreasing by 4 basis points to 2.50% for 2015.

2014 compared with 2013

Net interest income excluding CIB's markets-based activities increased by $543 million in 2014 to $39.1 billion, and average interest-earning assets increased by $72.8 billion to $1.5 trillion. The increase in net interest income in 2014 predominantly reflected higher yields on investment securities, the impact of lower interest expense, and higher average loan balances. The increase was partially offset by lower yields on loans due to the run-off of higher-yielding loans and new originations of lower-yielding loans. The increase in average interest-earning assets largely reflected the impact of higher average balance of deposits with banks. These changes in net interest income and interest-earning assets resulted in the net interest yield decreasing by 9 basis points to 2.54% for 2014.

BUSINESS SEGMENT RESULTS

The Firm is managed on a line of business basis. There are four major reportable business segments – Consumer & Community Banking, Corporate & Investment Bank, Commercial Banking and Asset Management. In addition, there is a Corporate segment.

The business segments are determined based on the products and services provided, or the type of customer served, and they reflect the manner in which financial information is currently evaluated by management. Results of these lines of business are presented on a managed basis. For a definition of managed basis, see Explanation and Reconciliation of the Firm's use of Non-GAAP Financial Measures, on pages 80–82.

JPMorgan Chase						
Consumer Businesses			Wholesale Businesses			
Consumer & Community Banking			Corporate & Investment Bank		Commercial Banking	Asset Management
Consumer & Business Banking	Mortgage Banking	Card, Commerce Solutions & Auto	Banking	Markets & Investor Services	• Middle Market Banking	• Global Investment Management
• Consumer Banking/Chase Wealth Management • Business Banking	• Mortgage Production • Mortgage Servicing • Real Estate Portfolios	• Card Services – Credit Card – Commerce Solutions • Auto & Student	• Investment Banking • Treasury Services • Lending	• Fixed Income Markets • Equity Markets • Securities Services • Credit Adjustments & Other	• Corporate Client Banking • Commercial Term Lending • Real Estate Banking	• Global Wealth Management

Description of business segment reporting methodology

Results of the business segments are intended to reflect each segment as if it were essentially a stand-alone business. The management reporting process that derives business segment results allocates income and expense using market-based methodologies. The Firm periodically assesses the assumptions, methodologies and reporting classifications used for segment reporting, and further refinements may be implemented in future periods.

Revenue sharing

When business segments join efforts to sell products and services to the Firm's clients, the participating business segments agree to share revenue from those transactions. The segment results reflect these revenue-sharing agreements.

Funds transfer pricing

Funds transfer pricing is used to allocate interest income and expense to each business and transfer the primary interest rate risk exposures to the Treasury group within Corporate. The allocation process is unique to each business segment and considers the interest rate risk, liquidity risk and regulatory requirements of that segment as if it were operating independently, and as compared with its stand-alone peers. This process is overseen by senior management and reviewed by the Firm's Asset-Liability Committee ("ALCO").

Preferred stock dividend allocation

As part of its funds transfer pricing process, the Firm allocates substantially all of the cost of its outstanding preferred stock to its reportable business segments, while retaining the balance of the cost in Corporate. This cost is included as a reduction to net income applicable to common equity in order to be consistent with the presentation of firmwide results.

Business segment capital allocation changes

On at least an annual basis, the Firm assesses the level of capital required for each line of business as well as the assumptions and methodologies used to allocate capital to its lines of business and updates the equity allocations to its lines of business as refinements are implemented. Each business segment is allocated capital by taking into consideration stand-alone peer comparisons, regulatory capital requirements (as estimated under Basel III Advanced Fully Phased-In rules) and economic risk. The amount of capital assigned to each business is referred to as equity. For further information about line of business capital, see Line of business equity on page 156.

Expense allocation

Where business segments use services provided by corporate support units, or another business segment, the costs of those services are allocated to the respective business segments. The expense is generally allocated based on actual cost and use of services provided. In contrast, certain other costs related to corporate support

Management's discussion and analysis

units, or to certain technology and operations, are not allocated to the business segments and are retained in Corporate. Expense retained in Corporate generally includes parent company costs that would not be incurred if the

segments were stand-alone businesses; adjustments to align corporate support units; and other items not aligned with a particular business segment.

Segment Results – Managed Basis

The following tables summarize the business segment results for the periods indicated.

Year ended December 31,	Total net revenue			Total noninterest expense			Pre-provision profit/(loss)		
(in millions)	2015	2014	2013	2015	2014	2013	2015	2014	2013
Consumer & Community Banking	$43,820	$44,368	$46,537	$24,909	$25,609	$27,842	$18,911	$18,759	$18,695
Corporate & Investment Bank	33,542	34,595	34,712	21,361	23,273	21,744	12,181	11,322	12,968
Commercial Banking	6,885	6,882	7,092	2,881	2,695	2,610	4,004	4,187	4,482
Asset Management	12,119	12,028	11,405	8,886	8,538	8,016	3,233	3,490	3,389
Corporate	267	12	(22)	977	1,159	10,255	(710)	(1,147)	(10,277)
Total	$96,633	$97,885	$99,724	$59,014	$61,274	$70,467	$37,619	$36,611	$29,257

Year ended December 31,	Provision for credit losses			Net income/(loss)			Return on equity		
(in millions, except ratios)	2015	2014	2013	2015	2014	2013	2015	2014	2013
Consumer & Community Banking	$3,059	$3,520	$335	$9,789	$9,185	$11,061	18%	18%	23%
Corporate & Investment Bank	332	(161)	(232)	8,090	6,908	8,850	12	10	15
Commercial Banking	442	(189)	85	2,191	2,635	2,648	15	18	19
Asset Management	4	4	65	1,935	2,153	2,083	21	23	23
Corporate	(10)	(35)	(28)	2,437	864	(6,756)	NM	NM	NM
Total	$3,827	$3,139	$225	$24,442	$21,745	$17,886	11%	10%	9%

CONSUMER & COMMUNITY BANKING

Consumer & Community Banking serves consumers and businesses through personal service at bank branches and through ATMs, online, mobile and telephone banking. CCB 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 ("Card"). 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 issues credit cards to consumers and small businesses, offers payment processing services to merchants, and provides auto loans and leases and student loan services.

Selected income statement data Year ended December 31, (in millions, except ratios)	2015		2014		2013	
Revenue						
Lending- and deposit-related fees	$3,137		$3,039		$2,983	
Asset management, administration and commissions	2,172		2,096		2,116	
Mortgage fees and related income	2,511		3,560		5,195	
Card income	5,491		5,779		5,785	
All other income	2,281		1,463		1,473	
Noninterest revenue	15,592		15,937		17,552	
Net interest income	28,228		28,431		28,985	
Total net revenue	43,820		44,368		46,537	
Provision for credit losses	3,059		3,520		335	
Noninterest expense						
Compensation expense	9,770		10,538		11,686	
Noncompensation expense	15,139		15,071		16,156	
Total noninterest expense	24,909		25,609		27,842	
Income before income tax expense	15,852		15,239		18,360	
Income tax expense	6,063		6,054		7,299	
Net income	$9,789		$9,185		$11,061	
Financial ratios						
Return on common equity	18	%	18	%	23	%
Overhead ratio	57		58		60	

Note: In the discussion and the tables which follow, CCB presents certain financial measures which exclude the impact of PCI loans; these are non-GAAP financial measures. For additional information, see Explanation and Reconciliation of the Firm's Use of Non-GAAP Financial Measures.

2015 compared with 2014

Consumer & Community Banking net income was $9.8 billion, an increase of 7% compared with the prior year, driven by lower noninterest expense and lower provision for credit losses, largely offset by lower net revenue.

Net revenue was $43.8 billion, a decrease of 1% compared with the prior year. Net interest income was $28.2 billion, down 1%, driven by spread compression, predominantly offset by higher deposit and loan balances, and improved credit quality including lower reversals of interest and fees due to lower net charge-offs in Credit Card. Noninterest revenue was $15.6 billion, down 2%, driven by lower mortgage fees and related income, predominantly offset by higher auto lease and card sales volume, and the impact of non-core portfolio exits in Card in the prior year.

The provision for credit losses was $3.1 billion, a decrease of 13% from the prior year, reflecting lower net charge-offs, partially offset by a lower reduction in the allowance for loan losses. The current-year provision reflected a $1.0 billion reduction in the allowance for loan losses, compared with a $1.3 billion reduction in the prior year.

Noninterest expense was $24.9 billion, a decrease of 3% from the prior year, driven by lower Mortgage Banking expense.

2014 compared with 2013

Consumer & Community Banking net income was $9.2 billion, a decrease of 17% compared with the prior year, due to higher provision for credit losses and lower net revenue, partially offset by lower noninterest expense.

Net revenue was $44.4 billion, a decrease of 5% compared with the prior year. Net interest income was $28.4 billion, down 2%, driven by spread compression and lower mortgage warehouse balances, largely offset by higher deposit balances in Consumer & Business Banking and higher loan balances in Credit Card. Noninterest revenue was $16.0 billion, a decrease of 9%, driven by lower mortgage fees and related income.

The provision for credit losses was $3.5 billion, compared with $335 million in the prior year. The current-year provision reflected a $1.3 billion reduction in the allowance for loan losses and total net charge-offs of $4.8 billion. The prior-year provision reflected a $5.5 billion reduction in the allowance for loan losses and total net charge-offs of $5.8 billion.

Noninterest expense was $25.6 billion, a decrease of 8% from the prior year, driven by lower Mortgage Banking expense.

Management's discussion and analysis

Selected metrics			
As of or for the year ended December 31,			
(in millions, except headcount)	2015	2014	2013
Selected balance sheet data (period-end)			
Total assets	$502,652	$455,634	$452,929
Trading assets – loans[a]	5,953	8,423	6,832
Loans:			
Loans retained	445,316	396,288	393,351
Loans held-for-sale[b]	542	3,416	940
Total loans	445,858	399,704	394,291
Core loans	341,881	273,494	246,751
Deposits	557,645	502,520	464,412
Equity[c]	51,000	51,000	46,000
Selected balance sheet data (average)			
Total assets	$472,972	$447,750	$456,468
Trading assets – loans[a]	7,484	8,040	15,603
Loans:			
Loans retained	414,518	389,967	392,797
Loans held-for-sale [d]	2,062	917	209
Total loans	$416,580	$390,884	$393,006
Core loans	301,700	253,803	234,135
Deposits	530,938	486,919	453,304
Equity[c]	51,000	51,000	46,000
Headcount	127,094	137,186	151,333

(a) Predominantly consists of prime mortgages originated with the intent to sell that are accounted for at fair value.

(b) Included period-end credit card loans held-for-sale of $76 million, $3.0 billion and $326 million at December 31, 2015, 2014 and 2013, respectively. These amounts were excluded when calculating delinquency rates and the allowance for loan losses to period-end loans.

(c) Equity is allocated to the sub-business segments with $5.0 billion and $3.0 billion of capital in 2015 and 2014, respectively, held at the CCB level related to legacy mortgage servicing matters.

(d) Included average credit card loans held-for-sale of $1.6 billion, $509 million and $95 million for the years ended December 31, 2015, 2014 and 2013, respectively. These amounts are excluded when calculating the net charge-off rate.

Selected metrics			
As of or for the year ended December 31,			
(in millions, except ratios and where otherwise noted)	2015	2014	2013
Credit data and quality statistics			
Net charge-offs[a]	$4,084	$4,773	$5,826
Nonaccrual loans[b][c]	5,313	6,401	7,455
Nonperforming assets[b][c]	5,635	6,872	8,109
Allowance for loan losses[a]	9,165	10,404	12,201
Net charge-off rate[a]	0.99%	1.22%	1.48%
Net charge-off rate, excluding PCI loans	1.10	1.40	1.73
Allowance for loan losses to period-end loans retained	2.06	2.63	3.10
	1.59	2.02	2.36

Allowance for loan losses to period-end loans retained, excluding PCI loans(d)			
Allowance for loan losses to nonaccrual loans retained, excluding credit card(b)(d)	57	58	57
Nonaccrual loans to total period-end loans, excluding credit card	1.69	2.38	2.80
Nonaccrual loans to total period-end loans, excluding credit card and PCI loans(b)	1.94	2.88	3.49
Business metrics			
Number of:			
Branches	5,413	5,602	5,630
ATMs	17,777	18,056	20,290
Active online customers (in thousands)(e)	39,242	36,396	33,742
Active mobile customers (in thousands)	22,810	19,084	15,629
CCB households (in millions)	57.8	57.2	56.7

(a) Net charge-offs and the net charge-off rates excluded $208 million, $533 million, and $53 million of write-offs in the PCI portfolio for the years ended December 31, 2015, 2014 and 2013, respectively. These write-offs decreased the allowance for loan losses for PCI loans. For further information on PCI write-offs, see Allowance for Credit Losses on pages 130–132.

(b) Excludes PCI loans. The Firm is recognizing interest income on each pool of PCI loans as all of the pools are performing.

(c) At December 31, 2015, 2014 and 2013, nonperforming assets excluded: (1) mortgage loans insured by U.S. government agencies of $6.3 billion, $7.8 billion and $8.4 billion, respectively, that are 90 or more days past due; (2) student loans insured by U.S. government agencies under the Federal Family Education Loan Program ("FFELP") of $290 million, $367 million and $428 million respectively, that are 90 or more days past due; (3) real estate owned ("REO") insured by U.S. government agencies of $343 million, $462 million and $2.0 billion, respectively. These amounts have been excluded based upon the government guarantee.

(d) The allowance for loan losses for PCI loans of $2.7 billion, $3.3 billion and $4.2 billion at December 31, 2015, 2014, and 2013, respectively; these amounts were also excluded from the applicable ratios.

(e) Users of all internet browsers and mobile platforms (mobile smartphone, tablet and SMS) who have logged in within the past 90 days.

Consumer & Business Banking

Selected income statement data			
As of or for the year ended December 31,			
(in millions, except ratios)	2015	2014	2013
Revenue			
Lending- and deposit-related fees	$3,112	$3,010	$2,942
Asset management, administration and commissions	2,097	2,025	1,815
Card income	1,721	1,605	1,495
All other income	611	534	492
Noninterest revenue	7,541	7,174	6,744
Net interest income	10,442	11,052	10,668
Total net revenue	17,983	18,226	17,412
Provision for credit losses	254	305	347
Noninterest expense	11,916	12,149	12,162
Income before income tax expense	5,813	5,772	4,903
Net income	$3,581	$3,443	$2,943
Return on common equity	30 %	31 %	26 %
Overhead ratio	66	67	70
Equity (period-end and average)	$11,500	$11,000	$11,000

2015 compared with 2014

Consumer & Business Banking net income was $3.6 billion, an increase of 4% compared with the prior year.

Net revenue was $18.0 billion, down 1% compared with the prior year. Net interest income was $10.4 billion, down 6% due to deposit spread compression, largely offset by higher deposit balances. Noninterest revenue was $7.5 billion, up 5%, driven by higher debit card revenue, reflecting an increase in transaction volume, higher deposit-related fees as a result of an increase in customer accounts and a gain on the sale of a branch.

Noninterest expense was $11.9 billion, a decrease of 2% from the prior year, driven by lower headcount-related expense due to branch efficiencies, partially offset by higher legal expense.

2014 compared with 2013

Consumer & Business Banking net income was $3.4 billion, an increase of 17%, compared with the prior year, due to higher net revenue.

Net revenue was $18.2 billion, up 5% compared with the prior year. Net interest income was $11.1 billion, up 4% compared with the prior year, driven by higher deposit balances, largely offset by deposit spread compression. Noninterest revenue was $7.2 billion, up 6%, driven by higher investment revenue, reflecting an increase in client investment assets, higher debit card revenue, reflecting an increase in transaction volume, and higher deposit-related fees as a result of an increase in customer accounts.

Selected metrics			
As of or for the year ended December 31,			
(in millions, except ratios)	2015	2014	2013
Business metrics			
Business banking origination volume	$6,775	$6,599	$5,148
Period-end loans	22,730	21,200	19,416
Period-end deposits:			
Checking	246,448	213,049	187,182
Savings	279,897	255,148	238,223

Time and other	18,063	21,349	26,022
Total period-end deposits	544,408	489,546	451,427
Average loans	21,894	20,152	18,844
Average deposits:			
Checking	226,713	198,996	176,005
Savings	269,057	249,281	229,341
Time and other	19,452	24,057	29,227
Total average deposits	515,222	472,334	434,573
Deposit margin	1.90 %	2.21 %	2.32 %
Average assets	$41,457	$38,298	$37,174
Credit data and quality statistics			
Net charge-offs	$253	$305	$337
Net charge-off rate	1.16 %	1.51 %	1.79 %
Allowance for loan losses	$703	$703	$707
Nonperforming assets	270	286	391
Retail branch business metrics			
Net new investment assets	$11,852	$16,088	$16,006
Client investment assets	218,551	213,459	188,840
% managed accounts	41 %	39 %	36 %
Number of:			
Chase Private Client locations	2,764	2,514	2,149
Personal bankers	18,041	21,039	23,588
Sales specialists	3,539	3,994	5,740
Client advisors	2,931	3,090	3,044
Chase Private Clients	441,369	325,653	215,888
Accounts (in thousands)[(a)]	31,342	30,481	29,437

(a) Includes checking accounts and Chase Liquid® cards.

Management's discussion and analysis

Mortgage Banking

Selected Financial statement data			
As of or for the year ended December 31,			
(in millions, except ratios)	2015	2014	2013
Revenue			
Mortgage fees and related income[(a)]	$2,511	$3,560	$5,195
All other income	(65)	37	283
Noninterest revenue	2,446	3,597	5,478
Net interest income	4,371	4,229	4,758
Total net revenue	6,817	7,826	10,236
Provision for credit losses	(690)	(217)	(2,681)
Noninterest expense	4,607	5,284	7,602
Income before income tax expense	2,900	2,759	5,315
Net income	$1,778	$1,668	$3,211
Return on common equity	10%	9%	16%
Overhead ratio	68	68	74
Equity (period-end and average)	$16,000	$18,000	$19,500

(a) For further information on mortgage fees and related income, see Note 17.

2015 compared with 2014

Mortgage Banking net income was $1.8 billion, an increase of 7% from the prior year, driven by lower noninterest expense and a higher benefit from the provision for credit losses, predominantly offset by lower net revenue.

Net revenue was $6.8 billion, a decrease of 13% compared with the prior year. Net interest income was $4.4 billion, an increase of 3% from the prior year, due to higher loan balances resulting from originations of high-quality loans that have been retained, partially offset by spread compression. Noninterest revenue was $2.4 billion, a decrease of 32% from the prior year. This decrease was driven by lower servicing revenue, largely as a result of lower average third-party loans serviced and lower net production revenue, reflecting a lower repurchase benefit.

The provision for credit losses was a benefit of $690 million, compared to a benefit of $217 million in the prior year, reflecting a larger reduction in the allowance for loan losses and lower net charge-offs. The current-year provision reflected a $600 million reduction in the non credit-impaired allowance for loan losses and a $375 million reduction in the purchased credit-impaired allowance for loan losses; the prior-year provision included a $400 million reduction in the non credit-impaired allowance for loan losses and a $300 million reduction in the purchased credit-impaired allowance for loan losses. These reductions were due to continued improvement in home prices and delinquencies in both periods, as well as increased granularity in the impairment estimates in the current year.

Noninterest expense was $4.6 billion, a decrease of 13% from the prior year, reflecting lower headcount-related expense and lower professional fees.

2014 compared with 2013

Mortgage Banking net income was $1.7 billion, a decrease of 48%, from the prior year, driven by a lower benefit from the provision for credit losses and lower net revenue, partially offset by lower noninterest expense.

Net revenue was $7.8 billion, a decrease of 24%, compared with the prior year. Net interest income was $4.2 billion, a decrease of 11%, driven by spread compression and lower loan balances due to portfolio runoff and lower warehouse balances. Noninterest revenue was $3.6 billion, a decrease of 34%, driven by lower net production revenue, largely reflecting lower volumes, lower servicing revenue, largely as a result of lower average third-party loans serviced, and lower revenue from an exited non-core product, largely offset by higher MSR risk management income and lower MSR asset amortization expense as a result of lower MSR asset value. See Note 17 for further information regarding changes in value of the MSR asset and related hedges, and mortgage fees and related income.

The provision for credit losses was a benefit of $217 million, compared to a benefit of $2.7 billion in the prior year, reflecting a smaller reduction in the allowance for loan losses, partially offset by lower net charge-offs. The current-year provision reflected a $400 million reduction in the non credit-impaired allowance for loan losses and $300 million reduction in the purchased credit-impaired allowance for loan losses; the prior-year provision included a $2.3 billion reduction in the non credit-impaired allowance for loan losses and a $1.5 billion reduction in the purchased credit-impaired allowance for loan losses. These reductions were due to continued improvement in home prices and delinquencies.

Noninterest expense was $5.3 billion, a decrease of 30%, from the prior year, reflecting lower headcount-related expense, the absence of non-mortgage-backed securities ("MBS") related legal expense, lower expense on foreclosure-related matters, and lower FDIC-related expense.

Supplemental information

For the year ended December 31, (in millions)	2015	2014	2013
Net interest income:			
Mortgage Production and Mortgage Servicing	$575	$736	$887
Real Estate Portfolios	3,796	3,493	3,871
Total net interest income	$4,371	$4,229	$4,758
Noninterest expense:			
Mortgage Production	$1,491	$1,644	3,083
Mortgage Servicing	2,041	2,267	2,966
Real Estate Portfolios	1,075	1,373	1,553
Total noninterest expense	$4,607	$5,284	$7,602

Selected balance sheet data As of or for the year ended December 31, (in millions)	2015	2014	2013
Trading assets – loans (period-end)[(a)]	$5,953	$8,423	$6,832
Trading assets – loans (average)[(a)]	7,484	8,040	15,603
Loans, excluding PCI loans			
Period-end loans owned			
Home equity	43,745	50,899	57,863
Prime mortgage, including option adjustable rate mortgages ("ARMs")	134,361	80,414	65,213
Subprime mortgage	3,732	5,083	7,104
Other	398	477	551
Total period-end loans owned	182,236	136,873	130,731
Average loans owned			
Home equity	47,216	54,410	62,369
Prime mortgage, including option ARMs	107,723	71,491	61,597
Subprime mortgage	4,434	6,257	7,687
Other	436	511	588
Total average loans owned	159,809	132,669	132,241
PCI loans			
Period-end loans owned			
Home equity	14,989	17,095	18,927
Prime mortgage	8,893	10,220	12,038
Subprime mortgage	3,263	3,673	4,175
Option ARMs	13,853	15,708	17,915
Total period-end loans owned	40,998	46,696	53,055
Average loans owned			
Home equity	16,045	18,030	19,950
Prime mortgage	9,548	11,257	12,909
Subprime mortgage	3,442	3,921	4,416
Option ARMs	14,711	16,794	19,236
Total average loans owned	43,746	50,002	56,511
Total Mortgage Banking			
Period-end loans owned			
Home equity	58,734	67,994	76,790
Prime mortgage, including option ARMs	157,107	106,342	95,166
Subprime mortgage	6,995	8,756	11,279
Other	398	477	551
Total period-end loans owned	223,234	183,569	183,786
Average loans owned			
Home equity	63,261	72,440	82,319
Prime mortgage, including option ARMs	131,982	99,542	93,742
Subprime mortgage	7,876	10,178	12,103
Other	436	511	588
Total average loans owned	203,555	182,671	188,752

(a) Predominantly consists of prime mortgages originated with the intent to sell that are accounted for at fair value.

Credit data and quality statistics			
As of or for the year ended December 31,			
(in millions, except ratios)	2015	2014	2013
Net charge-offs/(recoveries), excluding PCI loans[(a)]			
Home equity	$283	$473	$966
Prime mortgage, including option ARMs	48	28	53
Subprime mortgage	(53)	(27)	90
Other	7	9	10
Total net charge-offs/(recoveries), excluding PCI loans	285	483	1,119
Net charge-off/(recovery) rate, excluding PCI loans			
Home equity	0.60 %	0.87 %	1.55 %
Prime mortgage, including option ARMs	0.04	0.04	0.09
Subprime mortgage	(1.22)	(0.43)	1.17
Other	1.61	1.76	1.70
Total net charge-off/(recovery) rate, excluding PCI loans	0.18	0.37	0.85
Net charge-off/(recovery) rate – reported[(a)]			
Home equity	0.45	0.65	1.17
Prime mortgage, including option ARMs	0.04	0.03	0.06
Subprime mortgage	(0.68)	(0.27)	0.74
Other	1.61	1.76	1.70
Total net charge-off/(recovery) rate – reported	0.14	0.27	0.59
30+ day delinquency rate, excluding PCI loans[(b)(c)]	1.57	2.61	3.55
Allowance for loan losses, excluding PCI loans	$1,588	$2,188	$2,588
Allowance for PCI loans[(a)]	2,742	3,325	4,158
Allowance for loan losses	4,330	5,513	6,746
Nonperforming assets[(d)(e)]	4,971	6,175	7,438
Allowance for loan losses to period-end loans retained	1.94 %	3.01 %	3.68 %
Allowance for loan losses to period-end loans retained, excluding PCI loans	0.87	1.60	1.99

(a) Net charge-offs and the net charge-off rates excluded $208 million, $533 million and $53 million of write-offs in the PCI portfolio for the years ended December 31, 2015, 2014 and 2013, respectively. These write-offs decreased the allowance for loan losses for PCI loans. For further information on PCI write-offs, see Allowance for Credit Losses on pages 130–132.

(b) At December 31, 2015, 2014 and 2013, excluded mortgage loans insured by U.S. government agencies of $8.4 billion $9.7 billion and $9.6 billion, respectively, that are 30 or more days past due. These amounts have been excluded based upon the government guarantee. For further discussion, see Note 14 which summarizes loan delinquency information.

(c) The 30+ day delinquency rate for PCI loans was 11.21%, 13.33% and 15.31% at December 31, 2015, 2014 and 2013, respectively.

(d) At December 31, 2015, 2014 and 2013, nonperforming assets excluded: (1) mortgage loans insured by U.S. government agencies of $6.3 billion, $7.8 billion and $8.4 billion, respectively, that are 90 or more days past due and (2) REO insured by U.S. government agencies of $343 million, $462 million and $2.0 billion, respectively. These amounts have been excluded based upon the government guarantee.

(e) Excludes PCI loans. The Firm is recognizing interest income on each pool of PCI loans as all of the pools are performing.

Management's discussion and analysis

Business metrics

As of or for the year ended December 31, (in billions, except ratios)	2015		2014		2013	
Mortgage origination volume by channel						
Retail	$36.1		$29.5		77.0	
Correspondent	70.3		48.5		88.5	
Total mortgage origination volume[(a)]	106.4		78.0		165.5	
Total loans serviced (period-end)	910.1		948.8		1,017.2	
Third-party mortgage loans serviced (period-end)	674.0		751.5		815.5	
Third-party mortgage loans serviced (average)	715.4		784.6		837.3	
MSR carrying value (period-end)	6.6		7.4		9.6	
Ratio of MSR carrying value (period-end) to third-party mortgage loans serviced (period-end)	0.98	%	0.98	%	1.18	%
Ratio of annualized loan servicing-related revenue to third-party mortgage loans serviced (average)	0.35		0.36		0.40	
MSR revenue multiple[(b)]	2.80	x	2.72	x	2.95x	

(a) Firmwide mortgage origination volume was $115.2 billion, $83.3 billion and $176.4. billion for the years ended December 31, 2015, 2014 and 2013, respectively.

(b) Represents the ratio of MSR carrying value (period-end) to third-party mortgage loans serviced (period-end) divided by the ratio of loan servicing-related revenue to third-party mortgage loans serviced (average).

Mortgage servicing-related matters

The financial crisis resulted in unprecedented levels of delinquencies and defaults of 1–4 family residential real estate loans. Such loans required varying degrees of loss mitigation activities. Foreclosure is usually a last resort, and accordingly, the Firm has made, and continues to make, significant efforts to help borrowers remain in their homes.

The Firm entered into various Consent Orders and settlements with federal and state governmental agencies and private parties related to mortgage servicing, origination, and residential mortgage-backed securities activities. The requirements of these Consent Orders and settlements vary, but in the aggregate, include cash compensatory payments (in addition to fines) and/or "borrower relief," which may include principal reduction, refinancing, short sale assistance, and other specified types of borrower relief. Other obligations required under certain Consent Orders and settlements, as well as under new regulatory requirements, include enhanced mortgage servicing and foreclosure standards and processes.

On June 11, 2015, the Firm signed the Second Amended Mortgage Banking Consent Order (the "Amended OCC Consent Order") with the Office of the Comptroller of the Currency ("OCC"), which focused on ten remaining open items from the original mortgage-servicing Consent Order entered into with the OCC in April 2011 and imposed certain business restrictions on the Firm's mortgage banking activities. The Firm completed its work on those items, and on January 4, 2016, the OCC terminated the Amended OCC Consent Order and lifted the mortgage business restrictions. The Firm remains under the mortgage-servicing Consent Order entered into with the Board of Governors of the Federal Reserve System ("Federal Reserve") on April 13, 2011, as amended on February 28, 2013 (the "Federal Reserve Consent Order"). The Audit Committee of the Board of Directors will provide governance and oversight of the

Federal Reserve Consent Order in 2016.

The Federal Reserve Consent Order and certain other mortgage-related settlements are the subject of ongoing reporting to various regulators and independent overseers. The Firm’s compliance with certain of these settlements is detailed in periodic reports published by the independent overseers. The Firm is committed to fulfilling all of these commitments with appropriate due diligence and oversight.

Card, Commerce Solutions & Auto
Selected income statement data

As of or for the year ended December 31, (in millions, except ratios)	2015	2014	2013
Revenue			
Card income	$3,769	$4,173	$4,289
All other income	1,836	993	1,041
Noninterest revenue	5,605	5,166	5,330
Net interest income	13,415	13,150	13,559
Total net revenue	19,020	18,316	18,889
Provision for credit losses	3,495	3,432	2,669
Noninterest expense[(a)]	8,386	8,176	8,078
Income before income tax expense	7,139	6,708	8,142
Net income	$4,430	$4,074	$4,907
Return on common equity	23 %	21 %	31 %
Overhead ratio	44	45	43
Equity (period-end and average)	$18,500	$19,000	$15,500

Note: Chase Commerce Solutions, formerly known as Merchant Services, includes Chase Paymentech, ChaseNet and Chase Offers businesses.

(a) Included operating lease depreciation expense of $1.4 billion, $1.2 billion and $972 million for the years ended December 31, 2015, 2014 and 2013, respectively.

2015 compared with 2014

Card net income was $4.4 billion, an increase of 9% compared with the prior year, driven by higher net revenue, partially offset by higher noninterest expense.

Net revenue was $19.0 billion, an increase of 4% compared with the prior year. Net interest income was $13.4 billion, up 2% from the prior year, driven by higher loan balances and improved credit quality including lower reversals of interest and fees due to lower net charge-offs in Credit Card and a reduction in the reserve for uncollectible interest and fees, partially offset by spread compression. Noninterest revenue was $5.6 billion, up 8% compared with the prior year, driven by higher auto lease and card sales volumes, the impact of non-core portfolio exits in the prior year and a gain on the investment in Square, Inc. upon its initial public offering, largely offset by the impact of renegotiated co-brand partnership agreements and higher amortization of new account origination costs.

The provision for credit losses was $3.5 billion, an increase of 2% compared with the prior year, reflecting a lower reduction in the allowance for loan losses, predominantly offset by lower net charge-offs. The current-year provision reflected a $51 million reduction in the allowance for loan losses, primarily due to runoff in the student loan portfolio. The prior-year provision included a $554 million reduction in the allowance for loan losses, primarily related to a decrease in the asset-specific allowance resulting from increased granularity of the impairment estimates and lower balances related to credit card loans modified in troubled debt restructurings (“TDRs”), runoff in the student loan portfolio and lower estimated losses in auto loans.

Noninterest expense was $8.4 billion, up 3% from the prior year, driven by higher auto lease depreciation and higher marketing expense, partially offset by lower legal expense.

2014 compared with 2013

Card net income was $4.1 billion, a decrease of 17%, compared with the prior year, predominantly driven by higher provision for credit losses and lower net revenue.

Net revenue was $18.3 billion, down 3% compared with the prior year. Net interest income was $13.2 billion, a decrease of 3% from the prior year, primarily driven by spread compression in Credit Card and Auto, partially offset by higher average loan balances. Noninterest revenue was $5.2 billion, down 3% from the prior year. The decrease was primarily driven by higher amortization of new account origination costs and the impact of non-core portfolio exits, largely offset by higher auto lease income and net interchange income from higher sales volume.

The provision for credit losses was $3.4 billion, compared with $2.7 billion in the prior year. The current-year provision reflected lower net charge-offs and a $554 million reduction in the allowance for loan losses. The reduction in the allowance for loan losses was primarily related to a decrease in the asset-specific allowance resulting from increased granularity of the impairment estimates and lower balances related to credit card loans modified in TDRs, runoff in the student loan portfolio, and lower estimated losses in auto loans. The prior-year provision included a $1.7 billion reduction in the allowance for loan losses.

Noninterest expense was $8.2 billion, up 1% from the prior year, primarily driven by higher auto lease depreciation expense and higher investment in controls, predominantly offset by lower intangible amortization and lower remediation costs.

Management's discussion and analysis

Selected metrics As of or for the year ended December 31, (in millions, except ratios and where otherwise noted)	2015	2014	2013
Selected balance sheet data (period-end)			
Loans:			
Credit Card	$131,463	$131,048	$127,791
Auto	60,255	54,536	52,757
Student	8,176	9,351	10,541
Total loans	$199,894	$194,935	$191,089
Auto operating lease assets	9,182	6,690	5,512
Selected balance sheet data (average)			
Total assets	$206,765	$202,609	$198,265
Loans:			
Credit Card	125,881	125,113	123,613
Auto	56,487	52,961	50,748
Student	8,763	9,987	11,049
Total loans	$191,131	$188,061	$185,410
Auto operating lease assets	7,807	6,106	5,102
Business metrics			
Credit Card, excluding Commercial Card			
Sales volume (in billions)	$495.9	$465.6	$419.5
New accounts opened	8.7	8.8	7.3
Open accounts	59.3	64.6	65.3
Accounts with sales activity	33.8	34.0	32.3
% of accounts acquired online	67 %	56 %	55 %
Commerce Solutions			
Merchant processing volume (in billions)	$949.3	$847.9	$750.1
Total transactions (in billions)	42.0	38.1	35.6
Auto			
Loan and lease origination volume (in billions)	32.4	27.5	26.1

The following are brief descriptions of selected business metrics within Card, Commerce Solutions & Auto.
Card Services includes the Credit Card and Commerce Solutions businesses.
Commerce Solutions is a business that primarily processes transactions for merchants.
Total transactions – Number of transactions and authorizations processed for merchants.
Sales volume – Dollar amount of cardmember purchases, net of returns.
Open accounts – Cardmember accounts with charging privileges.
Accounts with sales activity – represents the number of cardmember accounts with a sales transaction within the past month.
Auto origination volume – Dollar amount of auto loans and leases originated.

Selected metrics As of or for the year ended December 31, (in millions, except ratios)	2015		2014		2013	
Credit data and quality statistics						
Net charge-offs:						
Credit Card	$3,122		$3,429		$3,879	
Auto	214		181		158	
Student	210		375		333	
Total net charge-offs	$3,546		$3,985		$4,370	
Net charge-off rate:						
Credit Card[(a)]	2.51	%	2.75	%	3.14	%
Auto	0.38		0.34		0.31	
Student	2.40		3.75		3.01	
Total net charge-off rate	1.87		2.12		2.36	
Delinquency rates						
30+ day delinquency rate:						
Credit Card[(b)]	1.43		1.44		1.67	
Auto	1.35		1.23		1.15	
Student[(c)]	1.81		2.35		2.56	
Total 30+ day delinquency rate	1.42		1.42		1.58	
90+ day delinquency rate – Credit Card[(b)]	0.72		0.70		0.80	
Nonperforming assets[(d)]	$394		$411		$280	
Allowance for loan losses:						
Credit Card	$3,434		$3,439		$3,795	
Auto & Student	698		749		953	
Total allowance for loan losses	$4,132		$4,188		$4,748	
Allowance for loan losses to period-end loans:						
Credit Card[(b)]	2.61	%	2.69	%	2.98	%
Auto & Student	1.02		1.17		1.51	
Total allowance for loan losses to period-end loans	2.07		2.18		2.49	

(a) Average credit card loans included loans held-for-sale of $1.6 billion, $509 million and $95 million for the years ended December 31, 2015, 2014 and 2013, respectively. These amounts are excluded when calculating the net charge-off rate.

(b) Period-end credit card loans included loans held-for-sale of $76 million,$3.0 billion and $326 million at December 31, 2015, 2014 and 2013, respectively. These amounts were excluded when calculating delinquency rates and the allowance for loan losses to period-end loans.

(c) Excluded student loans insured by U.S. government agencies under the FFELP of $526 million, $654 million and $737 million at December 31, 2015, 2014 and 2013, respectively, that are 30 or more days past due. These amounts have been excluded based upon the government guarantee.

(d) Nonperforming assets excluded student loans insured by U.S. government agencies under the FFELP of $290 million, $367 million and $428 million at December 31, 2015, 2014 and 2013, respectively, that are 90 or more days past due. These amounts have been excluded from nonaccrual loans based upon the government guarantee.

Card Services supplemental information Year ended December 31, (in millions, except ratios)	2015	2014	2013

Revenue			
Noninterest revenue	$3,673	$3,593	$3,977
Net interest income	11,845	11,462	11,638
Total net revenue	15,518	15,055	15,615
Provision for credit losses	3,122	3,079	2,179
Noninterest expense	6,065	6,152	6,245
Income before income tax expense	6,331	5,824	7,191
Net income	$3,930	$3,547	$4,340
Percentage of average loans:			
Noninterest revenue	2.92 %	2.87 %	3.22 %
Net interest income	9.41	9.16	9.41
Total net revenue	12.33	12.03	12.63

Management's discussion and analysis

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.

Selected income statement data			
Year ended December 31,			
(in millions)	2015	2014	2013
Revenue			
Investment banking fees	$6,736	$6,570	$6,331
Principal transactions[(a)]	9,905	8,947	9,289
Lending- and deposit-related fees	1,573	1,742	1,884
Asset management, administration and commissions	4,467	4,687	4,713
All other income	1,012	1,474	1,519
Noninterest revenue	23,693	23,420	23,736
Net interest income	9,849	11,175	10,976
Total net revenue[(b)]	33,542	34,595	34,712
Provision for credit losses	332	(161)	(232)
Noninterest expense			
Compensation expense	9,973	10,449	10,835
Noncompensation expense	11,388	12,824	10,909
Total noninterest expense	21,361	23,273	21,744
Income before income tax expense	11,849	11,483	13,200
Income tax expense	3,759	4,575	4,350
Net income	$8,090	$6,908	$8,850

(a) Included FVA and debt valuation adjustment ("DVA") on OTC derivatives and structured notes, measured at fair value. FVA and DVA gains/(losses) were $687 million and $468 million and $(1.9) billion for the years ended December 31, 2015, 2014 and 2013, respectively.

(b) Included tax-equivalent adjustments, predominantly due to income tax credits related to alternative energy investments; income tax credits and amortization of the cost of investments in affordable housing projects; as well as tax-exempt income from municipal bond investments of $1.7 billion, $1.6 billion and $1.5 billion for the years ended December 31, 2015, 2014 and 2013, respectively.

Selected income statement data			
Year ended December 31,			
(in millions, except ratios)	2015	2014	2013
Financial ratios			
Return on common equity	12%	10%	15%
Overhead ratio	64	67	63

Compensation expense as percentage of total net revenue	30	30	31
Revenue by business			
Investment banking[(a)]	6,376	6,122	5,922
Treasury Services[(b)]	3,631	3,728	3,693
Lending[(b)]	1,461	1,547	2,147
Total Banking[(a)]	11,468	11,397	11,762
Fixed Income Markets[(a)]	12,592	14,075	15,976
Equity Markets[(a)]	5,694	5,044	4,994
Securities Services	3,777	4,351	4,100
Credit Adjustments & Other[(c)]	11	(272)	(2,120)
Total Markets & Investor Service[(a)]	22,074	23,198	22,950
Total net revenue	$33,542	$34,595	$34,712

(a) Effective in 2015, Investment banking revenue (formerly Investment banking fees) incorporates all revenue associated with investment banking activities, and is reported net of investment banking revenue shared with other lines of business; previously such shared revenue had been reported in Fixed Income Markets and Equity Markets. Prior period amounts have been revised to conform with the current period presentation.

(b) Effective in 2015, Trade Finance revenue was transferred from Treasury Services to Lending. Prior period amounts have been revised to conform with the current period presentation.

(c) Consists primarily of credit valuation adjustments (“CVA”) managed by the credit portfolio group, and FVA and DVA on OTC derivatives and structured notes. Results are presented net of associated hedging activities and net of CVA and FVA amounts allocated to Fixed Income Markets and Equity Markets.

2015 compared with 2014

Net income was $8.1 billion, up 17% compared with $6.9 billion in the prior year. The increase primarily reflected lower income tax expenses largely reflecting the release in 2015 of U.S. deferred taxes associated with the restructuring of certain non-U.S. entities and lower noninterest expense partially offset by lower net revenue, both driven by business simplification, as well as higher provisions for credit losses.

Banking revenue was $11.5 billion, up 1% versus the prior year. Investment banking revenue was $6.4 billion, up 4% from the prior year, driven by higher advisory fees, partially offset by lower debt and equity underwriting fees. Advisory fees were $2.1 billion, up 31% on a greater share of fees for completed transactions as well as growth in the industry-wide fee levels. The Firm maintained its #2 ranking for M&A, according to Dealogic. Debt underwriting fees were $3.2 billion, down 6%, primarily related to lower bond underwriting and loan syndication fees on lower industry-wide fee levels. The Firm ranked #1 globally in fee share across high grade, high yield and loan products. Equity underwriting fees were $1.4 billion, down 9%, driven by lower industry-wide fee levels. The Firm was #1 in equity underwriting fees in 2015, up from #3 in 2014. Treasury Services revenue was $3.6 billion, down 3% compared with the prior year, primarily driven by lower net interest income. Lending revenue was $1.5 billion, down 6% from the prior year, driven by lower trade finance revenue on lower loan balances.

Markets & Investor Services revenue was $22.1 billion, down 5% from the prior year. Fixed Income Markets revenue was $12.6 billion, down 11% from the prior year, primarily driven by the impact of business simplification as well as lower revenue in credit-related products on an industry-wide slowdown, partially offset by increased revenue in Rates and Currencies & Emerging Markets on higher client activity. The lower Fixed Income revenue also reflected higher interest costs on higher long-term debt. Equity Markets revenue was $5.7 billion, up 13%, primarily driven by higher equity derivatives revenue across all regions. Securities Services revenue was $3.8 billion, down 13% from the prior year, driven by lower fees as well as lower net interest income.

The provision for credit losses was $332 million, compared to a benefit of $161 million in the prior year, reflecting a higher allowance for credit losses, including the impact of select downgrades within the Oil & Gas portfolio.

Noninterest expense was $21.4 billion, down 8% compared with the prior year, driven by the impact of business simplification as well as lower legal and compensation expenses.

2014 compared with 2013

Net income was $6.9 billion, down 22% compared with $8.9 billion in the prior year. These results primarily reflected higher noninterest expense. Net revenue was $34.6 billion, flat compared with the prior year.

Banking revenue was $11.4 billion, down 3% from the prior year. Investment banking revenue was $6.1 billion, up 3% from the prior year. The increase was driven by higher advisory and equity underwriting fees, partially offset by lower debt underwriting fees. Advisory fees were $1.6 billion, up 24% on stronger share of fees for completed transactions as well as growth in the industry-wide fee levels, according to Dealogic. Equity underwriting fees were $1.6 billion, up 5%, driven by higher industry-wide issuance. Debt underwriting fees were $3.4 billion, down 4%, primarily related to lower loan syndication fees on lower industry-wide fee levels and lower bond underwriting fees. The Firm also ranked #1 globally in fees and volumes share across high grade, high yield and loan products. The Firm maintained its #2 ranking for M&A, and improved share of fees both globally and in the U.S. compared with the prior year. Treasury Services revenue was $3.7 billion, up 1% compared with the prior year, primarily driven by higher net interest income from increased deposits, largely offset by business simplification initiatives. Lending revenue was $1.5 billion, down from $2.1 billion in the prior year, driven by losses, compared with gains in the prior periods, on securities received from restructured loans, as well as lower net interest income and lower trade finance revenue.

Markets & Investor Services revenue was $23.2 billion, up 1% from the prior year. Fixed Income Markets revenue was $14.1 billion, down 12% from the prior year, driven by lower revenues in Fixed Income primarily from credit-related and rates products as well as the impact of business simplification. Equity Markets revenue was $5.0 billion, up 1% as higher prime services revenue was partially offset by lower equity derivatives revenue. Securities Services revenue was $4.4 billion, up 6% from the prior year, primarily driven by higher net interest income on increased deposits and higher fees and commissions. Credit Adjustments & Other revenue was a loss of $272 million, driven by net CVA losses partially offset by gains, net of hedges, related to FVA/DVA. The prior year was a loss of

$2.1 billion (including the FVA implementation loss of $1.5 billion and DVA losses of $452 million).
Noninterest expense was $23.3 billion, up 7% compared with the prior year as a result of higher legal expense and investment in controls. This was partially offset by lower performance-based compensation expense as well as the impact of business simplification.

Management's discussion and analysis

Selected metrics As of or for the year ended December 31, (in millions, except headcount)	2015	2014	2013
Selected balance sheet data (period-end)			
Assets	$748,691	$861,466	$843,248
Loans:			
Loans retained[(a)]	106,908	96,409	95,627
Loans held-for-sale and loans at fair value	3,698	5,567	11,913
Total loans	110,606	101,976	107,540
Core Loans	110,084	100,772	101,376
Equity	62,000	61,000	56,500
Selected balance sheet data (average)			
Assets	$824,208	$854,712	$859,071
Trading assets-debt and equity instruments	302,514	317,535	321,585
Trading assets-derivative receivables	67,263	64,833	70,353
Loans:			
Loans retained[(a)]	98,331	95,764	104,864
Loans held-for-sale and loans at fair value	4,572	7,599	5,158
Total loans	102,903	103,363	110,022
Core Loans	99,231	102,604	108,199
Equity	62,000	61,000	56,500
Headcount[(b)]	49,067	50,965	52,082

(a) Loans retained includes credit portfolio loans, loans held by consolidated Firm-administered multi-seller conduits, trade finance loans, other held-for-investment loans and overdrafts.

(b) Effective in 2015, certain technology staff were transferred from CIB to CB; previously-reported headcount has been revised to conform with the current period presentation. As the related expense for these staff is not material, prior period expenses have not been revised. Prior to 2015, compensation expense related to this headcount was recorded in the CIB, with an allocation to CB (reported in noncompensation expense); commencing with 2015, such expense is recorded as compensation expense in CB and accordingly total noninterest expense related to this headcount in both CB and CIB remains unchanged.

Selected metrics As of or for the year ended December 31, (in millions, except ratios)	2015	2014	2013
Credit data and quality statistics			
Net charge-offs/(recoveries)	$(19)	$(12)	$(78)
Nonperforming assets:			
Nonaccrual loans:			
Nonaccrual loans retained[(a)]	428	110	163
Nonaccrual loans held-for-sale and loans at fair value	10	11	180
Total nonaccrual loans	438	121	343
Derivative receivables	204	275	415
Assets acquired in loan satisfactions	62	67	80
Total nonperforming assets	704	463	838
Allowance for credit losses:			

Allowance for loan losses	1,258	1,034	1,096
Allowance for lending-related commitments	569	439	525
Total allowance for credit losses	1,827	1,473	1,621
Net charge-off/(recovery) rate	(0.02)%	(0.01)%	0.07%
Allowance for loan losses to period-end loans retained	1.18	1.07	1.15
Allowance for loan losses to period-end loans retained, excluding trade finance and conduits(b)	1.88	1.82	2.02
Allowance for loan losses to nonaccrual loans retained(a)	294	940	672
Nonaccrual loans to total period-end loans	0.40	0.12	0.32

(a) Allowance for loan losses of $177 million, $18 million and $51 million were held against these nonaccrual loans at December 31, 2015, 2014 and 2013, respectively.

(b) Management uses allowance for loan losses to period-end loans retained, excluding trade finance and conduits, a non-GAAP financial measure, to provide a more meaningful assessment of CIB’s allowance coverage ratio.

Business metrics

	Year ended December 31,		
(in millions)	2015	2014	2013
Advisory	$2,133	$1,627	$1,315
Equity underwriting	1,434	1,571	1,499
Debt underwriting	3,169	3,372	3,517
Total investment banking fees	$6,736	$6,570	$6,331

League table results – wallet share

Year ended December 31,	2015 Fee Share	Rankings	2014 Fee Share	Rankings	2013 Fee Share	Rankings
Based on fees(a)						
Debt, equity and equity-related						
Global	7.7%	#1	7.6%	#1	8.3%	#1
U.S.	11.6	1	10.7	1	11.4	1
Long-term debt(b)						
Global	8.3	1	8.0	1	8.2	1
U.S.	11.9	1	11.7	1	11.5	2
Equity and equity-related						
Global(c)	7.0	1	7.1	3	8.4	2
U.S.	11.1	1	9.6	3	11.2	2
M&A(d)						
Global	8.5	2	8.0	2	7.5	2
U.S.	10.0	2	9.7	2	8.7	2
Loan syndications						
Global	7.6	1	9.3	1	9.9	1
U.S.	10.7	2	13.1	1	13.8	1
Global Investment Banking fees (a)(e)	7.9%	#1	8.0%	#1	8.5%	#1

League table results – volumes

Year ended December 31,	2015 Market Share	Rankings	2014 Market Share	Rankings	2013 Market Share	Ra
Based on volume(f)						
Debt, equity and equity-related						
Global	6.8%	#1	6.8%	#1	7.3%	#1
U.S.	11.3	1	11.8	1	11.9	1
Long-term debt(b)						
Global	6.8	1	6.7	1	7.2	1
U.S.	10.8	1	11.3	1	11.8	1
Equity and equity-related						
Global(c)	7.2	3	7.5	3	8.2	2
U.S.	12.4	1	11.0	2	12.1	2
M&A announced(d)						
Global	30.1	3	20.5	2	24.1	2
U.S.	36.7	2	25.2	3	36.9	1
Loan syndications						
Global	10.5	1	12.3	1	11.6	1
U.S.	16.8	#1	19.0	#1	17.8	#1

(a) Source: Dealogic. Reflects the ranking of revenue wallet and market share.
(b) Long-term debt rankings include investment-grade, high-yield, supranationals, sovereigns, agencies, covered bonds, asset-l securities ("ABS") and MBS; and exclude money market, short-term debt, and U.S. municipal securities.
(c) Global equity and equity-related rankings include rights offerings and Chinese A-Shares.
(d) M&A and Announced M&A rankings reflect the removal of any withdrawn transactions. U.S. M&A revenue wallet repres wallet from client parents based in the U.S. U.S. announced M&A volumes represents any U.S. involvement ranking.
(e) Global investment banking fees per Dealogic exclude money market, short-term debt and shelf deals.
(f) Source: Dealogic. Reflects transaction volume and market share. Global announced M&A is based on transaction value at announcement; because of joint M&A assignments, M&A market share of all participants will add up to more than 100%. All other transaction volume-based ran are based on proceeds, with full credit to each book manager/equal if joint.

Business metrics

As of or for the year ended December 31,	2015	2014	2013

(in millions, except where otherwise noted)			
Market risk-related revenue – trading loss days[(a)]	9	9	0
Assets under custody ("AUC") by asset class (period-end) in billions:			
Fixed Income	$12,042	$12,328	$11,903
Equity	6,194	6,524	6,913
Other[(b)]	1,707	1,697	1,669
Total AUC	$19,943	$20,549	$20,485
Client deposits and other third party liabilities (average)[(c)]	$395,297	$417,369	$383,667
Trade finance loans (period-end)	19,255	25,713	30,752

(a) Market risk-related revenue is defined as the change in value of: principal transactions revenue; trading-related net interest income; brokerage commissions, underwriting fees or other revenue; and revenue from syndicated lending facilities that the Firm intends to distribute; gains and losses from DVA and FVA are excluded. Market risk-related revenue–trading loss days represent the number of days for which the CIB posted losses under this measure. The loss days determined under this measure differ from the loss days that are determined based on the disclosure of market risk-related gains and losses for the Firm in the value-at-risk ("VaR") back-testing discussion on pages 135–137.

(b) Consists of mutual funds, unit investment trusts, currencies, annuities, insurance contracts, options and other contracts.

(c) Client deposits and other third party liabilities pertain to the Treasury Services and Securities Services businesses.

International metrics

Year ended December 31, (in millions)	2015	2014	2013
Total net revenue[(a)]			
Europe/Middle East/Africa	$10,894	$11,598	$10,689
Asia/Pacific	4,901	4,698	4,736
Latin America/Caribbean	1,096	1,179	1,340
Total international net revenue	16,891	17,475	16,765
North America	16,651	17,120	17,947
Total net revenue	$33,542	$34,595	$34,712
Loans (period-end)[(a)]			
Europe/Middle East/Africa	$24,622	$27,155	$29,392
Asia/Pacific	17,108	19,992	22,151
Latin America/Caribbean	8,609	8,950	8,362
Total international loans	50,339	56,097	59,905
North America	56,569	40,312	35,722
Total loans	$106,908	$96,409	$95,627
Client deposits and other third-party liabilities (average)[(a)]			
Europe/Middle East/Africa	$141,062	$152,712	$143,807
Asia/Pacific	67,111	66,933	54,428
Latin America/Caribbean	23,070	22,360	15,301
Total international	$231,243	$242,005	$213,536
North America	164,054	175,364	170,131
Total client deposits and other third-party liabilities	$395,297	$417,369	$383,667
AUC (period-end) (in billions)[(a)]			
North America	$12,034	$11,987	$11,299
All other regions	7,909	8,562	9,186
Total AUC	$19,943	$20,549	$20,485

(a) Total net revenue is based predominantly on the domicile of the client or location of the trading desk, as applicable. Loans outstanding (excluding loans held-for-sale and loans at fair value), client deposits and other third-party liabilities, and AUC are based predominantly on the domicile of the client.

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 nonprofit entities with annual revenue generally ranging from $20 million to $2 billion. In addition, CB provides financing to real estate investors and owners. Partnering with the Firm's other businesses, CB provides comprehensive financial solutions, including lending, treasury services, investment banking and asset management to meet its clients' domestic and international financial needs.

Selected income statement data

Year ended December 31, (in millions)	2015	2014	2013
Revenue			
Lending- and deposit-related fees	$944	$978	$1,033
Asset management, administration and commissions	88	92	116
All other income[(a)]	1,333	1,279	1,149
Noninterest revenue	2,365	2,349	2,298
Net interest income	4,520	4,533	4,794
Total net revenue[(b)]	6,885	6,882	7,092
Provision for credit losses	442	(189)	85
Noninterest expense			
Compensation expense	1,238	1,203	1,115
Noncompensation expense	1,643	1,492	1,495
Total noninterest expense	2,881	2,695	2,610
Income before income tax expense	3,562	4,376	4,397
Income tax expense	1,371	1,741	1,749
Net income	$2,191	$2,635	$2,648

(a) Includes revenue from investment banking products and commercial card transactions.

(b) Total net revenue included tax-equivalent adjustments from income tax credits related to equity investments in designated community development entities that provide loans to qualified businesses in low-income communities, as well as tax-exempt income from municipal bond activities of $493 million, $462 million and $407 million for the years ended December 31, 2015, 2014 and 2013, respectively.

2015 compared with 2014

Net income was $2.2 billion, a decrease of 17% compared with the prior year, driven by a higher provision for credit losses and higher noninterest expense.

Net revenue was $6.9 billion, flat compared with the prior year. Net interest income was $4.5 billion, flat compared with the prior year, with interest income from higher loan balances offset by spread compression. Noninterest revenue was $2.4 billion, flat compared with the prior year, with higher investment banking revenue offset by lower lending-related fees.

Noninterest expense was $2.9 billion, an increase of 7% compared with the prior year, reflecting investment in controls.

The provision for credit losses was $442 million, reflecting an increase in the allowance for credit losses for Oil & Gas exposure and other select downgrades. The prior year was a benefit of $189 million.

2014 compared with 2013

Net income was $2.6 billion, flat compared with the prior year, reflecting lower net revenue and higher noninterest expense, predominantly offset by a lower provision for credit losses.

Net revenue was $6.9 billion, a decrease of 3% compared with the prior year. Net interest income was $4.5 billion, a decrease of 5%, reflecting spread compression, the absence of proceeds received in the prior year from a lending-related workout, and lower purchase discounts recognized on loan repayments, partially offset by higher loan balances. Noninterest revenue was $2.3 billion, up 2%, reflecting higher investment banking revenue, largely offset by business simplification and lower lending fees.

Noninterest expense was $2.7 billion, an increase of 3% from the prior year, largely reflecting investments in controls.

Management's discussion and analysis

CB product revenue consists of the following:
Lending includes a variety of financing alternatives, which are primarily provided on a secured basis; collateral includes receivables, inventory, equipment, real estate or other assets. Products include term loans, revolving lines of credit, bridge financing, asset-based structures, leases, and standby letters of credit.
Treasury services includes revenue from a broad range of products and services that enable CB clients to manage payments and receipts, as well as invest and manage funds.
Investment banking includes revenue from a range of products providing CB clients with sophisticated capital-raising alternatives, as well as balance sheet and risk management tools through advisory, equity underwriting, and loan syndications. Revenue from Fixed Income and Equity Markets products used by CB clients is also included.
Investment banking revenue, gross, represents total revenue related to investment banking products sold to CB clients.
Other product revenue primarily includes tax-equivalent adjustments generated from Community Development Banking activities and certain income derived from principal transactions.
CB is divided into four primary client segments: Middle Market Banking, Corporate Client Banking, Commercial Term Lending, and Real Estate Banking.
Middle Market Banking covers corporate, municipal and nonprofit clients, with annual revenue generally ranging between $20 million and $500 million.
Corporate Client Banking covers clients with annual revenue generally ranging between $500 million and $2 billion and focuses on clients that have broader investment banking needs.
Commercial Term Lending primarily provides term financing to real estate investors/owners for multifamily properties as well as office, retail and industrial properties.
Real Estate Banking provides full-service banking to investors and developers of institutional-grade real estate investment properties.
Other primarily includes lending and investment-related activities within the Community Development Banking business.

Selected metrics

Year ended December 31, (in millions, except ratios)	2015		2014		2013	
Revenue by product						
Lending[a]	$3,429		$3,358		$3,730	
Treasury services[a]	2,581		2,681		2,649	
Investment banking	730		684		575	
Other[a]	145		159		138	
Total Commercial Banking net revenue	$6,885		$6,882		$7,092	
Investment banking revenue, gross	$2,179		$1,986		$1,676	
Revenue by client segment						
Middle Market Banking[b]	$2,742		$2,791		$3,015	
Corporate Client Banking[b]	2,012		1,982		1,911	
Commercial Term Lending	1,275		1,252		1,239	
Real Estate Banking	494		495		561	
Other	362		362		366	
Total Commercial Banking net revenue	$6,885		$6,882		$7,092	
Financial ratios						
Return on common equity	15	%	18	%	19	%
Overhead ratio	42		39		37	

(a)

Effective in 2015, Commercial Card and Chase Commerce Solutions product revenue was transferred from Lending and Other, respectively, to Treasury Services. Prior period amounts were revised to conform with the current period presentation.

(b) Effective in 2015, mortgage warehouse lending clients were transferred from Middle Market Banking to Corporate Client Banking. Prior period revenue, period-end loans, and average loans by client segment were revised to conform with the current period presentation.

Selected metrics (continued)			
As of or for the year ended December 31, (in millions, except headcount)	2015	2014	2013
Selected balance sheet data (period-end)			
Total assets	$200,700	$195,267	$190,782
Loans:			
Loans retained	167,374	147,661	135,750
Loans held-for-sale and loans at fair value	267	845	1,388
Total loans	$167,641	$148,506	$137,138
Core loans	166,939	147,392	135,583
Equity	14,000	14,000	13,500
Period-end loans by client segment			
Middle Market Banking[(a)]	$51,362	$51,009	$50,702
Corporate Client Banking[(a)]	31,871	25,321	22,512
Commercial Term Lending	62,860	54,038	48,925
Real Estate Banking	16,211	13,298	11,024
Other	5,337	4,840	3,975
Total Commercial Banking loans	$167,641	$148,506	$137,138
Selected balance sheet data (average)			
Total assets	$198,076	$191,857	$185,776
Loans:			
Loans retained	157,389	140,982	131,100
Loans held-for-sale and loans at fair value	492	782	930
Total loans	$157,881	$141,764	$132,030
Core loans	156,975	140,390	130,141
Client deposits and other third-party liabilities	191,529	204,017	198,356
Equity	14,000	14,000	13,500
Average loans by client segment			
Middle Market Banking[(a)]	$51,303	$50,939	$50,236
Corporate Client Banking[(a)]	29,125	23,113	22,512
Commercial Term Lending	58,138	51,120	45,989
Real Estate Banking	14,320	12,080	9,582
Other	4,995	4,512	3,711
Total Commercial Banking loans	$157,881	$141,764	$132,030
Headcount[(b)]	7,845	7,426	7,016

(a) Effective in 2015, mortgage warehouse lending clients were transferred from Middle Market Banking to Corporate Client Banking. Prior period revenue, period-end loans, and average loans by client segment were revised to conform with the current period presentation.

(b) Effective in 2015, certain technology staff were transferred from CIB to CB; previously-reported headcount has been revised to conform with the current period presentation. As the related expense for these staff is not material, prior period expenses have not been revised. Prior to 2015, compensation expense related to this headcount was recorded in the CIB, with an allocation to CB (reported in noncompensation expense); commencing with 2015, such expense is recorded as compensation expense in CB and accordingly total noninterest expense related to this headcount in both CB and CIB remains unchanged.

Selected metrics (continued)

As of or for the year ended December 31, (in millions, except ratios)	2015		2014		2013	
Credit data and quality statistics						
Net charge-offs/(recoveries)	$21		$(7	)	$43	
Nonperforming assets						
Nonaccrual loans:						
Nonaccrual loans retained[(a)]	375		317		471	
Nonaccrual loans held-for-sale and loans at fair value	18		14		43	
Total nonaccrual loans	393		331		514	
Assets acquired in loan satisfactions	8		10		15	
Total nonperforming assets	401		341		529	
Allowance for credit losses:						
Allowance for loan losses	2,855		2,466		2,669	
Allowance for lending-related commitments	198		165		142	
Total allowance for credit losses	3,053		2,631		2,811	
Net charge-off/(recovery) rate[(b)]	0.01	%	—		0.03	%
Allowance for loan losses to period-end loans retained	1.71		1.67		1.97	
Allowance for loan losses to nonaccrual loans retained[(a)]	761		778		567	
Nonaccrual loans to period-end total loans	0.23		0.22		0.37	

(a) An allowance for loan losses of $64 million, $45 million and $81 million was held against nonaccrual loans retained at December 31, 2015, 2014 and 2013, respectively.
(b) Loans held-for-sale and loans at fair value were excluded when calculating the net charge-off/(recovery) rate.

Management's discussion and analysis

ASSET MANAGEMENT

Asset Management, with client assets of $2.4 trillion, is a global leader in investment and wealth management. AM clients include institutions, high-net-worth individuals and retail investors in many major markets throughout the world. AM offers investment management across most major asset classes including equities, fixed income, alternatives and money market funds. AM 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 AM's client assets are in actively managed portfolios.

Selected income statement data

Year ended December 31, (in millions, except ratios and headcount)	2015	2014	2013
Revenue			
Asset management, administration and commissions	$9,175	$9,024	$8,232
All other income	388	564	797
Noninterest revenue	9,563	9,588	9,029
Net interest income	2,556	2,440	2,376
Total net revenue	12,119	12,028	11,405
Provision for credit losses	4	4	65
Noninterest expense			
Compensation expense	5,113	5,082	4,875
Noncompensation expense	3,773	3,456	3,141
Total noninterest expense	8,886	8,538	8,016
Income before income tax expense	3,229	3,486	3,324
Income tax expense	1,294	1,333	1,241
Net income	$1,935	$2,153	$2,083
Revenue by line of business			
Global Investment Management	$6,301	$6,327	$5,951
Global Wealth Management	5,818	5,701	5,454
Total net revenue	$12,119	$12,028	$11,405
Financial ratios			
Return on common equity	21 %	23 %	23 %
Overhead ratio	73	71	70
Pretax margin ratio:			
Global Investment Management	31	31	32
Global Wealth Management	22	27	26
Asset Management	27	29	29
Headcount	20,975	19,735	20,048
Number of client advisors	2,778	2,836	2,962

2015 compared with 2014

Net income was $1.9 billion, a decrease of 10% compared with the prior year, reflecting higher noninterest expense, partially offset by higher net revenue.

Net revenue was $12.1 billion, an increase of 1%. Net interest income was $2.6 billion, up 5%, driven by higher loan balances and spreads. Noninterest revenue was $9.6 billion, flat from last year, as net client inflows into assets under management and the impact of higher average market levels were predominantly offset by lower performance fees and the sale of Retirement Plan Services ("RPS") in 2014.

Revenue from Global Investment Management was $6.3 billion, flat from the prior year as the sale of RPS in 2014 and lower performance fees were largely offset by net client inflows. Revenue from Global Wealth Management was $5.8 billion, up 2% from the prior year due to higher net interest income from higher loan balances and spreads and net client inflows, partially offset by lower brokerage revenue.

Noninterest expense was $8.9 billion, an increase of 4%, predominantly due to higher legal expense and investment in both infrastructure and controls.

2014 compared with 2013

Net income was $2.2 billion, an increase of 3% from the prior year, reflecting higher net revenue and lower provision for credit losses, predominantly offset by higher noninterest expense.

Net revenue was $12.0 billion, an increase of 5% from the prior year. Noninterest revenue was $9.6 billion, up 6% from the prior year due to net client inflows and the effect of higher market levels, partially offset by lower valuations of seed capital investments. Net interest income was $2.4 billion, up 3% from the prior year due to higher loan and deposit balances, largely offset by spread compression.

Revenue from Global Investment Management was $6.3 billion, up 6% due to net client inflows and the effect of higher market levels, partially offset by lower valuations of seed capital investments. Revenue from Global Wealth Management was $5.7 billion, up 5% from the prior year due to higher net interest income from loan and deposit balances and net client inflows, partially offset by spread compression and lower brokerage revenue.

Noninterest expense was $8.5 billion, an increase of 7% from the prior year as the business continues to invest in both infrastructure and controls.

AM's lines of business consist of the following:

Global Investment Management provides comprehensive global investment services, including asset management, pension analytics, asset-liability management and active risk-budgeting strategies.

Global Wealth Management offers investment advice and wealth management, including investment management, capital markets and risk management, tax and estate planning, banking, lending and specialty-wealth advisory services.

AM's client segments consist of the following:

Private Banking clients include high- and ultra-high-net-worth individuals, families, money managers, business owners and small corporations worldwide.

Institutional clients include both corporate and public institutions, endowments, foundations, nonprofit organizations and governments worldwide.

Retail clients include financial intermediaries and individual investors.

J.P. Morgan Asset Management has two high-level measures of its overall fund performance.

• Percentage of mutual fund assets under management in funds rated 4- or 5-star: Mutual fund rating services rank funds based on their risk-adjusted performance over various periods. A 5-star rating is the best rating and represents the top 10% of industry-wide ranked funds. A 4-star rating represents the next 22.5% of industry-wide ranked funds. A 3-star rating represents the next 35% of industry-wide ranked funds. A 2-star rating represents the next 22.5% of industry-wide ranked funds. A 1-star rating is the worst rating and represents the bottom 10% of industry-wide ranked funds. The "overall Morningstar rating" is derived from a weighted average of the performance associated with a fund's three-, five- and ten-year (if applicable) Morningstar Rating metrics. For U.S. domiciled funds, separate star ratings are given at the individual share class level. The Nomura "star rating" is based on three-year risk-adjusted performance only. Funds with fewer than three years of history are not rated and hence excluded from this analysis. All ratings, the assigned peer categories and the asset values used to derive this analysis are sourced from these fund rating providers mentioned in footnote (a). The data providers re-denominate the asset values into U.S. dollars. This % of AUM is based on star ratings at the share class level for U.S. domiciled funds, and at a "primary share class" level to represent the star rating of all other funds except for Japan where Nomura provides ratings at the fund level. The "primary share class", as defined by Morningstar, denotes the share class recommended as being the best proxy for the portfolio and in most cases will be the most retail version (based upon annual management charge, minimum investment, currency and other factors). The performance data could have been different if all funds/accounts would have been included. Past performance is not indicative of future results.

• Percentage of mutual fund assets under management in funds ranked in the 1st or 2nd quartile (one, three and five years): All quartile rankings, the assigned peer categories and the asset values used to derive this analysis are sourced from the fund ranking providers mentioned in footnote (b). Quartile rankings are done on the net-of-fee absolute return of each fund. The data providers re-denominate the asset values into U.S. dollars. This % of AUM is based on fund performance and associated peer rankings at the share class level for U.S. domiciled funds, at a "primary share class" level to represent the quartile ranking of the U.K., Luxembourg and Hong Kong funds and at the fund level for all other funds. The "primary share class", as defined by Morningstar, denotes the share class recommended as being the best proxy for the portfolio and in most cases will be the most retail version (based upon annual management charge, minimum investment, currency and other factors). Where peer group rankings given for a fund are in more than one "primary share class" territory both rankings are included to reflect local market competitiveness (applies to "Offshore Territories" and "HK SFC Authorized" funds only). The performance data could have been different if all funds/accounts would have been included. Past performance is not indicative of future results.

Selected metrics

As of or for the year ended December 31, (in millions, except ranking data and ratios)	2015		2014		2013	
% of JPM mutual fund assets rated as 4- or 5-star[(a)]	53	%	52	%	49	%

% of JPM mutual fund assets ranked in 1st or 2nd quartile:(b)			
1 year	62	72	68
3 years	78	72	68
5 years	80	76	69
Selected balance sheet data (period-end)			
Total assets	$131,451	$128,701	$122,414
Loans(c)	111,007	104,279	95,445
Core loans	111,007	104,279	95,445
Deposits	146,766	155,247	146,183
Equity	9,000	9,000	9,000
Selected balance sheet data (average)			
Total assets	$129,743	$126,440	$113,198
Loans	107,418	99,805	86,066
Core loans	107,418	99,805	86,066
Deposits	149,525	150,121	139,707
Equity	9,000	9,000	9,000
Credit data and quality statistics			
Net charge-offs	$12	$6	$40
Nonaccrual loans	218	218	167
Allowance for credit losses:			
Allowance for loan losses	266	271	278
Allowance for lending-related commitments	5	5	5
Total allowance for credit losses	271	276	283
Net charge-off rate	0.01 %	0.01 %	0.05 %
Allowance for loan losses to period-end loans	0.24	0.26	0.29
Allowance for loan losses to nonaccrual loans	122	124	166
Nonaccrual loans to period-end loans	0.20	0.21	0.17

(a) Represents the “overall star rating” derived from Morningstar for the U.S., the U.K., Luxembourg, Hong Kong and Taiwan domiciled funds; and Nomura “star rating” for Japan domiciled funds. Includes only Global Investment Management retail open-ended mutual funds that have a rating. Excludes money market funds, Undiscovered Managers Fund, and Brazil and India domiciled funds.

(b) Quartile ranking sourced from: Lipper for the U.S. and Taiwan domiciled funds; Morningstar for the U.K., Luxembourg and Hong Kong domiciled funds; Nomura for Japan domiciled funds and FundDoctor for South Korea domiciled funds. Includes only Global Investment Management retail open-ended mutual funds that are ranked by the aforementioned sources. Excludes money market funds, Undiscovered Managers Fund, and Brazil and India domiciled funds.

(c) Included $26.6 billion, $22.1 billion and $18.9 billion of prime mortgage loans reported in the Consumer, excluding credit card, loan portfolio at December 31, 2015, 2014 and 2013, respectively.

Management's discussion and analysis

Client assets

2015 compared with 2014

Client assets were $2.4 trillion, a decrease of 2% compared with the prior year. Assets under management were $1.7 trillion, a decrease of 1% from the prior year due to the effect of lower market levels partially offset by net inflows to long-term products.

2014 compared with 2013

Client assets were $2.4 trillion, an increase of 2% compared with the prior year. Excluding the sale of Retirement Plan Services, client assets were up 8% compared with the prior year. Assets under management were $1.7 trillion, an increase of 9% from the prior year due to net inflows to long-term products and the effect of higher market levels.

Client assets

December 31, (in billions)	2015	2014	2013
Assets by asset class			
Liquidity	$464	$461	$451
Fixed income	342	359	330
Equity	353	375	370
Multi-asset and alternatives	564	549	447
Total assets under management	1,723	1,744	1,598
Custody/brokerage/ administration/deposits	627	643	745
Total client assets	$2,350	$2,387	$2,343
Memo:			
Alternatives client assets[(a)]	172	166	158
Assets by client segment			
Private Banking	$437	$428	$361
Institutional	816	827	777
Retail	470	489	460
Total assets under management	$1,723	$1,744	$1,598
Private Banking	$1,050	$1,057	$977
Institutional	824	835	777
Retail	476	495	589
Total client assets	$2,350	$2,387	$2,343

(a) Represents assets under management, as well as client balances in brokerage accounts.

Client assets (continued)

Year ended December 31, (in billions)	2015	2014	2013
Assets under management rollforward			
Beginning balance	$1,744	$1,598	$1,426
Net asset flows:			
Liquidity	(1)	18	(4)
Fixed income	(7)	33	8
Equity	1	5	34
Multi-asset and alternatives	22	42	48
Market/performance/other impacts	(36)	48	86
Ending balance, December 31	$1,723	$1,744	$1,598

Client assets rollforward			
Beginning balance	$2,387	$2,343	$2,095
Net asset flows	27	118	80
Market/performance/other impacts	(64)	(74)	168
Ending balance, December 31	$2,350	$2,387	$2,343

International metrics Year ended December 31, (in billions, except where otherwise noted)	2015	2014	2013
Total net revenue (in millions)[(a)]			
Europe/Middle East/Africa	$1,946	$2,080	$1,881
Asia/Pacific	1,130	1,199	1,133
Latin America/Caribbean	795	841	879
Total international net revenue	3,871	4,120	3,893
North America	8,248	7,908	7,512
Total net revenue	$12,119	$12,028	$11,405
Assets under management			
Europe/Middle East/Africa	$302	$329	$305
Asia/Pacific	123	126	132
Latin America/Caribbean	45	46	47
Total international assets under management	470	501	484
North America	1,253	1,243	1,114
Total assets under management	$1,723	$1,744	$1,598
Client assets			
Europe/Middle East/Africa	$351	$391	$367
Asia/Pacific	173	174	180
Latin America/Caribbean	110	115	117
Total international client assets	634	680	664
North America	1,716	1,707	1,679
Total client assets	$2,350	$2,387	$2,343

(a) Regional revenue is based on the domicile of the client.

CORPORATE

The Corporate segment consists of Treasury and Chief Investment Office ("CIO") and Other Corporate, which includes corporate staff units and expense that is centrally managed. Treasury and CIO are predominantly responsible for measuring, monitoring, reporting and managing the Firm's liquidity, funding and structural interest rate and foreign exchange risks, as well as executing the Firm'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 the Firm's occupancy and pension-related expenses that are subject to allocation to the businesses.

Selected income statement data			
Year ended December 31, (in millions, except headcount)	2015	2014	2013
Revenue			
Principal transactions	$41	$1,197	$563
Securities gains	190	71	666
All other income	569	704	1,864
Noninterest revenue	800	1,972	3,093
Net interest income[a]	(533)	(1,960)	(3,115)
Total net revenue	267	12	(22)
Provision for credit losses	(10)	(35)	(28)
Noninterest expense[b]	977	1,159	10,255
Loss before income tax benefit	(700)	(1,112)	(10,249)
Income tax benefit	(3,137)	(1,976)	(3,493)
Net income/(loss)	$2,437	$864	$(6,756)
Total net revenue			
Treasury and CIO	(493)	(1,317)	(2,068)
Other Corporate [c]	760	1,329	2,046
Total net revenue	$267	$12	$(22)
Net income/(loss)			
Treasury and CIO	(235)	(1,165)	(1,454)
Other Corporate [c]	2,672	2,029	(5,302)
Total net income/(loss)	$2,437	$864	$(6,756)
Selected balance sheet data (period-end)			
Total assets (period-end)	$768,204	$931,206	$805,506
Loans	2,187	2,871	4,004
Core loans[d]	2,182	2,848	3,958
Headcount	29,617	26,047	20,717

(a) Included tax-equivalent adjustments, predominantly due to tax-exempt income from municipal bond investments of $839 million, $730 million and $480 million for the years ended December 31, 2015, 2014 and 2013, respectively.

(b) Included legal expense of $832 million, $821 million and $10.2 billion for the years ended December 31, 2015, 2014 and 2013, respectively.

(c) Effective in 2015, the Firm began including the results of Private Equity in the Other Corporate line within the Corporate segment. Prior period amounts have been revised to conform with the current period presentation. The Corporate segment's balance sheets and results of operations were not impacted by this reporting change.

(d) Average core loans were $2.5 billion, $3.3 billion and $5.2 billion for the years ended December 31, 2015, 2014 and 2013, respectively.

2015 compared with 2014

Net income was $2.4 billion, compared with net income of $864 million in the prior year.

Net revenue was $267 million, compared with $12 million in the prior year. The current year included a $514 million benefit from a legal settlement. Treasury and CIO included a benefit of approximately $178 million associated with recognizing the unamortized discount on certain debt securities which were called at par and a $173 million pretax loss primarily related to accelerated amortization of cash flow hedges associated with the exit of certain non-operating deposits. Private Equity gains were $1.2 billion lower compared with the prior year, reflecting lower valuation gains and lower net gains on sales as the Firm exits this non-core business.

Noninterest expense was $977 million, a decrease of $182 million from the prior year which had included a $276 million goodwill impairment related to the sale of a portion of the Private Equity business.

The current year reflected tax benefits of $2.6 billion predominantly from the resolution of various tax audits compared with tax benefits of $1.1 billion in the prior year.

2014 compared with 2013

Net income was $864 million, compared to a net loss of $6.8 billion in the prior year.

Net revenue was $12 million compared to a net loss of $22 million in the prior year. Current year net interest income was a loss of $2 billion compared to a loss of $3.1 billion in the prior year, primarily reflecting higher yields on investment securities. Securities gains were $71 million, compared with $659 million in the prior year, reflecting lower repositioning activity of the investment securities portfolio in the current period.

Private Equity gains were $540 million higher compared with the prior year reflecting higher net gains on sales. Prior year net revenue also included gains of $1.3 billion and $493 million on the sales of Visa shares and One Chase Manhattan Plaza, respectively.

Noninterest expense was $1.2 billion, a decrease of $9.1 billion due to a decrease in reserves for litigation and regulatory proceedings in the prior year partially offset by the impact of a $276 million goodwill impairment related to the sale of a portion of the Private Equity business.

Treasury and CIO overview

Treasury and CIO are predominantly responsible for measuring, monitoring, reporting and managing the Firm's liquidity, funding and structural interest rate and foreign exchange risks, as well as executing the Firm's capital plan. The risks managed by Treasury and CIO arise from the activities undertaken by the Firm's four major reportable business segments to serve their respective client bases, which generate both on- and off-balance sheet assets and liabilities.

Treasury and CIO achieve the Firm's asset-liability management objectives generally by investing in high-quality securities that are managed for the longer-term as part of the Firm's investment securities portfolio. Treasury and CIO also use derivatives to meet the Firm's asset-liability management objectives. For further information on derivatives, see Note 6. The investment securities portfolio primarily consists of U.S. and non-U.S. government securities, agency and nonagency mortgage-backed securities, other asset-backed securities, corporate debt securities and obligations of U.S. states and municipalities. At December 31, 2015, the investment securities portfolio was $287.8 billion, and the average credit rating of the securities comprising the portfolio was AA+ (based upon external ratings where available and where not available, based primarily upon internal ratings that correspond to ratings as defined by S&P and Moody's). See Note 12 for further information on the details of the Firm's investment securities portfolio.

For further information on liquidity and funding risk, see Liquidity Risk Management on pages 159–164. For information on interest rate, foreign exchange and other risks, Treasury and CIO VaR and the Firm's earnings-at-risk, see Market Risk Management on pages 133–139.

Selected income statement and balance sheet data

As of or for the year ended December 31, (in millions)	2015	2014	2013
Securities gains	$190	$71	$659
Investment securities portfolio (average) [(a)]	314,802	349,285	353,712
Investment securities portfolio (period–end) [(b)]	287,777	343,146	347,562
Mortgage loans (average)	2,501	3,308	5,145
Mortgage loans (period-end)	2,136	2,834	3,779

(a) Average investment securities included held-to-maturity balances of $50.0 billion and $47.2 billion for the years ended December 31, 2015 and 2014 respectively. The held-to-maturity balance for full year 2013 was not material.

(b) Period-end investment securities included held-to-maturity securities of $49.1 billion, $49.3 billion, $24.0 billion at December 31, 2015, 2014 and 2013, respectively.

Private equity portfolio information[(a)]

December 31, (in millions)	2015	2014	2013
Carrying value	$2,103	$5,866	$7,868
Cost	3,798	6,281	8,491

(a) For more information on the Firm's methodologies regarding the valuation of the Private Equity portfolio, see Note 3. For information on the sale of a portion of the Private Equity business completed on January 9, 2015, see Note 2.

2015 compared with 2014

The carrying value of the private equity portfolio at December 31, 2015 was $2.1 billion, down from $5.9 billion at December 31, 2014, driven by the sale of a portion of the Private Equity business.

2014 compared with 2013

The carrying value of the private equity portfolio at December 31, 2014 was $5.9 billion, down from $7.9 billion at December 31, 2013. The decrease in the portfolio was predominantly driven by sales of investments, partially offset by unrealized gains.

ENTERPRISE-WIDE RISK MANAGEMENT

Risk is an inherent part of JPMorgan Chase's business activities. When the Firm extends a consumer or wholesale loan, advises customers on their investment decisions, makes markets in securities, or offers other products or services, the Firm takes on some degree of risk. The Firm'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 the Firm.

Firmwide Risk Management is overseen and managed on an enterprise-wide basis. The Firm'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.

The Firm believes that effective risk management requires:

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

The Firm's Operating Committee, which consists of the Firm's Chief Executive Officer ("CEO"), Chief Risk Officer ("CRO") and other senior executives, is responsible for developing and executing the Firm's risk management framework. The framework is intended to provide controls and ongoing management of key risks inherent in the Firm'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 the Firm's Board of Directors.

The Firm strives for continual improvement through ongoing employee training and development, as well as talent retention. The Firm 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 the Firm's performance evaluation and incentive compensation processes. The Firm is also engaged in a number of activities focused on conduct risk and in regularly evaluating its culture with respect to its business principles.

Management's discussion and analysis

The following sections outline the key risks that are inherent in the Firm's business activities.

Risk	Definition	Select risk management metrics	Page references
Capital risk	The risk the Firm has an insufficient level and composition of capital to support the Firm's business activities and associated risks during normal economic environments and stressed conditions.	Risk-based capital ratios; supplementary leverage ratio; stress	149–158
Compliance risk	The risk of failure to comply with applicable laws, rules, and regulations.	Various metrics related to market conduct, Bank Secrecy Act/Anti-Money Laundering ("BSA/AML"), employee compliance, fiduciary, privacy and information risk	147
Country risk	The risk that a sovereign event or action alters the value or terms of contractual obligations of obligors, counterparties and issuers or adversely affects markets related to a particular country.	Default exposure at 0% recovery; stress; risk ratings; ratings based capital limits	140–141
Credit risk	The risk of loss arising from the default of a customer, client or counterparty.	Total exposure; industry, geographic and customer concentrations; risk ratings; delinquencies; loss experience; stress	112–132
Legal risk	The risk of loss or imposition of damages, fines, penalties or other liability arising from failure to comply with a contractual obligation or to comply with laws or regulations to which the Firm is subject.	Not applicable	146
Liquidity risk	The risk that the Firm will be unable to meet its contractual and contingent obligations or that it does not have the appropriate amount, composition and tenor of funding and liquidity to support its assets.	LCR; stress	159–164
Market risk	The risk of loss arising from potential adverse changes in the value of the Firm's assets and liabilities resulting from changes in market variables such as interest rates, foreign exchange rates, equity prices, commodity prices, implied volatilities or credit spreads.	VaR, stress, sensitivities	133–139
Model risk	The risk of the potential for adverse consequences from decisions based on incorrect or misused model outputs and reports.	Model status, model tier	142
Non-U.S. dollar foreign exchange ("FX") risk	The risk that changes in foreign exchange rates affect the value of the Firm's assets or liabilities or future results.	FX net open position ("NOP")	139
Operational risk	The risk of loss resulting from inadequate or failed processes or systems, human factors, or due to external events that are neither market nor credit-related.	Firm-specific loss experience; industry loss experience; business environment and internal control factors ("BEICF"); key risk indicators; key control indicators; operating metrics	144–146

Principal risk	The risk of an adverse change in the value of privately-held financial assets and instruments, typically representing an ownership or junior capital position that have unique risks due to their illiquidity or for which there is less observable market or valuation data.	Carrying value, stress	143
Reputation risk	The risk that an action, transaction, investment or event will reduce trust in the Firm's integrity or competence by our various constituents, including clients, counterparties, investors, regulators, employees and the broader public.	Not applicable	148
Structural interest rate risk	The risk resulting from the Firm's traditional banking activities (both on- and off-balance sheet positions) arising from the extension of loans and credit facilities, taking deposits and issuing debt (collectively referred to as "non-trading activities"), and also the impact from the CIO investment securities portfolio and other related CIO and Treasury activities.	Earnings-at-risk	138-139

Risk appetite and governance

The Firm's overall tolerance for risk is governed by a "Risk Appetite" framework for measuring and monitoring risk. The framework measures the Firm'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 the Firm'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 the Firm'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").

The Firm's CRO is responsible for the overall direction of the Firm's Risk Management functions and is head of the Risk Management Organization, reporting to the Firm'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 the Firm 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 the Firm.

The Firm 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, the Firm'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 the Firm's control environment by looking within and across the lines of business and corporate functions to identify and remediate control issues. The group enables the Firm to detect control problems more quickly, escalate issues promptly and engage other stakeholders to understand common themes and interdependencies among the various parts of the Firm.

Each line of business is accountable for managing its compliance risk. The Firm'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 the Firm'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 the Firm'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 the Firm'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 chart below illustrates the key senior management level committees in the Firm's risk governance structure. Other committees and forums are in place that are responsible for management and oversight of risk, although they are not shown in the chart below.

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.

Management's discussion and analysis

The Risk Policy Committee of the Board oversees the Firm's global risk management framework and approves the primary risk-management policies of the Firm. The Committee's responsibilities include oversight of management's exercise of its responsibility to assess and manage risks of the Firm, 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 the Firm 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 the Firm, assure the integrity of the Firm's financial statements and maintain compliance with the Firm's ethical standards, policies, plans and procedures, and with laws and regulations. In addition, the Audit Committee assists the Board in its oversight of the Firm's independent registered public accounting firm's qualifications and independence. The Independent Internal Audit Function at the Firm is headed by the General Auditor, who reports to the Audit Committee.

The Compensation & Management Development Committee assists the Board in its oversight of the Firm's compensation programs and reviews and approves the Firm'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 the Firm's diversity programs and management development and succession planning, and provides oversight of the Firm's culture and conduct programs.

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

The Firmwide Risk Committee ("FRC") is the Firm's highest management-level risk committee. It provides oversight of the risks inherent in the Firm's businesses. The Committee is co-chaired by the Firm's CEO and CRO. Members of the Committee include the Firm'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 the Firm'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 the Firm. 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 the Firm; 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 the Firm’s Treasurer under the direction of the COO, monitors the Firm’s balance sheet, liquidity risk and structural interest rate risk. ALCO reviews the Firm’s overall structural interest rate risk position, funding requirements and strategy, and securitization programs (and any required liquidity support by the Firm of such programs). ALCO is responsible for reviewing and approving the Firm’s Funds Transfer Pricing Policy (through which lines of business “transfer” interest rate risk to Treasury) and the Firm’s Intercompany Funding and Liquidity Policy. ALCO is also responsible for reviewing the Firm’s Contingency Funding Plan.

The Capital Governance Committee, chaired by the Head of the Regulatory Capital Management Office (under the direction of the Firm’s CFO) is responsible for reviewing the Firm’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 the Firm’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 the Firm. The VGF is chaired by the firmwide head of the Valuation Control function (under the direction of the Firm’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.

In addition, the JPMorgan Chase Bank, N.A. 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 the Firm’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 the Firm’s Board of Directors and, with respect to compensation and other management-related matters, the Compensation & Management Development Committee of the Firm’s Board of Directors.

Risk measurement

The Firm has a broad spectrum of risk management metrics, as appropriate for each risk category (refer to the table on key risks included on page 108). Additionally, the Firm 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. The Firm has a process intended to identify these risks in order to allow the Firm to monitor vulnerabilities that are not adequately covered by its other standard risk measurements.

CREDIT RISK MANAGEMENT

Credit risk is the risk of loss arising from the default of a customer, client or counterparty. The Firm provides credit to a variety of customers, ranging from large corporate and institutional clients to individual consumers and small businesses. In its consumer businesses, the Firm is exposed to credit risk primarily through its residential real estate, credit card, auto, business banking and student lending businesses. Originated mortgage loans are retained in the mortgage portfolio, securitized or sold to U.S. government agencies and U.S. government-sponsored enterprises; other types of consumer loans are typically retained on the balance sheet. In its wholesale businesses, the Firm is exposed to credit risk through its underwriting, lending, market-making, and hedging activities with and for clients and counterparties, as well as through its operating services activities (such as cash management and clearing activities), securities financing activities, investment securities portfolio, and cash placed with banks. A portion of the loans originated or acquired by the Firm's wholesale businesses are generally retained on the balance sheet; the Firm's syndicated loan business distributes a significant percentage of originations into the market and is an important component of portfolio management.

Credit risk management

Credit risk management is an independent risk management function that identifies and monitors credit risk throughout the Firm and defines credit risk policies and procedures. The credit risk function reports to the Firm's CRO. The Firm's credit risk management governance includes the following activities:

- Establishing a comprehensive credit risk policy framework
- Monitoring and managing credit risk across all portfolio segments, including transaction and exposure approval
- Setting industry concentration limits and establishing underwriting guidelines
- Assigning and managing credit authorities in connection with the approval of all credit exposure
- Managing criticized exposures and delinquent loans
- Determining the allowance for credit losses and ensuring appropriate credit risk-based capital management

Risk identification and measurement

The Credit Risk Management function identifies, measures, limits, manages and monitors credit risk across the Firm's businesses. To measure credit risk, the Firm employs several methodologies for estimating the likelihood of obligor or counterparty default. Methodologies for measuring credit risk vary depending on several factors, including type of asset (e.g., consumer versus wholesale), risk measurement parameters (e.g., delinquency status and borrower's credit score versus wholesale risk-rating) and risk management and collection processes (e.g., retail collection center versus centrally managed workout groups). Credit risk measurement is based on the

probability of default of an obligor or counterparty, the loss severity given a default event and the exposure at default. Based on these factors and related market-based inputs, the Firm estimates credit losses for its exposures. Probable credit losses inherent in the consumer and wholesale loan portfolios are reflected in the allowance for loan losses, and probable credit losses inherent in lending-related commitments are reflected in the allowance for lending-related commitments. These losses are estimated using statistical analyses and other factors as described in Note 15. In addition, potential and unexpected credit losses are reflected in the allocation of credit risk capital and represent the potential volatility of actual losses relative to the established allowances for loan losses and lending-related commitments. The analyses for these losses include stress testing considering alternative economic scenarios as described in the Stress testing section below. For further information, see Critical Accounting Estimates used by the Firm on pages 165–169.

The methodologies used to estimate credit losses depend on the characteristics of the credit exposure, as described below.

Scored exposure

The scored portfolio is generally held in CCB and predominantly includes residential real estate loans, credit card loans, certain auto and business banking loans, and student loans. For the scored portfolio, credit loss estimates are based on statistical analysis of credit losses over discrete periods of time. The statistical analysis uses portfolio modeling, credit scoring, and decision-support tools, which consider loan-level factors such as delinquency status, credit scores, collateral values, and other risk factors. Credit loss analyses also consider, as appropriate, uncertainties and other factors, including those related to current macroeconomic and political conditions, the quality of underwriting standards, and other internal and external factors. The factors and analysis are updated on a quarterly basis or more frequently as market conditions dictate.

Risk-rated exposure

Risk-rated portfolios are generally held in CIB, CB and AM, but also include certain business banking and auto dealer loans held in CCB that are risk-rated because they have characteristics similar to commercial loans. For the risk-rated portfolio, credit loss estimates are based on estimates of the probability of default ("PD") and loss severity given a default. The estimation process begins with risk ratings that are assigned to each loan facility to differentiate risk within the portfolio. These risk ratings are reviewed regularly by Credit Risk Management and revised as needed to reflect the borrower's current financial position, risk profile and related collateral. The probability of default is the likelihood that a loan will default and not be fully repaid by the borrower. The loss given default ("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. The probability of default is estimated for each borrower, and a loss given default is estimated for each credit facility. The calculations and assumptions are based on historic experience and management judgment and are reviewed regularly.

Stress testing

Stress testing is important in measuring and managing credit risk in the Firm's credit portfolio. The process assesses the potential impact of alternative economic and business scenarios on estimated credit losses for the Firm. Economic scenarios, and the parameters underlying those scenarios, are defined centrally, are articulated in terms of macroeconomic factors, and applied across the businesses. The stress test results may indicate credit migration, changes in delinquency trends and potential losses in the credit portfolio. In addition to the periodic stress testing processes, management also considers additional stresses outside these scenarios, including industry and country-specific stress scenarios, as necessary. The Firm uses stress testing to inform decisions on setting risk appetite both at a Firm and LOB level, as well as to assess the impact of stress on individual counterparties.

Risk monitoring and management

The Firm has developed policies and practices that are designed to preserve the independence and integrity of the approval and decision-making process of extending credit to ensure credit risks are assessed accurately, approved properly, monitored regularly and managed actively at both the transaction and portfolio levels. The policy framework establishes credit approval authorities, concentration limits, risk-rating methodologies, portfolio review parameters and guidelines for management of distressed exposures. In addition, certain models, assumptions and inputs used in evaluating and monitoring credit risk are independently validated by groups that are separate from the line of businesses.

For consumer credit risk, delinquency and other trends, including any concentrations at the portfolio level, are monitored, as certain of these trends can be modified through changes in underwriting policies and portfolio guidelines. Consumer Risk Management evaluates delinquency and other trends against business expectations, current and forecasted economic conditions, and industry benchmarks. Historical and forecasted trends are incorporated into the modeling of estimated consumer credit losses and are part of the monitoring of the credit risk profile of the portfolio. For further discussion of consumer loans, see Note 14.

Wholesale credit risk is monitored regularly at an aggregate portfolio, industry, and individual client and counterparty level with established concentration limits that are reviewed and revised as deemed appropriate by management, typically on an annual basis. Industry and counterparty limits, as measured in terms of exposure and economic risk appetite, are subject to stress-based loss constraints. In addition, wrong-way risk — the risk that exposure to a counterparty is positively correlated with the impact of a default by the same counterparty, which could cause exposure to increase at the same time as the counterparty's capacity to meet its obligations is decreasing — is actively monitored as this risk could result in greater exposure at default compared with a transaction with another counterparty that does not have this risk.

Management of the Firm's wholesale credit risk exposure is accomplished through a number of means, including:

- Loan underwriting and credit approval process
- Loan syndications and participations
- Loan sales and securitizations
- Credit derivatives
- Master netting agreements
- Collateral and other risk-reduction techniques

In addition to Credit Risk Management, Internal Audit performs periodic exams, as well as continuous reviews, where appropriate, of the Firm's consumer and wholesale portfolios. For risk-rated portfolios, a Credit Review group within Internal Audit is responsible for:

- Independently assessing and validating the changing risk grades assigned to exposures; and
- Evaluating the effectiveness of business units' risk ratings, including the accuracy and consistency of risk grades, the timeliness of risk grade changes and the justification of risk grades in credit memoranda.

Risk reporting

To enable monitoring of credit risk and effective decision-making, aggregate credit exposure, credit quality forecasts, concentration levels and risk profile changes are reported regularly to senior members of Credit Risk Management. Detailed portfolio reporting of industry, customer, product and geographic concentrations occurs monthly, and the appropriateness of the allowance for credit losses is reviewed by senior management at least on a quarterly basis. Through the risk reporting and governance structure, credit risk trends and limit exceptions are provided regularly to, and discussed with, risk committees, senior management and the Board of Directors as appropriate.

CREDIT PORTFOLIO

In the following tables, reported loans include loans retained (i.e., held-for-investment); loans held-for-sale (which are carried at the lower of cost or fair value, with valuation changes recorded in noninterest revenue); and certain loans accounted for at fair value. In addition, the Firm records certain loans accounted for at fair value in trading assets. For further information regarding these loans, see Note 3 and Note 4. For additional information on the Firm's loans and derivative receivables, including the Firm's accounting policies, see Note 14 and Note 6, respectively. For further information regarding the credit risk inherent in the Firm's cash placed with banks, investment securities portfolio, and securities financing portfolio, see Note 5, Note 12, and Note 13, respectively.

Effective January 1, 2015, the Firm no longer includes within its disclosure of wholesale lending-related commitments the unused amount of advised uncommitted lines of credit as it is within the Firm's discretion whether or not to make a loan under these lines, and the Firm's approval is generally required prior to funding. Prior period amounts have been revised to conform with the current period presentation.

For discussion of the consumer credit environment and consumer loans, see Consumer Credit Portfolio on pages 115–121 and Note 14. For discussion of wholesale credit environment and wholesale loans, see Wholesale Credit Portfolio on pages 122–129 and Note 14.

Total credit portfolio

December 31,	Credit exposure		Nonperforming[b][c]	
(in millions)	2015	2014	2015	2014
Loans retained	$832,792	$747,508	$6,303	$7,017
Loans held-for-sale	1,646	7,217	101	95
Loans at fair value	2,861	2,611	25	21
Total loans – reported	837,299	757,336	6,429	7,133
Derivative receivables	59,677	78,975	204	275
Receivables from customers and other	13,497	29,080	—	—
Total credit-related assets	910,473	865,391	6,633	7,408
Assets acquired in loan satisfactions				
Real estate owned	NA	NA	347	515
Other	NA	NA	54	44
Total assets acquired in loan satisfactions	NA	NA	401	559
Total assets	910,473	865,391	7,034	7,967
Lending-related commitments	940,395	950,997	193	103
Total credit portfolio	$1,850,868	$1,816,388	$7,227	$8,070
Credit derivatives used in credit portfolio management activities[a]	$(20,681)	$(26,703)	$(9)	$—
Liquid securities and other cash collateral held against derivatives	(16,580)	(19,604)	NA	NA

Year ended December 31, (in millions, except ratios)	2015	2014
Net charge-offs	$4,086	$4,759
Average retained loans		
Loans – reported	780,293	729,876
Loans – reported, excluding residential real estate PCI loans	736,543	679,869
Net charge-off rates		
Loans – reported	0.52%	0.65%
Loans – reported, excluding PCI	0.55	0.70

(a) Represents the net notional amount of protection purchased and sold through credit derivatives used to manage both performing and nonperforming wholesale credit exposures; these derivatives do not qualify for hedge accounting under U.S. GAAP. For additional information, see Credit derivatives on page 129 and Note 6.

(b) Excludes PCI loans. The Firm is recognizing interest income on each pool of PCI loans as each of the pools is performing.

(c) At December 31, 2015 and 2014, nonperforming assets excluded: (1) mortgage loans insured by U.S. government agencies of $6.3 billion and $7.8 billion, respectively, that are 90 or more days past due; (2) student loans insured by U.S. government agencies under the FFELP of $290 million and $367 million, respectively, that are 90 or more days past due; and (3) REO insured by U.S. government agencies of $343 million and $462 million, respectively. These amounts have been excluded based upon the government guarantee. In addition, the Firm's policy is generally to exempt credit card loans from being placed on nonaccrual status as permitted by regulatory guidance issued by the Federal Financial Institutions Examination Council ("FFIEC").

CONSUMER CREDIT PORTFOLIO

The Firm’s consumer portfolio consists primarily of residential real estate loans, credit card loans, auto loans, business banking loans, and student loans. The Firm’s focus is on serving the prime segment of the consumer credit market. The credit performance of the consumer portfolio continues to benefit from discipline in credit underwriting as well as improvement in the economy driven by increasing home prices and lower unemployment. Both early-stage

delinquencies (30–89 days delinquent) and late-stage delinquencies (150+ days delinquent) for residential real estate, excluding government guaranteed loans, declined from December 31, 2014 levels. The Credit Card 30+ day delinquency rate and the net charge-off rate remain near historic lows. For further information on consumer loans, see Note 14.

The following table presents consumer credit-related information with respect to the credit portfolio held by CCB, prime mortgage and home equity loans held by AM, and prime mortgage loans held by Corporate. For further information about the Firm’s nonaccrual and charge-off accounting policies, see Note 14.

Consumer credit portfolio

As of or for the year ended December 31, (in millions, except ratios)	Credit exposure		Nonaccrual loans[g][h]		Net charge-offs/(recoveries)[i]		Average annual net charge-off/(recovery) rate[i][j]	
	2015	2014	2015	2014	2015	2014	2015	2014
Consumer, excluding credit card								
Loans, excluding PCI loans and loans held-for-sale								
Home equity – senior lien	$14,848	$16,367	$867	$938	$ 69	$ 82	0.43 %	0.50 %
Home equity – junior lien	30,711	36,375	1,324	1,590	222	391	0.67	1.03
Prime mortgage, including option ARMs	162,549	104,921	1,752	2,190	49	39	0.04	0.04
Subprime mortgage	3,690	5,056	751	1,036	(53)	(27)	(1.22)	(0.43)
Auto[a]	60,255	54,536	116	115	214	181	0.38	0.34
Business banking	21,208	20,058	263	279	253	305	1.23	1.58
Student and other	10,096	10,970	242	270	200	347	1.89	3.07
Total loans, excluding PCI loans and loans held-for-sale	303,357	248,283	5,315	6,418	954	1,318	0.35	0.55
Loans – PCI								
Home equity	14,989	17,095	—	NA	—	NA	—	NA
Prime mortgage	8,893	10,220	—	NA	—	NA	—	NA
Subprime mortgage	3,263	3,673	—	NA	—	NA	—	NA
Option ARMs[b]	13,853	15,708	—	NA	—	NA	—	NA
Total loans – PCI	40,998	46,696	—	NA	—	NA	—	NA
Total loans – retained	344,355	294,979	5,315	6,418	954	1,318	0.30	0.46
Loans held-for-sale	466 [f]	395 [f]	98	91	—	—	—	—
Total consumer, excluding credit card loans	344,821	295,374	5,413	6,509	954	1,318	0.30	0.46
Lending-related commitments[c]	58,478	58,153						
Receivables from customers[d]	125	108						

Total consumer exposure, excluding credit card	403,424	353,635								
Credit Card										
Loans retained[e]	131,387	128,027	—	—	3,122	3,429	2.51		2.75	
Loans held-for-sale	76	3,021	—	—	—	—	—		—	
Total credit card loans	131,463	131,048	—	—	3,122	3,429	2.51		2.75	
Lending-related commitments[c]	515,518	525,963								
Total credit card exposure	646,981	657,011								
Total consumer credit portfolio	$1,050,405	$1,010,646	$5,413	$6,509	$ 4,076	$ 4,747	0.92	%	1.15	%
Memo: Total consumer credit portfolio, excluding PCI	$1,009,407	$963,950	$5,413	$6,509	$ 4,076	$ 4,747	1.02	%	1.30	%

(a) At December 31, 2015 and 2014, excluded operating lease assets of $9.2 billion and $6.7 billion, respectively.

(b) At December 31, 2015 and 2014, approximately 64% and 57% of the PCI option ARMs portfolio has been modified into fixed-rate, fully amortizing loans, respectively.

(c) Credit card and home equity lending-related commitments represent the total available lines of credit for these products. The Firm has not experienced, and does not anticipate, that all available lines of credit would be used at the same time. For credit card and home equity commitments (if certain conditions are met), the Firm can reduce or cancel these lines of credit by providing the borrower notice or, in some cases as permitted by law, without notice.

(d) Receivables from customers represent margin loans to retail brokerage customers, and are included in Accrued interest and accounts receivable on the Consolidated balance sheets.

(e) Includes accrued interest and fees net of an allowance for the uncollectible portion of accrued interest and fee income.

(f) Predominantly represents prime mortgage loans held-for-sale.

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(g) At December 31, 2015 and 2014, nonaccrual loans excluded: (1) mortgage loans insured by U.S. government agencies of $6.3 billion and $7.8 billion, respectively, that are 90 or more days past due; and (2) student loans insured by U.S. government agencies under the FFELP of $290 million and $367 million, respectively, that are 90 or more days past due. These amounts have been excluded from nonaccrual loans based upon the government guarantee. In addition, credit card loans are generally exempt from being placed on nonaccrual status, as permitted by regulatory guidance.

(h) Excludes PCI loans. The Firm is recognizing interest income on each pool of PCI loans as each of the pools is performing.

(i) Net charge-offs and net charge-off rates excluded $208 million and $533 million of write-offs of prime mortgages in the PCI portfolio for the years ended December 31, 2015 and 2014. These write-offs decreased the allowance for loan losses for PCI loans. See Allowance for Credit Losses on pages 130–132 for further details.

(j) Average consumer loans held-for-sale were $2.1 billion and $917 million, respectively, for the years ended December 31, 2015 and 2014. These amounts were excluded when calculating net charge-off rates.

Consumer, excluding credit card

Portfolio analysis

Consumer loan balances increased during the year ended December 31, 2015, predominantly due to originations of high-quality prime mortgage loans that have been retained, partially offset by paydowns and the charge-off or liquidation of delinquent loans. Credit performance has continued to improve across most portfolios as the economy strengthened and home prices increased.

PCI loans are excluded from the following discussions of individual loan products and are addressed separately below. For further information about the Firm's consumer portfolio, including information about delinquencies, loan modifications and other credit quality indicators, see Note 14.

Home equity: The home equity portfolio declined from December 31, 2014 primarily reflecting loan paydowns and charge-offs. Both early-stage and late-stage delinquencies declined from December 31, 2014. Net charge-offs for both senior and junior lien home equity loans at December 31, 2015, declined when compared with the prior year as a result of improvement in home prices and delinquencies, but charge-offs remain elevated compared with pre-recessionary levels.

At December 31, 2015, approximately 15% of the Firm's home equity portfolio consists of home equity loans ("HELOANs") and the remainder consists of home equity lines of credit ("HELOCs"). HELOANs are generally fixed-rate, closed-end, amortizing loans, with terms ranging from 3–30 years. Approximately 60% of the HELOANs are senior lien loans and the remainder are junior lien loans. In general, HELOCs originated by the Firm are revolving loans for a 10-year period, after which time the HELOC recasts into a loan with a 20-year amortization period. At the time of origination, the borrower typically selects one of two minimum payment options that will generally remain in effect during the revolving period: a monthly payment of 1% of the outstanding balance, or interest-only payments based on a variable index (typically Prime). HELOCs originated by Washington Mutual were generally 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.

The unpaid principal balance of HELOCs outstanding was $41 billion at December 31, 2015. Since January 1, 2014, approximately $8 billion of HELOCs have recast from interest-only to fully amortizing payments; based upon contractual terms, approximately $19 billion is scheduled to recast in the future, consisting of $7 billion in 2016, $6 billion in 2017 and $6 billion in 2018 and beyond. However, of the total $19 billion scheduled to recast in the future, $13 billion is expected to actually recast; and the remaining $6 billion represents loans to borrowers who are expected to pre-pay or loans that are likely to charge-off prior to recast. The Firm has considered this payment recast risk in its allowance for loan losses based upon the estimated amount of payment shock (i.e., the excess of the fully-amortizing payment over the interest-only payment in effect prior to recast) expected to occur at the payment recast date, along with the corresponding estimated probability of default and loss severity assumptions. Certain factors, such as future developments in both unemployment rates and home prices, could have a significant impact on the performance of these loans.

The Firm 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 exhibiting a material deterioration in their credit risk profile. The Firm will continue to evaluate both the near-term and longer-term repricing and recast risks inherent in its HELOC portfolio to ensure that changes in the Firm’s estimate of incurred losses are appropriately considered in the allowance for loan losses and that the Firm’s account management practices are appropriate given the portfolio’s risk profile.

High-risk seconds are junior lien loans where the borrower has a senior lien loan that is either delinquent or has been modified. Such loans are considered to pose a higher risk of default than junior lien loans for which the senior lien loan is neither delinquent nor modified. The Firm estimates the balance of its total exposure to high-risk seconds on a quarterly basis using internal data and loan level credit bureau data (which typically provides the delinquency status of the senior lien loan). The estimated balance of these high-risk seconds may vary from quarter to quarter for reasons such as the movement of related senior lien loans into and out of the 30+ day delinquency bucket.

Current high-risk seconds		
December 31, (in billions)	2015	2014
Junior liens subordinate to:		
Modified current senior lien	$0.6	$0.7
Senior lien 30 – 89 days delinquent	0.4	0.5
Senior lien 90 days or more delinquent[(a)]	0.4	0.6
Total current high-risk seconds	$1.4	$1.8

(a) Junior liens subordinate to senior liens that are 90 days or more past due are classified as nonaccrual loans. At December 31, 2015 and 2014, excluded approximately $25 million and $50 million, respectively, of junior liens that are performing but not current, which were placed on nonaccrual in accordance with the regulatory guidance.

Of the estimated $1.4 billion of current high-risk junior liens at December 31, 2015, the Firm owns approximately 10% and services approximately 25% of the related senior lien loans to the same borrowers. The increased probability of default associated with these higher-risk junior lien loans was considered in estimating the allowance for loan losses.

Mortgage: Prime mortgages, including option ARMs and loans held-for-sale, increased from December 31, 2014 due to originations of high-quality prime mortgage loans that have been retained partially offset by paydowns, the run-off of option ARM loans and the charge-off or liquidation of delinquent loans. High-quality loan originations for the year ending December 31, 2015 included both jumbo and conforming loans, primarily consisting of fixed interest rate loans. Excluding loans insured by U.S. government agencies, both early-stage and late-stage delinquencies declined from December 31, 2014. Nonaccrual loans decreased from the prior year but remain elevated primarily as a result of loss mitigation activities. Net charge-offs remain low, reflecting continued improvement in home prices and delinquencies.

At December 31, 2015 and 2014, the Firm's prime mortgage portfolio included $11.1 billion and $12.4 billion, respectively, of mortgage loans insured and/or guaranteed by U.S. government agencies, of which $8.4 billion and $9.7 billion, respectively, were 30 days or more past due (of these past due loans, $6.3 billion and $7.8 billion, respectively, were 90 days or more past due). In 2014, the Firm entered into a settlement regarding loans insured under federal mortgage insurance programs overseen by the Federal Housing Administration ("FHA"), the U.S. Department of Housing and Urban Development ("HUD"), and the U.S. Department of Veterans Affairs ("VA"); the Firm will continue to monitor exposure on future claim payments for government insured loans, but any financial impact related to exposure on future claims is not expected to be significant and was considered in estimating the allowance for loan losses.

At December 31, 2015 and 2014, the Firm's prime mortgage portfolio included $17.7 billion and $16.3 billion, respectively, of interest-only loans, which represented 11% and 15%, respectively, of the prime mortgage portfolio. These loans have an interest-only payment period generally followed by an adjustable-rate or fixed-rate fully amortizing payment period to maturity and are typically originated as higher-balance loans to higher-income borrowers. To date, losses on this portfolio generally have been consistent with the broader prime mortgage portfolio and the Firm's expectations. The Firm continues to monitor the risks associated with these loans.

Subprime mortgages continued to decrease due to portfolio runoff. Early-stage and late-stage delinquencies have improved from December 31, 2014. Net charge-offs continued to improve as a result of improvement in home prices and delinquencies.

Auto: Auto loans increased from December 31, 2014, as new originations outpaced paydowns and payoffs. Nonaccrual loans were stable compared with December 31, 2014. Net charge-offs for the year ended December 31, 2015 increased compared with the prior year, as a result of higher loan balances and a moderate increase in loss severity. The auto loan portfolio predominantly consists of prime-quality credits.

Business banking: Business banking loans increased from December 31, 2014 due to an increase in loan originations. Nonaccrual loans declined from December 31, 2014 and net charge-offs for the year ended December 31, 2015 decreased from the prior year due to continued discipline in credit underwriting.

Student and other: Student and other loans decreased from December 31, 2014 due primarily to the run-off of the student loan portfolio as the Firm ceased originations of student loans during the fourth quarter of 2013. Nonaccrual loans and net charge-offs also declined as a result of the run-off of the student loan portfolio.

Purchased credit-impaired loans: PCI loans acquired in the Washington Mutual transaction decreased as the portfolio continues to run off.

As of December 31, 2015, approximately 14% of the option ARM PCI loans were delinquent and approximately 64% of the portfolio has been modified into fixed-rate, fully amortizing loans. Substantially all of the remaining loans are making amortizing payments, although such payments are not necessarily fully amortizing. This latter group of loans is subject to the risk of payment shock due to future payment recast. Default rates generally increase on option ARM loans when payment recast results in a payment increase. The expected increase in default rates is considered in the Firm’s quarterly impairment assessment.

The following table provides a summary of lifetime principal loss estimates included in either the nonaccretable difference or the allowance for loan losses.

Summary of lifetime principal loss estimates

December 31, (in billions)	Lifetime loss estimates[a]		LTD liquidation losses[b]	
	2015	2014	2015	2014
Home equity	$14.5	$14.6	$12.7	$12.4
Prime mortgage	4.0	3.8	3.7	3.5
Subprime mortgage	3.3	3.3	3.0	2.8
Option ARMs	10.0	9.9	9.5	9.3
Total	$31.8	$31.6	$28.9	$28.0

(a) Includes the original nonaccretable difference established in purchase accounting of $30.5 billion for principal losses plus additional principal losses recognized subsequent to acquisition through the provision and allowance for loan losses. The remaining nonaccretable difference for principal losses was $1.5 billion and $2.3 billion at December 31, 2015 and 2014, respectively.

(b) Life-to-date ("LTD") liquidation losses represent both realization of loss upon loan resolution and any principal forgiven upon modification.

For further information on the Firm's PCI loans, including write-offs, see Note 14.

Geographic composition of residential real estate loans

At December 31, 2015, $123.0 billion, or 61% of total retained residential real estate loan portfolio, excluding mortgage loans insured by U.S. government agencies and PCI loans, were concentrated in California, New York, Illinois, Texas and Florida, compared with $94.3 billion, or 63%, at December 31, 2014. California had the greatest concentration of retained residential loans with 28% at December 31, 2015, compared with 26% at December 31, 2014. The unpaid principal balance of PCI loans concentrated in these five states represented 74% of total PCI loans at both December 31, 2015, and December 31, 2014. For further information on the geographic composition of the Firm's residential real estate loans, see Note 14.

Current estimated loan-to-values ("LTVs") of residential real estate loans

The current estimated average LTV ratio for residential real estate loans retained, excluding mortgage loans insured by U.S. government agencies and PCI loans, was 59% at both December 31, 2015 and 2014.

Although home prices continue to recover, the decline in home prices since 2007 has had a significant impact on the collateral values underlying the Firm's residential real estate loan portfolio. In general, the delinquency rate for loans with high LTV ratios is greater than the delinquency rate for loans in which the borrower has greater equity in the collateral. While a large portion of the loans with current estimated LTV ratios greater than 100% continue to pay and are current, the continued willingness and ability of these borrowers to pay remains a risk.

The following table presents the current estimated LTV ratios for PCI loans, as well as the ratios of the carrying value of the underlying loans to the current estimated collateral value. Because such loans were initially measured at fair value, the ratios of the carrying value to the current estimated collateral value will be lower than the current estimated LTV ratios, which are based on the unpaid principal balances. The estimated collateral values used to calculate these ratios do not represent actual appraised loan-level collateral values; as such, the resulting ratios are necessarily imprecise and should therefore be viewed as estimates.

LTV ratios and ratios of carrying values to current estimated collateral values – PCI loans

	2015				2014			
December 31, (in millions, except ratios)	Unpaid principal balance	Current estimated LTV ratio[a][b]	Net carrying value[d]	Ratio of net carrying value to current estimated collateral value[b][d]	Unpaid principal balance	Current estimated LTV ratio[a][b]	Net carrying value[d]	Ratio of net carrying value to current estimated collateral value[b][d]
Home equity	$15,342	73 %[c]	$13,281	68 %[e]	$17,740	78 %[c]	$15,337	73 %[e]
Prime mortgage	8,919	66	7,908	58	10,249	71	9,027	63
Subprime mortgage	4,051	73	3,263	59	4,652	79	3,493	59
Option ARMs	14,353	64	13,804	62	16,496	69	15,514	65

(a) Represents the aggregate unpaid principal balance of loans divided by the estimated current property value. Current property values are estimated at least quarterly based on home valuation models that utilize nationally recognized home price index valuation estimates; such models incorporate actual data to the extent available and forecasted data where actual data is not available.

(b) Effective December 31, 2015, the current estimated LTV ratios and the ratios of net carrying value to current estimated collateral value reflect updates to the nationally recognized home price index valuation estimates incorporated into the Firm's home valuation models. The prior period ratios have been revised to conform with these updates in the home price index.

(c) Represents current estimated combined LTV for junior home equity liens, 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.

(d) Net carrying value includes the effect of fair value adjustments that were applied to the consumer PCI portfolio at the date of acquisition and is also net of the allowance for loan losses at December 31, 2015 and 2014 of $985 million and $1.2 billion for prime mortgage, $49 million and $194 million for option ARMs, $1.7 billion and $1.8 billion for home equity, respectively, and $180 million for subprime mortgage at December 31, 2014. There was no allowance for loan losses for subprime mortgage at December 31, 2015.

(e) The current period ratio has been updated to include the effect of any outstanding senior lien related to a property for which the Firm holds the junior home equity lien. The prior period ratio has been revised to conform with the current presentation.

The current estimated average LTV ratios were 65% and 78% for California and Florida PCI loans, respectively, at December 31, 2015, compared with 71% and 85%, respectively, at December 31, 2014. Average LTV ratios have declined consistent with recent improvements in home prices as well as a result of loan pay downs. Although home prices have improved, home prices in most areas of California and Florida are still lower than at the peak of the housing market; this continues to negatively affect current estimated average LTV ratios and the ratio of net carrying value to current estimated collateral value for loans in the PCI portfolio. Of the total PCI portfolio, 6% of the loans had a current estimated LTV ratio greater than 100%, and 1% had a current LTV ratio of greater than 125% at December 31, 2015, compared with 10% and 2%, respectively, at December 31, 2014.

While the current estimated collateral value is greater than the net carrying value of PCI loans, the ultimate performance of this portfolio is highly dependent on borrowers' behavior and ongoing ability and willingness to continue to make payments on homes with negative equity, as well as on the cost of alternative housing.
For further information on current estimated LTVs of residential real estate loans, see Note 14.
Loan modification activities – residential real estate loans
The performance of modified loans generally differs by product type due to differences in both the credit quality and the types of modifications provided. Performance

metrics for modifications to the residential real estate portfolio, excluding PCI loans, that have been seasoned more than six months show weighted-average redefault rates of 20% for senior lien home equity, 22% for junior lien home equity, 17% for prime mortgages including option ARMs, and 29% for subprime mortgages. The cumulative performance metrics for modifications to the PCI residential real estate portfolio that have been seasoned more than six months show weighted average redefault rates of 20% for home equity, 19% for prime mortgages, 16% for option ARMs and 33% for subprime mortgages. The favorable performance of the PCI option ARM modifications is the result of a targeted proactive program which fixed the borrower's payment to the amount at the point of modification. The cumulative redefault rates reflect the performance of modifications completed under both the U.S. Government's Home Affordable Modification Program ("HAMP") and the Firm's proprietary modification programs (primarily the Firm's modification program that was modeled after HAMP) from October 1, 2009, through December 31, 2015. Certain loans that were modified under HAMP and the Firm's proprietary modification programs have interest rate reset provisions ("step-rate modifications"). Interest rates on these loans generally began to increase in 2014 by 1% per year and will continue to do so, until the rate reaches a specified cap, typically at a prevailing market interest rate for a fixed-rate loan as of the modification date. The

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carrying value of non-PCI loans modified in step-rate modifications was $4 billion at December 31, 2015, with $447 million that experienced the initial interest rate increase in 2015 and $1 billion that is scheduled to experience the initial interest rate increase in each of 2016 and 2017. The unpaid principal balance of PCI loans modified in step-rate modifications was $10 billion at December 31, 2015, with $1 billion that experienced the initial interest rate increase in 2015, and $3 billion and $2 billion scheduled to experience the initial interest rate increase in 2016 and 2017, respectively. The Firm continues to monitor this risk exposure to ensure that it is appropriately considered in the allowance for loan losses.
The following table presents information as of December 31, 2015 and 2014, relating to modified retained residential real estate loans for which concessions have been granted to borrowers experiencing financial difficulty. Modifications of PCI loans continue to be accounted for and reported as PCI loans, and the impact of the modification is incorporated into the Firm’s quarterly assessment of estimated future cash flows. Modifications of consumer loans other than PCI loans are generally accounted for and reported as TDRs. For further information on modifications for the years ended December 31, 2015 and 2014, see Note 14.
Modified residential real estate loans

	2015		2014	
December 31, (in millions)	Retained loans	Nonaccrual retained loans[d]	Retained loans	Nonaccrual retained loans[d]
Modified residential real estate loans, excluding PCI loans[a][b]				
Home equity – senior lien	$1,048	$581	$1,101	$628
Home equity – junior lien	1,310	639	1,304	632
Prime mortgage, including option ARMs	4,826	1,287	6,145	1,559
Subprime mortgage	1,864	670	2,878	931
Total modified residential real estate loans, excluding PCI loans	$9,048	$3,177	$11,428	$3,750
Modified PCI loans[c]				
Home equity	$2,526	NA	$2,580	NA
Prime mortgage	5,686	NA	6,309	NA
Subprime mortgage	3,242	NA	3,647	NA
Option ARMs	10,427	NA	11,711	NA
Total modified PCI loans	$21,881	NA	$24,247	NA

(a) Amounts represent the carrying value of modified residential real estate loans.
(b) At December 31, 2015 and 2014, $3.8 billion and $4.9 billion, respectively, of loans modified subsequent to repurchase from 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. For additional information about sales of loans in securitization transactions with Ginnie Mae, see Note 16.
(c) Amounts represent the unpaid principal balance of modified PCI loans.
(d) As of December 31, 2015 and 2014, nonaccrual loans included $2.5 billion and $2.9 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, see Note 14.

Nonperforming assets
The following table presents information as of December 31, 2015 and 2014, about consumer, excluding credit card, nonperforming assets.
Nonperforming assets[a]

December 31, (in millions)	2015	2014
Nonaccrual loans[b]		

Residential real estate	$4,792	$5,845
Other consumer	621	664
Total nonaccrual loans	5,413	6,509
Assets acquired in loan satisfactions		
Real estate owned	277	437
Other	48	36
Total assets acquired in loan satisfactions	325	473
Total nonperforming assets	$5,738	$6,982

(a) At December 31, 2015 and 2014, nonperforming assets excluded: (1) mortgage loans insured by U.S. government agencies of $6.3 billion and $7.8 billion, respectively, that are 90 or more days past due; (2) student loans insured by U.S. government agencies under the FFELP of $290 million and $367 million, respectively, that are 90 or more days past due; and (3) real estate owned insured by U.S. government agencies of $343 million and $462 million, respectively. These amounts have been excluded based upon the government guarantee.

(b) Excludes PCI loans that were acquired as part of the Washington Mutual transaction, which are accounted for on a pool basis. Since each pool is accounted for as a single asset with a single composite interest rate and an aggregate expectation of cash flows, the past-due status of the pools, or that of individual loans within the pools, is not meaningful. Because the Firm is recognizing interest income on each pool of loans, each pool is considered to be performing.

Nonaccrual loans in the residential real estate portfolio totaled $4.8 billion and $5.8 billion at December 31, 2015, and 2014, respectively, of which 31% and 32%, respectively, were greater than 150 days past due. In the aggregate, the unpaid principal balance of residential real estate loans greater than 150 days past due was charged down by approximately 44% and 50% to the estimated net realizable value of the collateral at December 31, 2015 and 2014, respectively.

Active and suspended foreclosure: For information on loans that were in the process of active or suspended foreclosure, see Note 14.

Nonaccrual loans: The following table presents changes in the consumer, excluding credit card, nonaccrual loans for the years ended December 31, 2015 and 2014.

Nonaccrual loans Year ended December 31, (in millions)	2015	2014
Beginning balance	$6,509	$7,496
Additions	3,662	4,905
Reductions:		
Principal payments and other[a]	1,668	1,859
Charge-offs	800	1,306
Returned to performing status	1,725	2,083
Foreclosures and other liquidations	565	644
Total reductions	4,758	5,892
Net additions/(reductions)	(1,096)	(987)
Ending balance	$5,413	$6,509

(a) Other reductions includes loan sales.

Credit Card

Total credit card loans increased from December 31, 2014 due to higher new account originations and increased credit card sales volume partially offset by sales of non-core loans and the transfer of commercial card loans to the CIB. The 30+ day delinquency rate decreased to 1.43% at December 31, 2015, from 1.44% at December 31, 2014. For the years ended December 31, 2015 and 2014, the net charge-off rates were 2.51% and 2.75%, respectively. The Credit Card 30+ day delinquency rate and net charge-off rate remain near historic lows. Charge-offs have improved compared to a year ago due to continued discipline in credit underwriting as well as improvement in the economy driven by lower unemployment. The credit card portfolio continues to reflect a well-seasoned, largely rewards-based portfolio that has good U.S. geographic diversification.

Loans outstanding in the top five states of California, Texas, New York, Florida and Illinois consisted of $57.5 billion in receivables, or 44% of the retained loan portfolio, at December 31, 2015, compared with $54.9 billion, or 43%, at December 31, 2014. The greatest geographic concentration of credit card retained loans is in California, which represented 14% of total retained loans at both December 31, 2015 and 2014, respectively. For further information on the geographic composition of the Firm’s credit card loans, see Note 14.

Modifications of credit card loans

At December 31, 2015 and 2014, the Firm had $1.5 billion and $2.0 billion, respectively, of credit card loans outstanding that have been modified in TDRs. These balances included both credit card loans with modified payment terms and credit card loans that reverted back to their pre-modification payment terms because the cardholder did not comply with the modified payment terms. The decrease in modified credit card loans outstanding from December 31, 2014, was attributable to a reduction in new modifications as well as ongoing payments and charge-offs on previously modified credit card loans.

Consistent with the Firm’s policy, all credit card loans typically remain on accrual status until charged off. However, the Firm establishes an allowance, which is offset against loans and charged to interest income, for the estimated uncollectible portion of accrued interest and fee income.

For additional information about loan modification programs to borrowers, see Note 14.

WHOLESALE CREDIT PORTFOLIO

The Firm's wholesale businesses are exposed to credit risk through underwriting, lending, market-making, and hedging activities with and for clients and counterparties, as well as through various operating services such as cash management and clearing activities. A portion of the loans originated or acquired by the Firm's wholesale businesses is generally retained on the balance sheet. The Firm distributes a significant percentage of the loans it originates into the market as part of its syndicated loan business and to manage portfolio concentrations and credit risk.

The wholesale credit portfolio, excluding Oil & Gas, continued to be generally stable throughout 2015, characterized by low levels of criticized exposure, nonaccrual loans and charge-offs. Growth in loans retained was driven by increased client activity, notably in commercial real estate. Discipline in underwriting across all areas of lending continues to remain a key point of focus. The wholesale portfolio is actively managed, in part by conducting ongoing, in-depth reviews of client credit quality and transaction structure, inclusive of collateral where applicable; and of industry, product and client concentrations.

Wholesale credit portfolio

December 31,	Credit exposure		Nonperforming[c]	
(in millions)	2015	2014	2015	2014
Loans retained	$357,050	$324,502	$988	$599
Loans held-for-sale	1,104	3,801	3	4
Loans at fair value	2,861	2,611	25	21
Loans – reported	361,015	330,914	1,016	624
Derivative receivables	59,677	78,975	204	275
Receivables from customers and other[a]	13,372	28,972	—	—
Total wholesale credit-related assets	434,064	438,861	1,220	899
Lending-related commitments	366,399	366,881	193	103
Total wholesale credit exposure	$800,463	$805,742	$1,413	$1,002
Credit derivatives used in credit portfolio management activities[b]	$(20,681)	$(26,703)	$(9)	$—
Liquid securities and other cash collateral held against derivatives	(16,580)	(19,604)	NA	NA

(a) Receivables from customers and other include $13.3 billion and $28.8 billion of margin loans at December 31, 2015 and 2014, respectively, to prime and retail brokerage customers; these are classified in accrued interest and accounts receivable on the Consolidated balance sheets.

(b) Represents the net notional amount of protection purchased and sold through credit derivatives used to manage both performing and nonperforming wholesale credit exposures; these derivatives do not qualify for hedge accounting under U.S. GAAP. For additional information, see Credit derivatives on page 129, and Note 6.

(c) Excludes assets acquired in loan satisfactions.

The following tables present the maturity and ratings profiles of the wholesale credit portfolio as of December 31, 2015 and 2014. The ratings scale is based on the Firm's internal risk ratings, which generally correspond to the ratings as defined by S&P and Moody's. For additional information on wholesale loan portfolio risk ratings, see Note 14.

Wholesale credit exposure – maturity and ratings profile

December 31, 2015 (in millions, except ratios)	Maturity profile[e] Due in 1 year or less	Due after 1 year through 5 years	Due after 5 years	Total	Ratings profile Investment-grade AAA/Aaa to BBB-/Baa3	Noninvestment-grade BB+/Ba1 & below	Total	Total % of IG
Loans retained	$110,348	$155,902	$90,800	$357,050	$267,736	$ 89,314	$357,050	75 %
Derivative receivables				59,677			59,677	
Less: Liquid securities and other cash collateral held against derivatives				(16,580)			(16,580)	
Total derivative receivables, net of all collateral	11,399	12,836	18,862	43,097	34,773	8,324	43,097	81
Lending-related commitments	105,514	251,042	9,843	366,399	267,922	98,477	366,399	73
Subtotal	227,261	419,780	119,505	766,546	570,431	196,115	766,546	74
Loans held-for-sale and loans at fair value[a]				3,965			3,965	
Receivables from customers and other				13,372			13,372	
Total exposure – net of liquid securities and other cash collateral held against derivatives				$783,883			$783,883	
Credit derivatives used in credit portfolio management activities by reference entity ratings profile[b][c][d]	$(808)	$(14,427)	$(5,446)	$(20,681)	$(17,754)	$ (2,927)	$(20,681)	86 %

December 31, 2014 (in millions, except ratios)	Maturity profile[e] Due in 1 year or less	Due after 1 year through 5 years	Due after 5 years	Total	Ratings profile Investment-grade AAA/Aaa to BBB-/Baa3	Noninvestment-grade BB+/Ba1 & below	Total	Total % of IG
Loans retained	$112,411	$134,277	$77,814	$324,502	$241,666	$ 82,836	$324,502	74 %
Derivative receivables				78,975			78,975	
Less: Liquid securities and other cash collateral held against derivatives				(19,604)			(19,604)	
Total derivative receivables, net of all collateral	20,032	16,130	23,209	59,371	50,815 [f]	8,556 [f]	59,371	86
Lending-related commitments	94,635	262,572	9,674	366,881	284,288	82,593	366,881	77
Subtotal	227,078	412,979	110,697	750,754	576,769	173,985	750,754	77

Loans held-for-sale and loans at fair value[(a)]				6,412			6,412	
Receivables from customers and other				28,972			28,972	
Total exposure – net of liquid securities and other cash collateral held against derivatives				$786,138			$786,138	
Credit derivatives used in credit portfolio management activities by reference entity ratings profile[(b)(c)(d)]	$(2,050)	$(18,653)	$(6,000)	$(26,703)	$(23,571)	$ (3,132)	$(26,703)	88 %

(a) Represents loans held-for-sale, primarily related to syndicated loans and loans transferred from the retained portfolio, and loans at fair value.

(b) These derivatives do not quality for hedge accounting under U.S. GAAP.

(c) The notional amounts are presented on a net basis by underlying reference entity and the ratings profile shown is based on the ratings of the reference entity on which protection has been purchased.

(d) Predominantly all of the credit derivatives entered into by the Firm where it has purchased protection, including Credit derivatives used in credit portfolio management activities, are executed with investment grade counterparties.

(e) The maturity profile of retained loans, lending-related commitments and derivative receivables is based on remaining contractual maturity. Derivative contracts that are in a receivable position at December 31, 2015, may become a payable prior to maturity based on their cash flow profile or changes in market conditions.

(f) Prior period amounts have been revised to conform with current period presentation.

Wholesale credit exposure – industry exposures

The Firm focuses on the management and diversification of its industry exposures, paying particular attention to industries with actual or potential credit concerns. Exposures deemed criticized align with the U.S. banking regulators' definition of criticized exposures, which consist

of the special mention, substandard and doubtful categories. The total criticized component of the portfolio, excluding loans held-for-sale and loans at fair value, was $14.6 billion at December 31, 2015, compared with $10.1 billion at December 31, 2014, driven by downgrades within the Oil & Gas portfolio.

Effective in the fourth quarter 2015, the Firm realigned its wholesale industry divisions in order to better monitor and manage industry concentrations. 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. In the tables below, the prior period information has been revised to conform with the current period presentation.

Below are summaries of the Firm's exposures as of December 31, 2015 and 2014. For additional information on industry concentrations, see Note 5.

Wholesale credit exposure – industries[(a)]

			Noninvestment-grade			Selected metrics			
As of or for the year ended December 31, 2015 (in millions)	Credit exposure[(d)]	Investment-grade	Noncriticized	Criticized performing	Criticized nonperforming	30 days or more past due and accruing loans	Net charge-offs/ (recoveries)	Credit derivative hedges[(e)]	Liquid securities and other cash collateral held against derivative receivables
Real Estate	$ 116,857	$ 88,076	$ 27,087	$ 1,463	$ 231	$ 208	$ (14)	$ (54)	$ (47)
Consumer & Retail	85,460	53,647	29,659	1,947	207	18	13	(288)	(94)
Technology, Media & Telecommunications	57,382	29,205	26,925	1,208	44	5	(1)	(806)	(21)
Industrials	54,386	36,519	16,663	1,164	40	59	8	(386)	(39)
Healthcare	46,053	37,858	7,755	394	46	129	(7)	(24)	(245)
Banks & Finance Cos	43,398	35,071	7,654	610	63	17	(5)	(974)	(5,509)
Oil & Gas	42,077	24,379	13,158	4,263	277	22	13	(530)	(37)
Utilities	30,853	24,983	5,655	168	47	3	—	(190)	(289)
State & Municipal Govt[(b)]	29,114	28,307	745	7	55	55	(8)	(146)	(81)
Asset Managers	23,815	20,214	3,570	31	—	18	—	(6)	(4,453)
Transportation	19,227	13,258	5,801	167	1	15	3	(51)	(243)
Central Govt	17,968	17,871	97	—	—	7	—	(9,359)	(2,393)
Chemicals & Plastics	15,232	10,910	4,017	274	31	9	—	(17)	—
Metals & Mining	14,049	6,522	6,434	1,008	85	1	—	(449)	(4)
Automotive	13,864	9,182	4,580	101	1	4	(2)	(487)	(1)
Insurance	11,889	9,812	1,958	26	93	23	—	(157)	(1,410)
Financial Markets Infrastructure	7,973	7,304	669	—	—	—	—	—	(167)
Securities Firms	4,412	1,505	2,907	—	—	3	—	(102)	(256)
All other[(c)]	149,117	130,488	18,095	370	164	1,015	10	(6,655)	(1,291)
Subtotal	783,126	$ 585,111	$ 183,429	$ 13,201	$ 1,385	$ 1,611	$ 10	$ (20,681)	$ (16,580)
Loans held-for-sale and loans at fair value	3,965								
Receivables from customers and interests in purchased receivables	13,372								
Total	$ 800,463								

			Noninvestment-grade			Selected metrics			
As of or for the year ended December 31, 2014 (in millions)	Credit exposure[e]	Investment-grade	Noncriticized	Criticized performing	Criticized nonperforming	30 days or more past due and accruing loans	Net charge-offs/ (recoveries)	Credit derivative hedges[f]	Liquid securities and other cash collateral held against derivative receivables
Real Estate	$ 105,975	$ 78,996	$ 25,370	$ 1,356	$ 253	$ 309	$ (9)	$ (36)	$ (27)
Consumer & Retail	83,663	52,872	28,289	2,315	187	92	9	(81)	(26)
Technology, Media & Telecommunications	46,655	29,792	15,358	1,446	59	25	(5)	(1,107)	(13)
Industrials	47,859	29,246	17,483	1,117	13	58	(1)	(338)	(24)
Healthcare	56,516	48,402	7,584	488	42	193	16	(94)	(244)
Banks & Finance Cos	55,098	45,962	8,611	508	17	46	(4)	(1,232)	(9,369)
Oil & Gas	43,148	29,260	13,831	56	1	15	2	(144)	(161)
Utilities	27,441	23,533	3,653	255	—	198	(3)	(155)	(193)
State & Municipal Govt[b]	31,068	30,147	819	102	—	69	24	(148)	(130)
Asset Managers	27,488	24,054	3,376	57	1	38	(12)	(9)	(4,545)
Transportation	20,619	13,751	6,703	165	—	5	(12)	(42)	(279)
Central Govt	19,881	19,647	176	58	—	—	—	(11,342)	(1,161)
Chemicals & Plastics	12,612	9,256	3,327	29	—	1	(2)	(14)	—
Metals & Mining	14,969	8,304	6,161	504	—	—	18	(377)	(19)
Automotive	12,754	8,071	4,522	161	—	1	(1)	(140)	—
Insurance	13,350	10,550	2,558	80	162	—	—	(52)	(2,372)
Financial Markets Infrastructure	11,986	11,487	499	—	—	—	—	—	(4)
Securities Firms	4,801	2,491	2,245	10	55	20	4	(102)	(212)
All other[c]	134,475	118,639	15,214	435	187	1,231	(12)	(11,290)	(825)
Subtotal	$ 770,358	$ 594,460	$ 165,779	$ 9,142	$ 977	$ 2,301	$ 12	$ (26,703)	$ (19,604)
Loans held-for-sale and loans at fair value	6,412								
Receivables from customers and interests in purchased receivables	28,972								
Total[d]	$ 805,742								

(a)

The industry rankings presented in the table as of December 31, 2014, are based on the industry rankings of the corresponding exposures at December 31, 2015, not actual rankings of such exposures at December 31, 2014.

(b) In addition to the credit risk exposure to states and municipal governments (both U.S. and non-U.S.) at December 31, 2015 and 2014, noted above, the Firm held: $7.6 billion and $10.6 billion, respectively, of trading securities; $33.6 billion and $30.1 billion, respectively, of available-for-sale ("AFS") securities; and $12.8 billion and $10.2 billion, respectively, of held-to-maturity ("HTM") securities, issued by U.S. state and municipal governments. For further information, see Note 3 and Note 12.

(c) All other includes: individuals; SPEs; holding companies; and private education and civic organizations, representing approximately 54%, 37%, 5% and 4%, respectively, at December 31, 2015, and 55%, 33%, 6% and 6%, respectively, at December 31, 2014.

(d) Excludes cash placed with banks of $351.0 billion and $501.5 billion, at December 31, 2015 and 2014, respectively, placed with various central banks, predominantly Federal Reserve Banks.

(e) Credit exposure is net of risk participations and excludes the benefit of "Credit derivatives used in credit portfolio management activities" held against derivative receivables or loans and "Liquid securities and other cash collateral held against derivative receivables".

(f) Represents the net notional amounts of protection purchased and sold through credit derivatives used to manage the credit exposures; these derivatives do not qualify for hedge accounting under U.S. GAAP. The All other category includes purchased credit protection on certain credit indices.

Management's discussion and analysis

Presented below is a discussion of certain industries to which the Firm has significant exposure and/or present actual or potential credit concerns. For additional information, refer to the tables on the previous pages.

- Real Estate: Exposure to this industry increased by $10.9 billion, or 10%, in 2015 to $116.9 billion. The increase was largely driven by growth in multifamily exposure in Commercial Banking. The credit quality of this industry remained stable as the investment-grade portion of the exposures was 75% for 2015 and 2014. The ratio of nonaccrual retained loans to total retained loans decreased to 0.25% at December 31, 2015 from 0.32% at December 31, 2014. For further information on commercial real estate loans, see Note 14.
- Oil & Gas: Exposure to the Oil & Gas industry was approximately 5.3% and 5.4% of the Firm's total wholesale exposure as of December 31, 2015 and 2014, respectively. Exposure to this industry decreased by $1.1 billion in 2015 to $42.1 billion; of the $42.1 billion, $13.3 billion was drawn at year-end. As of December 31, 2015, approximately $24 billion of the exposure was investment-grade, of which $4 billion was drawn, and approximately $18 billion of the exposure was high yield, of which $9 billion was drawn. As of December 31, 2015, $23.5 billion of the portfolio was concentrated in the Exploration & Production and Oilfield Services sub-sectors, 36% of which exposure was drawn. Exposure to other sub-sectors, including Integrated oil and gas firms, Midstream/Oil Pipeline companies, and Refineries, is predominantly investment-grade. As of December 31, 2015, secured lending, which largely consists of reserve-based lending to the Oil & Gas industry, was $12.3 billion, 44% of which exposure was drawn.

In addition to $42.1 billion in exposure classified as Oil & Gas, the Firm had $4.3 billion in exposure to Natural Gas Pipelines and related Distribution businesses, of which $893 million was drawn at year end and 63% was investment-grade, and $4.1 billion in exposure to commercial real estate in geographies sensitive to the Oil & Gas industry.

The Firm continues to actively monitor and manage its exposure to the Oil & Gas industry in light of market conditions, and is also actively monitoring potential contagion effects on other related or dependent industries.

- Metals & Mining: Exposure to the Metals & Mining industry was approximately 1.8% and 1.9% of the Firm's total wholesale exposure as of December 31, 2015 and 2014, respectively. Exposure to the Metals & Mining industry decreased by $920 million in 2015 to $14.0 billion, of which $4.6 billion was drawn. The portfolio largely consists of exposure in North America, and 59% is concentrated in the Steel and Diversified Mining sub-sectors. Approximately 46% of the exposure in the Metals & Mining portfolio was investment-grade as of December 31, 2015, a decrease from 55% as of December 31, 2014, due to downgrades.

Loans

In the normal course of its wholesale business, the Firm provides loans to a variety of customers, ranging from large corporate and institutional clients to high-net-worth individuals. The Firm actively manages its wholesale credit exposure. One way of managing credit risk is through secondary market sales of loans and lending-related commitments. For further discussion on loans, including information on credit quality indicators and sales of loans, see Note 14.

The following table presents the change in the nonaccrual loan portfolio for the years ended December 31, 2015 and 2014.

Wholesale nonaccrual loan activity

Year ended December 31, (in millions)	2015	2014
Beginning balance	$624	$1,044
Additions	1,307	882
Reductions:		
Paydowns and other	534	756
Gross charge-offs	87	148
Returned to performing status	286	303
Sales	8	95
Total reductions	915	1,302
Net changes	392	(420)

Ending balance	$1,016	$624

The following table presents net charge-offs, which are defined as gross charge-offs less recoveries, for the years ended December 31, 2015 and 2014. The amounts in the table below do not include gains or losses from sales of nonaccrual loans.

Wholesale net charge-offs

Year ended December 31, (in millions, except ratios)	2015	2014
Loans – reported		
Average loans retained	$337,407	$316,060
Gross charge-offs	95	151
Gross recoveries	(85)	(139)
Net charge-offs	10	12
Net charge-off rate	—%	—%

Receivables from customers

Receivables from customers primarily represent margin loans to prime and retail brokerage clients that are collateralized through a pledge of assets maintained in clients' brokerage accounts which are subject to daily minimum collateral requirements. In the event that the collateral value decreases, a maintenance margin call is made to the client to provide additional collateral into the account. If additional collateral is not provided by the client, the client's position may be liquidated by the Firm to meet the minimum collateral requirements.

Lending-related commitments

The Firm uses lending-related financial instruments, such as commitments (including revolving credit facilities) and guarantees, to meet the financing needs of its customers. The contractual amounts of these financial instruments represent the maximum possible credit risk should the counterparties draw down on these commitments or the Firm fulfills its obligations under these guarantees, and the counterparties subsequently fail to perform according to the terms of these contracts.

In the Firm's view, the total contractual amount of these wholesale lending-related commitments is not representative of the Firm's likely actual future credit exposure or funding requirements. In determining the amount of credit risk exposure the Firm has to wholesale lending-related commitments, which is used as the basis for allocating credit risk capital to these commitments, the Firm has established a "loan-equivalent" amount for each commitment; this amount represents the portion of the unused commitment or other contingent exposure that is expected, based on average portfolio historical experience, to become drawn upon in an event of a default by an obligor. The loan-equivalent amount of the Firm's lending-related commitments was \$212.4 billion and \$216.5 billion as of December 31, 2015 and 2014, respectively.

Clearing services

The Firm provides clearing services for clients entering into securities and derivative transactions. Through the provision of these services the Firm is exposed to the risk of non-performance by its clients and may be required to share in losses incurred by central counterparties ("CCPs"). Where possible, the Firm seeks to mitigate its credit risk to its clients through the collection of adequate margin at inception and throughout the life of the transactions and can also cease provision of clearing services if clients do not adhere to their obligations under the clearing agreement. For further discussion of Clearing services, see Note 29.

Derivative contracts

In the normal course of business, the Firm uses derivative instruments predominantly for market-making activities. Derivatives enable customers to manage exposures to fluctuations in interest rates, currencies and other markets. The Firm also uses derivative instruments to manage its own credit and other market risk exposure. The nature of the counterparty and the settlement mechanism of the derivative affect the credit risk to which the Firm is exposed. For OTC derivatives the Firm is exposed to the credit risk of the derivative counterparty. For exchange-traded derivatives ("ETD"), such as futures and options and "cleared" over-the-counter ("OTC-cleared") derivatives, the Firm is generally exposed to the credit risk of the relevant CCP. Where possible, the Firm seeks to mitigate its credit risk exposures arising from derivative transactions through the use of legally enforceable master netting arrangements and collateral agreements. For further discussion of derivative contracts, counterparties and settlement types, see Note 6.

The following table summarizes the net derivative receivables for the periods presented.

Derivative receivables

December 31, (in millions)	2015	2014
Interest rate	$26,363	$33,725
Credit derivatives	1,423	1,838
Foreign exchange	17,177	21,253
Equity	5,529	8,177
Commodity	9,185	13,982
Total, net of cash collateral	59,677	78,975
Liquid securities and other cash collateral held against derivative receivables	(16,580)	(19,604)

Total, net of all collateral	$43,097	$59,371

Derivative receivables reported on the Consolidated balance sheets were $59.7 billion and $79.0 billion at December 31, 2015 and 2014, respectively. These amounts represent the fair value of the derivative contracts, after giving effect to legally enforceable master netting agreements and cash collateral held by the Firm. However, in management's view, the appropriate measure of current credit risk should also take into consideration additional liquid securities (primarily U.S. government and agency securities and other group of seven nations ("G7") government bonds) and other cash collateral held by the Firm aggregating $16.6 billion and $19.6 billion at December 31, 2015 and 2014, respectively, that may be used as security when the fair value of the client's exposure is in the Firm's favor. The decrease in derivative receivables was predominantly driven by declines in interest rate derivatives, commodity derivatives, foreign exchange derivatives and equity derivatives due to market movements, maturities and settlements related to client-driven market-making activities in CIB.

Management's discussion and analysis

In addition to the collateral described in the preceding paragraph, the Firm also holds additional collateral (primarily cash; G7 government securities; other liquid government-agency and guaranteed securities; and corporate debt and equity securities) delivered by clients at the initiation of transactions, as well as collateral related to contracts that have a non-daily call frequency and collateral that the Firm has agreed to return but has not yet settled as of the reporting date. Although this collateral does not reduce the balances and is not included in the table above, it is available as security against potential exposure that could arise should the fair value of the client's derivative transactions move in the Firm's favor. As of December 31, 2015 and 2014, the Firm held $43.7 billion and $48.6 billion, respectively, of this additional collateral. The derivative receivables fair value, net of all collateral, also does not include other credit enhancements, such as letters of credit. For additional information on the Firm's use of collateral agreements, see Note 6.

While useful as a current view of credit exposure, the net fair value of the derivative receivables does not capture the potential future variability of that credit exposure. To capture the potential future variability of credit exposure, the Firm calculates, on a client-by-client basis, three measures of potential derivatives-related credit loss: Peak, Derivative Risk Equivalent ("DRE"), and Average exposure ("AVG"). These measures all incorporate netting and collateral benefits, where applicable.

Peak represents a conservative measure of potential exposure to a counterparty calculated in a manner that is broadly equivalent to a 97.5% confidence level. Peak is the primary measure used by the Firm for setting of credit limits for derivative transactions, senior management reporting and derivatives exposure management. DRE exposure is a measure that expresses the risk of derivative exposure on a basis intended to be equivalent to the risk of loan exposures. DRE is a less extreme measure of potential credit loss than Peak and is used for aggregating derivative credit risk exposures with loans and other credit risk.

Finally, AVG is a measure of the expected fair value of the Firm's derivative receivables at future time periods, including the benefit of collateral. AVG exposure over the total life of the derivative contract is used as the primary metric for pricing purposes and is used to calculate credit capital and the CVA, as further described below. The three year AVG exposure was $32.4 billion and $37.5 billion at December 31, 2015 and 2014, respectively, compared with derivative receivables, net of all collateral, of $43.1 billion and $59.4 billion at December 31, 2015 and 2014, respectively.

The fair value of the Firm's derivative receivables incorporates an adjustment, the CVA, to reflect the credit quality of counterparties. The CVA is based on the Firm's AVG to a counterparty and the counterparty's credit spread in the credit derivatives market. The primary components of changes in CVA are credit spreads, new deal activity or unwinds, and changes in the underlying market environment. The Firm believes that active risk management is essential to controlling the dynamic credit risk in the derivatives portfolio. In addition, the Firm's risk management process takes into consideration the potential impact of wrong-way risk, which is broadly defined as the potential for increased correlation between the Firm's exposure to a counterparty (AVG) and the counterparty's credit quality. Many factors may influence the nature and magnitude of these correlations over time. To the extent that these correlations are identified, the Firm may adjust the CVA associated with that counterparty's AVG. The Firm risk manages exposure to changes in CVA by entering into credit derivative transactions, as well as interest rate, foreign exchange, equity and commodity derivative transactions.

The accompanying graph shows exposure profiles to the Firm's current derivatives portfolio over the next 10 years as calculated by the Peak, DRE and AVG metrics. The three measures generally show that exposure will decline after the first year, if no new trades are added to the portfolio.

Exposure profile of derivatives measures
December 31, 2015
(in billions)

The following table summarizes the ratings profile by derivative counterparty of the Firm's derivative receivables, including credit derivatives, net of other liquid securities collateral, at the dates indicated. The ratings scale is based on the Firm's internal ratings, which generally correspond to the ratings as defined by S&P and Moody's.

Ratings profile of derivative receivables

Rating equivalent	2015		2014[(a)]	
December 31, (in millions, except ratios)	Exposure net of all collateral	% of exposure net of all collateral	Exposure net of all collateral	% of exposure net of all collateral
AAA/Aaa to AA-/Aa3	$10,371	24 %	$18,713	32 %
A+/A1 to A-/A3	10,595	25	13,508	23
BBB+/Baa1 to BBB-/Baa3	13,807	32	18,594	31
BB+/Ba1 to B-/B3	7,500	17	7,735	13
CCC+/Caa1 and below	824	2	821	1
Total	$43,097	100 %	$59,371	100 %

(a) Prior period amounts have been revised to conform with current period presentation.

As previously noted, the Firm uses collateral agreements to mitigate counterparty credit risk. The percentage of the Firm's derivatives transactions subject to collateral agreements — excluding foreign exchange spot trades, which are not typically covered by collateral agreements due to their short maturity — was 87% as of December 31, 2015, largely unchanged compared with 88% as of December 31, 2014.

Credit derivatives

The Firm uses credit derivatives for two primary purposes: first, in its capacity as a market-maker, and second, as an end-user to manage the Firm's own credit risk associated with various exposures. For a detailed description of credit derivatives, see Credit derivatives in Note 6.

Credit portfolio management activities

Included in the Firm's end-user activities are credit derivatives used to mitigate the credit risk associated with traditional lending activities (loans and unfunded commitments) and derivatives counterparty exposure in the Firm's wholesale businesses (collectively, "credit portfolio management" activities). Information on credit portfolio management activities is provided in the table below. For further information on derivatives used in credit portfolio management activities, see Credit derivatives in Note 6.

The Firm also uses credit derivatives as an end-user to manage other exposures, including credit risk arising from certain securities held in the Firm's market-making businesses. These credit derivatives are not included in credit portfolio management activities; for further information on these credit derivatives as well as credit derivatives used in the Firm's capacity as a market-maker in credit derivatives, see Credit derivatives in Note 6.

Credit derivatives used in credit portfolio management activities

	Notional amount of protection purchased [(a)]	
December 31, (in millions)	2015	2014
Credit derivatives used to manage:		
Loans and lending-related commitments	$2,289	$2,047
Derivative receivables	18,392	24,656
Credit derivatives used in credit portfolio management activities	$20,681	$26,703

(a) Amounts are presented net, considering the Firm's net protection purchased or sold with respect to each underlying reference entity or index.

The credit derivatives used in credit portfolio management activities do not qualify for hedge accounting under U.S. GAAP; these derivatives are reported at fair value, with gains and losses recognized in principal transactions revenue. In contrast, the loans and lending-related commitments being risk-managed are accounted for on an accrual basis. This asymmetry in accounting treatment, between loans and lending-related commitments and the credit derivatives used in credit portfolio management activities, causes earnings volatility that is not representative, in the Firm's view, of the true changes in value of the Firm's overall credit exposure.

The effectiveness of the Firm's credit default swap ("CDS") protection as a hedge of the Firm's exposures may vary depending on a number of factors, including the named reference entity (i.e., the Firm may experience losses on specific exposures that are different than the named reference entities in the purchased CDS); the contractual terms of the CDS (which may have a defined credit event that does not align with an actual loss realized by the Firm); and the maturity of the Firm's CDS protection (which in some cases may be shorter than the Firm's exposures). However, the Firm generally seeks to purchase credit protection with a maturity date that is the same or similar to the maturity date of the exposure for which the protection was purchased, and remaining differences in maturity are actively monitored and managed by the Firm.

ALLOWANCE FOR CREDIT LOSSES

JPMorgan Chase’s allowance for loan losses covers both the consumer (primarily scored) portfolio and wholesale (risk-rated) portfolio. The allowance represents management’s estimate of probable credit losses inherent in the Firm’s loan portfolio. Management also determines an allowance for wholesale and certain consumer lending-related commitments.

For a further discussion of the components of the allowance for credit losses and related management judgments, see Critical Accounting Estimates Used by the Firm on pages 165–169 and Note 15.

At least quarterly, the allowance for credit losses is reviewed by the Chief Risk Officer, the Chief Financial Officer and the Controller of the Firm, and discussed with the DRPC and Audit Committee of the Firm’s Board of Directors. As of December 31, 2015, JPMorgan Chase deemed the allowance for credit losses to be appropriate and sufficient to absorb probable credit losses inherent in the portfolio.

The consumer, excluding credit card, allowance for loan losses decreased from December 31, 2014, due to a reduction in the residential real estate portfolio allowance, reflecting continued improvement in home prices and delinquencies and increased granularity in the impairment estimates. For additional information about delinquencies and nonaccrual loans in the consumer, excluding credit card, loan portfolio, see Consumer Credit Portfolio on pages 115–121 and Note 14.

The credit card allowance for loan losses was relatively unchanged from December 31, 2014, reflecting stable credit quality trends. For additional information about delinquencies in the credit card loan portfolio, see Consumer Credit Portfolio on pages 115–121 and Note 14.

The wholesale allowance for credit losses increased from December 31, 2014, reflecting the impact of downgrades in the Oil & Gas portfolio. Excluding Oil and Gas, the wholesale portfolio continued to experience generally stable credit quality trends and low charge-off rates.

Summary of changes in the allowance for credit losses

	2015				2014			
Year ended December 31, (in millions, except ratios)	Consumer, excluding credit card	Credit card	Wholesale	Total	Consumer, excluding credit card	Credit card	Wholesale	Total
Allowance for loan losses								
Beginning balance at January 1,	$7,050	$3,439	$3,696	$14,185	$8,456	$3,795	$4,013	$16,264
Gross charge-offs	1,658	3,488	95	5,241	2,132	3,831	151	6,114
Gross recoveries	(704)	(366)	(85)	(1,155)	(814)	(402)	(139)	(1,355)
Net charge-offs	954	3,122	10	4,086	1,318	3,429	12	4,759
Write-offs of PCI loans[(a)]	208	—	—	208	533	—	—	533
Provision for loan losses	(82)	3,122	623	3,663	414	3,079	(269)	3,224
Other	—	(5)	6	1	31	(6)	(36)	(11)
Ending balance at December 31,	$5,806	$3,434	$4,315	$13,555	$7,050	$3,439	$3,696	$14,185
Impairment methodology								
Asset-specific[(b)]	$364	$460	$274	$1,098	$539	$500	$87	$1,126
Formula-based	2,700	2,974	4,041	9,715	3,186	2,939	3,609	9,734
PCI	2,742	—	—	2,742	3,325	—	—	3,325
Total allowance for loan losses	$5,806	$3,434	$4,315	$13,555	$7,050	$3,439	$3,696	$14,185
Allowance for lending-related commitments								
Beginning balance at January 1,	$13	$—	$609	$622	$8	$—	$697	$705
Provision for lending-related commitments	1	—	163	164	5	—	(90)	(85)
Other	—	—	—	—	—	—	2	2
Ending balance at December 31,	$14	$—	$772	$786	$13	$—	$609	$622
Impairment methodology								
Asset-specific	$—	$—	$73	$73	$—	$—	$60	$60
Formula-based	14	—	699	713	13	—	549	562
Total allowance for lending-related commitments[(c)]	$14	$—	$772	$786	$13	$—	$609	$622
Total allowance for credit losses	$5,820	$3,434	$5,087	$14,341	$7,063	$3,439	$4,305	$14,807
Memo:								
	$344,355	$131,387	$357,050	$832,792	$294,979	$128,027	$324,502	$747,508

Retained loans, end of period								
Retained loans, average	318,612	124,274	337,407	780,293	289,212	124,604	316,060	729,876
PCI loans, end of period	40,998	—	4	41,002	46,696	—	4	46,700
Credit ratios								
Allowance for loan losses to retained loans	1.69 %	2.61 %	1.21 %	1.63 %	2.39 %	2.69 %	1.14 %	1.90 %
Allowance for loan losses to retained nonaccrual loans[d]	109	NM	437	215	110	NM	617	202
Allowance for loan losses to retained nonaccrual loans excluding credit card	109	NM	437	161	110	NM	617	153
Net charge-off rates	0.30	2.51	—	0.52	0.46	2.75	—	0.65
Credit ratios, excluding residential real estate PCI loans								
Allowance for loan losses to retained loans	1.01	2.61	1.21	1.37	1.50	2.69	1.14	1.55
Allowance for loan losses to retained nonaccrual loans[d]	58	NM	437	172	58	NM	617	155
Allowance for loan losses to retained nonaccrual loans excluding credit card	58	NM	437	117	58	NM	617	106
Net charge-off rates	0.35 %	2.51 %	— %	0.55 %	0.55 %	2.75 %	— %	0.70 %

Note: In the table above, the financial measures which exclude the impact of PCI loans are non-GAAP financial measures. For additional information, see Explanation and Reconciliation of the Firm's Use of Non-GAAP Financial Measures on pages 80–82.

(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 the fourth quarter of 2014, the Firm recorded a $291 million adjustment to reduce the PCI allowance and the recorded investment in the Firm's PCI loan portfolio, primarily reflecting the cumulative effect of interest forgiveness modifications. This adjustment had no impact to the Firm'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. The asset-specific credit card allowance for loan losses modified in a TDR is calculated based on the loans' original contractual interest rates and does not consider any incremental penalty rates.

(c) The allowance for lending-related commitments is reported in other liabilities on the Consolidated balance sheets.

(d) The Firm's policy is generally to exempt credit card loans from being placed on nonaccrual status as permitted by regulatory guidance.

Provision for credit losses

For the year ended December 31, 2015, the provision for credit losses was $3.8 billion, compared with $3.1 billion for the year ended December 31, 2014.

The total consumer provision for credit losses for the year ended December 31, 2015 reflected lower net charge-offs due to continued discipline in credit underwriting as well as improvement in the economy driven by increasing home prices and lower unemployment, partially offset by a lower reduction in the allowance for loan loss compared with December 31, 2014.

The wholesale provision for credit losses for the year ended December 31, 2015 reflected the impact of downgrades in the Oil & Gas portfolio.

Year ended December 31,	Provision for loan losses			Provision for lending-related commitments			Total provision for credit losses		
(in millions)	2015	2014	2013	2015	2014	2013	2015	2014	2013
Consumer, excluding credit card	$(82)	$414	$(1,872)	$1	$5	$1	$(81)	$419	$(1,871)
Credit card	3,122	3,079	2,179	—	—	—	3,122	3,079	2,179
Total consumer	3,040	3,493	307	1	5	1	3,041	3,498	308
Wholesale	623	(269)	(119)	163	(90)	36	786	(359)	(83)
Total	$3,663	$3,224	$188	$164	$(85)	$37	$3,827	$3,139	$225

MARKET RISK MANAGEMENT

Market risk is the potential for adverse changes in the value of the Firm's assets and liabilities resulting from changes in market variables such as interest rates, foreign exchange rates, equity prices, commodity prices, implied volatilities or credit spreads.

Market risk management

Market Risk management, part of the independent risk management function, is responsible for identifying and monitoring market risks throughout the Firm and defines market risk policies and procedures. The Market Risk function reports to the Firm's CRO.

Market Risk seeks to control risk, facilitate efficient risk/return decisions, reduce volatility in operating performance and provide transparency into the Firm's market risk profile for senior management, the Board of Directors and regulators. Market Risk is responsible for the following functions:

- Establishment of a market risk policy framework
- Independent measurement, monitoring and control of line of business and firmwide market risk
- Definition, approval and monitoring of limits
- Performance of stress testing and qualitative risk assessments

Risk identification and classification

Each line of business is responsible for the management of the market risks within its units. The independent risk management group responsible for overseeing each line of business is charged with ensuring that all material market risks are appropriately identified, measured, monitored and managed in accordance with the risk policy framework set out by Market Risk.

Risk measurement

Tools used to measure risk

Because no single measure can reflect all aspects of market risk, the Firm uses various metrics, both statistical and nonstatistical, including:

- VaR
- Economic-value stress testing
- Nonstatistical risk measures
- Loss advisories
- Profit and loss drawdowns
- Earnings-at-risk

Risk monitoring and control

Market risk is controlled primarily through a series of limits set in the context of the market environment and business strategy. In setting limits, the Firm takes into consideration factors such as market volatility, product liquidity and accommodation of client business and management experience. The Firm maintains different levels of limits. Corporate level limits include VaR and stress limits. Similarly, line of business limits include VaR and stress limits and may be supplemented by loss advisories, nonstatistical measurements and profit and loss drawdowns. Limits may also be set within the lines of business, as well at the portfolio or legal entity level.

Limits are set by Market Risk and are regularly reviewed and updated as appropriate, with any changes approved by line of business management and Market Risk. Senior management, including the Firm's CEO and CRO, are responsible for reviewing and approving certain of these risk limits on an ongoing basis. All limits that have not been reviewed within specified time periods by Market Risk are escalated to senior management. The lines of business are responsible for adhering to established limits against which exposures are monitored and reported.

Limit breaches are required to be reported in a timely manner to limit approvers, Market Risk and senior management. In the event of a breach, Market Risk consults with Firm senior management and the line of business senior management to determine the appropriate course of action required to return to compliance, which may include a reduction in risk in order to remedy the breach. Certain Firm or line of business-level limits that have been breached for three business days or longer, or by more than 30%, are escalated to senior management and the Firmwide Risk Committee.

Management's discussion and analysis

The following table summarizes by LOB the predominant business activities that give rise to market risk, and the market risk management tools utilized to manage those risks; CB is not presented in the table below as it does not give rise to significant market risk.

Risk identification and classification for business activities

LOB	Predominant business activities and related market risks	Positions included in Risk Management VaR	Positions included in other risk measures (Not included in Risk Management VaR)
CIB	• Makes markets and services clients across fixed income, foreign exchange, equities and commodities • Market risk arising from changes in market prices (e.g. rates and credit spreads) resulting in a potential decline in net income	• Market risk[a] related to: • Trading assets/liabilities – debt and equity instruments, and derivatives, including hedges of the retained loan portfolio • Certain securities purchased under resale agreements and securities borrowed • Certain securities loaned or sold under repurchase agreements • Structured notes • Derivative CVA and associated hedges	• Principal investing activities • Retained loan portfolio • Deposits • DVA and FVA on derivatives and structured notes
CCB	• Originates and services mortgage loans • Complex, non-linear interest rate and basis risk • Non-linear risk arises primarily from prepayment options embedded in mortgages and changes in the probability of newly originated mortgage commitments actually closing • Basis risk results from differences in the relative movements of the rate indices underlying mortgage exposure and other interest rates	Mortgage Banking • Mortgage pipeline loans, classified as derivatives • Warehouse loans, classified as trading assets – debt instruments • MSRs • Hedges of pipeline loans, warehouse loans and MSRs, classified as derivatives. • Interest-only securities, classified as trading assets, and related hedges, classified as derivatives	• Retained loan portfolio • Deposits • Principal investing activities
Corporate	• Manages the Firm's liquidity, funding, structural interest rate and foreign exchange risks arising from activities undertaken by the Firm's four major reportable business segments	Treasury and CIO • Primarily derivative positions measured at fair value through earnings, classified as derivatives	• Principal investing activities • Investment securities portfolio and related hedges • Deposits • Long-term debt and related hedges
AM	• Market risk arising from the Firm's initial capital investments in products, such as mutual funds, managed by AM	• Initial seed capital investments and related hedges, classified as derivatives	• Capital invested alongside third-party investors, typically in privately distributed collective vehicles managed by AM (i.e., co-investments)

• Retained loan portfolio
• Deposits

(a) Market risk measurement for derivatives generally incorporates the impact of DVA and FVA; market risk measurement for structured notes generally excludes the impact of FVA and DVA.

Value-at-risk

JPMorgan Chase utilizes VaR, a statistical risk measure, to estimate the potential loss from adverse market moves in a normal market environment. The Firm has a single VaR framework used as a basis for calculating Risk Management VaR and Regulatory VaR.

The framework is employed across the Firm using historical simulation based on data for the previous 12 months. The framework's approach assumes that historical changes in market values are representative of the distribution of potential outcomes in the immediate future. The Firm believes the use of Risk Management VaR provides a stable measure of VaR that closely aligns to the day-to-day risk management decisions made by the lines of business, and provides the necessary and appropriate information needed to respond to risk events on a daily basis.

Risk Management VaR is calculated assuming a one-day holding period and an expected tail-loss methodology which approximates a 95% confidence level. VaR provides a consistent framework to measure risk profiles and levels of diversification across product types and is used for aggregating risks across businesses and monitoring limits. These VaR results are reported to senior management, the Board of Directors and regulators.

Under the Firm's Risk Management VaR methodology, assuming current changes in market values are consistent with the historical changes used in the simulation, the Firm would expect to incur VaR "band breaks," defined as losses greater than that predicted by VaR estimates, not more than five times every 100 trading days. The number of VaR band breaks observed can differ from the statistically expected number of band breaks if the current level of market volatility is materially different from the level of market volatility during the 12 months of historical data used in the VaR calculation.

Underlying the overall VaR model framework are individual VaR models that simulate historical market returns for individual products and/or risk factors. To capture material market risks as part of the Firm's risk management framework, comprehensive VaR model calculations are performed daily for businesses whose activities give rise to market risk. These VaR models are granular and incorporate numerous risk factors and inputs to simulate daily changes in market values over the historical period; inputs are selected based on the risk profile of each portfolio as sensitivities and historical time series used to generate daily market values may be different across product types or risk management systems. The VaR model results across all portfolios are aggregated at the Firm level.

For certain products, specific risk parameters are not captured in VaR due to the lack of inherent liquidity and availability of appropriate historical data for these products. The Firm uses proxies to estimate the VaR for these and other products when daily time series are not available. It is likely that using an actual price-based time series for these products, if available, would affect the VaR results presented.

In addition, data sources used in VaR models may not be the same as those used for financial statement valuations. In cases where market prices are not observable, or where proxies are used in VaR historical time series, the sources may differ. The daily market data used in VaR models may be different than the independent third-party data collected for VCG price testing in VCG's monthly valuation process (see Valuation process in Note 3 for further information on the Firm's valuation process). VaR model calculations require daily data and a consistent source for valuation and therefore it is not practical to use the data collected in the VCG monthly valuation process.

Since VaR is based on historical data, it is an imperfect measure of market risk exposure and potential losses, and it is not used to estimate the impact of stressed market conditions or to manage any impact from potential stress events. In addition, based on their reliance on available historical data, limited time horizons, and other factors, VaR measures are inherently limited in their ability to measure certain risks and to predict losses, particularly those associated with market illiquidity and sudden or severe shifts in market conditions. The Firm therefore considers other measures in addition to VaR, such as stress testing, to capture and manage its market risk positions.

The Firm's VaR model calculations are periodically evaluated and enhanced in response to changes in the composition of the Firm's portfolios, changes in market conditions, improvements in the Firm's modeling techniques and other factors. Such changes may also affect historical comparisons of VaR results. Model changes undergo a review and approval process by the Model Review Group prior to implementation into the operating environment. For further information, see Model risk on page 142.

The Firm calculates separately a daily aggregated VaR in accordance with regulatory rules (“Regulatory VaR”), which is used to derive the Firm’s regulatory VaR-based capital requirements under Basel III. This Regulatory VaR model framework currently assumes a ten business-day holding period and an expected tail loss methodology which approximates a 99% confidence level. Regulatory VaR is applied to “covered” positions as defined by Basel III, which may be different than the positions included in the Firm’s Risk Management VaR. For example, credit derivative hedges of accrual loans are included in the Firm’s Risk Management VaR, while Regulatory VaR excludes these credit derivative hedges. In addition, in contrast to the Firm’s Risk Management VaR, Regulatory VaR currently excludes the diversification benefit for certain VaR models.

Management's discussion and analysis

For additional information on Regulatory VaR and the other components of market risk regulatory capital (e.g. VaR-based measure, stressed VaR-based measure and the respective backtesting) for the Firm, see JPMorgan Chase's

Basel III Pillar 3 Regulatory Capital Disclosures reports, which are available on the Firm's website (http://investor.shareholder.com/jpmorganchase/basel.cfm).

The table below shows the results of the Firm's Risk Management VaR measure using a 95% confidence level.

Total VaR

As of or for the year ended December 31,	2015			2014			At December 31,	
(in millions)	Avg.	Min	Max	Avg.	Min	Max	2015	2014
CIB trading VaR by risk type								
Fixed income	$42	$31	$60	$34	$23	$45	$37	$34
Foreign exchange	9	6	16	8	4	25	6	8
Equities	18	11	26	15	10	23	21	22
Commodities and other	10	6	14	8	5	14	10	6
Diversification benefit to CIB trading VaR	(35)(a)	NM (b)	NM (b)	(30)(a)	NM (b)	NM (b)	(28)(a)	(32)(a)
CIB trading VaR	44	27	68	35	24	49	46	38
Credit portfolio VaR	14	10	20	13	8	18	10	16
Diversification benefit to CIB VaR	(9)(a)	NM (b)	NM (b)	(8)(a)	NM (b)	NM (b)	(10)(a)	(9)(a)
CIB VaR	49	34	71	40	29	56	46	45
Mortgage Banking VaR	4	2	8	7	2	28	4	3
Treasury and CIO VaR	4	3	7	4	3	6	5	4
Asset Management VaR	3	2	4	3	2	4	3	2
Diversification benefit to other VaR	(3)(a)	NM (b)	NM (b)	(4)(a)	NM (b)	NM (b)	(4)(a)	(3)(a)
Other VaR	8	5	12	10	5	27	8	6
Diversification benefit to CIB and other VaR	(10)(a)	NM (b)	NM (b)	(7)(a)	NM (b)	NM (b)	(9)(a)	(5)(a)
Total VaR	$47	$34	$67	$43	$30	$70	$45	$46

(a) Average portfolio VaR and period-end portfolio VaR were less than the sum of the VaR of the components described above, which is due to portfolio diversification. The diversification effect reflects the fact that risks are not perfectly correlated.

(b) Designated as not meaningful ("NM"), because the minimum and maximum may occur on different days for distinct risk components, and hence it is not meaningful to compute a portfolio-diversification effect.

As presented in the table above, average Total VaR and average CIB VaR increased during 2015 when compared with 2014. The increase in Total VaR was primarily due to higher volatility in the CIB in the historical one-year look-back period during 2015 versus 2014.

Average CIB trading VaR increased during 2015 primarily due to higher VaR in the Fixed Income and Equities risk factors reflecting a combination of higher market volatility and increased exposure.

Average Mortgage Banking VaR decreased from the prior year. Average Mortgage Banking VaR was elevated late in the second quarter of 2014 due to a change in the MSR hedge position made in advance of an anticipated update to certain MSR model assumptions; when such updates were implemented, the MSR VaR decreased to levels more consistent with prior periods.

The Firm continues to enhance the VaR model calculations and time series inputs related to certain asset-backed products.

The Firm's average Total VaR diversification benefit was $10 million or 21% of the sum for 2015, compared with $7 million or 16% of the sum for 2014. In general, over the course of the year, VaR exposure can vary significantly as positions change, market volatility fluctuates and diversification benefits change.

VaR back-testing

The Firm evaluates the effectiveness of its VaR methodology by back-testing, which compares the daily Risk Management VaR results with the daily gains and losses recognized on market-risk related revenue.

The Firm's definition of market risk-related gains and losses is consistent with the definition used by the banking regulators under Basel III. Under this definition market risk-related gains and losses are defined as: gains and losses on the positions included in the Firm's Risk Management VaR, excluding fees, commissions, certain valuation adjustments (e.g., liquidity and DVA), net interest income, and gains and losses arising from intraday trading.

The following chart compares the daily market risk-related gains and losses with the Firm's Risk Management VaR for the year ended December 31, 2015. As the chart presents market risk-related gains and losses related to those positions included in the Firm's Risk Management VaR, the results in the table below differ from the results of back-testing disclosed in the Market Risk section of the Firm's

Basel III Pillar 3 Regulatory Capital Disclosures reports, which are based on Regulatory VaR applied to covered positions. The chart shows that for the year ended December 31, 2015, the Firm observed three VaR band breaks and posted Market risk-related gains on 117 of the 260 days in this period.

Other risk measures

Economic-value stress testing

Along with VaR, stress testing is an important tool in measuring and controlling risk. While VaR reflects the risk of loss due to adverse changes in markets using recent historical market behavior as an indicator of losses, stress testing is intended to capture the Firm's exposure to unlikely but plausible events in abnormal markets. The Firm runs weekly stress tests on market-related risks across the lines of business using multiple scenarios that assume significant changes in risk factors such as credit spreads, equity prices, interest rates, currency rates or commodity prices.

The Firm uses a number of standard scenarios that capture different risk factors across asset classes including geographical factors, specific idiosyncratic factors and extreme tail events. The stress framework calculates multiple magnitudes of potential stress for both market rallies and market sell-offs for each risk factor and combines them in multiple ways to capture different market scenarios. For example, certain scenarios assess the potential loss arising from current exposures held by the Firm due to a broad sell off in bond markets or an extreme widening in corporate credit spreads. The flexibility of the

stress testing framework allows risk managers to construct new, specific scenarios that can be used to form decisions about future possible stress events.

Stress testing complements VaR by allowing risk managers
to shock current market prices to more extreme levels relative to those historically realized, and to stress test the relationships between market prices under extreme scenarios.

Stress-test results, trends and qualitative explanations based on current market risk positions are reported to the respective LOB's and the Firm's senior management to allow them to better understand the sensitivity of positions to certain defined events and to enable them to manage their risks with more transparency. In addition, results are reported to the Board of Directors.

Stress scenarios are defined and reviewed by Market Risk, and significant changes are reviewed by the relevant LOB Risk Committees and may be redefined on a periodic basis to reflect current market conditions.

The Firm's stress testing framework is utilized in calculating results under scenarios mandated by the Federal Reserve's Comprehensive Capital Analysis and Review ("CCAR") and

Management's discussion and analysis

Internal Capital Adequacy Assessment Process ("ICAAP")processes. In addition, the results are incorporated into the quarterly assessment of the Firm's Risk Appetite Framework and are also presented to the DRPC.

Nonstatistical risk measures

Nonstatistical risk measures include sensitivities to variables used to value positions, such as credit spread sensitivities, interest rate basis point values and market values. These measures provide granular information on the Firm's market risk exposure. They are aggregated by line of business and by risk type, and are also used for monitoring internal market risk limits.

Loss advisories and profit and loss drawdowns

Loss advisories and profit and loss drawdowns are tools used to highlight trading losses above certain levels of risk tolerance. Profit and loss drawdowns are defined as the decline in net profit and loss since the year-to-date peak revenue level.

Earnings-at-risk

The VaR and stress-test measures described above illustrate the economic sensitivity of the Firm's Consolidated balance sheets to changes in market variables. The effect of interest rate exposure on the Firm's reported net income is also important as interest rate risk represents one of the Firm's significant market risks. Interest rate risk arises not only from trading activities but also from the Firm's traditional banking activities, which include extension of loans and credit facilities, taking deposits and issuing debt. The Firm evaluates its structural interest rate risk exposure through earnings-at-risk, which measures the extent to which changes in interest rates will affect the Firm's net interest income and interest rate-sensitive fees. Earnings-at-risk excludes the impact of CIB's markets-based activities and MSRs, as these sensitivities are captured under VaR.

The CIO, Treasury and Corporate ("CTC") Risk Committee establishes the Firm's structural interest rate risk policies and market risk limits, which are subject to approval by the DRPC. The CIO, working in partnership with the lines of business, calculates the Firm's structural interest rate risk profile and reviews it with senior management including the CTC Risk Committee and the Firm's ALCO. In addition, oversight of structural interest rate risk is managed through a dedicated risk function reporting to the CTC CRO. This risk function is responsible for providing independent oversight and governance around assumptions and establishing and monitoring limits for structural interest rate risk.

The Firm manages structural interest rate risk generally through its investment securities portfolio and interest rate derivatives.

Structural interest rate risk can occur due to a variety of factors, including:

- Differences in the timing among the maturity or repricing of assets, liabilities and off-balance sheet instruments
- Differences in the amounts of assets, liabilities and off-balance sheet instruments that are repricing at the same time
- Differences in the amounts by which short-term and long-term market interest rates change (for example, changes in the slope of the yield curve)
- The impact of changes in the maturity of various assets, liabilities or off-balance sheet instruments as interest rates change

The Firm manages interest rate exposure related to its assets and liabilities on a consolidated, firmwide basis. Business units transfer their interest rate risk to Treasury and CIO through a transfer-pricing system, which takes into account the elements of interest rate exposure that can be risk-managed in financial markets. These elements include asset and liability balances and contractual rates of interest, contractual principal payment schedules, expected prepayment experience, interest rate reset dates and maturities, rate indices used for repricing, and any interest rate ceilings or floors for adjustable rate products. All transfer-pricing assumptions are dynamically reviewed.

The Firm generates a net interest income baseline, and then conducts simulations of changes for interest rate-sensitive assets and liabilities denominated in U.S. dollar and other currencies ("non-U.S. dollar" currencies). Earnings-at-risk scenarios estimate the potential change in this net interest income baseline, excluding CIB's markets-based activities and MSRs, over the following 12 months, utilizing multiple assumptions. These scenarios may consider the impact on exposures as a result of changes in interest rates from baseline rates, as well as pricing sensitivities of deposits, optionality and changes in product mix. The scenarios include forecasted balance sheet changes, as well as modeled prepayment and reinvestment behavior, but do not include assumptions about actions which could be taken by the

Firm in response to any such instantaneous rate changes. For example, mortgage prepayment assumptions are based on current interest rates compared with underlying contractual rates, the time since origination, and other factors which are updated periodically based on historical experience. The Firm's earnings-at-risk scenarios are periodically evaluated and enhanced in response to changes in the composition of the Firm's balance sheet, changes in market conditions, improvements in the Firm's simulation and other factors.

Effective January 1, 2015, the Firm conducts earnings-at-risk simulations for assets and liabilities denominated in U.S. dollars separately from assets and liabilities denominated in non-U.S. dollar currencies in order to enhance the Firm's ability to monitor structural interest rate risk from non-U.S. dollar exposures.

The Firm's U.S. dollar sensitivity is presented in the table below. The result of the non-U.S. dollar sensitivity scenarios were not material to the Firm's earnings-at-risk at December 31, 2015.

JPMorgan Chase's 12-month pretax net interest income sensitivity profiles
(Excludes the impact of CIB's markets-based activities and MSRs)

(in billions)	Instantaneous change in rates			
December 31, 2015	+200 bps	+100 bps	-100 bps	-200 bps
U.S. dollar	$5.2	$3.1	NM [(a)]	NM [(a)]

(a) Downward 100- and 200-basis-points parallel shocks result in a federal funds target rate of zero and negative three- and six-month U.S. Treasury rates. The earnings-at-risk results of such a low probability scenario are not meaningful.

The Firm's benefit to rising rates on U.S. dollar assets and liabilities is largely a result of reinvesting at higher yields and assets repricing at a faster pace than deposits. The Firm's net U.S. dollar sensitivity profile at December 31, 2015 was not materially different than December 31, 2014.

Separately, another U.S. dollar interest rate scenario used by the Firm — involving a steeper yield curve with long-term rates rising by 100 basis points and short-term rates staying at current levels — results in a 12-month pretax benefit to net interest income, excluding CIB's markets-based activities and MSRs, of approximately $700 million. The increase in net interest income under this scenario reflects the Firm reinvesting at the higher long-term rates, with funding costs remaining unchanged. The result of the comparable non-U.S. dollar scenario was not material to the Firm.

Non-U.S. dollar FX Risk

Non-U.S. dollar FX risk is the risk that changes in foreign exchange rates affect the value of the Firm's assets or liabilities or future results. The Firm has structural non-U.S. dollar FX exposures arising from capital investments, forecasted expense and revenue, the investment securities portfolio and issuing debt in denominations other than the U.S. dollar. Treasury and CIO, working in partnership with the lines of business, primarily manage these risks on behalf of the Firm. Treasury and CIO may hedge certain of these risks using derivatives within risk limits governed by the CTC Risk Committee.

COUNTRY RISK MANAGEMENT

Country risk is the risk that a sovereign event or action alters the value or terms of contractual obligations of obligors, counterparties and issuers or adversely affects markets related to a particular country. The Firm has a comprehensive country risk management framework for assessing country risks, determining risk tolerance, and measuring and monitoring direct country exposures in the Firm. The Country Risk Management group is responsible for developing guidelines and policies for managing country risk in both emerging and developed countries. The Country Risk Management group actively monitors the various portfolios giving rise to country risk to ensure the Firm's country risk exposures are diversified and that exposure levels are appropriate given the Firm's strategy and risk tolerance relative to a country.

Country risk organization

The Country Risk Management group, part of the independent risk management function, works in close partnership with other risk functions to identify and monitor country risk within the Firm. The Firmwide Risk Executive for Country Risk reports to the Firm's CRO.

Country Risk Management is responsible for the following functions:

- Developing guidelines and policies consistent with a comprehensive country risk framework
- Assigning sovereign ratings and assessing country risks
- Measuring and monitoring country risk exposure and stress across the Firm
- Managing country limits and reporting trends and limit breaches to senior management
- Developing surveillance tools for early identification of potential country risk concerns
- Providing country risk scenario analysis

Country risk identification and measurement

The Firm is exposed to country risk through its lending, investing, and market-making activities, whether cross-border or locally funded. Country exposure includes activity with both government and private-sector entities in a country. Under the Firm's internal country risk management approach, country exposure is reported based on the country where the majority of the assets of the obligor, counterparty, issuer or guarantor are located or where the majority of its revenue is derived, which may be different than the domicile (legal residence) or country of incorporation of the obligor, counterparty, issuer or guarantor. Country exposures are generally measured by considering the Firm's risk to an immediate default of the counterparty or obligor, with zero recovery. Assumptions are sometimes required in determining the measurement and allocation of country exposure, particularly in the case of certain tranched credit derivatives. Different measurement approaches or assumptions would affect the amount of reported country exposure.

Under the Firm's internal country risk measurement framework:

- Lending exposures are measured at the total committed amount (funded and unfunded), net of the allowance for credit losses and cash and marketable securities collateral received
- Securities financing exposures are measured at their receivable balance, net of collateral received
- Debt and equity securities are measured at the fair value of all positions, including both long and short positions
- Counterparty exposure on derivative receivables is measured at the derivative's fair value, net of the fair value of the related collateral. Counterparty exposure on derivatives can change significantly because of market movements
- Credit derivatives protection purchased and sold is reported based on the underlying reference entity and is measured at the notional amount of protection purchased or sold, net of the fair value of the recognized derivative receivable or payable. Credit derivatives protection purchased and sold in the Firm's market-making activities is measured on a net basis, as such activities often result in selling and purchasing protection related to the same underlying reference entity; this reflects the manner in which the Firm manages these exposures

The Firm also has indirect exposures to country risk (for example, related to the collateral received on securities financing receivables or related to client clearing activities). These indirect exposures are managed in the normal course of business through the Firm's credit, market, and operational risk governance, rather than through Country Risk Management.

The Firm's internal country risk reporting differs from the reporting provided under the FFIEC bank regulatory requirements. For further information on the FFIEC's reporting methodology, see Cross-border outstandings on page 327.

Country risk stress testing

The country risk stress framework aims to identify potential losses arising from a country crisis by capturing the impact of large asset price movements in a country based on market shocks combined with counterparty specific assumptions. Country Risk Management periodically defines and runs ad hoc stress scenarios for individual countries in response to specific market events and sector performance concerns.

Country risk monitoring and control

The Country Risk Management group establishes guidelines for sovereign ratings reviews and limit management. Country stress and nominal exposures are measured under a comprehensive country limit framework. Country ratings and limits are actively monitored and reported on a regular basis. Country limit requirements are reviewed and approved by senior management as often as necessary, but at least annually. In addition, the Country Risk Management group uses surveillance tools, such as signaling models and ratings indicators, for early identification of potential country risk concerns.

Country risk reporting

The following table presents the Firm's top 20 exposures by country (excluding the U.S.) as of December 31, 2015. The selection of countries is based solely on the Firm's largest total exposures by country, based on the Firm's internal country risk management approach, and does not represent the Firm's view of any actual or potentially adverse credit conditions. Country exposures may fluctuate from period to period due to normal client activity and market flows.

Top 20 country exposures

	December 31, 2015			
(in billions)	Lending[a]	Trading and investing[b][c]	Other[d]	Total exposure
United Kingdom	$23.8	$21.8	$1.1	$46.7
Germany	13.8	16.7	0.2	30.7
France	14.2	11.9	0.1	26.2
Japan	12.9	7.8	0.4	21.1
China	10.3	7.2	1.0	18.5
Canada	13.9	2.9	0.3	17.1
Australia	7.7	5.9	—	13.6
Netherlands	5.0	6.0	1.4	12.4
India	6.1	5.6	0.4	12.1
Brazil	6.2	4.9	—	11.1
Switzerland	6.7	0.9	1.9	9.5
Korea	4.3	3.3	0.1	7.7
Hong Kong	2.8	2.6	1.4	6.8
Italy	2.8	3.8	0.2	6.8
Luxembourg	6.4	0.1	—	6.5
Spain	3.2	2.1	0.1	5.4
Singapore	2.4	1.3	0.7	4.4
Sweden	1.7	2.5	—	4.2
Mexico	2.9	1.3	—	4.2
Belgium	1.7	2.3	—	4.0

(a) Lending includes loans and accrued interest receivable (net of collateral and the allowance for loan losses), deposits with banks, acceptances, other monetary assets, issued letters of credit net of participations, and unused commitments to extend credit. Excludes intra-day and operating exposures, such as from settlement and clearing activities.

(b) Includes market-making inventory, AFS securities, counterparty exposure on derivative and securities financings net of collateral and hedging.

(c) Includes single reference entity (“single-name”), index and tranched credit derivatives for which one or more of the underlying reference entities is in a country listed in the above table.

(d) Includes capital invested in local entities and physical commodity inventory.

MODEL RISK MANAGEMENT

Model risk

Model risk is the potential for adverse consequences from decisions based on incorrect or misused model outputs and reports.

The Firm uses models for many purposes including the valuation of positions and the measurement of risk. Valuation models are employed by the Firm to value certain financial instruments for which quoted prices may not be readily available. Valuation models may be employed as inputs into risk measurement models including VaR, regulatory capital, estimation of stress loss and the allowance for credit losses.

Models are owned by various functions within the Firm based on the specific purposes of such models. For example, VaR models and certain regulatory capital models are owned by the line of business-aligned risk management functions. Owners of models are responsible for the development, implementation and testing of their models, as well as referral of models to the Model Risk function for review and approval. Once models have been approved, model owners are responsible for the maintenance of a robust operating environment and must monitor and evaluate the performance of the models on an ongoing basis. Model owners may seek to enhance models in response to changes in the portfolios and in product and market developments, as well as to capture improvements in available modeling techniques and systems capabilities.

The Model Risk review and governance functions review and approve a wide range of models, including risk management, valuation, and regulatory capital models used by the Firm. Independent of the model owners, the Model Risk review and governance functions are part of the Firm’s Model Risk unit, and the Firmwide Model Risk Executive reports to the Firm’s CRO.

Models are tiered based on an internal standard according to their complexity, the exposure associated with the model and the Firm’s reliance on the model. This tiering is subject to the approval of the Model Risk function. A model review conducted by the Model Risk function considers the model’s suitability for the specific uses to which it will be put. The factors considered in reviewing a model include whether the model accurately reflects the characteristics of the product and its significant risks, the selection and reliability of model inputs, consistency with models for similar products, the appropriateness of any model-related adjustments, and sensitivity to input parameters and assumptions that cannot be observed from the market. 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. Model reviews are approved by the appropriate level of management within the Model Risk function based on the relevant tier of the model.

Under the Firm’s Model Risk Policy, the Model Risk function reviews and approves new models, as well as material changes to existing models, prior to implementation in the operating environment. In certain circumstances, the head of the Model Risk function may grant exceptions to the Firm’s model risk policy to allow a model to be used prior to review or approval. The Model Risk function may also require the owner to take appropriate actions to mitigate the model risk if it is to be used in the interim. These actions will depend on the model and may include, for example, limitation of trading activity.

For a summary of valuations based on models, see Critical Accounting Estimates Used by the Firm and Note 3.

PRINCIPAL RISK MANAGEMENT

Principal investments are predominantly privately-held financial assets and instruments, typically representing an ownership or junior capital position, that have unique risks due to their illiquidity or for which there is less observable market or valuation data. Such investing activities are typically intended to be held over extended investment periods and, accordingly, the Firm has no expectation for short-term gain with respect to these investments. Principal investments cover multiple asset classes and are made either in stand-alone investing businesses or as part of a broader business platform. Asset classes include tax-oriented investments (e.g., affordable housing and alternative energy investments), private equity and various debt investments.

The Firm’s principal investments are managed under various lines of business and are captured within the respective LOB’s financial results. The Firm’s approach to managing principal risk is consistent with the Firm’s general risk governance structure. A Firmwide risk policy framework exists for all principal investing activities. All investments are approved by investment committees that include executives who are independent from the investing businesses. The Firm’s independent control functions are responsible for reviewing the appropriateness of the carrying value of principal investments in accordance with relevant policies. Approved levels for such investments are established for each relevant business in order to manage the overall size of the portfolios. Industry, geographic, and position level concentration limits are in place and are intended to ensure diversification of the portfolios. The Firm also conducts stress testing on these portfolios using specific scenarios that estimate losses based on significant market moves and/or other risk events.

OPERATIONAL RISK MANAGEMENT

Operational risk is the risk of loss resulting from inadequate or failed processes or systems, human factors or due to external events that are neither market- nor credit-related. Operational risk is inherent in the Firm's activities and can manifest itself in various ways, including fraudulent acts, business interruptions, inappropriate behavior of employees, failure to comply with applicable laws and regulations or failure of vendors to perform in accordance with their arrangements. These events could result in financial losses, litigation and regulatory fines, as well as other damage to the Firm. The goal is to keep operational risk at appropriate levels, in light of the Firm's financial strength, the characteristics of its businesses, the markets in which it operates, and the competitive and regulatory environment to which it is subject.

Overview

To monitor and control operational risk, the Firm maintains an Operational Risk Management Framework ("ORMF") designed to enable the Firm to maintain a sound and well-controlled operational environment. The four main components of the ORMF include: governance, risk identification and assessment, monitoring and reporting, and measurement.

Risk Management is responsible for prescribing the ORMF to the lines of business and corporate functions and for providing independent oversight of its implementation. The lines of business and corporate functions are responsible for implementing the ORMF. The Firmwide Oversight and Control Group ("O&C"), which consists of dedicated control officers within each of the lines of business and corporate functional areas, as well as a central oversight team, is responsible for day to day execution of the ORMF.

Operational risk management framework

The components of the Operational Risk Management Framework are:

Governance

The Firm's operational risk governance function reports to the Firm's CRO and is responsible for defining the ORMF and establishing the firmwide operational risk management governance structure, policies and standards. The Firmwide Risk Executive for Operational Risk Governance, a direct report of the CRO, works with the line of business CROs to provide independent oversight of the implementation of the ORMF across the Firm. Operational Risk Officers ("OROs"), who report to the LOB Chief Risk Officers or to the Firmwide Risk Executive for Operational Risk Governance, are independent of the lines of business and corporate functions, and O&C. The OROs provide oversight of the implementation of the ORMF within in each line of business and corporate function.

Line of business, corporate function and regional control committees oversee the operational risk and control environments of their respective businesses, functions or regions. These committees escalate operational risk issues to the FCC, as appropriate. For additional information on the Firmwide Control Committee, see Enterprise Risk Management on pages 107–111.

Risk Identification and Self-Assessment

In order to evaluate and monitor operational risk, the lines of business and corporate functions utilize several processes to identify, assess, mitigate and manage operational risk. Firmwide standards are in place for each of these processes and set the minimum requirements for how they must be applied.

The Firm's risk and control self-assessment ("RCSA") process and supporting architecture requires management to identify material inherent operational risks, assess the design and operating effectiveness of relevant controls in place to mitigate such risks, and evaluate residual risk. Action plans are developed for control issues that are identified, and businesses are held accountable for tracking and resolving issues on a timely basis. Risk Management performs an independent challenge of the RCSA program including residual risk results.

The Firm also tracks and monitors operational risk events which are analyzed by the responsible businesses and corporate functions. This enables identification of the root causes of the operational risk events and evaluation of the associated controls.

Furthermore, lines of business and corporate functions establish key risk indicators to manage and monitor operational risk and the control environment. These assist in the early detection and timely escalation of issues or events.

Risk monitoring and reporting

Operational risk management and control reports provide information, including actual operational loss levels, self-assessment results and the status of issue resolution to the lines of business and senior management. In addition, key control indicators and operating metrics are monitored against targets and thresholds. The purpose of these reports is to enable management to maintain operational risk at appropriate levels within each line of business, to escalate issues and to provide consistent data aggregation across the Firm’s businesses and functions.

Measurement

Two standard forms of operational risk measurement include operational risk capital and operational risk losses under baseline and stressed conditions.

The Firm's operational risk capital methodology incorporates the four required elements of the Advanced Measurement Approach under the Basel III framework:

- Internal losses,
- External losses,
- Scenario analysis, and
- Business environment and internal control factors.

The primary component of the operational risk capital estimate is the result of a statistical model, the Loss Distribution Approach ("LDA"), which simulates the frequency and severity of future operational risk losses based on historical data. The LDA model is used to estimate an aggregate operational risk loss over a one-year time horizon, at a 99.9% confidence level. The LDA model incorporates actual internal operational risk losses in the quarter following the period in which those losses were realized, and the calculation generally continues to reflect such losses even after the issues or business activities giving rise to the losses have been remediated or reduced.

The calculation is supplemented by external loss data as needed, as well as both management's view of plausible tail risk, which is captured as part of the Scenario Analysis process, and evaluation of key LOB internal control metrics (BEICF). The Firm may further supplement such analysis to incorporate feedback from its bank regulators.

The Firm considers the impact of stressed economic conditions on operational risk losses and a forward looking view of material operational risk events that may occur in a stressed environment. The Firm's operational risk stress testing framework is utilized in calculating results for the Firm's CCAR, ICAAP and Risk Appetite processes.

For information related to operational risk RWA, CCAR or ICAAP, see Capital Management section, pages 149–158.

Insurance

One of the ways operational loss may be mitigated is through insurance maintained by the Firm. The Firm purchases insurance to be in compliance with local laws and regulations (e.g., workers compensation), as well as to serve other needs (e.g., property loss and public liability). Insurance may also be required by third parties with whom the Firm does business. The insurance purchased is reviewed and approved by senior management.

Cybersecurity

The Firm devotes significant resources maintaining and regularly updating its systems and processes that are designed to protect the security of the Firm's computer systems, software, networks and other technology assets against attempts by unauthorized parties to obtain access to confidential information, destroy data, disrupt or degrade service, sabotage systems or cause other damage.

Third parties with which the Firm does business or that facilitate the Firm's business activities (e.g., vendors, exchanges, clearing houses, central depositories, and financial intermediaries) could also be sources of cybersecurity risk to the Firm, including with respect to breakdowns or failures of their systems, misconduct by the employees of such parties, or cyberattacks which could affect their ability to deliver a product or service to the Firm or result in lost or compromised information of the Firm or its clients. In addition, customers with which or whom the Firm does business can also be sources of cybersecurity risk to the Firm, particularly when their activities and systems are beyond the Firm's own security and control systems. Customers will generally be responsible for losses incurred due to their own failure to maintain the security of their own systems and processes.

The Firm and several other U.S. financial institutions have experienced significant distributed denial-of-service attacks from technically sophisticated and well-resourced unauthorized parties which are intended to disrupt online banking services. The Firm and its clients are also regularly targeted by unauthorized parties using malicious code and viruses. On September 10, 2014, the Firm disclosed that a cyberattack against the Firm had occurred. The cyberattacks experienced to date have not resulted in any material disruption to the Firm's operations nor have they had a material adverse effect on the Firm's results of operations. The Firm's Board of Directors and the Audit Committee are regularly apprised regarding the cybersecurity policies and practices of the Firm as well as the Firm's efforts regarding significant cybersecurity events.

Cybersecurity attacks, like the one experienced by the Firm, highlight the need for continued and increased cooperation among businesses and the government, and the Firm continues to work to strengthen its partnerships with the appropriate government and law enforcement agencies and other businesses, including the Firm's third-party service providers, in order to understand the full spectrum of cybersecurity risks in the environment, enhance defenses and improve resiliency against cybersecurity threats.

The Firm has established, and continues to establish, defenses to mitigate other possible future attacks. To enhance its defense capabilities, the Firm increased cybersecurity spending from approximately $250 million in 2014, to approximately $500 million in 2015, and expects the spending to increase to more than $600 million in 2016. Enhancements include more robust testing, advanced analytics, improved technology coverage, strengthened access management and controls and a program to increase employee awareness about cybersecurity risks and best practices.

Business and technology resiliency

JPMorgan Chase's global resiliency and crisis management program is intended to ensure that the Firm has the ability to recover its critical business functions and supporting assets (i.e., staff, technology and facilities) in the event of a business interruption, and to remain in compliance with global laws and regulations as they relate to resiliency risk. The program includes corporate governance, awareness and training, as well as strategic and tactical initiatives aimed to ensure that risks are properly identified, assessed, and managed.

The Firm has established comprehensive tracking and reporting of resiliency plans in order to proactively anticipate and manage various potential disruptive circumstances such as severe weather and flooding, technology and communications outages, cyber incidents, mass transit shutdowns and terrorist threats, among others. The resiliency measures utilized by the Firm include backup infrastructure for data centers, a geographically distributed workforce, dedicated recovery facilities, providing technological capabilities to support remote work capacity for displaced staff and accommodation of employees at alternate locations. JPMorgan Chase continues to coordinate its global resiliency program across the Firm and mitigate business continuity risks by reviewing and testing recovery procedures. The strength and proficiency of the Firm’s global resiliency program has played an integral role in maintaining the Firm’s business operations during and quickly after various events in 2015 that have resulted in business interruptions, such as severe winter weather and flooding in the U.S. and various global protest-related activities.

LEGAL RISK MANAGEMENT

Legal risk is the risk of loss or imposition of damages, fines, penalties or other liability arising from failure to comply with a contractual obligation or to comply with laws or regulations to which the Firm is subject.

Overview

In addition to providing legal services and advice to the Firm, and communicating and helping the lines of business adjust to the legal and regulatory changes they face, including the heightened scrutiny and expectations of the Firm’s regulators, the global Legal function is responsible for working with the businesses and corporate functions to fully understand and assess their adherence to laws and regulations. In particular, Legal assists Oversight & Control, Risk, Finance, Compliance and Internal Audit in their efforts to ensure compliance with all applicable laws and regulations and the Firm’s corporate standards for doing business. The Firm’s lawyers also advise the Firm on potential legal exposures on key litigation and transactional matters, and perform a significant defense and advocacy role by defending the Firm against claims and potential claims and, when needed, pursuing claims against others.

Governance and oversight

The Firm’s General Counsel reports to the CEO and is a member of the Operating Committee, the Firmwide Risk Committee and the Firmwide Control Committee. The General Counsel’s leadership team includes a General Counsel for each line of business, the heads of the Litigation and Corporate & Regulatory practices, as well as the Firm’s Corporate Secretary. Each region (e.g., Latin America, Asia Pacific) has a General Counsel who is responsible for managing legal risk across all lines of business and functions in the region.

Legal works with various committees (including new business initiative and reputation risk committees) and the Firm’s businesses to protect the Firm’s reputation beyond any particular legal requirements. In addition, it advises the Firm’s Conflicts Office which reviews the Firm’s wholesale transactions that may have the potential to create conflicts of interest for the Firm.

COMPLIANCE RISK MANAGEMENT

Compliance risk is the risk of failure to comply with applicable laws, rules, and regulations.

Overview

Each line of business is accountable for managing its compliance risk. The Firm'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 the Firm's products and services to clients and customers.

These compliance risks relate to a wide variety of legal and regulatory obligations, depending on the line of business and the jurisdiction, and include those related to products and services, relationships and interactions with clients and customers, and employee activities.

For example, one compliance risk, fiduciary risk, is the failure to exercise the applicable high standard of care, to act in the best interests of clients or to treat clients fairly, as required under applicable law or regulation. Other specific compliance risks include those associated with anti-money laundering compliance, trading activities, market conduct, and complying with the rules and regulations related to the offering of products and services across jurisdictional borders, among others.

Compliance implements various practices designed to identify and mitigate compliance risk by implementing policies, testing and monitoring, training and providing guidance.

In recent years, the Firm has experienced heightened scrutiny by its regulators of its compliance with regulations, and with respect to its controls and operational processes. In certain instances, the Firm has entered into Consent Orders with its regulators requiring the Firm to take certain specified actions to remediate compliance with regulations and improve its controls. The Firm expects that such regulatory scrutiny will continue.

Governance and oversight

Compliance is led by the Firms' Chief Compliance Officer ("CCO") who reports directly to the Firm's COO. The Firm maintains oversight and coordination in its Compliance Risk Management practices globally through the Firm's CCO, lines of business CCOs and regional CCOs to implement the Compliance program across the lines of business and regions. The Firm's CCO is a member of the Firmwide Control Committee and the Firmwide Risk Committee. The Firm's CCO also provides regular updates to the Audit Committee and DRPC. In addition, from time to time, special committees of the Board have been established to oversee the Firm's compliance with regulatory Consent Orders.

The Firm has in place a Code of Conduct (the "Code"), and each employee is given annual training in respect of the Code and is required annually to affirm his or her compliance with the Code. The Code sets forth the Firm's core principles and fundamental values, including that no employee should ever sacrifice integrity - or give the impression that he or she has. The Code requires prompt reporting of any known or suspected violation of the Code, any internal Firm policy, or any law or regulation applicable to the Firm's business. It also requires the reporting of any illegal conduct, or conduct that violates the underlying principles of the Code, by any of the Firm's employees, customers, suppliers, contract workers, business partners, or agents. Specified employees are specially trained and designated as "code specialists" who act as a resource to employees on Code of Conduct matters. In addition, concerns may be reported anonymously and the Firm prohibits retaliation against employees for the good faith reporting of any actual or suspected violations of the Code. The Code and the associated employee compliance program are focused on the regular assessment of certain key aspects of the Firm's culture and conduct initiatives.

REPUTATION RISK MANAGEMENT

Reputation risk is the risk that an action, transaction, investment or event will reduce trust in the Firm's integrity or competence by our various constituents, including clients, counterparties, investors, regulators, employees and the broader public. Maintaining the Firm's reputation is the responsibility of each individual employee of the Firm. The Firm's Reputation Risk Governance policy explicitly vests each employee with the responsibility to consider the reputation of the Firm when engaging in any activity. Since the types of events that could harm the Firm's reputation are so varied across the Firm's lines of business, each line of business has a separate reputation risk governance infrastructure in place, which consists of three key elements: clear, documented escalation criteria appropriate to the business; a designated primary discussion forum — in most cases, one or more dedicated reputation risk committees; and a list of designated contacts, to whom questions relating to reputation risk should be referred. Line of business reputation risk governance is overseen by a Firmwide Reputation Risk Governance function, which provides oversight of the governance infrastructure and process to support the consistent identification, escalation, management and reporting of reputation risk issues firmwide.

CAPITAL MANAGEMENT

Capital risk is the risk the Firm has an insufficient level and composition of capital to support the Firm's business activities and associated risks during normal economic environments and stressed conditions.

A strong capital position is essential to the Firm's business strategy and competitive position. The Firm's capital strategy focuses on long-term stability, which enables the Firm to build and invest in market-leading businesses, even in a highly stressed environment. Prior to making any decisions on future business activities, senior management considers the implications on the Firm's capital. In addition to considering the Firm's earnings outlook, senior management evaluates all sources and uses of capital with a view to preserving the Firm's capital strength. Maintaining a strong balance sheet to manage through economic volatility is considered a strategic imperative by the Firm's Board of Directors, CEO and Operating Committee. The Firm's balance sheet philosophy focuses on risk-adjusted returns, strong capital and reserves, and robust liquidity.

The Firm's capital management objectives are to hold capital sufficient to:

- Cover all material risks underlying the Firm's business activities;
- Maintain "well-capitalized" status and meet regulatory capital requirements;
- Retain flexibility to take advantage of future investment opportunities;
- Maintain sufficient capital in order to continue to build and invest in its businesses through the cycle and in stressed environments; and
- Distribute excess capital to shareholders while balancing the other objectives stated above.

These objectives are achieved through ongoing monitoring and management of the Firm's capital position, regular stress testing, and a capital governance framework. Capital management is intended to be flexible in order to react to a range of potential events. JPMorgan Chase has firmwide and LOB processes for ongoing monitoring and active management of its capital position.

Management's discussion and analysis

The following tables present the Firm's Transitional and Fully Phased-In risk-based and leverage-based capital metrics under both Basel III Standardized and Advanced approaches. The Firm's Basel III CET1 ratio exceeds the regulatory minimum as of December 31, 2015. For further discussion of these capital metrics and the Standardized and Advanced approaches refer to Monitoring and management of capital on pages 151–155.

	Transitional			Fully Phased-In		
December 31, 2015 (in millions, except ratios)	Standardized	Advanced	Minimum capital ratios [c]	Standardized	Advanced	Minimum capital ratios [d]
Risk-based capital metrics:						
CET1 capital	$175,398	$175,398		$173,189	$173,189	
Tier 1 capital	200,482	200,482		199,047	199,047	
Total capital	234,413	224,616		229,976	220,179	
Risk-weighted assets	1,465,262 [b]	1,485,336		1,474,870	1,495,520	
CET1 capital ratio	12.0 %	11.8 %	4.5 %	11.7 %	11.6 %	10.5 %
Tier 1 capital ratio	13.7	13.5	6.0	13.5	13.3	12.0
Total capital ratio	16.0	15.1	8.0	15.6	14.7	14.0
Leverage-based capital metrics:						
Adjusted average assets	2,361,177	2,361,177		2,360,499	2,360,499	
Tier 1 leverage ratio[a]	8.5 %	8.5 %	4.0	8.4 %	8.4 %	4.0
SLR leverage exposure	NA	$3,079,797		NA	$3,079,119	
SLR	NA	6.5 %	NA	NA	6.5 %	5.0 [e]

	Transitional			Fully Phased-In		
December 31, 2014 (in millions, except ratios)	Standardized	Advanced	Minimum capital ratios [c]	Standardized	Advanced	Minimum capital ratios [d]
Risk-based capital metrics:						
CET1 capital	$164,426	$164,426		$164,514	$164,514	
Tier 1 capital	186,263	186,263		184,572	184,572	
Total capital	221,117	210,576		216,719	206,179	
Risk-weighted assets	1,472,602 [b]	1,608,240		1,561,145	1,619,287	
CET1 capital ratio	11.2 %	10.2 %	4.5 %	10.5 %	10.2 %	9.5 %
Tier 1 capital ratio	12.6	11.6	6.0	11.8	11.4	11.0
Total capital ratio	15.0	13.1	8.0	13.9	12.7	13.0
Leverage-based capital metrics:						
Adjusted average assets	2,464,915	2,464,915		2,463,902	2,463,902	
Tier 1 leverage ratio[a]	7.6 %	7.6 %	4.0	7.5 %	7.5 %	4.0
SLR leverage exposure	NA	NA		NA	$3,320,404	
SLR	NA	NA	NA	NA	5.6 %	5.0 [e]

Note: As of December 31, 2015 and 2014, the lower of the Standardized or Advanced capital ratios under each of the transitional and fully phased in approaches in the table above represents the Firm's Collins Floor, as discussed in Monitoring and management of Capital on page 151.

(a) 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.

(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) Represents the transitional minimum capital ratios applicable to the Firm under Basel III as of December 31, 2015 and 2014.

(d)

Represents the minimum capital ratios applicable to the Firm on a fully phased-in Basel III basis. At December 31, 2015, the ratios include the Firm's estimate of its Fully Phased-In U.S. GSIB surcharge of 3.5%, based on the final U.S. GSIB rule published by the Federal Reserve on July 20, 2015. At December 31, 2014, the ratios included the Firm's GSIB surcharge of 2.5% which was published in November 2014 by the Financial Stability Board and calculated under the Basel Committee on Banking Supervisions Final GSIB rule. The minimum capital ratios will be fully phased-in effective January 1, 2019. For additional information on the GSIB surcharge, see page 152.

(e) In the case of the SLR, the fully phased-in minimum ratio is effective beginning January 1, 2018.

Strategy and governance

The Firm's CEO, in conjunction with the Board of Directors, establishes principles and guidelines for capital planning, issuance, usage and distributions, and establishes capital targets for the level and composition of capital in both business-as-usual and highly stressed environments.

The Firm's senior management recognizes the importance of a capital management function that supports strategic decision-making. The Capital Governance Committee and the Regulatory Capital Management Office ("RCMO") are key components in support of this objective. The Capital Governance Committee is responsible for reviewing the Firm's Capital Management Policy and the principles underlying capital issuance and distribution alternatives. The Committee is also responsible for governing the capital adequacy assessment process, including overall design, assumptions and risk streams, and ensuring that capital stress test programs are designed to adequately capture the idiosyncratic risks across the Firm's businesses. RCMO, which reports to the Firm's CFO, is responsible for reviewing, approving and monitoring the implementation of the Firm's capital policies and strategies, as well as its capital adequacy assessment process. The review assesses the effectiveness of the capital adequacy process, the appropriateness of the risk tolerance levels, and the strength of the control infrastructure. The DRPC oversees the Firm's capital adequacy process and its components. The Basel Independent Review function ("BIR"), which reports to the RCMO and the Capital Governance Committee, conducts independent assessments of the Firm's regulatory capital framework to ensure compliance with the applicable U.S. Basel rules in support of the DRPC's and senior management's oversight of the Firm's capital processes. For additional discussion on the DRPC, see Enterprise-wide Risk Management on pages 107–111.

Monitoring and management of capital

In its monitoring and management of capital, the Firm takes into consideration an assessment of economic risk and all regulatory capital requirements to determine the level of capital needed to meet and maintain the objectives discussed above, as well as to support the framework for allocating capital to its business segments. While economic risk is considered prior to making decisions on future business activities, in most cases, the Firm considers risk-based regulatory capital to be a proxy for economic risk capital.

Regulatory capital

The Federal Reserve establishes capital requirements, including well capitalized standards, for the consolidated financial holding company. The OCC establishes similar minimum capital requirements for the Firm's national banks, including JPMorgan Chase Bank, N.A. and Chase Bank USA, N.A.

The U.S. capital requirements generally follow the Capital Accord of the Basel Committee, as amended from time to time. Prior to January 1, 2014, the Firm and its banking subsidiaries were subject to the capital requirements of Basel I and Basel 2.5. Effective January 1, 2014, the Firm became subject to Basel III (which incorporates Basel 2.5).

Basel III overview

Basel III capital rules, for large and internationally active U.S. bank holding companies and banks, including the Firm and its insured depository institution ("IDI") subsidiaries, revised, among other things, the definition of capital and introduced a new CET1 capital requirement. Basel III presents two comprehensive methodologies for calculating 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").

The capital adequacy of the Firm and its national bank subsidiaries is evaluated against the Basel III approach (Standardized or Advanced) which results in the lower ratio (the "Collins Floor"), as required by the Collins Amendment of the Dodd-Frank Act.

Basel III establishes capital requirements for calculating credit risk and market risk RWA, and in the case of Basel III Advanced, operational risk RWA. 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, the Firm may supplement such amounts to incorporate management judgment and feedback from its bank regulators.

Basel III also includes a requirement for Advanced Approach banking organizations, including the Firm, to calculate a Supplementary Leverage Ratio ("SLR"). For additional information on SLR, see page 155.

Basel III Fully Phased-In

Basel III capital rules will become fully phased-in on January 1, 2019, at which point the Firm will continue to calculate its capital ratios under both the Basel III Standardized and Advanced Approaches. While the Firm has imposed Basel III Standardized Fully Phased-In RWA limits on its lines of business, the Firm continues to manage each of the businesses (including line of business equity allocations), as well as the corporate functions, primarily on a Basel III Advanced Fully Phased-In basis.

The Firm's capital, RWA and capital ratios that are presented under Basel III Standardized and Advanced Fully Phased-In rules and the Firm's and JPMorgan Chase Bank, N.A.'s and Chase Bank USA, N.A.'s SLRs calculated under the Basel III Advanced Fully Phased-In rules are non-GAAP financial measures. However, such measures are used by banking regulators, investors and analysts to assess the

Firm's capital position and to compare the Firm's capital to that of other financial services companies.
The Firm's estimates of its Basel III Standardized and Advanced Fully Phased-In capital, RWA and capital ratios and of the Firm's, JPMorgan Chase Bank, N.A.'s, and Chase Bank USA, N.A.'s SLRs reflect management's current understanding of the U.S. Basel III rules based on the current published rules and on the application of such rules to the Firm's businesses as currently conducted. The actual

impact on the Firm's capital ratios and SLR as of the effective date of the rules may differ from the Firm's current estimates depending on changes the Firm may make to its businesses in the future, further implementation guidance from the regulators, and regulatory approval of certain of the Firm's internal risk models (or, alternatively, regulatory disapproval of the Firm's internal risk models that have previously been conditionally approved).

Risk-based capital regulatory minimums

The following chart presents the Basel III minimum CET1 capital ratio during the transitional periods and on a fully phased-in basis under the Basel III rules currently in effect.
At December 31, 2015 and 2014, JPMorgan Chase maintained Basel III Standardized Transitional and Basel III Advanced Transitional capital ratios in excess of the well-capitalized standards established by the Federal Reserve. Additional information regarding the Firm's capital ratios, as well as the U.S. federal regulatory capital standards to which the Firm is subject, is presented in Note 28. For further information on the Firm's Basel III measures, see the Firm's Pillar 3 Regulatory Capital Disclosures reports, which are available on the Firm's website (http://investor.shareholder.com/jpmorganchase/basel.cfm).
All banking institutions are currently required to have a minimum capital ratio of 4.5% of CET1 capital. Certain banking organizations, including the Firm, will be required to hold additional amounts of capital to serve as a "capital conservation buffer." The capital conservation buffer is intended to be used to absorb potential losses in times of financial or economic stress. If not maintained, the Firm could be limited in the amount of capital that may be distributed, including dividends and common equity repurchases. The capital conservation buffer is to be phased-in over time, beginning January 1, 2016 through January 1, 2019.

When fully phased-in, the capital conservation buffer requires an additional 2.5% of CET1 capital, as well as additional levels of capital in the form of a GSIB surcharge and the recently implemented countercyclical capital buffer. On July 20, 2015, the Federal Reserve issued a final rule requiring GSIBs to calculate their GSIB surcharge, on an annual basis, under two separately prescribed methods, and to be subject to the higher of the two. The first method ("Method 1") reflects the GSIB surcharge as prescribed by Basel rules, and is calculated across five criteria: size, cross-jurisdictional activity, interconnectedness, complexity and substitutability. The second method ("Method 2") modifies the requirements to include a measure of short-term wholesale funding in place of substitutability, and introduces a GSIB score "multiplication factor." Based upon data as of December 31, 2015, the Firm estimates its fully phased-in GSIB surcharge would be 2% of CET1 capital under Method 1 and 3.5% under Method 2. On July 20, 2015, the date of the last published estimate, the Federal Reserve had estimated the Firm's GSIB surcharge to be 2.5% under Method 1 and 4.5% under Method 2 as of December 31, 2014.

The countercyclical capital buffer is a potential expansion of the capital conservation buffer that takes into account the macro financial environment in which large, internationally active banks function. As of December 31, 2015 the Federal Reserve reaffirmed setting the U.S. countercyclical capital buffer at 0%, and stated that it will review the amount at least annually. The countercyclical capital buffer can be increased if the Federal Reserve, FDIC and OCC determine that credit growth in the economy has become excessive and can be set at up to an additional 2.5% of RWA. On December 21, 2015, the Federal Reserve, in conjunction with the FDIC and OCC, requested public comment, due March 21, 2016, on a proposed policy statement detailing the framework that would be followed in setting the U.S. Basel III countercyclical capital buffer.

Based on the Firm's most recent estimate of its GSIB surcharge and the current countercyclical buffer being set at 0%, the Firm estimates its fully phased-in capital conservation buffer would be 6%.

As well as meeting the capital ratio requirements of Basel III, the Firm must, in order to be "well-capitalized", maintain a minimum 6% Tier 1 and a 10% Total capital requirement. Each of the Firm's IDI subsidiaries must maintain a minimum 5% Tier 1 leverage, 6.5% CET1, 8% Tier 1 and 10% Total capital standard to meet the definition of "well-capitalized" under the Prompt Corrective Action ("PCA") requirements of the FDIC Improvement Act("FDICIA") for IDI subsidiaries. The PCA standards for IDI subsidiaries were effective January 1, 2015.

A reconciliation of total stockholders' equity to Basel III Standardized and Advanced Fully Phased-In CET1 capital, Tier 1 capital and Total capital is presented in the table below. Beginning July 21, 2015, the Volcker Rule provisions regarding the prohibitions against proprietary trading and holding ownership interests in or sponsoring "covered funds" became effective. The deduction from Basel III Tier 1 capital associated with the permissible holdings of covered funds acquired after December 31, 2013 was not material as of December 31, 2015. For additional information on the components of regulatory capital, see Note 28.

Capital components

(in millions)	December 31, 2015
Total stockholders' equity	$247,573
Less: Preferred stock	26,068
Common stockholders' equity	221,505
Less:	
Goodwill	47,325
Other intangible assets	1,015
Add:	
Deferred tax liabilities[(a)]	3,148
Less: Other CET1 capital adjustments	3,124
Standardized/Advanced CET1 capital	173,189
Preferred stock	26,068
Less:	
Other Tier 1 adjustments	210
Standardized/Advanced Tier 1 capital	$199,047
Long-term debt and other instruments qualifying as Tier 2 capital	$16,679
Qualifying allowance for credit losses	14,341
Other	(91)
Standardized Fully Phased-In Tier 2 capital	$30,929
Standardized Fully Phased-in Total capital	$229,976
Adjustment in qualifying allowance for credit losses for Advanced Tier 2 capital	(9,797)
Advanced Fully Phased-In Tier 2 capital	$21,132
Advanced Fully Phased-In Total capital	$220,179

(a)

Represents deferred tax liabilities related to tax-deductible goodwill and to identifiable intangibles created in nontaxable transactions, which are netted against goodwill and other intangibles when calculating TCE.

Management's discussion and analysis

The following table presents a reconciliation of the Firm's Basel III Transitional CET1 capital to the Firm's estimated Basel III Fully Phased-In CET1 capital as of December 31, 2015.

(in millions)	December 31, 2015
Transitional CET1 capital	$175,398
AOCI phase-in[(a)]	427
CET1 capital deduction phase-in[(b)]	(2,005)
Intangible assets deduction phase-in[(c)]	(546)
Other adjustments to CET1 capital[(d)]	(85)
Fully Phased-In CET1 capital	$173,189

(a) Includes the remaining balance of AOCI related to AFS debt securities and defined benefit pension and other postretirement employee benefit ("OPEB") plans that will qualify as Basel III CET1 capital upon full phase-in.
(b) Predominantly includes regulatory adjustments related to changes in FVA/DVA, as well as CET1 deductions for defined benefit pension plan assets and deferred tax assets related to net operating loss and tax credit carryforwards.
(c) Relates to intangible assets, other than goodwill and MSRs, that are required to be deducted from CET1 capital upon full phase-in.
(d) Includes minority interest and the Firm's investments in its own CET1 capital instruments.

Capital rollforward

The following table presents the changes in Basel III Fully Phased-In CET1 capital, Tier 1 capital and Tier 2 capital for the year ended December 31, 2015.

Year Ended December 31, (in millions)	2015
Standardized/Advanced CET1 capital at December 31, 2014	$164,514
Net income applicable to common equity	22,927
Dividends declared on common stock	(6,484)
Net purchase of treasury stock	(3,835)
Changes in additional paid-in capital	(770)
Changes related to AOCI	(2,116)
Adjustment related to FVA/DVA	(454)
Other	(593)
Increase in Standardized/Advanced CET1 capital	8,675
Standardized/Advanced CET1 capital at December 31, 2015	$173,189
Standardized/Advanced Tier 1 capital at December 31, 2014	$184,572
Change in CET1 capital	8,675
Net issuance of noncumulative perpetual preferred stock	6,005
Other	(205)
Increase in Standardized/Advanced Tier 1 capital	14,475
Standardized/Advanced Tier 1 capital at December 31, 2015	$199,047
Standardized Tier 2 capital at December 31, 2014	$32,147
Change in long-term debt and other instruments qualifying as Tier 2	(748)
Change in qualifying allowance for credit losses	(466)
Other	(4)
Increase in Standardized Tier 2 capital	(1,218)
Standardized Tier 2 capital at December 31, 2015	$30,929
Standardized Total capital at December 31, 2015	$229,976
Advanced Tier 2 capital at December 31, 2014	$21,607
Change in long-term debt and other instruments qualifying as Tier 2	(748)

Change in qualifying allowance for credit losses	277
Other	(4)
Increase in Advanced Tier 2 capital	(475)
Advanced Tier 2 capital at December 31, 2015	$21,132
Advanced Total capital at December 31, 2015	$220,179

RWA rollforward

The following table presents changes in the components of RWA under Basel III Standardized and Advanced Fully Phased-In for the year ended December 31, 2015. The amounts in the rollforward categories are estimates, based on the predominant driver of the change.

	Standardized			Advanced			
Year ended December 31, 2015 (in billions)	Credit risk RWA	Market risk RWA	Total RWA	Credit risk RWA	Market risk RWA	Operational risk RWA	Total RWA
December 31, 2014	$1,381	$180	$1,561	$1,040	$179	$400	$1,619
Model & data changes[(a)]	(17)	(15)	(32)	(38)	(15)	—	(53)
Portfolio runoff[(b)]	(13)	(8)	(21)	(21)	(8)	—	(29)
Movement in portfolio levels[(c)]	(18)	(15)	(33)	(27)	(14)	—	(41)
Changes in RWA	(48)	(38)	(86)	(86)	(37)	—	(123)
December 31, 2015	$1,333	$142	$1,475	$954	$142	$400	$1,496

(a) Model & data changes refer to movements in levels of RWA as a result of revised methodologies and/or treatment per regulatory guidance (exclusive of rule changes).

(b) Portfolio runoff for credit risk RWA reflects reduced risk from position rolloffs in legacy portfolios in Mortgage Banking, (primarily under the Advanced framework) and Broker Dealer Services (primarily under the Standardized framework); and for market risk RWA reflects reduced risk from position rolloffs in legacy portfolios in the wholesale businesses.

(c) Movement in portfolio levels for credit risk RWA refers to changes in book size, composition, credit quality, and market movements; and for market risk RWA refers to changes in position and market movements.

Supplementary leverage ratio

The SLR is defined as Tier 1 capital under Basel III divided by the Firm's total leverage exposure. Total leverage exposure is calculated by taking the Firm'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 U.S. bank holding companies, including the Firm, to have a minimum SLR of 5% and IDI subsidiaries, including JPMorgan Chase Bank, N.A. and Chase Bank USA, N.A., to have a minimum SLR of 6%, both beginning January 1, 2018. As of December 31, 2015, the Firm estimates that JPMorgan Chase Bank, N.A.'s and Chase Bank USA, N.A.'s Fully Phased-In SLRs are approximately 6.6% and 8.3%, respectively.

The following table presents the components of the Firm's Fully Phased-In SLR, a non-GAAP financial measure, as of December 31, 2015.

(in millions, except ratio)	December 31, 2015
Fully Phased-in Tier 1 Capital	$199,047
Total average assets	2,408,253
Less: amounts deducted from Tier 1 capital	47,754
Total adjusted average assets[(a)]	2,360,499
Off-balance sheet exposures[(b)]	718,620
SLR leverage exposure	$3,079,119
SLR	6.5%

(a) Adjusted average assets, for purposes of calculating the SLR, includes total quarterly average assets adjusted for on-balance sheet assets that are subject to deduction from Tier 1 capital, predominantly goodwill and other intangible assets.

(b) Off-balance sheet exposures are calculated as the average of the three month-end spot balances in the reporting quarter.

Planning and stress testing

Comprehensive Capital Analysis and Review

The Federal Reserve requires large bank holding companies, including the Firm, to submit a capital plan on an annual basis. The Federal Reserve uses the CCAR and Dodd-Frank Act stress test processes to ensure that large bank holding companies have sufficient capital during periods of economic and financial stress, and have robust, forward-looking capital assessment and planning processes in place that address each bank holding company's ("BHC") unique risks to enable them to have the ability to absorb losses under certain stress scenarios. Through the CCAR, the Federal Reserve evaluates each BHC's capital adequacy and internal capital adequacy assessment processes, as well as its plans to make capital distributions, such as dividend payments or stock repurchases.

On March 11, 2015, the Federal Reserve informed the Firm that it did not object, on either a quantitative or qualitative basis, to the Firm's 2015 capital plan. For information on actions taken by the Firm's Board of Directors following the 2015 CCAR results, see Capital actions on page 157.

For 2016, the Federal Reserve revised the capital plan cycle for the CCAR process. Under the revised time line, the Firm is required to submit its 2016 capital plan to the Federal Reserve by April 5, 2016. The Federal Reserve has indicated that it expects to respond to the capital plan submissions of bank holding companies by June 30, 2016.

The Firm's CCAR process is integrated into and employs the same methodologies utilized in the Firm's ICAAP process, as discussed below.

Management's discussion and analysis

Internal Capital Adequacy Assessment Process

Semiannually, the Firm completes the ICAAP, which provides management with a view of the impact of severe and unexpected events on earnings, balance sheet positions, reserves and capital. The Firm's ICAAP integrates stress testing protocols with capital planning.

The process assesses the potential impact of alternative economic and business scenarios on the Firm's earnings and capital. Economic scenarios, and the parameters underlying those scenarios, are defined centrally and applied uniformly across the businesses. These scenarios are articulated in terms of macroeconomic factors, which are key drivers of business results; global market shocks, which generate short-term but severe trading losses; and idiosyncratic operational risk events. The scenarios are intended to capture and stress key vulnerabilities and idiosyncratic risks facing the Firm. However, when defining a broad range of scenarios, realized events can always be worse. Accordingly, management considers additional stresses outside these scenarios, as necessary. ICAAP results are reviewed by management and the Board of Directors.

Line of business equity

The Firm's framework for allocating capital to its business segments (line of business equity) is based on the following objectives:

- Integrate firmwide and line of business capital management activities;
- Measure performance consistently across all lines of business; and
- Provide comparability with peer firms for each of the lines of business.

Each business segment is allocated capital by taking into consideration stand-alone peer comparisons, regulatory capital requirements (as estimated under Basel III Advanced Fully Phased-In) and economic risk. Capital is also allocated to each line of business for, among other things, goodwill and other intangibles associated with acquisitions effected by the line of business. ROE is measured and internal targets for expected returns are established as key measures of a business segment's performance.

Line of business equity	Yearly average		
Year ended December 31, (in billions)	2015	2014	2013
Consumer & Community Banking	$51.0	$51.0	$46.0
Corporate & Investment Bank	62.0	61.0	56.5
Commercial Banking	14.0	14.0	13.5
Asset Management	9.0	9.0	9.0
Corporate	79.7	72.4	71.4
Total common stockholders' equity	$215.7	$207.4	$196.4

On at least an annual basis, the Firm assesses the level of capital required for each line of business as well as the assumptions and methodologies used to allocate capital. The line of business equity allocations are updated as refinements are implemented. The table below reflects the Firm's assessed level of capital required for each line of business as of the dates indicated.

Line of business equity	January 1,	December 31,	
(in billions)	2016	2015	2014
Consumer & Community Banking	$51.0	$51.0	$51.0
Corporate & Investment Bank	64.0	62.0	61.0
Commercial Banking	16.0	14.0	14.0
Asset Management	9.0	9.0	9.0
Corporate	81.5	85.5	76.7
Total common stockholders' equity	$221.5	$221.5	$211.7

Other capital requirements

Minimum Total Loss Absorbing Capacity

In November 2015, the Financial Stability Board ("FSB") finalized the TLAC standard for GSIBs, which establishes the criteria for TLAC eligible debt and capital instruments and defines the minimum requirements for amounts of loss absorbing and recapitalization capacity. This amount and type of debt and capital instruments is intended to effectively absorb losses, as necessary, upon the failure of a GSIB, without imposing such losses on taxpayers of the relevant jurisdiction or causing severe systemic disruptions, and thereby ensuring the continuity of the GSIB's critical functions. The final standard will require GSIBs to meet a common minimum TLAC requirement of 16% of the financial institution's RWA, effective January 1, 2019, and at least 18% effective January 1, 2022. The minimum TLAC must also be at least 6% of a financial institution's Basel III leverage ratio denominator, effective January 1, 2019, and at least 6.75% effective January 1, 2022.

On October 30, 2015, the Federal Reserve issued proposed rules that would require the top-tier holding companies of eight U.S. global systemically important bank holding companies, including the Firm, among other things, to maintain minimum levels of eligible TLAC and long-term debt satisfying certain eligibility criteria ("eligible LTD") commencing January 1, 2019. Under the proposal, these eight U.S GSIBs would be required to maintain minimum TLAC of no less than 18% of the financial institution's RWA or 9.5% of its leverage exposure (as defined by the rules), plus in the case of the RWA-based measure, a TLAC buffer that is equal to 2.5% of the financial institution's CET1, any applicable countercyclical buffer and the financial institution's GSIB surcharge as calculated under method 1. The minimum level of eligible LTD that would be required to be maintained by these eight U.S. GSIBs would be equal to the greater of (A) 6% of the financial institution's RWA, plus the higher of the method 1 or method 2 GSIB surcharge applicable to the institution and (B) 4.5% of its leverage exposure (as defined by the rules). These 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 structured notes and debt securities not governed by U.S. law. The Firm is currently evaluating the impact of the proposal.

Capital actions

Dividends

The Firm's common stock dividend policy reflects JPMorgan Chase's earnings outlook, desired dividend payout ratio, capital objectives, and alternative investment opportunities.

Following receipt on March 11, 2015, of the Federal Reserve's non-objection to the Firm's 2015 capital plan submitted under its CCAR, the Firm announced that its Board of Directors increased the quarterly common stock dividend to $0.44 per share, effective with the dividend paid on July 31, 2015. The Firm's dividends are subject to the Board of Directors' approval at the customary times those dividends are declared.

For information regarding dividend restrictions, see Note 22 and Note 27.

The following table shows the common dividend payout ratio based on reported net income.

Year ended December 31,	2015	2014	2013
Common dividend payout ratio	28 %	29 %	33 %

Common equity

During the year ended December 31, 2015, warrant holders exercised their right to purchase 12.4 million shares of the Firm's common stock. The Firm issued 4.7 million shares of its common stock as a result of these exercises. As of December 31, 2015, 47.4 million warrants remained outstanding, compared with 59.8 million outstanding as of December 31, 2014.

On March 11, 2015, in conjunction with the Federal Reserve's release of its 2015 CCAR results, the Firm's Board of Directors authorized a $6.4 billion common equity (i.e., common stock and warrants) repurchase program. As of December 31, 2015, $2.7 billion (on a settlement-date basis) of authorized repurchase capacity remained under the program. This authorization includes shares repurchased to offset issuances under the Firm's equity-based compensation plans.

The following table sets forth the Firm's repurchases of common equity for the years ended December 31, 2015, 2014 and 2013, on a settlement-date basis. There were no warrants repurchased during the years ended December 31, 2015, 2014, and 2013.

Year ended December 31, (in millions)	2015	2014	2013
Total number of shares of common stock repurchased	89.8	82.3	96.1
Aggregate purchase price of common stock repurchases	$5,616	$4,760	$4,789

The Firm may, from time to time, enter into written trading plans under Rule 10b5-1 of the Securities Exchange Act of 1934 to facilitate repurchases in accordance with the common equity repurchase program. A Rule 10b5-1 repurchase plan allows the Firm to repurchase its equity during periods when it would not otherwise be repurchasing common equity — for example, during internal trading "blackout periods." All purchases under a Rule 10b5-1 plan must be made according to a predefined plan established

when the Firm is not aware of material nonpublic information.

The authorization to repurchase common equity will be utilized at management's discretion, and the timing of purchases and the exact amount of common equity that may be repurchased is subject to various factors, including market conditions; legal and regulatory considerations affecting the amount and timing of repurchase activity; the Firm's capital position (taking into account goodwill and intangibles); internal capital generation; and alternative investment opportunities. The repurchase program does not include specific price targets or timetables; may be executed through open market purchases or privately negotiated transactions, or utilize Rule 10b5-1 programs; and may be suspended at any time.

For additional information regarding repurchases of the Firm's equity securities, see Part II, Item 5: Market for registrant's common equity, related stockholder matters and issuer purchases of equity securities on page 20.

Preferred stock

During the year ended December 31, 2015, the Firm issued $6.0 billion of noncumulative preferred stock. Preferred stock dividends declared were $1.5 billion for the year ended December 31, 2015. Assuming all preferred stock issuances were outstanding for the entire year and quarterly dividends were declared on such issuances, preferred stock dividends would have been $1.6 billion for the year ended December 31, 2015. For additional information on

the Firm's preferred stock, see Note 22.
Redemption of outstanding trust preferred securities
On April 2, 2015, the Firm redeemed $1.5 billion, or 100% of the liquidation amount, of JPMorgan Chase Capital XXIX trust preferred securities. On May 8, 2013, the Firm redeemed approximately $5.0 billion, or 100% of the liquidation amount, of the following eight series of trust preferred securities: JPMorgan Chase Capital X, XI, XII, XIV, XVI, XIX, XXIV, and BANK ONE Capital VI. For a further discussion of trust preferred securities, see Note 21.

Broker-dealer regulatory capital

JPMorgan Chase's principal U.S. broker-dealer subsidiaries are JPMorgan Securities and J.P. Morgan Clearing Corp. ("JPMorgan Clearing"). JPMorgan Clearing is a subsidiary of JPMorgan Securities and provides clearing and settlement services. JPMorgan Securities and JPMorgan Clearing are each subject to Rule 15c3-1 under the Securities Exchange Act of 1934 (the "Net Capital Rule"). JPMorgan Securities and JPMorgan Clearing are also each registered as futures commission merchants and subject to Rule 1.17 of the Commodity Futures Trading Commission ("CFTC").

JPMorgan Securities and JPMorgan Clearing have elected to compute their minimum net capital requirements in accordance with the "Alternative Net Capital Requirements" of the Net Capital Rule. At December 31, 2015, JPMorgan Securities' net capital, as defined by the Net Capital Rule, was $14.2 billion, exceeding the minimum requirement by $11.9 billion, and JPMorgan Clearing's net capital was $7.7 billion, exceeding the minimum requirement by $6.2 billion.

In addition to its minimum net capital requirement, JPMorgan Securities is required to hold tentative net capital in excess of $1.0 billion and is also required to notify the Securities and Exchange Commission ("SEC") in the event that tentative net capital is less than $5.0 billion, in accordance with the market and credit risk standards of Appendix E of the Net Capital Rule. As of December 31, 2015, JPMorgan Securities had tentative net capital in excess of the minimum and notification requirements.

J.P. Morgan Securities plc is a wholly owned subsidiary of JPMorgan Chase Bank, N.A. and is the Firm's principal operating subsidiary in the U.K. It has authority to engage in banking, investment banking and broker-dealer activities. J.P. Morgan Securities plc is jointly regulated by the U.K. Prudential Regulation Authority ("PRA") and Financial Conduct Authority ("FCA"). Commencing January 1, 2014, J.P. Morgan Securities plc became subject to the U.K. Basel III capital rules.

At December 31, 2015, J.P. Morgan Securities plc had estimated total capital of $33.9 billion; its estimated CET1 capital ratio was 15.4% and its estimated Total capital ratio was 19.6%. Both capital ratios exceeded the minimum standards of 4.5% and 8.0%, respectively, under the transitional requirements of the European Union's ("EU") Basel III Capital Requirements Directive and Regulation, as well as the additional capital requirements specified by the PRA.

LIQUIDITY RISK MANAGEMENT

Liquidity risk is the risk that the Firm will be unable to meet its contractual and contingent obligations or that it does not have the appropriate amount, composition and tenor of funding and liquidity to support its assets.

Liquidity risk oversight

The Firm has a liquidity risk oversight function whose primary objective is to provide assessment, measurement, monitoring, and control of liquidity risk across the Firm. Liquidity risk oversight is managed through a dedicated firmwide Liquidity Risk Oversight group. The CTC CRO, as part of the independent risk management function, has responsibility for firmwide Liquidity Risk Oversight. Liquidity Risk Oversight's responsibilities include but are not limited to:

- Establishing and monitoring limits, indicators, and thresholds, including liquidity appetite tolerances;
- Defining, monitoring, and reporting internal firmwide and legal entity stress tests, and monitoring and reporting regulatory defined stress testing;
- Monitoring and reporting liquidity positions, balance sheet variances and funding activities;
- Conducting ad hoc analysis to identify potential emerging liquidity risks.

Risk governance and measurement

Specific committees responsible for liquidity governance include firmwide ALCO as well as line of business and regional ALCOs, and the CTC Risk Committee. For further discussion of the risk and risk-related committees, see Enterprise-wide Risk Management on pages 107–111.

Internal Stress testing

Liquidity stress tests are intended to ensure sufficient liquidity for the Firm under a variety of adverse scenarios. Results of stress tests are therefore considered in the formulation of the Firm's funding plan and assessment of its liquidity position. Liquidity outflow assumptions are modeled across a range of time horizons and contemplate both market and idiosyncratic stress. Standard stress tests are performed on a regular basis and ad hoc stress tests are performed in response to specific market events or concerns. Stress scenarios are produced for JPMorgan Chase & Co. ("Parent Company") and the Firm's major subsidiaries.

Liquidity stress tests assume all of the Firm's contractual obligations are met and then take into consideration varying levels of access to unsecured and secured funding markets. Additionally, assumptions with respect to potential non-contractual and contingent outflows are contemplated.

Liquidity management

Treasury is responsible for liquidity management. The primary objectives of effective liquidity management are to ensure that the Firm's core businesses are able to operate in support of client needs, meet contractual and contingent obligations through normal economic cycles as well as during stress events, and to manage optimal funding mix, and availability of liquidity sources. The Firm manages liquidity and funding using a centralized, global approach in order to optimize liquidity sources and uses.

In the context of the Firm's liquidity management, Treasury is responsible for:

- Analyzing and understanding the liquidity characteristics of the Firm, lines of business and legal entities' assets and liabilities, taking into account legal, regulatory, and operational restrictions;
- Defining and monitoring firmwide and legal entity liquidity strategies, policies, guidelines, and contingency funding plans;
- Managing liquidity within approved liquidity risk appetite tolerances and limits;
- Setting transfer pricing in accordance with underlying liquidity characteristics of balance sheet assets and liabilities as well as certain off-balance sheet items.

Contingency funding plan

The Firm's contingency funding plan ("CFP"), which is reviewed by ALCO and approved by the DRPC, is a compilation of procedures and action plans for managing liquidity through stress events. The CFP incorporates the limits and indicators set by the Liquidity Risk Oversight group. These limits and indicators are reviewed regularly to identify the emergence of risks or vulnerabilities in the Firm's liquidity position. The CFP identifies the alternative contingent liquidity resources available to the Firm in a stress event.

Parent Company and subsidiary funding

The Parent Company acts as a source of funding to its subsidiaries. The Firm's liquidity management is intended to maintain liquidity at the Parent Company, in addition to funding and liquidity raised at the subsidiary operating level, at levels sufficient to fund the operations of the Parent Company and its subsidiaries for an extended period of time in a stress environment where access to normal funding sources is disrupted. The Parent Company currently holds sufficient liquidity to withstand peak outflows over a one year liquidity stress horizon, assuming no access to wholesale funding markets.

Management's discussion and analysis

LCR and NSFR

The Firm must comply with the U.S. LCR rule, which is intended to measure the amount of HQLA held by the Firm in relation to estimated net cash outflows within a 30-day period during an acute stress event. The LCR is required to be 80% at January 1, 2015, increasing by 10% each year until reaching the 100% minimum by January 1, 2017. At December 31, 2015, the Firm was compliant with the fully phased-in U.S. LCR.

On October 31, 2014, the Basel Committee issued the final standard for the net stable funding ratio ("NSFR") — which is intended to measure the "available" amount of stable funding relative to the "required" amount of stable funding over a one-year horizon. NSFR will become a minimum standard by January 1, 2018 and requires that this ratio be equal to at least 100% on an ongoing basis. At December 31, 2015, the Firm was compliant with the NSFR based on its current understanding of the final Basel rule. The U.S. banking regulators are expected to issue an NPR that would outline requirements specific to U.S. banks.

HQLA

HQLA is the amount of assets that qualify for inclusion in the U.S. LCR. HQLA primarily consists of cash and certain unencumbered high quality liquid assets as defined in the final rule.

As of December 31, 2015, the Firm's HQLA was $496 billion, compared with $600 billion as of December 31, 2014. The decrease in HQLA was due to lower cash balances largely driven by lower non-operating deposit balances; however, the Firm remains LCR-compliant given the corresponding reduction in estimated net cash outflows associated with those deposits. HQLA may fluctuate from period to period primarily due to normal flows from client activity.

The following table presents the estimated HQLA included in the LCR broken out by HQLA-eligible cash and securities as of December 31, 2015.

(in billions)	December 31, 2015
HQLA	
Eligible cash[(a)]	$304
Eligible securities[(b)]	192
Total HQLA	$496

(a) Cash on deposit at central banks.

(b) Predominantly includes U.S. agency mortgage-backed securities, U.S. Treasuries, and sovereign bonds net of applicable haircuts under U.S. LCR rules.

In addition to HQLA, as of December 31, 2015, the Firm has approximately $249 billion of unencumbered marketable securities, such as equity securities and fixed income debt securities, available to raise liquidity, if required. Furthermore, the Firm maintains borrowing capacity at various Federal Home Loan Banks ("FHLBs"), the Federal Reserve Bank discount window and various other central banks as a result of collateral pledged by the Firm to such banks. Although available, the Firm does not view the borrowing capacity at the Federal Reserve Bank discount window and the various other central banks as a primary source of liquidity. As of December 31, 2015, the Firm's remaining borrowing capacity at various FHLBs and the Federal Reserve Bank discount window was approximately $183 billion. This remaining borrowing capacity excludes the benefit of securities included above in HQLA or other unencumbered securities currently held at the Federal Reserve Bank discount window for which the Firm has not drawn liquidity.

Funding

Sources of funds

Management believes that the Firm's unsecured and secured funding capacity is sufficient to meet its on- and off-balance sheet obligations.

The Firm funds its global balance sheet through diverse sources of funding including a stable deposit franchise as well as secured and unsecured funding in the capital markets. The Firm's loan portfolio ($837.3 billion at December 31, 2015), is funded with a portion of the Firm's deposits ($1,279.7 billion at December 31, 2015)
and through securitizations and, with respect to a portion of the Firm's real estate-related loans, with secured borrowings from the FHLBs. Deposits in excess of the amount utilized to fund loans are primarily invested in the

Firm’s investment securities portfolio or deployed in cash or other short-term liquid investments based on their interest rate and liquidity risk characteristics. Securities borrowed or purchased under resale agreements and trading assets-debt and equity instruments are primarily funded by the Firm’s securities loaned or sold under agreements to repurchase, trading liabilities–debt and equity instruments, and a portion of the Firm’s long-term debt and stockholders’ equity. In addition to funding securities borrowed or purchased under resale agreements and trading assets-debt and equity instruments, proceeds from the Firm’s debt and equity issuances are used to fund certain loans and other financial and non-financial assets, or may be invested in the Firm’s investment securities portfolio. See the discussion below for additional information relating to Deposits, Short-term funding, and Long-term funding and issuance.

Deposits

A key strength of the Firm is its diversified deposit franchise, through each of its lines of business, which provides a stable source of funding and limits reliance on the wholesale funding markets. As of December 31, 2015, the Firm's loans-to-deposits ratio was 65%, compared with 56% at December 31, 2014.

As of December 31, 2015, total deposits for the Firm were $1,279.7 billion, compared with $1,363.4 billion at December 31, 2014 (61% and 58% of total liabilities at December 31, 2015 and 2014, respectively). The decrease was attributable to lower wholesale non-operating deposits, partially offset by higher consumer deposits. For further information, see Consolidated Balance Sheet Analysis on pages 75–76.

The Firm has typically experienced higher customer deposit inflows at quarter-ends. Therefore, the Firm believes average deposit balances are generally more representative of deposit trends. The table below summarizes, by line of business, the period-end and average deposit balances as of and for the years ended December 31, 2015 and 2014.

Deposits			Year ended December 31,	
As of or for the period ended December 31,			Average	
(in millions)	2015	2014	2015	2014
Consumer & Community Banking	$557,645	$502,520	$530,938	$486,919
Corporate & Investment Bank	395,228	468,423	414,064	417,517
Commercial Banking	172,470	213,682	184,132	190,425
Asset Management	146,766	155,247	149,525	150,121
Corporate	7,606	23,555	17,129	19,319
Total Firm	$1,279,715	$1,363,427	$1,295,788	$1,264,301

A significant portion of the Firm's deposits are consumer deposits, which are considered a stable source of liquidity. Additionally, the majority of the Firm's wholesale operating deposits are also considered to be stable sources of liquidity because they are generated from customers that maintain operating service relationships with the Firm. Wholesale non-operating deposits, including a portion of balances previously reported as commercial paper sweep liabilities, decreased by approximately $200 billion from December 31, 2014 to December 31, 2015, predominantly driven by the Firm's actions to reduce such deposits. The reduction has not had a significant impact on the Firm's liquidity position as discussed under LCR and HQLA above. For further discussions of deposit and liability balance trends, see the discussion of the Firm's business segments results and the Consolidated Balance Sheet Analysis on pages 83–106 and pages 75–76, respectively.

Management's discussion and analysis

The following table summarizes short-term and long-term funding, excluding deposits, as of December 31, 2015 and 2014, and average balances for the years ended December 31, 2015 and 2014. For additional information, see the Consolidated Balance Sheet Analysis on pages 75–76 and Note 21.

Sources of funds (excluding deposits)

As of or for the year ended December 31,	2015	2014	Average	
(in millions)			2015	2014
Commercial paper:				
Wholesale funding	$15,562	$24,052	$19,340	$19,442
Client cash management	—	42,292	18,800	40,474
Total commercial paper	$15,562	$66,344	$38,140	$59,916
Obligations of Firm-administered multi-seller conduits[a]	$8,724	$12,047	$11,961	$10,427
Other borrowed funds	$21,105	$30,222	$28,816	$31,721
Securities loaned or sold under agreements to repurchase:				
Securities sold under agreements to repurchase	$129,598	$167,077	$168,163	$181,186
Securities loaned	18,174	21,798	19,493	22,586
Total securities loaned or sold under agreements to repurchase[b][c][d]	$147,772	$188,875	$187,656	$203,772
Senior notes	$149,964	$142,169	$147,498	$139,388
Trust preferred securities	3,969	5,435	4,341	5,408
Subordinated debt	25,027	29,387	27,310	29,009
Structured notes	32,813	30,021	31,309	30,311
Total long-term unsecured funding	$211,773	$207,012	$210,458	$204,116
Credit card securitization[a]	27,906	31,197	30,382	28,892
Other securitizations[e]	1,760	2,008	1,909	2,734
FHLB advances	71,581	64,994	70,150	60,667
Other long-term secured funding[f]	5,297	4,373	4,332	5,031
Total long-term secured funding	$106,544	$102,572	$106,773	$97,324
Preferred stock[g]	$26,068	$20,063	24,040	$17,018
Common stockholders' equity[g]	$221,505	$211,664	215,690	$207,400

(a) Included in beneficial interests issued by consolidated variable interest entities on the Firm's Consolidated balance sheets.

(b) Excludes federal funds purchased.

(c) Excluded long-term structured repurchase agreements of $4.2 billion and $2.7 billion as of December 31, 2015 and 2014, respectively, and average balances of $3.9 billion and $4.2 billion for the years ended December 31, 2015 and 2014, respectively.

(d) Excluded average long-term securities loaned of $24 million as of December 31, 2014. There was no balance for the other periods presented.

(e) Other securitizations includes securitizations of residential mortgages and student loans. The Firm's wholesale businesses also securitize loans for client-driven transactions, which are not considered to be a source of funding for the Firm and are not included in the table.

(f) Includes long-term structured notes which are secured.

(g) For additional information on preferred stock and common stockholders' equity see Capital Management on pages 149–158, Consolidated statements of changes in stockholders' equity, Note 22 and Note 23.

Short-term funding

During the third quarter of 2015 the Firm completed the discontinuation of its commercial paper customer sweep cash management program. This change has not had a significant impact on the Firm's liquidity as the majority of these customer funds remain as deposits at the Firm.

The Firm's sources of short-term secured funding primarily consist of securities loaned or sold under agreements to repurchase. Securities loaned or sold under agreements to repurchase are secured predominantly by high-quality securities collateral, including government-issued debt and agency MBS, and constitute a significant portion of the federal funds purchased and securities loaned or sold under repurchase agreements on the Consolidated balance sheets. The decrease in securities loaned or sold under agreements to repurchase at December 31, 2015, compared with the balance at December 31, 2014 (as well as the average balances for the full year 2015, compared with the prior year) was due to a decline in secured financing of trading assets-debt and equity instruments in CIB. The balances associated with securities loaned or sold under agreements to repurchase fluctuate over time due to customers' investment and financing activities; the Firm's demand for financing; the ongoing management of the mix of the Firm's liabilities, including its secured and unsecured financing (for both the investment securities and market-making portfolios); and other market and portfolio factors.

Long-term funding and issuance

Long-term funding provides additional sources of stable funding and liquidity for the Firm. The Firm's long-term funding plan is driven by expected client activity, liquidity considerations, and regulatory requirements. Long-term funding objectives include maintaining diversification, maximizing market access and optimizing funding costs, as well as maintaining a certain level of liquidity at the Parent Company. The Firm evaluates various funding markets, tenors and currencies in creating its optimal long-term funding plan.

The significant majority of the Firm's long-term unsecured funding is issued by the Parent Company to provide maximum flexibility in support of both bank and nonbank subsidiary funding. The following table summarizes long-term unsecured issuance and maturities or redemptions for the years ended December 31, 2015 and 2014. For additional information, see Note 21.

Long-term unsecured funding

Year ended December 31, (in millions)	2015	2014
Issuance		
Senior notes issued in the U.S. market	$19,212	$16,322
Senior notes issued in non-U.S. markets	10,188	11,193
Total senior notes	29,400	27,515
Subordinated debt	3,210	4,956
Structured notes	22,165	19,806
Total long-term unsecured funding – issuance	$54,775	$52,277
Maturities/redemptions		
Senior notes	$18,454	$21,169
Trust preferred securities	1,500	—
Subordinated debt	6,908	4,487
Structured notes	18,099	18,554
Total long-term unsecured funding – maturities/redemptions	$44,961	$44,210

The Firm raises secured long-term funding through securitization of consumer credit card loans and advances from the FHLBs.

The following table summarizes the securitization issuance and FHLB advances and their respective maturities or redemption for the years ended December 31, 2015 and 2014.

Long-term secured funding

Year ended	Issuance	Maturities/Redemptions

December 31, (in millions)	2015	2014	2015	2014
Credit card securitization	$6,807	$8,327	$10,130	$3,774
Other securitizations[(a)]	—	—	248	309
FHLB advances	16,550	15,200	9,960	12,079
Other long-term secured funding	1,105	802	383	3,076
Total long-term secured funding	$24,462	$24,329	$20,721	$19,238

(a) Other securitizations includes securitizations of residential mortgages and student loans.

The Firm's wholesale businesses also securitize loans for client-driven transactions; those client-driven loan securitizations are not considered to be a source of funding for the Firm and are not included in the table above. For further description of the client-driven loan securitizations, see Note 16.

Management's discussion and analysis

Credit ratings

The cost and availability of financing are influenced by credit ratings. Reductions in these ratings could have an adverse effect on the Firm's access to liquidity sources, increase the cost of funds, trigger additional collateral or funding requirements and decrease the number of investors and counterparties willing to lend to the Firm. Additionally, the Firm's funding requirements for VIEs and other third party commitments may be adversely affected by a decline

in credit ratings. For additional information on the impact of a credit ratings downgrade on the funding requirements for VIEs, and on derivatives and collateral agreements, see Special-purpose entities on page 77, and credit risk, liquidity risk and credit-related contingent features in Note 6.

The credit ratings of the Parent Company and the Firm's principal bank and nonbank subsidiaries as of December 31, 2015, were as follows.

	JPMorgan Chase & Co.			JPMorgan Chase Bank, N.A. Chase Bank USA, N.A.			J.P. Morgan Securities LLC		
December 31, 2015	Long-term issuer	Short-term issuer	Outlook	Long-term issuer	Short-term issuer	Outlook	Long-term issuer	Short-term issuer	Outlook
Moody's Investors Service	A3	P-2	Stable	Aa3	P-1	Stable	Aa3	P-1	Stable
Standard & Poor's	A-	A-2	Stable	A+	A-1	Stable	A+	A-1	Stable
Fitch Ratings	A+	F1	Stable	AA-	F1+	Stable	AA-	F1+	Stable

Downgrades of the Firm's long-term ratings by one or two notches could result in an increase in its cost of funds, and access to certain funding markets could be reduced as noted above. The nature and magnitude of the impact of ratings downgrades depends on numerous contractual and behavioral factors (which the Firm believes are incorporated in its liquidity risk and stress testing metrics). The Firm believes that it maintains sufficient liquidity to withstand a potential decrease in funding capacity due to ratings downgrades.

JPMorgan Chase'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 the Firm's credit ratings, financial ratios, earnings, or stock price.

Critical factors in maintaining high credit ratings include a stable and diverse earnings stream, strong capital ratios, strong credit quality and risk management controls, diverse funding sources, and disciplined liquidity monitoring procedures. Rating agencies continue to evaluate economic and geopolitical trends, regulatory developments, future profitability, risk management practices, and litigation matters, as well as their broader ratings methodologies. Changes in any of these factors could lead to changes in the Firm's credit ratings.

In May 2015, Moody's published its new bank rating methodology. As part of this action, the Firm's preferred stock, deposits and bank subordinated debt ratings were upgraded by one notch. Additionally in May 2015, Fitch changed its bank ratings methodology, implementing ratings differentiation between bank holding companies and their bank subsidiaries. This resulted in a one notch upgrade to the issuer ratings, senior debt ratings and long-term deposit ratings of JPMorgan Chase Bank, N.A., and certain other subsidiaries. In December 2015, S&P removed from its ratings for U.S. GSIBs the uplift assumption due to extraordinary government support. As a result, the Firm's short-term and long-term senior unsecured debt ratings and its subordinated unsecured debt ratings were lowered by one notch.

Although the Firm closely monitors and endeavors to manage, to the extent it is able, factors influencing its credit ratings, there is no assurance that its credit ratings will not be changed in the future.

CRITICAL ACCOUNTING ESTIMATES USED BY THE FIRM

JPMorgan Chase's accounting policies and use of estimates are integral to understanding its reported results. The Firm's most complex accounting estimates require management's judgment to ascertain the appropriate carrying value of assets and liabilities. The Firm has established policies and control procedures intended to ensure that estimation methods, including any judgments made as part of such methods, are well-controlled, independently reviewed and applied consistently from period to period. The methods used and judgments made reflect, among other factors, the nature of the assets or liabilities and the related business and risk management strategies, which may vary across the Firm's businesses and portfolios. In addition, the policies and procedures are intended to ensure that the process for changing methodologies occurs in an appropriate manner. The Firm believes its estimates for determining the carrying value of its assets and liabilities are appropriate. The following is a brief description of the Firm's critical accounting estimates involving significant judgments.

Allowance for credit losses

JPMorgan Chase's allowance for credit losses covers the retained consumer and wholesale loan portfolios, as well as the Firm's wholesale and certain consumer lending-related commitments. The allowance for loan losses is intended to adjust the carrying value of the Firm's loan assets to reflect probable credit losses inherent in the loan portfolio as of the balance sheet date. Similarly, the allowance for lending-related commitments is established to cover probable credit losses inherent in the lending-related commitments portfolio as of the balance sheet date.

The allowance for loan losses includes an asset-specific component, a formula-based component, and a component related to PCI loans. The determination of each of these components involves significant judgment on a number of matters, as discussed below. For further discussion of the methodologies used in establishing the Firm's allowance for credit losses, see Note 15.

Asset-specific component

The asset-specific allowance for loan losses for each of the Firm's portfolio segments is generally measured as the difference between the recorded investment in the impaired loan and the present value of the cash flows expected to be collected, discounted at the loan's original effective interest rate. Estimating the timing and amounts of future cash flows is highly judgmental as these cash flow projections rely upon estimates such as redefault rates, loss severities, the amounts and timing of prepayments and other factors that are reflective of current and expected future market conditions. These estimates are, in turn, dependent on factors such as the level of future home prices, the duration of current overall economic conditions, and other macroeconomic and portfolio-specific factors. All of these estimates and assumptions require significant management judgment and certain assumptions are highly subjective.

Formula-based component — Consumer loans and lending-related commitments, excluding PCI loans

The formula-based allowance for credit losses for the consumer portfolio, including credit card, is calculated by applying statistical credit loss factors to outstanding principal balances over an estimated loss emergence period to arrive at an estimate of incurred credit losses in the portfolio. 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. In addition, management applies judgment to the statistical loss estimates for each loan portfolio category, using delinquency trends and other risk characteristics to estimate the total incurred credit losses in the portfolio. Management uses additional statistical methods and considers portfolio and collateral valuation trends to review the appropriateness of the primary statistical loss estimate.

The statistical calculation is then adjusted to take into consideration model imprecision, external factors and current economic events that have occurred but that are not yet reflected in the factors used to derive the statistical calculation; these adjustments are accomplished in part by analyzing the historical loss experience for each major product segment. However, it is difficult to predict whether historical loss experience is indicative of future loss levels. Management applies judgment in making this adjustment, taking into account uncertainties associated with current macroeconomic and political conditions, quality of underwriting standards, borrower behavior, the potential impact of payment recasts within the HELOC portfolio, and other relevant internal and external factors affecting the credit quality of the portfolio. In certain instances, the interrelationships between these factors create further uncertainties. For example, the performance of a HELOC that experiences a payment recast may be affected by both the quality of underwriting standards applied in originating the loan and the general economic conditions in effect at the time of the payment recast. For junior lien products, management considers the delinquency and/or modification status of any senior liens in determining the adjustment. The application of different inputs into the statistical calculation, and the assumptions used by management to adjust the statistical calculation, are subject to management judgment, and emphasizing one input or assumption over another, or considering other inputs or assumptions, could affect the estimate of the allowance for loan losses for the consumer credit portfolio.

Overall, the allowance for credit losses for the consumer portfolio, including credit card, is sensitive to changes in the economic environment (e.g., unemployment rates), delinquency rates, the realizable value of collateral (e.g., housing prices), FICO scores, borrower behavior and other risk factors. While all of these factors are important determinants of overall allowance levels, changes in the various factors may not occur at the same time or at the same rate, or changes may be directionally inconsistent such that improvement in one factor may offset deterioration in the other. In addition, changes in these factors would not necessarily be consistent across all geographies or product types. Finally, it is difficult to predict the extent to which changes in these factors would ultimately affect the frequency of losses, the severity of losses or both.

PCI loans

In connection with the Washington Mutual transaction, JPMorgan Chase acquired certain PCI loans, which are accounted for as described in Note 14. The allowance for loan losses for the PCI portfolio is based on quarterly estimates of the amount of principal and interest cash flows expected to be collected over the estimated remaining lives of the loans.

These cash flow projections are based on estimates regarding default rates (including redefault rates on modified loans), loss severities, the amounts and timing of prepayments and other factors that are reflective of current and expected future market conditions. These estimates are dependent on assumptions regarding the level of future home price declines, and the duration of current overall economic conditions, among other factors. These estimates and assumptions require significant management judgment and certain assumptions are highly subjective.

Formula-based component — Wholesale loans and lending-related commitments

The Firm's methodology for determining the allowance for loan losses and the allowance for lending-related commitments involves the early identification of credits that are deteriorating. The formula-based component of the allowance calculation for wholesale loans and lending-related components is the product of an estimated PD and estimated LGD. These factors are determined based on the credit quality and specific attributes of the Firm's loans and lending-related commitments to each obligor.

The Firm assesses the credit quality of its borrower or counterparty and assigns a risk rating. Risk ratings are assigned at origination or acquisition, and if necessary, adjusted for changes in credit quality over the life of the exposure. In assessing the risk rating of a particular loan or lending-related commitment, 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. Determining risk ratings involves significant judgment; emphasizing one factor over another or considering additional factors could affect the risk rating assigned by the Firm.

PD estimates are based on observable external through-the-cycle data, using credit rating agency default statistics. A LGD estimate is assigned to each loan or lending-related commitment. The estimate represents the amount of economic loss if the obligor were to default. The type of obligor, quality of collateral, and the seniority of the Firm's lending exposure in the obligor's capital structure affect LGD. LGD estimates are based on the Firm's history of actual credit losses over more than one credit cycle. Changes to the time period used for PD and LGD estimates (for example, point-in-time loss versus longer views of the credit cycle) could also affect the allowance for credit losses.

The Firm applies judgment in estimating PD and LGD used in calculating the allowances. Wherever possible, the Firm uses independent, verifiable data or the Firm's own historical loss experience in its models for estimating the allowances, but differences in characteristics between the Firm's specific loans or lending-related commitments and those reflected in external and Firm-specific historical data could affect loss estimates. Estimates of PD and LGD are subject to periodic refinement based on any changes to underlying external and Firm-specific historical data. The use of different inputs would change the amount of the allowance for credit losses determined appropriate by the Firm.

Management also applies its judgment to adjust the modeled loss estimates, taking into consideration model imprecision, external factors and economic events that have occurred but are not yet reflected in the loss factors. Historical experience of both LGD and PD are considered when estimating these adjustments. Factors related to concentrated and deteriorating industries also are incorporated where relevant. These estimates are based on management's view of uncertainties that relate to current macroeconomic and political conditions, quality of underwriting standards and other relevant internal and external factors affecting the credit quality of the current portfolio.

Allowance for credit losses sensitivity

As noted above, the Firm's allowance for credit losses is sensitive to numerous factors, which may differ depending on the portfolio. Changes in economic conditions or in the Firm's assumptions and estimates could affect its estimate of probable credit losses inherent in the portfolio at the balance sheet date. The Firm uses its best judgment to assess these economic conditions and loss data in estimating the allowance for credit losses and these estimates are subject to periodic refinement based on any changes to underlying external and Firm-specific historical data. In many cases, the use of alternate estimates (for example, the effect of home prices and unemployment rates on consumer delinquency, or the calibration between the Firm's wholesale loan risk ratings and external credit ratings) or data sources (for example, external PD and LGD factors that incorporate industry-wide information, versus Firm-specific history) would result in a different estimated allowance for credit losses. To illustrate the potential magnitude of certain alternate judgments, the Firm estimates that changes in the following inputs would have the following effects on the Firm's modeled loss estimates as of December 31, 2015, without consideration of any offsetting or correlated effects of other inputs in the Firm's allowance for loan losses:

- For PCI loans, a combined 5% decline in housing prices and a 1% increase in unemployment rates from current levels could imply an increase to modeled credit loss estimates of approximately $700 million.
- For the residential real estate portfolio, excluding PCI loans, a combined 5% decline in housing prices and a 1% increase in unemployment rates from current levels could imply an increase to modeled annual loss estimates of approximately $125 million.
- A 50 basis point deterioration in forecasted credit card loss rates could imply an increase to modeled annualized credit card loan loss estimates of approximately $600 million.
- An increase in PD factors consistent with a one-notch downgrade in the Firm's internal risk ratings for its entire wholesale loan portfolio could imply an increase in the Firm's modeled loss estimates of approximately $2.1 billion.
- A 100 basis point increase in estimated LGD for the Firm's entire wholesale loan portfolio could imply an increase in the Firm's modeled loss estimates of approximately $175 million.

The purpose of these sensitivity analyses is to provide an indication of the isolated impacts of hypothetical alternative assumptions on modeled loss estimates. The changes in the inputs presented above are not intended to imply management's expectation of future deterioration of those risk factors. In addition, these analyses are not intended to estimate changes in the overall allowance for loan losses, which would also be influenced by the judgment management applies to the modeled loss estimates to reflect the uncertainty and imprecision of these modeled loss estimates based on then-current circumstances and conditions.

It is difficult to estimate how potential changes in specific factors might affect the overall allowance for credit losses because management considers a variety of factors and inputs in estimating the allowance for credit losses. Changes in these factors and inputs may not occur at the same rate and may not be consistent across all geographies or product types, and changes in factors may be directionally inconsistent, such that improvement in one factor may offset deterioration in other factors. In addition,

it is difficult to predict how changes in specific economic conditions or assumptions could affect borrower behavior or other factors considered by management in estimating the allowance for credit losses. Given the process the Firm follows and the judgments made in evaluating the risk factors related to its loss estimates, management believes that its current estimate of the allowance for credit losses is appropriate.

Fair value of financial instruments, MSRs and commodities inventory

JPMorgan Chase carries a portion of its assets and liabilities at fair value. The majority of such assets and liabilities are measured at fair value on a recurring basis. Certain assets and liabilities are measured at fair value on a nonrecurring basis, including certain mortgage, home equity and other loans, where the carrying value is based on the fair value of the underlying collateral.

Assets measured at fair value

The following table includes the Firm's assets measured at fair value and the portion of such assets that are classified within level 3 of the valuation hierarchy. For further information, see Note 3.

December 31, 2015 (in billions, except ratio data)	Total assets at fair value	Total level 3 assets
Trading debt and equity instruments	$284.1	$11.9
Derivative receivables[(a)]	59.7	7.9
Trading assets	343.8	19.8
AFS securities	241.8	0.8
Loans	2.9	1.5
MSRs	6.6	6.6

Private equity investments[b]	1.9	1.7	
Other	28.0	0.8	
Total assets measured at fair value on a recurring basis	625.0	31.2	
Total assets measured at fair value on a nonrecurring basis	1.7	1.0	
Total assets measured at fair value	$626.7	$32.2	
Total Firm assets	$2,351.7		
Level 3 assets as a percentage of total Firm assets[a]		1.4	%
Level 3 assets as a percentage of total Firm assets at fair value[a]		5.1	%

Note: Effective April 1, 2015, the Firm adopted new accounting guidance for certain investments where the Firm measures fair value using the net asset value per share (or its equivalent) as a practical expedient and has excluded these investments from the fair value hierarchy. For further information, see Note 3.

(a) For purposes of table above, the derivative receivables total reflects the impact of netting adjustments; however, the $7.9 billion of derivative receivables classified as level 3 does not reflect the netting adjustment as such netting is not relevant to a presentation based on the transparency of inputs to the valuation of an asset. However, if the Firm were to net such balances within level 3, the reduction in the level 3 derivative receivables balance would be $546 million at December 31, 2015; this is exclusive of the netting benefit associated with cash collateral, which would further reduce the level 3 balances.

(b) Private equity instruments represent investments within the Corporate line of business.

Valuation

Details of the Firm's processes for determining fair value are set out in Note 3. 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 the Firm. For instruments valued using internally developed models that use significant unobservable inputs and are therefore classified within level 3 of the valuation 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, the lack of observability of certain significant inputs requires management to assess all relevant empirical data in deriving valuation inputs including, for example, transaction details, yield curves, interest rates, prepayment rates, default rates, volatilities, correlations, equity or debt prices, valuations of comparable instruments, foreign exchange rates and credit curves. For further discussion of the valuation of level 3 instruments, including unobservable inputs used, see
Note 3.

For instruments classified in levels 2 and 3, management judgment must be applied to assess the appropriate level of valuation adjustments to reflect counterparty credit quality, the Firm's credit-worthiness, market funding rates, liquidity considerations, unobservable parameters, and for portfolios that meet specified criteria, the size of the net open risk position. The judgments made are typically affected by the type of product and its specific contractual terms, and the level of liquidity for the product or within the market as a whole. For further discussion of valuation adjustments applied by the Firm see Note 3.

Imprecision in estimating unobservable market inputs or other factors can affect the amount of gain or loss recorded for a particular position. Furthermore, while the Firm 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 the Firm's businesses and portfolios.

The Firm uses various methodologies and assumptions in the determination of fair value. The use of methodologies or assumptions different than those used by the Firm could result in a different estimate of fair value at the reporting date. For a detailed discussion of the Firm's valuation process and hierarchy, and its determination of fair value for individual financial instruments, see Note 3.

Goodwill impairment

Under U.S. GAAP, goodwill must be allocated to reporting units and tested for impairment at least annually. The Firm's process and methodology used to conduct goodwill impairment testing is described in Note 17.

Management applies significant judgment when estimating the fair value of its reporting units. Estimates of fair value are dependent upon estimates of (a) the future earnings potential of the Firm's reporting units, including the estimated effects of regulatory and legislative changes, such as the Dodd-Frank Act, (b) long-term growth rates and (c) the relevant cost of equity. Imprecision in estimating these factors can affect the estimated fair value of the reporting units.

Based upon the updated valuations for all of its reporting units, the Firm concluded that the goodwill allocated to its reporting units was not impaired at December 31, 2015. The fair values of these reporting units exceeded their carrying values by approximately 10% - 180% for all reporting units and did not indicate a significant risk of goodwill impairment based on current projections and valuations.

The goodwill of $101 million remaining as of December 31, 2014 associated with the Private Equity business was disposed of as part of the Private Equity sale completed in January 2015. For further information on the Private Equity sale, see Note 2.

The projections for all of the Firm's reporting units are consistent with management's short-term business outlook assumptions, and in the longer term, incorporate a set of macroeconomic assumptions and the Firm's best estimates of long-term growth and returns on equity of its businesses. Where possible, the Firm uses third-party and peer data to benchmark its assumptions and estimates.

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 the Firm's reporting units or their 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.

For additional information on goodwill, see Note 17.

Income taxes

JPMorgan Chase is subject to the income tax laws of the various jurisdictions in which it operates, including U.S. federal, state and local and non-U.S. jurisdictions. These laws are often complex and may be subject to different interpretations. To determine the financial statement impact of accounting for income taxes, including the provision for income tax expense and unrecognized tax benefits, JPMorgan Chase must make assumptions and judgments about how to interpret and apply these complex tax laws to numerous transactions and business events, as well as make judgments regarding the timing of when certain items may affect taxable income in the U.S. and non-U.S. tax jurisdictions.

JPMorgan Chase’s interpretations of tax laws around the world are subject to review and examination by the various taxing authorities in the jurisdictions where the Firm operates, and disputes may occur regarding its view on a tax position. These disputes over interpretations with the various taxing authorities may be settled by audit, administrative appeals or adjudication in the court systems of the tax jurisdictions in which the Firm operates. JPMorgan Chase regularly reviews whether it may be assessed additional income taxes as a result of the resolution of these matters, and the Firm records additional reserves as appropriate. In addition, the Firm may revise its estimate of income taxes due to changes in income tax laws, legal interpretations and tax planning strategies. It is possible that revisions in the Firm’s estimate of income taxes may materially affect the Firm’s results of operations in any reporting period.

The Firm’s provision for income taxes is composed of current and deferred taxes. Deferred taxes arise from differences between assets and liabilities measured for financial reporting 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. The Firm has also recognized deferred tax assets in connection with certain net operating losses (“NOLs”) and tax credits. The Firm performs regular reviews to ascertain whether its deferred tax assets are realizable. These reviews include management’s estimates and assumptions regarding future taxable income, which also incorporates various tax planning strategies, including strategies that may be available to utilize NOLs before they expire. In connection with these reviews, if it is determined that a deferred tax asset is not realizable, a valuation allowance is established. The valuation allowance may be reversed in a subsequent reporting period if the Firm determines that, based on revised estimates of future taxable income or changes in tax planning strategies, it is more likely than not that all or part of the deferred tax asset will become realizable. As of December 31, 2015, management has determined it is more likely than not that the Firm will realize its deferred tax assets, net of the existing valuation allowance.

JPMorgan Chase does not record U.S. federal income taxes 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. Changes to the income tax rates applicable to these non-U.S. subsidiaries may have a material impact on the effective tax rate in a future period if such changes were to occur.

The Firm adjusts its unrecognized tax benefits as necessary when additional information becomes available. Uncertain tax positions that meet the more-likely-than-not recognition threshold are measured to determine the amount of benefit to recognize. An uncertain tax position is measured at the largest amount of benefit that management believes is more likely than not to be realized upon settlement. It is possible that the reassessment of JPMorgan Chase’s unrecognized tax benefits may have a material impact on its effective income tax rate in the period in which the reassessment occurs.

For additional information on income taxes, see Note 26.

Litigation reserves

For a description of the significant estimates and judgments associated with establishing litigation reserves, see Note 31.

Management's discussion and analysis

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	• Requires that unamortized debt issuance costs be presented as a reduction of the applicable liability rather than as an asset. • Does not impact the amortization method for these costs.	• Adopted October 1, 2015. • There was no material impact on the Firm's Consolidated balance sheets, and no impact on the Firm's Consolidated results of operations. • For further information, see Note 1.[a]
Disclosures for investments in certain entities that calculate net asset value per share (or its equivalent)	• Removes the requirement to categorize investments measured under the net asset value ("NAV") practical expedient from the fair value hierarchy. • 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.	• Adopted April 1, 2015. • The application of this guidance only affected the disclosures related to these investments and had no impact on the Firm's Consolidated balance sheets or results of operations. • For further information, see Note 3.[a]
Repurchase agreements and similar transactions	• Amends the accounting for certain secured financing transactions. • 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. • 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.	• Accounting amendments adopted January 1, 2015. • Disclosure enhancements adopted April 1, 2015. • There was no material impact on the Firm's Consolidated Financial Statements. • For further information, see Note 6 and Note 13.
Reporting discontinued operations and disclosures of disposals of components of an entity	• Changes the criteria for determining whether a disposition qualifies for discontinued operations presentation. • Requires enhanced disclosures about discontinued operations and significant dispositions that do not qualify to be presented as discontinued operations.	• Adopted January 1, 2015. • There was no material impact on the Firm's Consolidated Financial Statements.
Investments in qualified affordable housing projects	• Applies to accounting for investments in affordable housing projects that qualify for the low-income housing tax credit. • 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.	• Adopted January 1, 2015. • For further information, see Note 1.[a]

(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.

FASB Standards Issued but not yet Adopted

Standard	Summary of guidance	Effects on financial statements
Amendments to the consolidation analysis Issued February 2015	• 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. • Amends the evaluation of fees paid to a decision maker or a service provider, and exempts certain money market funds from consolidation.	• Required effective date January 1, 2016. • Will not have a material impact on the Firm's Consolidated Financial Statements.
Measuring the financial assets and financial liabilities of a consolidated collateralized financing entity Issued August 2014	• 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.	• Required effective date January 1, 2016. • Will not have a material impact on the Firm's Consolidated Financial Statements.
Revenue recognition – revenue from contracts with customers Issued May 2014	• 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. • 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. • 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.	• Required effective date January 1, 2018.[(a)] • 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, the Firm 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. • The Firm 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.
Recognition and measurement of financial assets and financial liabilities Issued January 2016	• Requires that certain equity instruments be measured at fair value, with changes in fair value recognized in earnings. • For financial liabilities where the fair value option has been elected, the portion of the total change in fair value caused by changes in Firm's own credit risk is required to be presented separately in Other comprehensive income ("OCI").	• Required effective date January 1, 2018.[(b)] • Adoption of the DVA guidance as of January 1, 2016, would result in a reclassification from retained earnings to AOCI, reflecting the cumulative change in value to change in the Firm's credit spread subsequent

• Generally requires a cumulative-effective adjustment to its retained earnings as of the beginning of the reporting period of adoption.	to the issuance of each liability. The amount of this reclassification would be immaterial as of January 1, 2016. • The Firm is evaluating the potential impact of the remaining guidance on the Consolidated Financial Statements.

(a) Early adoption is permitted.

(b) Early adoption is permitted for the requirement to report changes in fair value due to the Firm's own credit risk in OCI, and the Firm is planning to early adopt this guidance during 2016.

NONEXCHANGE-TRADED COMMODITY DERIVATIVE CONTRACTS AT FAIR VALUE

In the normal course of business, JPMorgan Chase trades nonexchange-traded commodity derivative contracts. To determine the fair value of these contracts, the Firm uses various fair value estimation techniques, primarily based on internal models with significant observable market parameters. The Firm's nonexchange-traded commodity derivative contracts are primarily energy-related.

The following table summarizes the changes in fair value for nonexchange-traded commodity derivative contracts for the year ended December 31, 2015.

Year ended December 31, 2015 (in millions)	Asset position	Liability position
Net fair value of contracts outstanding at January 1, 2015	$9,826	$13,926
Effect of legally enforceable master netting agreements	14,327	13,211
Gross fair value of contracts outstanding at January 1, 2015	24,153	27,137
Contracts realized or otherwise settled	(13,419)	(12,583)
Fair value of new contracts	3,704	5,027
Changes in fair values attributable to changes in valuation techniques and assumptions	—	—
Other changes in fair value	1,428	(1,300)
Gross fair value of contracts outstanding at December 31, 2015	15,866	18,281
Effect of legally enforceable master netting agreements	(6,772)	(6,256)
Net fair value of contracts outstanding at December 31, 2015	$9,094	$12,025

The following table indicates the maturities of nonexchange-traded commodity derivative contracts at December 31, 2015.

December 31, 2015 (in millions)	Asset position	Liability position
Maturity less than 1 year	$8,487	$9,242
Maturity 1–3 years	5,636	6,148
Maturity 4–5 years	1,122	1,931
Maturity in excess of 5 years	621	960
Gross fair value of contracts outstanding at December 31, 2015	15,866	18,281
Effect of legally enforceable master netting agreements	(6,772)	(6,256)
Net fair value of contracts outstanding at December 31, 2015	$9,094	$12,025

FORWARD-LOOKING STATEMENTS

From time to time, the Firm has made and will make forward-looking statements. These statements can be identified by the fact that they do not relate strictly to historical or current facts. Forward-looking statements often use words such as “anticipate,” “target,” “expect,” “estimate,” “intend,” “plan,” “goal,” “believe,” or other words of similar meaning. Forward-looking statements provide JPMorgan Chase’s current expectations or forecasts of future events, circumstances, results or aspirations. JPMorgan Chase’s disclosures in this Annual Report contain forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. The Firm also may make forward-looking statements in its other documents filed or furnished with the Securities and Exchange Commission. In addition, the Firm’s senior management may make forward-looking statements orally to investors, analysts, representatives of the media and others.

All forward-looking statements are, by their nature, subject to risks and uncertainties, many of which are beyond the Firm’s control. JPMorgan Chase’s actual future results may differ materially from those set forth in its forward-looking statements. While there is no assurance that any list of risks and uncertainties or risk factors is complete, below are certain factors which could cause actual results to differ from those in the forward-looking statements:

- Local, regional and global business, economic and political conditions and geopolitical events;
- Changes in laws and regulatory requirements, including capital and liquidity requirements;
- Changes in trade, monetary and fiscal policies and laws;
- Securities and capital markets behavior, including changes in market liquidity and volatility;
- Changes in investor sentiment or consumer spending or savings behavior;
- Ability of the Firm to manage effectively its capital and liquidity, including approval of its capital plans by banking regulators;
- Changes in credit ratings assigned to the Firm or its subsidiaries;
- Damage to the Firm’s reputation;
- Ability of the Firm to deal effectively with an economic slowdown or other economic or market disruption;
- Technology changes instituted by the Firm, its counterparties or competitors;
- The success of the Firm’s business simplification initiatives and the effectiveness of its control agenda;
- Ability of the Firm to develop new products and services, and the extent to which products or services previously sold by the Firm (including but not limited to mortgages and asset-backed securities) require the Firm to incur liabilities or absorb losses not contemplated at their initiation or origination;
- Ability of the Firm to address enhanced regulatory requirements affecting its businesses;
- Acceptance of the Firm’s new and existing products and services by the marketplace and the ability of the Firm to innovate and to increase market share;
- Ability of the Firm to attract and retain qualified employees;
- Ability of the Firm to control expense;
- Competitive pressures;
- Changes in the credit quality of the Firm’s customers and counterparties;
- Adequacy of the Firm’s risk management framework, disclosure controls and procedures and internal control over financial reporting;
- Adverse judicial or regulatory proceedings;
- Changes in applicable accounting policies;
- Ability of the Firm to determine accurate values of certain assets and liabilities;
- Occurrence of natural or man-made disasters or calamities or conflicts and the Firm’s ability to deal effectively with disruptions caused by the foregoing;
- Ability of the Firm to maintain the security of its financial, accounting, technology, data processing and other operating systems and facilities; and
-

Ability of the Firm to effectively defend itself against cyberattacks and other attempts by unauthorized parties to access information of the Firm or its customers or to disrupt the Firm's systems; and

- The other risks and uncertainties detailed in Part I, Item 1A: Risk Factors in the Firm's Annual Report on Form 10-K for the year ended December 31, 2015.

Any forward-looking statements made by or on behalf of the Firm speak only as of the date they are made, and JPMorgan Chase does not undertake to update forward-looking statements to reflect the impact of circumstances or events that arise after the date the forward-looking statements were made. The reader should, however, consult any further disclosures of a forward-looking nature the Firm may make in any subsequent Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, or Current Reports on Form 8-K.

Management’s report on internal control over financial reporting

Management of JPMorgan Chase & Co. (“JPMorgan Chase” or the “Firm”) is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is a process designed by, or under the supervision of, the Firm’s principal executive and principal financial officers, or persons performing similar functions, and effected by JPMorgan Chase’s Board of Directors, management and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with accounting principles generally accepted in the United States of America.
JPMorgan Chase’s internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records, that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the Firm’s assets; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the Firm are being made only in accordance with authorizations of JPMorgan Chase’s management and directors; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the Firm’s assets that could have a material effect on the financial statements.
Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate. Management has completed an assessment of the effectiveness of the Firm’s internal control over financial reporting as of December 31, 2015. In making the assessment, management used the “Internal Control — Integrated Framework” (“COSO 2013”) promulgated by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”).

Based upon the assessment performed, management concluded that as of December 31, 2015, JPMorgan Chase’s internal control over financial reporting was effective based upon the COSO 2013 framework. Additionally, based upon management’s assessment, the Firm determined that there were no material weaknesses in its internal control over financial reporting as of December 31, 2015.
The effectiveness of the Firm’s internal control over financial reporting as of December 31, 2015, has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report which appears herein.
James Dimon
Chairman and Chief Executive Officer

Marianne Lake
Executive Vice President and Chief Financial Officer

February 23, 2016

Report of independent registered public accounting firm

To the Board of Directors and Stockholders of JPMorgan Chase & Co.:
In our opinion, the accompanying consolidated balance sheets and the related consolidated statements of income, comprehensive income, changes in stockholders' equity and cash flows present fairly, in all material respects, the financial position of JPMorgan Chase & Co. and its subsidiaries (the "Firm") at December 31, 2015 and 2014 and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2015 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Firm maintained, in all material respects, effective internal control over financial reporting as of December 31, 2015 based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Firm's management is responsible for these financial statements, for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying "Management's report on internal control over financial reporting". Our responsibility is to express opinions on these financial statements and on the Firm's internal control over financial reporting based on our integrated audits. We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a

material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.
A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.
Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.
February 23, 2016

PricewaterhouseCoopers LLP 300 Madison Avenue New York, NY 10017

Consolidated statements of income

Year ended December 31, (in millions, except per share data)	2015	2014	2013
Revenue			
Investment banking fees	$6,751	$6,542	$6,354
Principal transactions	10,408	10,531	10,141
Lending- and deposit-related fees	5,694	5,801	5,945
Asset management, administration and commissions	15,509	15,931	15,106
Securities gains[(a)]	202	77	667
Mortgage fees and related income	2,513	3,563	5,205
Card income	5,924	6,020	6,022
Other income	3,032	3,013	4,608
Noninterest revenue	50,033	51,478	54,048
Interest income	50,973	51,531	52,669
Interest expense	7,463	7,897	9,350
Net interest income	43,510	43,634	43,319
Total net revenue	93,543	95,112	97,367
Provision for credit losses	3,827	3,139	225
Noninterest expense			
Compensation expense	29,750	30,160	30,810
Occupancy expense	3,768	3,909	3,693
Technology, communications and equipment expense	6,193	5,804	5,425
Professional and outside services	7,002	7,705	7,641
Marketing	2,708	2,550	2,500
Other expense	9,593	11,146	20,398
Total noninterest expense	59,014	61,274	70,467
Income before income tax expense	30,702	30,699	26,675
Income tax expense	6,260	8,954	8,789
Net income	$24,442	$21,745	$17,886
Net income applicable to common stockholders	$22,406	$20,077	$16,557
Net income per common share data			
Basic earnings per share	$6.05	$5.33	$4.38
Diluted earnings per share	6.00	5.29	4.34
Weighted-average basic shares	3,700.4	3,763.5	3,782.4
Weighted-average diluted shares	3,732.8	3,797.5	3,814.9
Cash dividends declared per common share	$1.72	$1.58	$1.44

(a) The Firm 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

Year ended December 31, (in millions)	2015	2014	2013
Net income	$24,442	$21,745	$17,886
Other comprehensive income/(loss), after–tax			
Unrealized gains/(losses) on investment securities	(2,144)	1,975	(4,070)
Translation adjustments, net of hedges	(15)	(11)	(41)
Cash flow hedges	51	44	(259)
Defined benefit pension and OPEB plans	111	(1,018)	1,467
Total other comprehensive income/(loss), after–tax	(1,997)	990	(2,903)
Comprehensive income	$22,445	$22,735	$14,983

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

Consolidated balance sheets

December 31, (in millions, except share data)	2015	2014
Assets		
Cash and due from banks	$20,490	$27,831
Deposits with banks	340,015	484,477
Federal funds sold and securities purchased under resale agreements (included $23,141 and $28,585 at fair value)	212,575	215,803
Securities borrowed (included $395 and $992 at fair value)	98,721	110,435
Trading assets (included assets pledged of $115,284 and $125,034)	343,839	398,988
Securities (included $241,754 and $298,752 at fair value and assets pledged of $14,883 and $24,912)	290,827	348,004
Loans (included $2,861 and $2,611 at fair value)	837,299	757,336
Allowance for loan losses	(13,555)	(14,185)
Loans, net of allowance for loan losses	823,744	743,151
Accrued interest and accounts receivable	46,605	70,079
Premises and equipment	14,362	15,133
Goodwill	47,325	47,647
Mortgage servicing rights	6,608	7,436
Other intangible assets	1,015	1,192
Other assets (included $7,604 and $11,909 at fair value and assets pledged of $1,286 and $1,399)	105,572	102,098
Total assets[(a)]	$2,351,698	$2,572,274
Liabilities		
Deposits (included $12,516 and $8,807 at fair value)	$1,279,715	$1,363,427
Federal funds purchased and securities loaned or sold under repurchase agreements (included $3,526 and $2,979 at fair value)	152,678	192,101
Commercial paper	15,562	66,344
Other borrowed funds (included $9,911 and $14,739 at fair value)	21,105	30,222
Trading liabilities	126,897	152,815
Accounts payable and other liabilities (included $4,401 and $4,155 at fair value)	177,638	206,939
Beneficial interests issued by consolidated variable interest entities (included $787 and $2,162 at fair value)	41,879	52,320
Long-term debt (included $33,065 and $30,226 at fair value)	288,651	276,379
Total liabilities[(a)]	2,104,125	2,340,547
Commitments and contingencies (see Notes 29, 30 and 31)		
Stockholders’ equity		
Preferred stock ($1 par value; authorized 200,000,000 shares: issued 2,606,750 and 2,006,250 shares)	26,068	20,063
Common stock ($1 par value; authorized 9,000,000,000 shares; issued 4,104,933,895 shares)	4,105	4,105
Additional paid-in capital	92,500	93,270
Retained earnings	146,420	129,977
Accumulated other comprehensive income	192	2,189
Shares held in restricted stock units (“RSU”) trust, at cost (472,953 shares)	(21)	(21)
Treasury stock, at cost (441,459,392 and 390,144,630 shares)	(21,691)	(17,856)
Total stockholders’ equity	247,573	231,727
Total liabilities and stockholders’ equity	$2,351,698	$2,572,274

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

December 31, (in millions)	2015	2014
Assets		
Trading assets	$3,736	$9,090
Loans	75,104	68,880
All other assets	2,765	1,815
Total assets	$81,605	$79,785
Liabilities		
Beneficial interests issued by consolidated variable interest entities	$41,879	$52,320
All other liabilities	809	949
Total liabilities	$42,688	$53,269

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. At both December 31, 2015 and 2014, the Firm provided limited program-wide credit enhancement of $2.0 billion, related to its Firm-administered multi-seller conduits, which are eliminated in consolidation. For further discussion, see Note 16.

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

Consolidated statements of changes in stockholders' equity

Year ended December 31, (in millions, except per share data)	2015	2014	2013
Preferred stock			
Balance at January 1	$20,063	$11,158	$9,058
Issuance of preferred stock	6,005	8,905	3,900
Redemption of preferred stock	—	—	(1,800)
Balance at December 31	26,068	20,063	11,158
Common stock			
Balance at January 1 and December 31	4,105	4,105	4,105
Additional paid-in capital			
Balance at January 1	93,270	93,828	94,604
Shares issued and commitments to issue common stock for employee stock-based compensation awards, and related tax effects	(436)	(508)	(752)
Other	(334)	(50)	(24)
Balance at December 31	92,500	93,270	93,828
Retained earnings			
Balance at January 1	129,977	115,435	104,223
Cumulative effect of change in accounting principle	—	—	(284)
Balance at beginning of year, adjusted	129,977	115,435	103,939
Net income	24,442	21,745	17,886
Dividends declared:			
Preferred stock	(1,515)	(1,125)	(805)
Common stock ($1.72, $1.58 and $1.44 per share for 2015, 2014 and 2013, respectively)	(6,484)	(6,078)	(5,585)
Balance at December 31	146,420	129,977	115,435
Accumulated other comprehensive income			
Balance at January 1	2,189	1,199	4,102
Other comprehensive income/(loss)	(1,997)	990	(2,903)
Balance at December 31	192	2,189	1,199
Shares held in RSU Trust, at cost			
Balance at January 1 and December 31	(21)	(21)	(21)
Treasury stock, at cost			
Balance at January 1	(17,856)	(14,847)	(12,002)
Purchase of treasury stock	(5,616)	(4,760)	(4,789)
Reissuance from treasury stock	1,781	1,751	1,944
Balance at December 31	(21,691)	(17,856)	(14,847)
Total stockholders' equity	$247,573	$231,727	$210,857

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

Consolidated statements of cash flows

Year ended December 31, (in millions)	2015	2014	2013
Operating activities			
Net income	$24,442	$21,745	$17,886
Adjustments to reconcile net income to net cash provided by/(used in) operating activities:			
Provision for credit losses	3,827	3,139	225
Depreciation and amortization	4,940	4,759	5,306
Deferred tax expense	1,333	4,362	8,139
Other	1,785	2,113	1,552
Originations and purchases of loans held-for-sale	(48,109)	(67,525)	(75,928)
Proceeds from sales, securitizations and paydowns of loans held-for-sale	49,363	71,407	73,566
Net change in:			
Trading assets	62,212	(24,814)	89,110
Securities borrowed	12,165	1,020	7,562
Accrued interest and accounts receivable	22,664	(3,637)	(2,340)
Other assets	(3,701)	(9,166)	526
Trading liabilities	(28,972)	26,818	(9,772)
Accounts payable and other liabilities	(23,361)	6,058	(5,750)
Other operating adjustments	(5,122)	314	(2,129)
Net cash provided by operating activities	73,466	36,593	107,953
Investing activities			
Net change in:			
Deposits with banks	144,462	(168,426)	(194,363)
Federal funds sold and securities purchased under resale agreements	3,190	30,848	47,726
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	76,448	90,664	89,631
Proceeds from sales	40,444	38,411	73,312
Purchases	(70,804)	(121,504)	(130,266)
Proceeds from sales and securitizations of loans held-for-investment	18,604	20,115	12,033
Other changes in loans, net	(108,962)	(51,749)	(23,721)
All other investing activities, net	3,703	2,181	(828)
Net cash provided by/(used in) investing activities	106,980	(165,636)	(150,501)
Financing activities			
Net change in:			
Deposits	(88,678)	89,346	81,476
Federal funds purchased and securities loaned or sold under repurchase agreements	(39,415)	10,905	(58,867)
Commercial paper and other borrowed funds	(57,828)	9,242	2,784
Beneficial interests issued by consolidated variable interest entities	(5,632)	(834)	(10,433)
Proceeds from long-term borrowings	79,611	78,515	83,546
Payments of long-term borrowings	(67,247)	(65,275)	(60,497)
Proceeds from issuance of preferred stock	5,893	8,847	3,873
Redemption of preferred stock	—	—	(1,800)
Treasury stock and warrants repurchased	(5,616)	(4,760)	(4,789)
Dividends paid	(7,873)	(6,990)	(6,056)
All other financing activities, net	(726)	(768)	(913)

Net cash provided by/(used in) financing activities	(187,511)	118,228	28,324
Effect of exchange rate changes on cash and due from banks	(276)	(1,125)	272
Net decrease in cash and due from banks	(7,341)	(11,940)	(13,952)
Cash and due from banks at the beginning of the period	27,831	39,771	53,723
Cash and due from banks at the end of the period	$20,490	$27,831	$39,771
Cash interest paid	$7,220	$8,194	$9,573
Cash income taxes paid, net	9,423	1,392	3,502

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

Notes to consolidated financial statements

Note 1 – Basis of presentation

JPMorgan Chase & Co. (“JPMorgan Chase” or the “Firm”), a financial holding company incorporated under Delaware law in 1968, 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. The Firm is a leader in investment banking, financial services for consumers and small business, commercial banking, financial transaction processing and asset management. For a discussion of the Firm’s business segments, see Note 33.

The accounting and financial reporting policies of JPMorgan Chase 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.

Consolidation

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

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

The Firm 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, the Firm’s determination of whether it has a controlling interest is primarily based on the amount of voting equity interests held. Entities in which the Firm has a controlling financial interest, through ownership of the majority of the entities’ voting equity interests, or through other contractual rights that give the Firm control, are consolidated by the Firm.

Investments in companies in which the Firm 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 the Firm 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 Firm-sponsored asset management funds are structured as limited partnerships or limited liability companies. For many of these entities, the Firm is the general partner or managing member, but the non-affiliated partners or members have the ability to remove the Firm as the general partner or managing member without cause (i.e., kick-out rights), based on a simple majority vote, or the non-affiliated partners or members have rights to participate in important decisions. Accordingly, the Firm does not consolidate these funds. In the limited cases where the nonaffiliated partners or members do not have substantive kick-out or participating rights, the Firm consolidates the funds.

The Firm’s investment companies have investments in both publicly-held and privately-held entities, including investments in buyouts, growth equity and venture opportunities. 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 the Firm has the power to direct the activities of a VIE that most significantly impact the VIE's economic performance, the Firm 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 the Firm 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, the Firm 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 the Firm 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 the Firm.

The Firm 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 the Firm's involvement with a VIE cause the Firm'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, the Firm 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 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 stockholders' 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. The Firm has elected to net such balances when the specified conditions are met.

The Firm uses master netting agreements 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 the Firm’s derivative instruments, see Note 6. For further discussion of the Firm’s repurchase and reverse repurchase agreements, and securities borrowing and lending agreements, see Note 13.

Simplifying the presentation of debt issuance costs

Effective October 1, 2015, the Firm early adopted new accounting guidance that simplifies the presentation of debt issuance costs, by requiring that unamortized debt issuance costs be presented as a reduction of the applicable liability rather than as an asset. The adoption of this guidance had no material impact on the Firm’s Consolidated balance sheets, and no impact on the Firm’s consolidated results of operations. The guidance was required to be applied retrospectively, and accordingly, certain prior period amounts have been revised to conform with the current period presentation.

Investments in qualified affordable housing projects

Effective January 1, 2015, the Firm adopted new accounting guidance for investments in affordable housing projects that qualify for the low-income housing tax credit, which impacted the Corporate & Investment Bank (“CIB”). As a result of the adoption of this new guidance, the Firm 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 $284 million as of January 1, 2013. The adoption of this accounting guidance resulted in an increase of $907 million and $924 million in other income and income tax expense, respectively, for the year ended December 31, 2014 and $761 million and $798 million, respectively, for the year ended December 2013, which led to an increase of approximately 2% in the effective tax rate for the year ended December 31, 2014 and 2013. The impact on net income and earnings per

share in the periods affected was not material. For further information, see Note 26.

Statements of cash flows

For JPMorgan Chase’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’s other significant accounting policies and the Note and page where a detailed description of each policy can be found.

Fair value measurement	Note 3	Page 184
Fair value option	Note 4	Page 203
Derivative instruments	Note 6	Page 208
Noninterest revenue	Note 7	Page 221
Interest income and interest expense	Note 8	Page 223
Pension and other postretirement employee benefit plans	Note 9	Page 223
Employee stock-based incentives	Note 10	Page 231
Securities	Note 12	Page 233
Securities financing activities	Note 13	Page 238
Loans	Note 14	Page 242
Allowance for credit losses	Note 15	Page 262

Variable interest entities	Note 16	Page 266
Goodwill and other intangible assets	Note 17	Page 274
Premises and equipment	Note 18	Page 278
Long-term debt	Note 21	Page 279
Income taxes	Note 26	Page 285
Off–balance sheet lending-related financial instruments, guarantees and other commitments	Note 29	Page 290
Litigation	Note 31	Page 297

Note 2 – Business changes and developments

Private Equity sale

As part of the Firm’s business simplification agenda, the sale of a portion of the Private Equity Business (“Private Equity sale”) was completed on January 9, 2015. Concurrent with the sale, a new independent management company was formed by the former One Equity Partners investment professionals. The new management company provides investment management services to the acquirer of the investments sold in the Private Equity sale and to the Firm for the portion of the private equity investments that were retained by the Firm. The sale of the investments did not have a material impact on the Firm’s Consolidated balance sheets or its results of operations.

Notes to consolidated financial statements

Note 3 – Fair value measurement

JPMorgan Chase 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 the Firm'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 the Firm 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 the Firm's businesses and portfolios.

The Firm 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 the Firm 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. The Firm's valuation control function, which is part of the Firm'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 the Firm's positions are recorded at fair value. In addition, 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 the Firm. The VGF is chaired by the Firmwide head of the valuation control function (under the direction of the Firm's Chief Financial Officer ("CFO")), and

includes sub-forums covering the Corporate & Investment Bank, Consumer & Community Banking ("CCB"), Commercial Banking, 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 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 the Firm:

- 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.
- The Firm 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, the Firm also applies adjustments to its estimates of fair value in order to appropriately reflect counterparty credit quality, the Firm's own creditworthiness and the impact of funding, utilizing a consistent framework across the Firm. For more information on such adjustments see Credit and funding adjustments on page 200 of this Note.

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 the Firm. The Model Risk review and governance functions are part of the Firm's Model Risk unit, and the Firmwide Model Risk Executive reports to the Firm'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.

Notes to consolidated financial statements

The following table describes the valuation methodologies generally used by the Firm 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	Valuations are based on discounted cash flows, which consider: • Derivative features: for further information refer to the discussion of derivatives below. • Market rates for the respective maturity • Collateral	Level 2
Loans and lending-related commitments — wholesale		
Trading portfolio	Where observable market data is available, valuations are based on: • Observed market prices (circumstances are infrequent) • Relevant broker quotes • Observed market prices for similar instruments Where observable market data is unavailable or limited, valuations are based on discounted cash flows, which consider the following: • Credit spreads derived from the cost of credit default swaps ("CDS"); or benchmark credit curves developed by the Firm, by industry and credit rating • Prepayment speed	Level 2 or 3
Loans held for investment and associated lending-related commitments	Valuations are based on discounted cash flows, which consider: • Credit spreads, derived from the cost of CDS; or benchmark credit curves developed by the Firm, by industry and credit rating • Prepayment speed Lending-related commitments are valued similar to loans and reflect the portion of an unused commitment expected, based on the Firm's average portfolio historical experience, to become funded prior to an obligor default For information regarding the valuation of loans measured at collateral value, see Note 14.	Predominantly level 3
Loans — consumer		
Held for investment consumer loans, excluding credit card	Valuations are based on discounted cash flows, which consider: • Expected lifetime credit losses -considering expected and current default rates, and loss severity • Prepayment speed • Discount rates • Servicing costs For information regarding the valuation of loans measured at collateral value, see Note 14.	Predominantly level 3

Held for investment credit card receivables	Valuations are based on discounted cash flows, which consider: • Credit costs — allowance for loan losses is considered a reasonable proxy for the credit cost • Projected interest income, late-fee revenue and loan repayment rates • Discount rates • Servicing costs	Level 3
Trading loans — conforming residential mortgage loans expected to be sold	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.	Predominantly level 2

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
	In the absence of quoted market prices, securities are valued based on: • Observable market prices for similar securities • Relevant broker quotes • Discounted cash flows In addition, the following inputs to discounted cash flows are used for the following products: Mortgage- and asset-backed securities specific inputs: • Collateral characteristics • Deal-specific payment and loss allocations • Current market assumptions related to yield, prepayment speed, conditional default rates and loss severity Collateralized loan obligations ("CLOs"), specific inputs: • Collateral characteristics • Deal-specific payment and loss allocations • Expected prepayment speed, conditional default rates, loss severity • Credit spreads • Credit rating data	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
	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: • Contractual terms including the period to maturity • Readily observable parameters including interest rates and volatility • Credit quality of the counterparty and of the Firm • Market funding levels •	Level 2 or 3

- Correlation levels

In addition, the following specific inputs are used for the following derivatives that are valued based on models with significant unobservable inputs:

Structured credit derivatives specific inputs include:

- CDS spreads and recovery rates
- Credit correlation between the underlying debt instruments (levels are modeled on a transaction basis and calibrated to liquid benchmark tranche indices)
- Actual transactions, where available, are used to regularly recalibrate unobservable parameters

Certain long-dated equity option specific inputs include:

- Long-dated equity volatilities

Certain interest rate and foreign exchange ("FX") exotic options specific inputs include:

- Interest rate correlation
- Interest rate spread volatility
- Foreign exchange correlation
- Correlation between interest rates and foreign exchange rates
- Parameters describing the evolution of underlying interest rates

Certain commodity derivatives specific inputs include:

- Commodity volatility
- Forward commodity price

Additionally, adjustments are made to reflect counterparty credit quality (credit valuation adjustments or "CVA"), the Firm's own creditworthiness (debit valuation adjustments or "DVA"), and funding valuation adjustment ("FVA") to incorporate the impact of funding. See page 200 of this Note.

Notes to consolidated financial statements

Product/instrument	Valuation methodology, inputs and assumptions	Classification in the valuation hierarchy
Mortgage servicing rights ("MSRs")	See Mortgage servicing rights in Note 17.	Level 3
Private equity direct investments	Private equity direct investments	Level 2 or 3
	Fair value is estimated using all available information and considering the range of potential inputs, including: • Transaction prices • Trading multiples of comparable public companies • Operating performance of the underlying portfolio company • Additional available inputs relevant to the investment • Adjustments as required, since comparable public companies are not identical to the company being valued, and for company-specific issues and lack of liquidity	
	Public investments held in the Private Equity portfolio • Valued using observable market prices less adjustments for relevant restrictions, where applicable	Level 1 or 2
Fund investments (i.e., mutual/collective investment funds, private equity funds, hedge funds, and real estate funds)	Net asset value ("NAV") • NAV is validated by sufficient level of observable activity (i.e., purchases and sales)	Level 1
	• Adjustments to the NAV as required, for restrictions on redemption (e.g., lock up periods or withdrawal limitations) or where observable activity is limited	Level 2 or 3[(a)]
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: • Market rates for respective maturity • The Firm's own creditworthiness (DVA). See page 200 of this Note.	Predominantly level 2
Structured notes (included in deposits, other borrowed funds and long-term debt)	• Valuations are based on discounted cash flow analyses that consider the embedded derivative and the terms and payment structure of the note. • 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 the Firm's own creditworthiness (DVA) and to	Level 2 or 3

incorporate the impact of funding (FVA). See page 200 of this Note.

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

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

	Fair value hierarchy				
December 31, 2015 (in millions)	Level 1	Level 2	Level 3	Derivative netting adjustments	Total fair value
Federal funds sold and securities purchased under resale agreements	$—	$23,141	$—	$—	$23,141
Securities borrowed	—	395	—	—	395
Trading assets:					
Debt instruments:					
Mortgage-backed securities:					
U.S. government agencies[(a)]	6	31,815	715	—	32,536
Residential – nonagency	—	1,299	194	—	1,493
Commercial – nonagency	—	1,080	115	—	1,195
Total mortgage-backed securities	6	34,194	1,024	—	35,224
U.S. Treasury and government agencies[(a)]	12,036	6,985	—	—	19,021
Obligations of U.S. states and municipalities	—	6,986	651	—	7,637
Certificates of deposit, bankers' acceptances and commercial paper	—	1,042	—	—	1,042
Non-U.S. government debt securities	27,974	25,064	74	—	53,112
Corporate debt securities	—	22,807	736	—	23,543
Loans[(b)]	—	22,211	6,604	—	28,815
Asset-backed securities	—	2,392	1,832	—	4,224
Total debt instruments	40,016	121,681	10,921	—	172,618
Equity securities	94,059	606	265	—	94,930
Physical commodities[(c)]	3,593	1,064	—	—	4,657
Other	—	11,152	744	—	11,896
Total debt and equity instruments[(d)]	137,668	134,503	11,930	—	284,101
Derivative receivables:					
Interest rate	354	666,491	2,766	(643,248)	26,363
Credit	—	48,850	2,618	(50,045)	1,423
Foreign exchange	734	177,525	1,616	(162,698)	17,177
Equity	—	35,150	709	(30,330)	5,529
Commodity	108	24,720	237	(15,880)	9,185
Total derivative receivables[(e)]	1,196	952,736	7,946	(902,201)	59,677
Total trading assets	138,864	1,087,239	19,876	(902,201)	343,778
Available-for-sale securities:					
Mortgage-backed securities:					
U.S. government agencies[(a)]	—	55,066	—	—	55,066
Residential – nonagency	—	27,618	1	—	27,619
Commercial – nonagency	—	22,897	—	—	22,897
Total mortgage-backed securities	—	105,581	1	—	105,582
U.S. Treasury and government agencies[(a)]	10,998	38	—	—	11,036
Obligations of U.S. states and municipalities	—	33,550	—	—	33,550
Certificates of deposit	—	283	—	—	283
Non-U.S. government debt securities	23,199	13,477	—	—	36,676

Corporate debt securities	—	12,436	—	—	12,436
Asset-backed securities:					
Collateralized loan obligations	—	30,248	759	—	31,007
Other	—	9,033	64	—	9,097
Equity securities	2,087	—	—	—	2,087
Total available-for-sale securities	36,284	204,646	824	—	241,754
Loans	—	1,343	1,518	—	2,861
Mortgage servicing rights	—	—	6,608	—	6,608
Other assets:					
Private equity investments[f]	102	101	1,657	—	1,860
All other	3,815	28	744	—	4,587
Total other assets	3,917	129	2,401	—	6,447
Total assets measured at fair value on a recurring basis	$179,065	$1,316,893 [g]	$31,227 [g]	$(902,201)	$624,984
Deposits	$—	$9,566	$2,950	$—	$12,516
Federal funds purchased and securities loaned or sold under repurchase agreements	—	3,526	—	—	3,526
Other borrowed funds	—	9,272	639	—	9,911
Trading liabilities:					
Debt and equity instruments[d]	53,845	20,199	63	—	74,107
Derivative payables:					
Interest rate	216	633,060	1,890	(624,945)	10,221
Credit	—	48,460	2,069	(48,988)	1,541
Foreign exchange	669	187,890	2,341	(171,131)	19,769
Equity	—	36,440	2,223	(29,480)	9,183
Commodity	52	26,430	1,172	(15,578)	12,076
Total derivative payables[e]	937	932,280	9,695	(890,122)	52,790
Total trading liabilities	54,782	952,479	9,758	(890,122)	126,897
Accounts payable and other liabilities	4,382	—	19	—	4,401
Beneficial interests issued by consolidated VIEs	—	238	549	—	787
Long-term debt	—	21,452	11,613	—	33,065
Total liabilities measured at fair value on a recurring basis	$59,164	$996,533	$25,528	$(890,122)	$191,103

Notes to consolidated financial statements

	Fair value hierarchy				
December 31, 2014 (in millions)	Level 1	Level 2	Level 3	Derivative netting adjustments	Total fair value
Federal funds sold and securities purchased under resale agreements	$—	$28,585	$—	$—	$28,585
Securities borrowed	—	992	—	—	992
Trading assets:					
Debt instruments:					
Mortgage-backed securities:					
U.S. government agencies[a]	14	31,904	922	—	32,840
Residential – nonagency	—	1,381	663	—	2,044
Commercial – nonagency	—	927	306	—	1,233
Total mortgage-backed securities	14	34,212	1,891	—	36,117
U.S. Treasury and government agencies[a]	17,816	8,460	—	—	26,276
Obligations of U.S. states and municipalities	—	9,298	1,273	—	10,571
Certificates of deposit, bankers' acceptances and commercial paper	—	1,429	—	—	1,429
Non-U.S. government debt securities	25,854	27,294	302	—	53,450
Corporate debt securities	—	28,099	2,989	—	31,088
Loans[b]	—	23,080	13,287	—	36,367
Asset-backed securities	—	3,088	1,264	—	4,352
Total debt instruments	43,684	134,960	21,006	—	199,650
Equity securities	104,890	624	431	—	105,945
Physical commodities[c]	2,739	1,741	2	—	4,482
Other	—	8,762	1,050	—	9,812
Total debt and equity instruments[d]	151,313	146,087	22,489	—	319,889
Derivative receivables:					
Interest rate	473	945,635 [g]	4,149	(916,532) [g]	33,725
Credit	—	73,853	2,989	(75,004)	1,838
Foreign exchange	758	212,153 [g]	2,276	(193,934) [g]	21,253
Equity	—	39,937 [g]	2,552	(34,312) [g]	8,177
Commodity	247	42,807	599	(29,671)	13,982
Total derivative receivables[e]	1,478	1,314,385 [g]	12,565	(1,249,453) [g]	78,975
Total trading assets	152,791	1,460,472 [g]	35,054	(1,249,453) [g]	398,864
Available-for-sale securities:					
Mortgage-backed securities:					
U.S. government agencies[a]	—	65,319	—	—	65,319
Residential – nonagency	—	50,865	30	—	50,895
Commercial – nonagency	—	21,009	99	—	21,108
Total mortgage-backed securities	—	137,193	129	—	137,322
U.S. Treasury and government agencies[a]	13,591	54	—	—	13,645
Obligations of U.S. states and municipalities	—	30,068	—	—	30,068
Certificates of deposit	—	1,103	—	—	1,103
Non-U.S. government debt securities	24,074	28,669	—	—	52,743
Corporate debt securities	—	18,532	—	—	18,532
Asset-backed securities:					
Collateralized loan obligations	—	29,402	792	—	30,194
Other	—	12,499	116	—	12,615

Equity securities	2,530	—	—	—	2,530
Total available-for-sale securities	40,195	257,520	1,037	—	298,752
Loans	—	70	2,541	—	2,611
Mortgage servicing rights	—	—	7,436	—	7,436
Other assets:					
Private equity investments(f)	648	2,624	2,225	—	5,497
All other	4,018	17	959	—	4,994
Total other assets	4,666	2,641	3,184	—	10,491
Total assets measured at fair value on a recurring basis	$197,652	$1,750,280 (g)	$49,252	$(1,249,453) (g)	$747,731
Deposits	$—	$5,948	$2,859	$—	$8,807
Federal funds purchased and securities loaned or sold under repurchase agreements	—	2,979	—	—	2,979
Other borrowed funds	—	13,286	1,453	—	14,739
Trading liabilities:					
Debt and equity instruments(d)	62,914	18,713	72	—	81,699
Derivative payables:					
Interest rate	499	914,357 (g)	3,523	(900,634) (g)	17,745
Credit	—	73,095	2,800	(74,302)	1,593
Foreign exchange	746	221,066 (g)	2,802	(201,644) (g)	22,970
Equity	—	41,925 (g)	4,337	(34,522) (g)	11,740
Commodity	141	44,318	1,164	(28,555)	17,068
Total derivative payables(e)	1,386	1,294,761 (g)	14,626	(1,239,657) (g)	71,116
Total trading liabilities	64,300	1,313,474 (g)	14,698	(1,239,657) (g)	152,815
Accounts payable and other liabilities (g)	4,129	—	26	—	4,155
Beneficial interests issued by consolidated VIEs	—	1,016	1,146	—	2,162
Long-term debt	—	18,349	11,877	—	30,226
Total liabilities measured at fair value on a recurring basis	$68,429	$1,355,052 (g)	$32,059	$(1,239,657) (g)	$215,883

Note: Effective April 1, 2015, the Firm 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, private equity funds, real estate and other funds, were $1.2 billion and $1.5 billion, respectively, of which $337 million and $1.2 billion had been previously classified in level 2 and level 3, respectively, at December 31, 2014. Included on the Firm's balance sheet at December 31, 2015 and 2014, were trading assets of $61 million and $124 million, respectively, and other assets of $1.2 billion and $1.4 billion, respectively. The guidance was required to be applied retrospectively, and accordingly, prior period amounts have been revised to conform with the current period presentation.

(a) At December 31, 2015 and 2014, included total U.S. government-sponsored enterprise obligations of $67.0 billion and $84.1 billion, respectively, which were predominantly mortgage-related.

(b) At December 31, 2015 and 2014, included within trading loans were $11.8 billion and $17.0 billion, respectively, of residential first-lien mortgages, and $4.3 billion and $5.8 billion, respectively, of commercial first-lien mortgages. Residential mortgage loans include conforming mortgage loans originated with the intent to sell to U.S. government agencies of $5.3 billion and $7.7 billion, respectively, and reverse mortgages of $2.5 billion and $3.4 billion, respectively.

(c) 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 the Firm’s physical commodities inventories are either not applicable or immaterial to the value of the inventory. Therefore, market approximates fair value for the Firm’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 the Firm’s hedge accounting relationships, see Note 6. To provide consistent fair value disclosure information, all physical commodities inventories have been included in each period presented.

(d) Balances reflect the reduction of securities owned (long positions) by the amount of identical securities sold but not yet purchased (short positions).

(e) As permitted under U.S. GAAP, the Firm 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, the Firm 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 the Firm were to net such balances within level 3, the reduction in the level 3 derivative receivables and payables balances would be $546 million 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.

(f) Private equity instruments represent investments within the Corporate line of business. The cost basis of the private equity investment portfolio totaled $3.5 billion and $6.0 billion at December 31, 2015 and 2014, respectively.

(g) 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 years ended December 31, 2015 and 2014, 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:

- $3.1 billion of long-term debt and $1.0 billion of deposits driven by an increase in observability on certain structured notes with embedded interest rate and FX derivatives and a reduction of the significance in the unobservable inputs for certain structured notes with embedded equity derivatives
- $2.1 billion of gross equity derivatives for both receivables and 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 approximately $1.2 billion for both receivables and payables
- $2.8 billion of trading loans driven by an increase in observability of certain collateralized financing transactions; and
- $2.4 billion of corporate debt driven by a decrease in 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 gross equity derivative receivables and payables, respectively, due to increased observability of certain equity option valuation inputs
- $2.7 billion of trading loans, $2.6 billion of margin loans, $2.3 billion of private equity investments, $2.0 billion of corporate debt, and $1.3 billion of long-term debt, based on increased liquidity and price transparency

Transfers from level 2 into level 3 included $1.1 billion of other borrowed funds, $1.1 billion of trading loans and $1.0 billion of long-term debt, 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 the Firm's available-for-sale ("AFS") securities portfolio and $1.4 billion held in the trading portfolio, based on increased liquidity and price transparency;
- $1.3 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 $1.4 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 quarterly reporting period in which they occur.

Level 3 valuations

The Firm 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 the Firm's valuation process and a detailed discussion of the determination of fair value for individual financial instruments, see pages 185–188 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 the Firm. 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 the Firm'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, the Firm 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 the Firm'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 the Firm's estimates and assumptions. Rather, they reflect the characteristics of the various instruments held by the Firm 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 the Firm at each balance sheet date.
For the Firm'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.

Level 3 inputs[a]
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	$5,212	Discounted cash flows	Yield	3%	-	26%	6%
			Prepayment speed	0%	-	20%	6%
			Conditional default rate	0%	-	33%	2%
			Loss severity	0%	-	100%	28%
Commercial mortgage-backed securities and loans[b]	2,844	Discounted cash flows	Yield	1%	-	25%	6%
			Conditional default rate	0%	-	91%	29%
			Loss severity	40%			40%
Corporate debt securities, obligations of U.S. states and municipalities, and other[c]	3,277	Discounted cash flows	Credit spread	60 bps	-	225 bps	146 bps
			Yield	1%	-	20%	5%
	2,740	Market comparables	Price	$—	-	$168	$89
Net interest rate derivatives	876	Option pricing	Interest rate correlation	(52)%	-	99%	
			Interest rate spread volatility	3%	-	38%	
Net credit derivatives[b][c]	549	Discounted cash flows	Credit correlation	35%	-	90%	
Net foreign exchange derivatives	(725)	Option pricing	Foreign exchange correlation	0%	-	60%	
Net equity derivatives	(1,514)	Option pricing	Equity volatility	20%	-	65%	
Net commodity derivatives	(935)	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%
	180	Market comparables	Price	$—	-	$99	$69
Mortgage servicing rights	6,608	Discounted cash flows	Refer to Note 17				
Private equity investments	1,657	Market comparables	EBITDA multiple	7.2x	-	10.4x	8.5x
			Liquidity adjustment	0%	-	13%	8%
Long-term debt, other borrowed funds, and deposits[d]	14,707	Option pricing	Interest rate correlation	(52)%	-	99%	
			Interest rate spread volatility	3%	-	38%	
			Foreign exchange correlation	0%	-	60%	
			Equity correlation	(50)%	-	80%	
	495	Discounted cash flows	Credit correlation	35%	-	90%	
Beneficial interests issued by consolidated VIEs[e]	549	Discounted cash flows	Yield	4%	-	28%	4%

Prepayment Speed	1%	-	12%	6%
Conditional default rate	2%	-	15%	2%
Loss severity	30%	-	100%	31%

(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 the Firm 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.

(e) The parameters are related to residential mortgage-backed securities.

Notes to consolidated financial statements

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 the Firm'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 the Firm. 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 the Firm'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.

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 and foreign exchange) 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.

EBITDA multiple – EBITDA multiples refer to the input (often derived from the value of a comparable company) that is multiplied by the historic and/or expected earnings before interest, taxes, depreciation and amortization ("EBITDA") of a company in order to estimate the company's value. An increase in the EBITDA multiple, in isolation, net of adjustments, would result in an increase in a fair value measurement.

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 the Firm 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, the Firm 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 the Firm's risk management activities related to such level 3 instruments.

Notes to consolidated financial statements

Year ended December 31, 2015 (in millions)	Fair value at January 1, 2015	Total realized/unrealized gains/(losses)	Purchases[g]	Sales	Settlements[h]	Transfers into and/or out of level 3[i]	Fair value at Dec. 31, 2015	Change in unrealized gains/(losses) related to financial instruments held at Dec. 31, 2015
	Fair value measurements using significant unobservable inputs							
Assets:								
Trading assets:								
Debt instruments:								
Mortgage-backed securities:								
U.S. government agencies	$922	$ (28)	$ 327	$(303)	$ (132)	$(71)	$715	$(27)
Residential – nonagency	663	130	253	(611)	(23)	(218)	194	4
Commercial – nonagency	306	(14)	246	(262)	(22)	(139)	115	(5)
Total mortgage-backed securities	1,891	88	826	(1,176)	(177)	(428)	1,024	(28)
Obligations of U.S. states and municipalities	1,273	14	352	(133)	(27)	(828)	651	(1)
Non-U.S. government debt securities	302	9	205	(123)	(64)	(255)	74	(16)
Corporate debt securities	2,989	(77)	1,171	(1,038)	(125)	(2,184)	736	2
Loans	13,287	(174)	3,532	(4,661)	(3,112)	(2,268)	6,604	(181)
Asset-backed securities	1,264	(41)	1,920	(1,229)	(35)	(47)	1,832	(32)
Total debt instruments	21,006	(181)	8,006	(8,360)	(3,540)	(6,010)	10,921	(256)
Equity securities	431	96	89	(193)	(26)	(132)	265	82
Physical commodities	2	(2)	—	—	—	—	—	—
Other	1,050	119	1,581	(1,313)	192	(885)	744	85
Total trading assets – debt and equity instruments	22,489	32 [c]	9,676	(9,866)	(3,374)	(7,027)	11,930	(89) [c]
Net derivative receivables:[a]								
Interest rate	626	962	513	(173)	(732)	(320)	876	263
Credit	189	118	129	(136)	165	84	549	260
Foreign exchange	(526)	657	19	(149)	(296)	(430)	(725)	49
Equity	(1,785)	731	890	(1,262)	(158)	70	(1,514)	5
Commodity	(565)	(856)	1	(24)	512	(3)	(935)	(41)
Total net derivative receivables	(2,061)	1,612 [c]	1,552	(1,744)	(509)	(599)	(1,749)	536 [c]
Available-for-sale securities:								
Asset-backed securities	908	(32)	51	(43)	(61)	—	823	(28)

Other	129	—	—	—		(29)	(99)	1	—
Total available-for-sale securities	1,037	(32) [d]	51	(43)		(90)	(99)	824	(28) [d]
Loans	2,541	(133) [c]	1,290	(92)		(1,241)	(847)	1,518	(32) [c]
Mortgage servicing rights	7,436	(405) [e]	985	(486)		(922)	—	6,608	(405) [e]
Other assets:									
Private equity investments	2,225	(120) [c]	281	(362)		(187)	(180)	1,657	(304) [c]
All other	959	91 [f]	65	(147)		(224)	—	744	15 [f]

	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[g]	Sales	Issuances	Settlements[h]	Transfers into and/or out of level 3[i]	Fair value at Dec. 31, 2015	Change in unrealized (gains)/losses related to financial instruments held at Dec. 31, 2015
Liabilities:[b]									
Deposits	$2,859	$ (39) [c]	$—	$—	$1,993	$ (850)	$(1,013)	$2,950	$(29) [c]
Other borrowed funds	1,453	(697) [c]	—	—	3,334	(2,963)	(488)	639	(57) [c]
Trading liabilities – debt and equity instruments	72	15 [c]	(163)	160	—	(17)	(4)	63	(4) [c]
Accounts payable and other liabilities	26	—	—	—	—	(7)	—	19	—
Beneficial interests issued by consolidated VIEs	1,146	(82) [c]	—	—	286	(574)	(227)	549	(63) [c]
Long-term debt	11,877	(480) [c]	(58)	—	9,359	(6,299)	(2,786)	11,613	385 [c]

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[g]	Sales	Settlements[h]	Transfers into and/or out of level 3[i]	Fair value at Dec. 31, 2014	Change in unrealized gains/(losses) related to financial instruments held at Dec. 31, 2014
Assets:								
Trading assets:								
Debt instruments:								
Mortgage-backed securities:								
U.S. government agencies	$1,005	$ (97)	$ 351	$(186)	$ (121)	$(30)	$922	$(92)
Residential – nonagency	726	66	827	(761)	(41)	(154)	663	(15)
Commercial – nonagency	432	17	980	(914)	(60)	(149)	306	(12)
Total mortgage-backed securities	2,163	(14)	2,158	(1,861)	(222)	(333)	1,891	(119)
Obligations of U.S. states and municipalities	1,382	90	298	(358)	(139)	—	1,273	(27)
Non-U.S. government debt securities	143	24	719	(617)	(3)	36	302	10
Corporate debt securities	5,920	210	5,854	(3,372)	(4,531)	(1,092)	2,989	379
Loans	13,455	387	13,551	(7,917)	(4,623)	(1,566)	13,287	123
Asset-backed securities	1,272	19	2,240	(2,126)	(283)	142	1,264	(30)
Total debt instruments	24,335	716	24,820	(16,251)	(9,801)	(2,813)	21,006	336
Equity securities	867	113	248	(259)	(286)	(252)	431	46
Physical commodities	4	(1)	—	—	(1)	—	2	—
Other	2,000	239	1,426	(276)	(201)	(2,138)	1,050	329
Total trading assets – debt and equity instruments	27,206	1,067 (c)	26,494	(16,786)	(10,289)	(5,203)	22,489	711 (c)
Net derivative receivables:[a]								
Interest rate	2,379	184	198	(256)	(1,771)	(108)	626	(853)
Credit	95	(149)	272	(47)	92	(74)	189	(107)
Foreign exchange	(1,200)	(137)	139	(27)	668	31	(526)	(62)
Equity	(1,063)	154	2,044	(2,863)	10	(67)	(1,785)	583

Commodity	115	(465)	1	(113)		(109)	6	(565)	(186)
Total net derivative receivables	326	(413) (c)	2,654	(3,306)		(1,110)	(212)	(2,061)	(625) (c)
Available-for-sale securities:									
Asset-backed securities	1,088	(41)	275	(2)		(101)	(311)	908	(40)
Other	1,234	(19)	122	—		(223)	(985)	129	(2)
Total available-for-sale securities	2,322	(60) (d)	397	(2)		(324)	(1,296)	1,037	(42) (d)
Loans	1,931	(254) (c)	3,258	(845)		(1,549)	—	2,541	(234) (c)
Mortgage servicing rights	9,614	(1,826) (e)	768	(209)		(911)	—	7,436	(1,826) (e)
Other assets:									
Private equity investments	5,816	400 (c)	145	(1,967)		(197)	(1,972)	2,225	33 (c)
All other	1,382	83 (f)	10	(357)		(159)	—	959	59 (f)

	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[g]	Sales	Issuances	Settlements[h]	Transfers into and/or out of level 3[i]	Fair value at Dec. 31, 2014	Change in unrealized (gains)/losses related to financial instruments held at Dec. 31, 2014
Liabilities:[b]									
Deposits	$2,255	$ 149 (c)	$ —	$—	$ 1,578	$ (197)	$(926)	$2,859	$ 130 (c)
Other borrowed funds	2,074	(596) (c)	—	—	5,377	(6,127)	725	1,453	(415) (c)
Trading liabilities – debt and equity instruments	113	(5) (c)	(305)	323	—	(5)	(49)	72	2 (c)
Accounts payable and other liabilities	—	27 (c)	—	—	—	(1)	—	26	—
Beneficial interests issued by consolidated VIEs	1,240	(4) (c)	—	—	775	(763)	(102)	1,146	(22) (c)
Long-term debt	10,008	(40) (c)	—	—	7,421	(5,231)	(281)	11,877	(9) (c)

Notes to consolidated financial statements

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[g]	Sales	Settlements[h]	Transfers into and/or out of level 3[i]	Fair value at Dec. 31, 2013	Change in unrealized gains/(losses) related to financial instruments held at Dec. 31, 2013
Assets:								
Trading assets:								
Debt instruments:								
Mortgage-backed securities:								
U.S. government agencies	$498	$ 169	$ 819	$(381)	$ (100)	$—	$1,005	$200
Residential – nonagency	663	407	780	(1,028)	(91)	(5)	726	205
Commercial – nonagency	1,207	114	841	(1,522)	(208)	—	432	(4)
Total mortgage-backed securities	2,368	690	2,440	(2,931)	(399)	(5)	2,163	401
Obligations of U.S. states and municipalities	1,436	71	472	(251)	(346)	—	1,382	18
Non-U.S. government debt securities	67	4	1,449	(1,479)	(8)	110	143	(1)
Corporate debt securities	5,308	103	7,602	(5,975)	(1,882)	764	5,920	466
Loans	10,787	665	10,411	(7,431)	(685)	(292)	13,455	315
Asset-backed securities	3,696	191	1,912	(2,379)	(292)	(1,856)	1,272	105
Total debt instruments	23,662	1,724	24,286	(20,446)	(3,612)	(1,279)	24,335	1,304
Equity securities	1,092	(37)	328	(266)	(135)	(115)	867	46
Physical commodities	—	(4)	—	(8)	—	16	4	(4)
Other	863	558	659	(95)	(120)	135	2,000	1,074
Total trading assets – debt and equity instruments	25,617	2,241 [c]	25,273	(20,815)	(3,867)	(1,243)	27,206	2,420 [c]
Net derivative receivables:[a]								
Interest rate	3,322	1,358	344	(220)	(2,391)	(34)	2,379	107
Credit	1,873	(1,697)	115	(12)	(357)	173	95	(1,449)
Foreign exchange	(1,750)	(101)	3	(4)	683	(31)	(1,200)	(110)
Equity	(1,806)	2,528	1,305	(2,111)	(1,353)	374	(1,063)	872

Commodity	254	816	105	(3)		(1,107)	50	115	410
Total net derivative receivables	1,893	2,904 (c)	1,872	(2,350)		(4,525)	532	326	(170) (c)
Available-for-sale securities:									
Asset-backed securities	28,024	4	579	(57)		(57)	(27,405)	1,088	4
Other	892	26	508	(216)		(6)	30	1,234	25
Total available-for-sale securities	28,916	30 (d)	1,087	(273)		(63)	(27,375)	2,322	29 (d)
Loans	2,282	81 (c)	1,065	(191)		(1,306)	—	1,931	(21) (c)
Mortgage servicing rights	7,614	1,612 (e)	2,215	(725)		(1,102)	—	9,614	1,612 (e)
Other assets:									
Private equity investments	5,590	824 (c)	537	(1,080)		140	(195)	5,816	42 (c)
All other	2,122	(17) (f)	49	(427)		(345)	—	1,382	(64) (f)

Year ended December 31, 2013 (in millions)	Fair value measurements using significant unobservable inputs Fair value at January 1, 2013	Total realized/unrealized (gains)/losses	Purchases(g)	Sales	Issuances	Settlements(h)	Transfers into and/or out of level 3(i)	Fair value at Dec. 31, 2013	Change in unrealized (gains)/losses related to financial instruments held at Dec. 31, 2013
Liabilities:(b)									
Deposits	$1,983	$ (82) (c)	$ —	$—	$ 1,248	$ (222)	$(672)	$2,255	$(88) (c)
Other borrowed funds	1,619	(177) (c)	—	—	7,108	(6,845)	369	2,074	291 (c)
Trading liabilities – debt and equity instruments	205	(83) (c)	(2,418)	2,594	—	(54)	(131)	113	(100) (c)
Accounts payable and other liabilities	—	—	—	—	—	—	—	—	—
Beneficial interests issued by consolidated VIEs	925	174 (c)	—	—	353	(212)	—	1,240	167 (c)
Long-term debt	8,476	(435) (c)	—	—	6,830	(4,362)	(501)	10,008	(85) (c)

Note: Effective April 1, 2015, the Firm adopted new accounting guidance for certain investments where the Firm 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 page 190.

(a) All level 3 derivatives are presented on a net basis, irrespective of underlying counterparty.

(b) Level 3 liabilities as a percentage of total Firm liabilities accounted for at fair value (including liabilities measured at fair value on a nonrecurring basis) were 13%, 15% and 18% at December 31, 2015, 2014 and 2013, respectively.

(c) Predominantly reported in principal transactions revenue, except for changes in fair value for CCB mortgage loans, lending-related commitments originated with the intent to sell, and mortgage loan purchase commitments, 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 $(7) million, $(43) million, and $17 million for the years ended December 31, 2015, 2014 and 2013, respectively. Unrealized gains/(losses) recorded on AFS securities in OCI were $(25) million, $(16) million and $13 million for the years ended December 31, 2015, 2014 and 2013, respectively.

(e) Changes in fair value for CCB MSRs 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.

Level 3 analysis

Consolidated balance sheets changes

Level 3 assets (including assets measured at fair value on a nonrecurring basis) were 1.4% of total Firm assets at December 31, 2015. 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 pages 200–201.

For the year ended December 31, 2015

Level 3 assets were $31.2 billion at December 31, 2015, reflecting a decrease of $18.0 billion from December 31, 2014. This decrease was driven by settlements (including repayments and restructurings) and transfers to Level 2 due to an increase in observability and a decrease in the significance of unobservable inputs. In particular:

- $10.6 billion decrease in trading assets — debt and equity instruments was driven by a decrease of $6.7 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
- $4.6 billion decrease in gross derivative receivables was driven by a $3.9 billion decrease in equity, interest rate and foreign exchange derivative receivables due to market movements and transfers from level 3 to level 2 as a result of an increase in observability of certain valuation inputs

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 195–199.

2015

- $1.6 billion of net gains in interest rate, foreign exchange and equity derivative receivables largely due to market movements; partially offset by loss in commodity derivatives due to market movements
- $1.3 billion of net gains in liabilities due to market movements

2014

- $1.8 billion of losses on MSRs. For further discussion of the change, refer to Note 17
- $1.1 billion of net gains on trading assets — debt and equity instruments, largely driven by market movements and client-driven financing transactions

2013

- $2.9 billion of net gains on derivatives, largely driven by $2.5 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
- $2.2 billion of net gains on trading assets — debt and equity instruments, largely driven by market making and credit spread tightening in nonagency mortgage-backed securities and trading loans, and the impact of market movements on client-driven financing transactions
- $1.6 billion of net gains on MSRs. For further discussion of the change, refer to Note 17

Notes to consolidated financial statements

Credit and funding adjustments

When determining the fair value of an instrument, it may be necessary to record adjustments to the Firm's estimates of fair value in order to reflect counterparty credit quality, the Firm's own creditworthiness, and the impact of funding:

- CVA is taken to reflect the credit quality of a counterparty in the valuation of derivatives. Derivatives are generally valued using models that use as their basis observable market parameters. These market parameters may not consider counterparty non-performance risk. Therefore, an adjustment may be necessary to reflect the credit quality of each derivative counterparty to arrive at fair value.

The Firm estimates derivatives CVA using a scenario analysis to estimate the expected credit exposure across all of the Firm's positions with each counterparty, and then estimates losses as a result of a counterparty credit event. The key inputs to this methodology are (i) the expected positive exposure to each counterparty based on a simulation that assumes the current population of existing derivatives with each counterparty remains unchanged and considers contractual factors designed to mitigate the Firm's credit exposure, such as collateral and legal rights of offset; (ii) the probability of a default event occurring for each counterparty, as derived from observed or estimated CDS spreads; and (iii) estimated recovery rates implied by CDS, adjusted to consider the differences in recovery rates as a derivative creditor relative to those reflected in CDS spreads, which generally reflect senior unsecured creditor risk. As such, the Firm estimates derivatives CVA relative to the relevant benchmark interest rate.

- DVA is taken to reflect the credit quality of the Firm in the valuation of liabilities measured at fair value. The DVA calculation methodology is generally consistent with the CVA methodology described above and incorporates JPMorgan Chase's credit spreads as observed through the CDS market to estimate the probability of default and loss given default as a result of a systemic event affecting the Firm. Structured notes DVA is estimated using the current fair value of the structured note as the exposure amount, and is otherwise consistent with the derivative DVA methodology.
- FVA is taken to incorporate the impact of funding in the Firm's valuation estimates where there is evidence that a market participant in the principal market would incorporate it in a transfer of the instrument. For collateralized derivatives, the fair value is estimated by discounting expected future cash flows at the relevant overnight indexed swap ("OIS") rate given the underlying collateral agreement with the counterparty. For uncollateralized (including partially collateralized) over-the-counter ("OTC") derivatives and structured notes, effective in 2013, the Firm implemented a FVA framework to incorporate the impact of funding into its

valuation estimates. The Firm's FVA framework leverages its existing CVA and DVA calculation methodologies, and considers the fact that the Firm's own credit risk is a significant component of funding costs. The key inputs to FVA are: (i) the expected funding requirements arising from the Firm's positions with each counterparty and collateral arrangements; (ii) for assets, the estimated market funding cost in the principal market; and (iii) for liabilities, the hypothetical market funding cost for a transfer to a market participant with a similar credit standing as the Firm.

Upon the implementation of the FVA framework in 2013, the Firm recorded a one-time $1.5 billion loss in principal transactions revenue that was recorded in the CIB. While the FVA framework applies to both assets and liabilities, the loss on implementation largely related to uncollateralized derivative receivables given that the impact of the Firm's own credit risk, which is a significant component of funding costs, was already incorporated in the valuation of liabilities through the application of DVA.

The following table provides the impact of credit and funding adjustments on principal transactions revenue in the respective periods, excluding the effect of any associated hedging activities. The DVA and FVA reported below include the impact of the Firm's own credit quality on the inception value of liabilities as well as the impact of changes in the Firm's own credit quality over time.

Year ended December 31, (in millions)	2015	2014	2013
Credit adjustments:			
Derivatives CVA	$620	$(322)	$1,886
Derivatives DVA and FVA[(a)]	73	(58)	(1,152)
Structured notes DVA and FVA[(b)]	754	200	(760)

(a) Included derivatives DVA of $(6) million, $(1) million and $(115) million for the years ended December 31, 2015, 2014 and 2013, respectively.

(b) Included structured notes DVA of $171 million, $20 million and $(337) million for the years ended December 31, 2015, 2014 and 2013, respectively.

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 $4.5 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 $959 million of these assets were classified in levels 2 and 3 of the fair value hierarchy, respectively. At December 31, 2014, $1.3 billion and $3.2 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 $959 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 the Firm'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, $992 million and $789 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 14.

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's assets and liabilities. For example, the Firm 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, 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

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 185–188 of this Note.

	December 31, 2015					December 31, 2014				
		Estimated fair value hierarchy					Estimated fair value hierarchy			
(in billions)	Carrying value	Level 1	Level 2	Level 3	Total estimated fair value	Carrying value	Level 1	Level 2	Level 3	Total estimated fair value
Financial assets										
Cash and due from banks	$20.5	$20.5	$—	$—	$20.5	$27.8	$27.8	$—	$—	$27.8
Deposits with banks	340.0	335.9	4.1	—	340.0	484.5	480.4	4.1	—	484.5
Accrued interest and accounts receivable	46.6	—	46.4	0.2	46.6	70.1	—	70.0	0.1	70.1
Federal funds sold and securities purchased under resale agreements	189.5	—	189.5	—	189.5	187.2	—	187.2	—	187.2
Securities borrowed	98.3	—	98.3	—	98.3	109.4	—	109.4	—	109.4
Securities, held-to-maturity[(a)]	49.1	—	50.6	—	50.6	49.3	—	51.2	—	51.2
Loans, net of allowance for loan losses[(b)]	820.8	—	25.4	802.7	828.1	740.5	—	21.8	723.1	744.9
Other	66.0	0.1	56.3	14.3	70.7	64.7	—	55.7	13.3	69.0
Financial liabilities										
Deposits	$1,267.2	$—	$1,266.1	$1.2	$1,267.3	$1,354.6	$—	$1,353.6	$1.2	$1,354.8
Federal funds purchased and securities loaned or sold under repurchase agreements	149.2	—	149.2	—	149.2	189.1	—	189.1	—	189.1
Commercial paper	15.6	—	15.6	—	15.6	66.3	—	66.3	—	66.3
Other borrowed funds	11.2	—	11.2	—	11.2	15.5		15.5	—	15.5
Accounts payable and other liabilities[(c)]	144.6	—	141.7	2.8	144.5	172.6	—	169.6	2.9	172.5
Beneficial interests issued by consolidated VIEs[(d)]	41.1	—	40.2	0.9	41.1	50.2	—	48.2	2.0	50.2
Long-term debt and junior subordinated deferrable interest debentures[(e)]	255.6	—	257.4	4.3	261.7	246.2	—	251.2	3.8	255.0

(a) Carrying value reflects 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 the Firm's methodologies for estimating the fair value of loans and lending-related commitments, see Valuation hierarchy on pages 185–188.

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

(d) Carrying value reflects unamortized issuance costs.

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

The majority of the Firm'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 the Firm's wholesale lending-related commitments were as follows for the periods indicated.

	December 31, 2015					December 31, 2014				
		Estimated fair value hierarchy					Estimated fair value hierarchy			
(in billions)	Carrying value[(a)]	Level 1	Level 2	Level 3	Total estimated fair value	Carrying value[(a)]	Level 1	Level 2	Level 3	Total estimated fair value
Wholesale lending-related commitments	$0.8	$—	$—	$3.0	$3.0	$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.

The Firm does not estimate the fair value of consumer lending-related commitments. In many cases, the Firm 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 186 of this Note.

Note 4 – 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.

The Firm 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.

The Firm'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 CIB's client-driven activities. (Structured notes are predominantly financial instruments that contain embedded derivatives.)
- Certain long-term beneficial interests issued by CIB's consolidated securitization trusts where the underlying assets are carried at fair value.

Notes to consolidated financial statements

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 Principal transactions	2015 All other income	2015 Total changes in fair value recorded	2014 Principal transactions	2014 All other income	2014 Total changes in fair value recorded	2013 Principal transactions	2013 All other income	2013 Total changes in fair value recorded
Federal funds sold and securities purchased under resale agreements	$(38)	$—	$(38)	$(15)	$—	$(15)	$(454)	$—	$(454)
Securities borrowed	(6)	—	(6)	(10)	—	(10)	10	—	10
Trading assets:									
Debt and equity instruments, excluding loans	756	(10) (d)	746	639	—	639	582	7 (c)	589
Loans reported as trading assets:									
Changes in instrument-specific credit risk	138	41 (c)	179	885	29 (c)	914	1,161	23 (c)	1,184
Other changes in fair value	232	818 (c)	1,050	352	1,353 (c)	1,705	(133)	1,833 (c)	1,700
Loans:									
Changes in instrument-specific credit risk	35	—	35	40	—	40	36	—	36
Other changes in fair value	4	—	4	34	—	34	17	—	17
Other assets	79	(1) (d)	78	24	6 (d)	30	32	86 (d)	118
Deposits[(a)]	93	—	93	(287)	—	(287)	260	—	260
Federal funds purchased and securities loaned or sold under repurchase agreements	8	—	8	(33)	—	(33)	73	—	73
Other borrowed funds[(a)]	1,996	—	1,996	(891)	—	(891)	(399)	—	(399)
Trading liabilities	(20)	—	(20)	(17)	—	(17)	(46)	—	(46)
Beneficial interests issued by consolidated VIEs	49	—	49	(233)	—	(233)	(278)	—	(278)
Other liabilities	—	—	—	(27)	—	(27)	—	—	—
Long-term debt:									
Changes in instrument-specific credit risk[(a)]	300	—	300	101	—	101	(271)	—	(271)

Other changes in fair value(b)	1,088	—	1,088	(615)	—	(615)	1,280	—	1,280

(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 the Firm'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 Contractual principal outstanding	2015 Fair value	2015 Fair value over/(under) contractual principal outstanding	2014 Contractual principal outstanding	2014 Fair value	2014 Fair value over/(under) contractual principal outstanding
Loans[(a)]						
Nonaccrual loans						
Loans reported as trading assets	$3,484	$631	$ (2,853)	$3,847	$905	$ (2,942)
Loans	7	7	—	7	7	—
Subtotal	3,491	638	(2,853)	3,854	912	(2,942)
All other performing loans						
Loans reported as trading assets	30,780	28,184	(2,596)	37,608	35,462	(2,146)
Loans	2,771	2,752	(19)	2,397	2,389	(8)
Total loans	$37,042	$31,574	$ (5,468)	$43,859	$38,763	$ (5,096)
Long-term debt						
Principal-protected debt	$17,910 [(c)]	$16,611	$ (1,299)	$14,660 [(c)]	$15,484	$ 824
Nonprincipal-protected debt[(b)]	NA	16,454	NA	NA	14,742	NA
Total long-term debt	NA	$33,065	NA	NA	$30,226	NA
Long-term beneficial interests						
Nonprincipal-protected debt	NA	$787	NA	NA	$2,162	NA
Total long-term beneficial interests	NA	$787	NA	NA	$2,162	NA

(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 the Firm is obligated to return a stated amount of principal at the maturity of the note, nonprincipal-protected structured notes do not obligate the Firm 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 the Firm as issuer for both nonprincipal-protected and principal protected notes.

(c) Where the Firm 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 the Firm'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 $(94) million and $(147) million, respectively. For further information regarding off-balance sheet lending-related financial instruments, see Note 29.

Structured note products by balance sheet classification and risk component

The table below presents the fair value of the structured notes issued by the Firm, by balance sheet classification and the primary risk to which the structured notes' embedded derivative relates.

	December 31, 2015				December 31, 2014			
(in millions)	Long-term debt	Other borrowed funds	Deposits	Total	Long-term debt	Other borrowed funds	Deposits	Total
Risk exposure								
Interest rate	$12,531	$58	$3,340	$15,929	$10,858	$460	$2,119	$13,437
Credit	3,195	547	—	3,742	4,023	450	—	4,473
Foreign exchange	1,765	77	11	1,853	2,150	211	17	2,378
Equity	14,293	8,447	4,993	27,733	12,348	12,412	4,415	29,175
Commodity	640	50	1,981	2,671	710	644	2,012	3,366
Total structured notes	$32,424	$9,179	$10,325	$51,928	$30,089	$14,177	$8,563	$52,829

Note 5 – 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 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 the Firm's risk appetite.

In the Firm'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. The Firm'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 14.

The Firm 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 the Firm'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 the Firm's three credit portfolio segments as of December 31, 2015 and 2014.

	2015				2014			
	Credit	On-balance sheet		Off-balance	Credit	On-balance sheet		Off-balance
December 31, (in millions)	exposure	Loans	Derivatives	sheet[f]	exposure	Loans	Derivatives	sheet[f][g]
Total consumer, excluding credit card	$403,424	$344,821	$—	$58,478	$353,635	$295,374	$—	$58,153
Total credit card	646,981	131,463	—	515,518	657,011	131,048	—	525,963
Total consumer	1,050,405	476,284	—	573,996	1,010,646	426,422	—	584,116
Wholesale-related[a]								
Real Estate	116,857	92,820	312	23,725	105,975	79,113	327	26,535
Consumer & Retail	85,460	27,175	1,573	56,712	83,663	25,094	1,845	56,724
Technology, Media & Telecommunications	57,382	11,079	1,032	45,271	46,655	11,362	2,190	33,103
Industrials	54,386	16,791	1,428	36,167	47,859	16,040	1,303	30,516
Healthcare	46,053	16,965	2,751	26,337	56,516	13,794	4,542	38,180
Banks & Finance Cos	43,398	20,401	10,218	12,779	55,098	23,367	15,706	16,025
Oil & Gas	42,077	13,343	1,902	26,832	43,148	15,616	1,836	25,696
Utilities	30,853	5,294	1,689	23,870	27,441	4,844	2,272	20,325
State & Municipal Govt	29,114	9,626	3,287	16,201	31,068	7,593	4,002	19,473
Asset Managers	23,815	6,703	7,733	9,379	27,488	8,043	9,386	10,059
Transportation	19,227	9,157	1,575	8,495	20,619	10,381	2,247	7,991
Central Govt	17,968	2,000	13,240	2,728	19,881	1,103	15,527	3,251
Chemicals & Plastics	15,232	4,033	369	10,830	12,612	3,087	410	9,115
Metals & Mining	14,049	4,622	607	8,820	14,969	5,628	589	8,752
Automotive	13,864	4,473	1,350	8,041	12,754	3,779	766	8,209
Insurance	11,889	1,094	1,992	8,803	13,350	1,175	3,474	8,701
	7,973	724	2,602	4,647	11,986	928	6,789	4,269

Financial Markets Infrastructure								
Securities Firms	4,412	861	1,424	2,127	4,801	1,025	1,351	2,425
All other[b]	149,117	109,889	4,593	34,635	134,475	92,530	4,413	37,532
Subtotal	783,126	357,050	59,677	366,399	770,358	324,502	78,975	366,881
Loans held-for-sale and loans at fair value	3,965	3,965	—	—	6,412	6,412	—	—
Receivables from customers and other[c]	13,372	—	—	—	28,972	—	—	—
Total wholesale-related	800,463	361,015	59,677	366,399	805,742	330,914	78,975	366,881
Total exposure[d][e]	$1,850,868	$837,299	$59,677	$940,395	$1,816,388	$757,336	$78,975	$950,997

(a) Effective in the fourth quarter 2015, the Firm 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. For additional information, see Wholesale credit portfolio on pages 122–129.

(b) All other includes: individuals; SPEs; holding companies; and private education and civic organizations. For more information on exposures to SPEs, see Note 16.

(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 the Firm's credit risk mitigation practices, the Firm 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 6 and Note 14. For information regarding concentrations of off–balance sheet lending-related financial instruments by major product, see Note 29.

(e) Excludes cash placed with banks of $351.0 billion and $501.5 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, the Firm no longer includes within its disclosure of wholesale lending-related commitments the unused amount of advised uncommitted lines of credit as it is within the Firm's discretion whether or not to make a loan under these lines, and the Firm's approval is generally required prior to funding. Prior period amounts have been revised to conform with the current period presentation.

Notes to consolidated financial statements

Note 6 – 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 makes markets in derivatives for clients and also uses derivatives to hedge or manage its own risk exposures. Predominantly all of the Firm's derivatives are entered into for market-making or risk management purposes.

Market-making derivatives

The majority of the Firm'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. The Firm 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. The Firm also seeks to earn a spread between the client derivatives and offsetting positions, and from the remaining open risk positions.

Risk management derivatives

The Firm 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. The Firm 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 the Firm'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.

Commodities contracts are used to manage the price risk of certain commodities inventories. Gains or losses on these derivative instruments are expected to substantially offset the depreciation or appreciation of the related inventory.

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 218–220 of this Note.

For more information about risk management derivatives, see the risk management derivatives gains and losses table on page 218 of this Note, and the hedge accounting gains and losses tables on pages 216–218 of this Note.

Derivative counterparties and settlement types

The Firm enters into OTC derivatives, which are negotiated and settled bilaterally with the derivative counterparty. The Firm 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

The Firm provides clearing services for clients where the Firm acts as a clearing member with respect to certain derivative exchanges and clearing houses. The Firm does not reflect the clients' derivative contracts in its Consolidated Financial Statements. For further information on the Firm's clearing services, see Note 29.

Accounting for derivatives
All free-standing derivatives that the Firm executes for its own account are required to be recorded on the Consolidated balance sheets at fair value.
As permitted under U.S. GAAP, the Firm nets derivative assets and liabilities, and the related cash collateral receivables and payables, when a legally enforceable master netting agreement exists between the Firm 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 212–218 of this Note provide additional information on the amount of, and reporting for, derivative assets, liabilities, gains and losses. For further discussion of derivatives embedded in structured notes, see Notes 3 and 4.
Derivatives designated as hedges
The Firm applies hedge accounting to certain derivatives executed for risk management purposes – generally interest rate, foreign exchange and commodity derivatives. However, JPMorgan Chase does not seek to apply hedge accounting to all of the derivatives involved in the Firm's risk management activities. For example, the Firm 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, the Firm 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, the Firm 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 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 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 uses foreign currency hedges to protect the value of the Firm’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.

Notes to consolidated financial statements

The following table outlines the Firm's primary uses of derivatives and the related hedge accounting designation or disclosure category.

Type of Derivative	Use of Derivative	Designation and disclosure	Affected segment or unit	Page reference
Manage specifically identified risk exposures in qualifying hedge accounting relationships:				
Interest rate	Hedge fixed rate assets and liabilities	Fair value hedge	Corporate	216
Interest rate	Hedge floating-rate assets and liabilities	Cash flow hedge	Corporate	217
Foreign exchange	Hedge foreign currency-denominated assets and liabilities	Fair value hedge	Corporate	216
Foreign exchange	Hedge forecasted revenue and expense	Cash flow hedge	Corporate	217
Foreign exchange	Hedge the value of the Firm's investments in non-U.S. subsidiaries	Net investment hedge	Corporate	218
Commodity	Hedge commodity inventory	Fair value hedge	CIB	216
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	CCB	218
Credit	Manage the credit risk of wholesale lending exposures	Specified risk management	CIB	218
Commodity	Manage the risk of certain commodities-related contracts and investments	Specified risk management	CIB	218
Interest rate and foreign exchange	Manage the risk of certain other specified assets and liabilities	Specified risk management	Corporate	218
Market-making derivatives and other activities:				
• Various	Market-making and related risk management	Market-making and other	CIB	218
• Various	Other derivatives	Market-making and other	CIB, Corporate	218

Notional amount of derivative contracts

The following table summarizes the notional amount of derivative contracts outstanding as of December 31, 2015 and 2014.

	Notional amounts[b]	
December 31, (in billions)	2015	2014
Interest rate contracts		
Swaps	$24,162	$29,734
Futures and forwards	5,167	10,189
Written options	3,506	3,903
Purchased options	3,896	4,259
Total interest rate contracts	36,731	48,085
Credit derivatives[a]	2,900	4,249
Foreign exchange contracts		
Cross-currency swaps	3,199	3,346
Spot, futures and forwards	5,028	4,669
Written options	690	790
Purchased options	706	780
Total foreign exchange contracts	9,623	9,585
Equity contracts		
Swaps	232	206
Futures and forwards	43	50
Written options	395	432
Purchased options	326	375
Total equity contracts	996	1,063
Commodity contracts		
Swaps	83	126
Spot, futures and forwards	99	193
Written options	115	181
Purchased options	112	180
Total commodity contracts	409	680
Total derivative notional amounts	$50,659	$63,662

(a) For more information on volumes and types of credit derivative contracts, see the Credit derivatives discussion on pages 218–220 of this Note.

(b) Represents the sum of gross long and gross short third-party notional derivative contracts.

While the notional amounts disclosed above give an indication of the volume of the Firm’s derivatives activity, the notional amounts significantly exceed, in the Firm’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.

Notes to consolidated financial statements

Impact of derivatives on the Consolidated balance sheets

The following table summarizes information on derivative receivables and payables (before and after netting adjustments) that are reflected on the Firm'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[a]

	Gross derivative receivables				Gross derivative payables			
December 31, 2015 (in millions)	Not designated as hedges	Designated as hedges	Total derivative receivables	Net derivative receivables[b]	Not designated as hedges	Designated as hedges	Total derivative payables	Net derivative payables[b]
Trading assets and liabilities								
Interest rate	$665,531	$4,080	$669,611	$26,363	$632,928	$2,238	$635,166	$10,221
Credit	51,468	—	51,468	1,423	50,529	—	50,529	1,541
Foreign exchange	179,072	803	179,875	17,177	189,397	1,503	190,900	19,769
Equity	35,859	—	35,859	5,529	38,663	—	38,663	9,183
Commodity	23,713	1,352	25,065	9,185	27,653	1	27,654	12,076
Total fair value of trading assets and liabilities	$955,643	$6,235	$961,878	$59,677	$939,170	$3,742	$942,912	$52,790

	Gross derivative receivables				Gross derivative payables			
December 31, 2014 (in millions)	Not designated as hedges	Designated as hedges	Total derivative receivables	Net derivative receivables[b]	Not designated as hedges	Designated as hedges	Total derivative payables	Net derivative payables[b]
Trading assets and liabilities								
Interest rate	$944,885 [c]	$5,372	$950,257 [c]	$33,725	$915,368 [c]	$3,011	$918,379 [c]	$17,745
Credit	76,842	—	76,842	1,838	75,895	—	75,895	1,593
Foreign exchange	211,537 [c]	3,650	215,187 [c]	21,253	223,988 [c]	626	224,614 [c]	22,970
Equity	42,489 [c]	—	42,489 [c]	8,177	46,262 [c]	—	46,262 [c]	11,740
Commodity	43,151	502	43,653	13,982	45,455	168	45,623	17,068
Total fair value of trading assets and liabilities	$1,318,904 [c]	$9,524	$1,328,428 [c]	$78,975	$1,306,968 [c]	$3,805	$1,310,773 [c]	$71,116

(a) Balances exclude structured notes for which the fair value option has been elected. See Note 4 for further information.

(b) As permitted under U.S. GAAP, the Firm 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 Firm'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 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 the Firm 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.

	2015			2014		
December 31, (in millions)	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
U.S. GAAP nettable derivative receivables						
Interest rate contracts:						
OTC	$417,386	$(396,506)	$ 20,880	$542,107 (c)	$(514,914) (c)	$ 27,193
OTC–cleared	246,750	(246,742)	8	401,656	(401,618)	38
Exchange-traded[(a)]	—	—	—	—	—	—
Total interest rate contracts	664,136	(643,248)	20,888	943,763 (c)	(916,532) (c)	27,231
Credit contracts:						
OTC	44,082	(43,182)	900	66,636	(65,720)	916
OTC–cleared	6,866	(6,863)	3	9,320	(9,284)	36
Total credit contracts	50,948	(50,045)	903	75,956	(75,004)	952
Foreign exchange contracts:						
OTC	175,060	(162,377)	12,683	208,803 (c)	(193,900) (c)	14,903
OTC–cleared	323	(321)	2	36	(34)	2
Exchange-traded[(a)]	—	—	—	—	—	—
Total foreign exchange contracts	175,383	(162,698)	12,685	208,839 (c)	(193,934) (c)	14,905
Equity contracts:						
OTC	20,690	(20,439)	251	23,258	(22,826)	432
OTC–cleared	—	—	—	—	—	—
Exchange-traded[(a)]	12,285	(9,891)	2,394	13,840 (c)	(11,486) (c)	2,354
Total equity contracts	32,975	(30,330)	2,645	37,098 (c)	(34,312) (c)	2,786
Commodity contracts:						
OTC	15,001	(6,772)	8,229	22,555	(14,327)	8,228
OTC–cleared	—	—	—	—	—	—
Exchange-traded[(a)]	9,199	(9,108)	91	19,500	(15,344)	4,156
Total commodity contracts	24,200	(15,880)	8,320	42,055	(29,671)	12,384
Derivative receivables with appropriate legal opinion	$947,642	$(902,201) (b)	$ 45,441	$1,307,711 (c)	$(1,249,453) (b)(c)	$ 58,258
Derivative receivables where an appropriate legal opinion has not been either sought or obtained	14,236		14,236	20,717		20,717
Total derivative receivables recognized on the Consolidated balance sheets	$961,878		$ 59,677	$1,328,428 (c)		$ 78,975

(a) Exchange-traded derivative amounts that relate to futures contracts are settled daily.
(b) Included cash collateral netted of $73.7 billion and $74.0 billion at December 31, 2015, and 2014, respectively.
(c) The prior period amounts have been revised to conform with the current period presentation. These revisions had no impact on Firm’s Consolidated balance sheets or its results of operations.

Notes to consolidated financial statements

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 the Firm 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.

	2015			2014		
December 31, (in millions)	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
U.S. GAAP nettable derivative payables						
Interest rate contracts:						
OTC	$393,709	$(384,576)	$9,133	$515,904 [c]	$(503,384) [c]	$12,520
OTC–cleared	240,398	(240,369)	29	398,518	(397,250)	1,268
Exchange-traded[a]	—	—	—	—	—	—
Total interest rate contracts	634,107	(624,945)	9,162	914,422 [c]	(900,634) [c]	13,788
Credit contracts:						
OTC	44,379	(43,019)	1,360	65,432	(64,904)	528
OTC–cleared	5,969	(5,969)	—	9,398	(9,398)	—
Total credit contracts	50,348	(48,988)	1,360	74,830	(74,302)	528
Foreign exchange contracts:						
OTC	185,178	(170,830)	14,348	217,998 [c]	(201,578) [c]	16,420
OTC–cleared	301	(301)	—	66	(66)	—
Exchange-traded[a]	—	—	—	—	—	—
Total foreign exchange contracts	185,479	(171,131)	14,348	218,064 [c]	(201,644) [c]	16,420
Equity contracts:						
OTC	23,458	(19,589)	3,869	27,908	(23,036)	4,872
OTC–cleared	—	—	—	—	—	—
Exchange-traded[a]	10,998	(9,891)	1,107	12,864 [c]	(11,486) [c]	1,378
Total equity contracts	34,456	(29,480)	4,976	40,772 [c]	(34,522) [c]	6,250
Commodity contracts:						
OTC	16,953	(6,256)	10,697	25,129	(13,211)	11,918
OTC–cleared	—	—	—	—	—	—
Exchange-traded[a]	9,374	(9,322)	52	18,486	(15,344)	3,142
Total commodity contracts	26,327	(15,578)	10,749	43,615	(28,555)	15,060
Derivative payables with appropriate legal opinions	$930,717	$(890,122) [b]	$40,595	$1,291,703 [c]	$(1,239,657) [b][c]	$52,046
Derivative payables where an appropriate legal opinion has not been either sought or obtained	12,195		12,195	19,070		19,070
Total derivative payables recognized on the Consolidated balance sheets	$942,912		$52,790	$1,310,773 [c]		$71,116

(a) Exchange-traded derivative balances that relate to futures contracts are settled daily.

(b) Included cash collateral netted of $61.6 billion and $64.2 billion related to OTC and OTC-cleared derivatives at December 31, 2015, and 2014, respectively.

(c)

The prior period amounts have been revised to conform with the current period presentation. These revisions had no impact on Firm's Consolidated balance sheets or its results of operations.

In addition to the cash collateral received and transferred that is presented on a net basis with net derivative receivables and payables, the Firm receives and transfers additional collateral (financial instruments and cash). These amounts mitigate counterparty credit risk associated with the Firm'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 Net derivative receivables	2015 Collateral not nettable on the Consolidated balance sheets	2015 Net exposure	2014 Net derivative receivables	2014 Collateral not nettable on the Consolidated balance sheets	2014 Net exposure
Derivative receivables with appropriate legal opinions	$45,441	$(13,543)[a]	$31,898	$58,258	$(16,194)[a]	$42,064

Derivative payable collateral[b]

December 31, (in millions)	2015 Net derivative payables	2015 Collateral not nettable on the Consolidated balance sheets	2015 Net amount[c]	2014 Net derivative payables	2014 Collateral not nettable on the Consolidated balance sheets	2014 Net amount[c]
Derivative payables with appropriate legal opinions	$40,595	$(7,957)[a]	$32,638	$52,046	$(10,505)[a]	$41,541

(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 the Firm.

Liquidity risk and credit-related contingent features

In addition to the specific market risks introduced by each derivative contract type, derivatives expose JPMorgan Chase 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 the Firm proves to be of insufficient value to cover the payment obligation. It is the policy of JPMorgan Chase 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 the Firm.

While derivative receivables expose the Firm to credit risk, derivative payables expose the Firm to liquidity risk, as the derivative contracts typically require the Firm 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 the Firm's and its subsidiaries' respective credit ratings. Certain derivative contracts also provide for termination of the contract, generally upon a downgrade of either the Firm 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 the Firm 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	$22,328	$32,303
Collateral posted	18,942	27,585

The following table shows the impact of a single-notch and two-notch downgrade of the long-term issuer ratings of JPMorgan Chase & Co. and its subsidiaries, predominantly JPMorgan Chase Bank, National Association ("JPMorgan Chase Bank, N.A."), 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.

Notes to consolidated financial statements

Liquidity impact of downgrade triggers on OTC and OTC-cleared derivatives

December 31, (in millions)	2015 Single-notch downgrade	2015 Two-notch downgrade	2014 Single-notch downgrade	2014 Two-notch downgrade
Amount of additional collateral to be posted upon downgrade[a]	$807	$3,028	$1,046	$3,331
Amount required to settle contracts with termination triggers upon downgrade[b]	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 the Firm 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. The Firm generally accounts for such transfers as collateralized financing transactions as described in Note 13, 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. The Firm includes gains/(losses) on the hedging derivative and the related hedged item in the same line item in the Consolidated statements of income.

	Gains/(losses) recorded in income			Income statement impact due to:	
Year ended December 31, 2015 (in millions)	Derivatives	Hedged items	Total income statement impact	Hedge ineffectiveness[d]	Excluded components[e]
Contract type					
Interest rate[a]	$38	$911	$949	$3	$ 946
Foreign exchange[b]	6,030	(6,006)	24	—	24
Commodity[c]	1,153	(1,142)	11	(13)	24
Total	$7,221	$(6,237)	$984	$(10)	$ 994

	Gains/(losses) recorded in income			Income statement impact due to:	
Year ended December 31, 2014 (in millions)	Derivatives	Hedged items	Total income statement impact	Hedge ineffectiveness[d]	Excluded components[e]
Contract type					
Interest rate[a]	$2,106	$(801)	$1,305	$131	$ 1,174
Foreign exchange[b]	8,279	(8,532)	(253)	—	(253)
Commodity[c]	49	145	194	42	152
Total	$10,434	$(9,188)	$1,246	$173	$ 1,073

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[d]	Excluded components[e]
Contract type					
Interest rate[a]	$(3,469)	$4,851	$1,382	$(132)	$ 1,514
Foreign exchange[b]	(1,096)	864	(232)	—	(232)
Commodity[c]	485	(1,304)	(819)	38	(857)
Total	$(4,080)	$4,411	$331	$(94)	$ 425

(a) Primarily consists of hedges of the benchmark (e.g., London Interbank Offered Rate (“LIBOR”)) interest rate risk of fixed-rate long-term debt and AFS securities. Gains and losses were recorded in net interest income.

(b) Primarily consists of hedges of the foreign currency risk of long-term debt and 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. The Firm 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.

	Gains/(losses) recorded in income and other comprehensive income/(loss)				
Year ended December 31, 2015 (in millions)	Derivatives – effective portion reclassified from AOCI to income	Hedge ineffectiveness recorded directly in income[c]	Total income statement impact	Derivatives – effective portion recorded in OCI	Total change in OCI for period
Contract type					
Interest rate[a]	$(99)	$—	$(99)	$(44)	$55
Foreign exchange[b]	(81)	—	(81)	(53)	28
Total	$(180)	$—	$(180)	$(97)	$83

	Gains/(losses) recorded in income and other comprehensive income/(loss)				
Year ended December 31, 2014 (in millions)	Derivatives – effective portion reclassified from AOCI to income	Hedge ineffectiveness recorded directly in income[c]	Total income statement impact	Derivatives – effective portion recorded in OCI	Total change in OCI for period
Contract type					
Interest rate[a]	$(54)	$—	$(54)	$189	$243
Foreign exchange[b]	78	—	78	(91)	(169)
Total	$24	$—	$24	$98	$74

	Gains/(losses) recorded in income and other comprehensive income/(loss)				
Year ended December 31, 2013 (in millions)	Derivatives – effective portion reclassified from AOCI to income	Hedge ineffectiveness recorded directly in income[c]	Total income statement impact	Derivatives – effective portion recorded in OCI	Total change in OCI for period
Contract type					
Interest rate[a]	$(108)	$—	$(108)	$(565)	$(457)
Foreign exchange[b]	7	—	7	40	33
Total	$(101)	$—	$(101)	$(525)	$(424)

(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 the Firm 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.

Notes to consolidated financial statements

In 2015, the Firm reclassified approximately $150 million of net losses from AOCI to other income because the Firm 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. The Firm did not experience any forecasted transactions that failed to occur for the years ended December 31, 2014 or 2013.

Over the next 12 months, the Firm 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. The Firm's longer-dated forecasted transactions relate to core lending and borrowing activities.

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.

	Gains/(losses) recorded in income and other comprehensive income/(loss)					
	2015		2014		2013	
Year ended December 31, (in millions)	Excluded components recorded directly in income[(a)]	Effective portion recorded in OCI	Excluded components recorded directly in income[(a)]	Effective portion recorded in OCI	Excluded components recorded directly in income[(a)]	Effective portion recorded in OCI
Foreign exchange derivatives	$(379)	$1,885	$(448)	$1,698	$(383)	$773

(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. The Firm 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.

	Derivatives gains/(losses) recorded in income		
Year ended December 31, (in millions)	2015	2014	2013
Contract type			
Interest rate[(a)]	$853	$2,308	$617
Credit[(b)]	70	(58)	(142)
Foreign exchange[(c)]	25	(7)	1
Commodity[(d)]	(12)	156	178
Total	$936	$2,399	$654

(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 the Firm'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.
(d) Primarily relates to commodity derivatives used to mitigate energy price risk associated with energy-related contracts and investments. Gains and losses were recorded in principal transactions revenue.

Gains and losses on derivatives related to market-making activities and other derivatives

The Firm 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 the Firm's 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 7 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.

The Firm 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, the Firm 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, the Firm uses credit derivatives to manage credit risk associated with lending exposures (loans and unfunded commitments) and derivatives counterparty exposures in the Firm's wholesale businesses, and to manage the credit risk arising from certain financial instruments in the Firm'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. The Firm 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 the Firm sold and purchased as of December 31, 2015 and 2014. Upon a credit event, the Firm 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. The Firm 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

The Firm 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 the Firm'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[(b)]	Net protection (sold)/purchased[(c)]	Other protection purchased[(d)]
Credit derivatives				
Credit default swaps	$(1,386,071)	$1,402,201	$ 16,130	$ 12,011
Other credit derivatives[(a)]	(42,738)	38,158	(4,580)	18,792
Total credit derivatives	(1,428,809)	1,440,359	11,550	30,803
Credit-related notes	(30)	—	(30)	4,715
Total	$(1,428,839)	$1,440,359	$ 11,520	$ 35,518

December 31, 2014 (in millions)	Maximum payout/Notional amount Protection sold	Protection purchased with identical underlyings[(b)]	Net protection (sold)/purchased[(c)]	Other protection purchased[(d)]
Credit derivatives				
Credit default swaps	$(2,056,982)	$2,078,096	$ 21,114	$ 18,631
Other credit derivatives[(a)]	(43,281)	32,048	(11,233)	19,475
Total credit derivatives	(2,100,263)	2,110,144	9,881	38,106
Credit-related notes	(40)	—	(40)	3,704
Total	$(2,100,303)	$2,110,144	$ 9,841	$ 41,810

(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 the Firm on referenced instruments (single-name, portfolio or index) where the Firm 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 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 is the purchaser of protection are comparable to the profile reflected below.

Protection sold – credit derivatives and credit-related notes ratings[(a)]/maturity profile

December 31, 2015 (in millions)	<1 year	1–5 years	>5 years	Total notional amount	Fair value of receivables[(b)]	Fair value of payables[(b)]	Net fair value
Risk rating of reference entity							

Investment-grade	$(307,211)	$(699,227)	$(46,970)	$(1,053,408)	$ 13,539	$(6,836)	$6,703
Noninvestment-grade	(109,195)	(245,151)	(21,085)	(375,431)	10,823	(18,891)	(8,068)
Total	$(416,406)	$(944,378)	$(68,055)	$(1,428,839)	$ 24,362	$(25,727)	$(1,365)

December 31, 2014 (in millions)	<1 year	1–5 years	>5 years	Total notional amount	Fair value of receivables[b]	Fair value of payables[b]	Net fair value
Risk rating of reference entity							
Investment-grade	$(323,398)	$(1,118,293)	$(79,486)	$(1,521,177)	$ 25,767	$(6,314)	$19,453
Noninvestment-grade	(157,281)	(396,798)	(25,047)	(579,126)	20,677	(22,455)	(1,778)
Total	$(480,679)	$(1,515,091)	$(104,533)	$(2,100,303)	$ 46,444	$(28,769)	$17,675

(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 the Firm.

Note 7 – Noninterest revenue

Investment banking fees

This revenue category includes equity and debt underwriting and advisory fees. Underwriting fees are recognized as revenue when the Firm 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; the Firm 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
Underwriting			
Equity	$1,408	$1,571	$1,499
Debt	3,232	3,340	3,537
Total underwriting	4,640	4,911	5,036
Advisory	2,111	1,631	1,318
Total investment banking fees	$6,751	$6,542	$6,354

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, the Firm 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 6.

In the financial commodity markets, the Firm 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, the Firm primarily purchases and sells precious and base metals and may hold other commodities inventories under financing and other arrangements with clients. Prior to the 2014 sale of certain parts of its physical commodity business, the Firm also engaged in the purchase, sale, transport and storage of power, gas, liquefied natural gas, coal, crude oil and refined products.

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 the Firm's client-driven market-making activities. See Note 8 for further information on interest income and interest expense. Trading revenue is presented primarily by instrument type. The Firm'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
Trading revenue by instrument type			

Interest rate	$1,933	$1,362	$284
Credit	1,735	1,880	2,654
Foreign exchange	2,557	1,556	1,801
Equity	2,990	2,563	2,517
Commodity[(a)]	842	1,663	2,083
Total trading revenue	10,057	9,024	9,339
Private equity gains[(b)]	351	1,507	802
Principal transactions	$10,408	$10,531	$10,141

(a) Commodity derivatives are frequently used to manage the Firm's risk exposure to its physical commodities inventories. For gains/(losses) related to commodity fair value hedges, see Note 6.

(b) Includes revenue on private equity investments held in the Private Equity business within Corporate, as well as those held in other business segments.

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, insurance premiums and commissions, and other products. These fees are recognized over the period in which the related service is provided. Performance-based fees, which are earned based on exceeding certain benchmarks or other performance targets, are accrued and recognized at the end of the performance period in which the target is met. The Firm 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 Firmwide asset management, administration and commissions.

Year ended December 31, (in millions)	2015	2014	2013
Asset management fees			
Investment management fees[(a)]	$9,403	$9,169	$8,044
All other asset management fees[(b)]	352	477	505
Total asset management fees	9,755	9,646	8,549
Total administration fees[(c)]	2,015	2,179	2,101
Commissions and other fees			
Brokerage commissions	2,304	2,270	2,321
All other commissions and fees	1,435	1,836	2,135
Total commissions and fees	3,739	4,106	4,456
Total asset management, administration and commissions	$15,509	$15,931	$15,106

(a) Represents fees earned from managing assets on behalf of the Firm's clients, including investors in Firm-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.

Mortgage fees and related income

This revenue category primarily reflects CCB'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 MSRs; 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 CCB MSRs are reported in mortgage fees and related income. Net interest income from mortgage loans is recorded in interest income. For a further discussion of MSRs, see Note 17.

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.

Credit card revenue sharing agreements

The Firm has contractual agreements with numerous co-brand partners and affinity organizations (collectively, "partners"), which grant the Firm exclusive rights to market to the customers or members of such partners. These partners endorse the credit card programs and provide their customer and member lists to the Firm, and they may also conduct marketing activities and provide awards under the various credit card programs. The terms of these agreements generally range from three to ten years.

The Firm typically makes incentive payments to the partners based on new account originations, sales volumes and the cost of the partners' marketing activities and awards. Payments based on new account originations are accounted for as direct loan origination costs. Payments to partners based on sales volumes are deducted from interchange income as the related revenue is earned. Payments based on marketing efforts undertaken by the partners are expensed

by the Firm as incurred and reported as noninterest expense.
Other income
Other income on the Firm's Consolidated statements of income included the following:

Year ended December 31, (in millions)	2015	2014	2013
Operating lease income	$2,081	$1,699	$1,472
Gain from sale of Visa B shares	—	—	1,310

Note 8 – 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
Interest Income			
Loans	$33,134	$32,218	$33,489
Taxable securities	6,550	7,617	6,916
Non taxable securities[(a)]	1,706	1,423	896
Total securities	8,256	9,040	7,812
Trading assets	6,621	7,312	8,099
Federal funds sold and securities purchased under resale agreements	1,592	1,642	1,940
Securities borrowed[(b)]	(532)	(501)	(127)
Deposits with banks	1,250	1,157	918
Other assets[(c)]	652	663	538
Total interest income	$50,973	$51,531	$52,669
Interest expense			
Interest bearing deposits	$1,252	$1,633	$2,067
Federal funds purchased and securities loaned or sold under repurchase agreements	609	604	582
Commercial paper	110	134	112
Trading liabilities - debt, short-term and other liabilities	622	712	1,104
Long-term debt	4,435	4,409	5,007
Beneficial interest issued by consolidated VIEs	435	405	478
Total interest expense	$7,463	$7,897	$9,350
Net interest income	$43,510	$43,634	$43,319
Provision for credit losses	3,827	3,139	225
Net interest income after provision for credit losses	$39,683	$40,495	$43,094

(a) Represents securities which are tax exempt for U.S. federal income tax purposes.

(b) Negative interest income for the years ended December 31, 2015, 2014 and 2013, 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.

(c) Largely margin loans.

(d) Includes brokerage customer payables.

Note 9 – Pension and other postretirement employee benefit plans

The Firm 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 plans

The Firm has a qualified noncontributory U.S. defined benefit pension plan that provides benefits to substantially all U.S. employees. The U.S. plan employs a cash balance formula in the form of pay and interest credits to determine the benefits to be provided at retirement, based on years of service and eligible compensation (generally base salary/regular pay and variable incentive compensation capped at $100,000 annually). Employees begin to accrue plan benefits after completing one year of service, and benefits generally vest after three years of service. The Firm also offers benefits through defined benefit pension plans to qualifying employees in certain non-U.S. locations based on factors such as eligible compensation, age and/or years of service.

It is the Firm's policy to fund the pension plans in amounts sufficient to meet the requirements under applicable laws. The Firm does not anticipate at this time any contribution to the U.S. defined benefit pension plan in 2016. 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.

JPMorgan Chase also has a number of defined benefit pension plans that are not subject to Title IV of the Employee Retirement Income Security Act. The most significant of these plans is the 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 Excess Retirement Plan had an unfunded projected benefit obligation ("PBO") in the amount of $237 million and $257 million, at December 31, 2015 and 2014, respectively.

Defined contribution plans

JPMorgan Chase currently provides two qualified defined contribution plans in the U.S. and other similar arrangements 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.

The Firm matches eligible employee contributions up to 5% of eligible compensation (generally base salary/regular pay and variable incentive compensation) on an annual basis.

Notes to consolidated financial statements

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.

OPEB plans

JPMorgan Chase offers postretirement medical and life insurance benefits to certain retirees and postretirement medical benefits to qualifying U.S. employees. These benefits vary with the length of service and the date of hire and provide for limits on the Firm's share of covered medical benefits. The medical and life insurance benefits are both contributory. Effective January 1, 2015, there was

a transition of certain Medicare eligible retirees from JPMC group sponsored coverage to Medicare exchanges. As a result of this change, eligible retirees will receive a Healthcare Reimbursement Account amount each year if they enroll through the Medicare exchange. The impact of this change was not material. Postretirement medical benefits also are offered to qualifying United Kingdom ("U.K.") employees.

JPMorgan Chase's U.S. OPEB obligation is funded with corporate-owned life insurance ("COLI") purchased on the lives of eligible employees and retirees. While the Firm owns the COLI policies, COLI proceeds (death benefits, withdrawals and other distributions) may be used only to reimburse the Firm for its net postretirement benefit claim payments and related administrative expense. The U.K. OPEB plan is unfunded.

The following table presents the changes in benefit obligations, plan assets and funded status amounts reported on the Consolidated balance sheets for the Firm's U.S. and non-U.S. defined benefit pension and OPEB plans.

	Defined benefit pension plans					
As of or for the year ended December 31,	U.S.		Non-U.S.		OPEB plans[d]	
(in millions)	2015	2014	2015	2014	2015	2014
Change in benefit obligation						
Benefit obligation, beginning of year	$(12,536)	$(10,776)	$(3,640)	$(3,433)	$(842)	$(826)
Benefits earned during the year	(340)	(281)	(37)	(33)	(1)	—
Interest cost on benefit obligations	(498)	(534)	(112)	(137)	(31)	(38)
Plan amendments	—	(53)	—	—	—	—
Special termination benefits	—	—	(1)	(1)	—	—
Curtailments	—	—	—	—	—	(3)
Employee contributions	NA	NA	(7)	(7)	(25)	(62)
Net gain/(loss)	702	(1,669)	146	(408)	71	(58)
Benefits paid	760	777	120	119	88	145
Expected Medicare Part D subsidy receipts	NA	NA	NA	NA	(6)	(2)
Foreign exchange impact and other	—	—	184	260	2	2
Benefit obligation, end of year	$(11,912)	$(12,536)	$(3,347)	$(3,640)	$(744)	$(842)
Change in plan assets						
Fair value of plan assets, beginning of year	$14,623	$14,354	$3,718	$3,532	$1,903	$1,757
Actual return on plan assets	231	1,010	52	518	13	159
Firm contributions	31	36	45	46	2	3
Employee contributions	—	—	7	7	—	—
Benefits paid	(760)	(777)	(120)	(119)	(63)	(16)
Foreign exchange impact and other	—	—	(191)	(266)	—	—
Fair value of plan assets, end of year	$14,125	$14,623 [b][c]	$3,511	$3,718	$1,855	$1,903
Net funded status[a]	$2,213	$2,087	$164	$78	$1,111	$1,061
Accumulated benefit obligation, end of year	$(11,774)	$(12,375)	$(3,322)	$(3,615)	NA	NA

(a)

Represents plans with an aggregate overfunded balance of $4.1 billion and $3.9 billion at December 31, 2015 and 2014, respectively, and plans with an aggregate underfunded balance of $636 million and $708 million at December 31, 2015 and 2014, respectively.

(b) At December 31, 2015 and 2014, approximately $533 million and $336 million, respectively, of U.S. plan assets included participation rights under participating annuity contracts.

(c) At December 31, 2015 and 2014, defined benefit pension plan amounts not measured at fair value included $74 million and $106 million, respectively, of accrued receivables, and $123 million and $257 million, respectively, of accrued liabilities, for U.S. plans.

(d) Includes an unfunded accumulated postretirement benefit obligation of $32 million and $37 million at December 31, 2015 and 2014, respectively, for the U.K. plan.

Gains and losses

For the Firm'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. defined benefit pension 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.

The average remaining amortization period for the U.S. defined benefit pension plan for current prior service costs is four years.

For the Firm's OPEB plans, a calculated value that recognizes changes in fair value over a five-year period is used to determine the expected return on plan assets. This value is referred to as the market related value of assets. Amortization of net gains and losses, adjusted for gains and losses not yet recognized, 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 accumulated postretirement benefit obligation or the market related value of assets. Any excess net gain or loss is amortized over the average expected lifetime of retired participants, which is currently thirteen years; however, prior service costs resulting from plan changes are amortized over the average years of service remaining to full eligibility age, which is currently two years.

The following table presents pretax pension and OPEB amounts recorded in AOCI.

	Defined benefit pension plans					
December 31,	U.S.		Non-U.S.		OPEB plans	
(in millions)	2015	2014	2015	2014	2015	2014
Net gain/(loss)	$(3,096)	$(3,346)	$(513)	$(628)	$109	$130
Prior service credit/(cost)	68	102	9	11	—	—
Accumulated other comprehensive income/(loss), pretax, end of year	$(3,028)	$(3,244)	$(504)	$(617)	$109	$130

The following table presents the components of net periodic benefit costs reported in the Consolidated statements of income and other comprehensive income for the Firm's U.S. and non-U.S. defined benefit pension, defined contribution and OPEB plans.

	Pension plans								
	U.S.			Non-U.S.			OPEB plans		
Year ended December 31, (in millions)	2015	2014	2013	2015	2014	2013	2015	2014	2013
Components of net periodic benefit cost									
Benefits earned during the year	$340	$281	$314	$37	$33	$34	$1	$—	$1
Interest cost on benefit obligations	498	534	447	112	137	125	31	38	35
Expected return on plan assets	(929)	(985)	(956)	(150)	(172)	(142)	(106)	(101)	(92)
Amortization:									
Net (gain)/loss	247	25	271	35	47	49	—	—	1
Prior service cost/(credit)	(34)	(41)	(41)	(2)	(2)	(2)	—	(1)	—
Special termination benefits	—	—	—	1	—	—	—	—	—
Net periodic defined benefit cost	122	(186)	35	33	43	64	(74)	(64)	(55)
Other defined benefit pension plans[(a)]	14	14	15	10	6	14	NA	NA	NA
Total defined benefit plans	136	(172)	50	43	49	78	(74)	(64)	(55)
Total defined contribution plans	449	438	447	320	329	321	NA	NA	NA

Total pension and OPEB cost included in compensation expense	$585	$266	$497	$363	$378	$399	$(74)	$(64)	$(55)
Changes in plan assets and benefit obligations recognized in other comprehensive income									
Net (gain)/loss arising during the year	$(3)	$1,645	$(1,817)	$(47)	$57	$19	$21	$(5)	$(257)
Prior service credit arising during the year	—	53	—	—	—	—	—	—	—
Amortization of net loss	(247)	(25)	(271)	(35)	(47)	(49)	—	—	(1)
Amortization of prior service (cost)/credit	34	41	41	2	2	2	—	1	—
Foreign exchange impact and other	—	—	—	(33) [(a)]	(39) [(a)]	14 [(a)]	—	—	—
Total recognized in other comprehensive income	$(216)	$1,714	$(2,047)	$(113)	$(27)	$(14)	$21	$(4)	$(258)
Total recognized in net periodic benefit cost and other comprehensive income	$(94)	$1,528	$(2,012)	$(80)	$16	$50	$(53)	$(68)	$(313)

(a) Includes various defined benefit pension plans which are individually immaterial.

Notes to consolidated financial statements

The estimated pretax amounts that will be amortized from AOCI into net periodic benefit cost in 2016 are as follows.

	Defined benefit pension plans		OPEB plans	
(in millions)	U.S.	Non-U.S.	U.S.	Non-U.S.
Net loss/(gain)	$231	$23	$—	$—
Prior service cost/(credit)	(34)	(2)	—	—
Total	$197	$21	$—	$—

The following table presents the actual rate of return on plan assets for the U.S. and non-U.S. defined benefit pension and OPEB plans.

	U.S.			Non-U.S.		
Year ended December 31,	2015	2014	2013	2015	2014	2013
Actual rate of return:						
Defined benefit pension plans	0.88%	7.29%	15.95%	(0.48) – 4.92%	5.62 – 17.69%	3.74 – 23.80%
OPEB plans	1.16	9.84	13.88	NA	NA	NA

Plan assumptions

JPMorgan Chase’s expected long-term rate of return for U.S. defined benefit pension and OPEB plan assets is a blended average of the investment advisor’s projected long-term
(10 years or more) returns for the various asset classes, weighted by the asset allocation. Returns on asset classes are developed using a forward-looking approach and are not strictly based on historical returns. Equity returns are generally developed as the sum of inflation, expected real earnings growth and expected long-term dividend yield. Bond returns are generally developed as the sum of inflation, real bond yield and risk spread (as appropriate), adjusted for the expected effect on returns from changing yields. Other asset-class returns are derived from their relationship to the equity and bond markets. Consideration is also given to current market conditions and the short-term portfolio mix of each plan.

For the U.K. defined benefit pension plans, which represent the most significant of the non-U.S. defined benefit pension plans, procedures similar to those in the U.S. 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. defined benefit pension and OPEB plans 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 each of 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, the Firm adopted the SOA’s tables and projection scale, resulting in an estimated increase in PBO of $533 million. In 2015, the SOA updated the projection scale to reflect two additional years of historical data. The Firm has adopted the updated projection scale resulting in an estimated decrease in PBO in 2015 of $112 million.

At December 31, 2015, the Firm increased the discount rates used to determine its benefit obligations for the U.S. defined benefit pension and OPEB plans in light of current market interest rates, which will result in a decrease in expense of approximately $63 million for 2016. The 2016 expected long-term rate of return on U.S. defined benefit pension plan assets and U.S. OPEB plan assets are 6.50% and 5.75%, respectively. For 2016, the initial health care benefit obligation trend assumption has been set at 5.50%, and the ultimate health care trend assumption and the year to reach the ultimate rate remains at 5.00% and 2017, respectively, unchanged from 2015. As of December 31, 2015, the interest crediting rate assumption and the assumed rate of compensation increase remained at 5.00% and 3.50%, respectively.

The following tables present the weighted-average annualized actuarial assumptions for the projected and accumulated postretirement benefit obligations, and the components of net periodic benefit costs, for the Firm's significant U.S. and non-U.S. defined benefit pension and OPEB plans, as of and for the periods indicated.

Weighted-average assumptions used to determine benefit obligations

	U.S.		Non-U.S.	
December 31,	2015	2014	2015	2014
Discount rate:				
Defined benefit pension plans	4.50 %	4.00 %	0.80 – 3.70%	1.00 – 3.60%
OPEB plans	4.40	4.10	—	—
Rate of compensation increase	3.50	3.50	2.25 – 4.30	2.75 – 4.20
Health care cost trend rate:				
Assumed for next year	5.50	6.00	—	—
Ultimate	5.00	5.00	—	—
Year when rate will reach ultimate	2017	2017	—	—

Weighted-average assumptions used to determine net periodic benefit costs

	U.S.			Non-U.S.		
Year ended December 31,	2015	2014	2013	2015	2014	2013
Discount rate:						
Defined benefit pension plans	4.00 %	5.00 %	3.90 %	1.00 – 3.60%	1.10 – 4.40%	1.40 – 4.40%
OPEB plans	4.10	4.90	3.90	—	—	—
Expected long-term rate of return on plan assets:						
Defined benefit pension plans	6.50	7.00	7.50	0.90 – 4.80	1.20 – 5.30	2.40 – 4.90
OPEB plans	6.00	6.25	6.25	NA	NA	NA
Rate of compensation increase	3.50	3.50	4.00	2.75 – 4.20	2.75 – 4.60	2.75 – 4.10
Health care cost trend rate:						
Assumed for next year	6.00	6.50	7.00	—	—	—
Ultimate	5.00	5.00	5.00	—	—	—
Year when rate will reach ultimate	2017	2017	2017	—	—	—

The following table presents the effect of a one-percentage-point change in the assumed health care cost trend rate on JPMorgan Chase's accumulated postretirement benefit obligation. As of December 31, 2015, there was no material effect on total service and interest cost.

Year ended December 31, 2015 (in millions)	1-Percentage point increase	1-Percentage point decrease
Effect on accumulated postretirement benefit obligation	$8	$(7)

JPMorgan Chase's U.S. defined benefit pension and OPEB plan expense is sensitive to the expected long-term rate of return on plan assets and the discount rate. With all other assumptions held constant, a 25-basis point decline in the expected long-term rate of return on U.S. plan assets would result in an aggregate increase of approximately $39 million in 2016 U.S. defined benefit pension and OPEB plan expense. A 25-basis point decline in the discount rate for the U.S. plans would result in an increase in 2016 U.S. defined benefit pension and OPEB plan expense of approximately an aggregate $31 million and an increase in the related benefit obligations of approximately an aggregate $296 million. A 25-basis point decrease in the interest crediting rate for the U.S. defined benefit pension plan would result in a decrease in 2016 U.S. defined benefit pension expense of approximately $35 million and a decrease in the related PBO of approximately $145 million. 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.

Notes to consolidated financial statements

Investment strategy and asset allocation

The Firm's U.S. defined benefit pension plan assets are held in trust and are invested in a well-diversified portfolio of equity and fixed income securities, cash and cash equivalents, and alternative investments (e.g., hedge funds, private equity, real estate and real assets). Non-U.S. defined benefit pension plan assets are held in various trusts and are also invested in well-diversified portfolios of equity, fixed income and other securities. Assets of the Firm's COLI policies, which are used to partially fund the U.S. OPEB plan, are held in separate accounts of an insurance company and are allocated to investments intended to replicate equity and fixed income indices.

The investment policy for the Firm's U.S. defined benefit pension plan assets is to optimize the risk-return relationship as appropriate to the needs and goals of the plan using a global portfolio of various asset classes diversified by market segment, economic sector, and issuer. Assets are managed by a combination of internal and external investment managers. Periodically the Firm performs a comprehensive analysis on the U.S. defined benefit pension plan asset allocations, incorporating projected asset and liability data, which focuses on the short- and long-term impact of the asset allocation on cumulative pension expense, economic cost, present value of contributions and funded status. As the U.S. defined benefit pension plan is overfunded, the investment strategy for this plan was adjusted in 2013 to provide for greater liquidity. Currently, approved asset allocation ranges are: U.S. equity 0% to 45%, international equity 0% to 40%, debt securities 0% to 80%, hedge funds 0% to 5%, real estate 0% to 10%, real assets 0% to 10% and private equity 0% to 20%. Asset allocations are not managed to a specific target but seek to shift asset class allocations within these stated ranges. Investment strategies incorporate the economic outlook and the anticipated implications of the macroeconomic environment on the various asset classes

while maintaining an appropriate level of liquidity for the plan. The Firm regularly reviews the asset allocations and asset managers, as well as other factors that impact the portfolio, which is rebalanced when deemed necessary.

For the U.K. defined benefit pension plans, which represent the most significant of the non-U.S. defined benefit pension plans, the assets are invested 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. Similar to the U.S. defined benefit pension plan, asset allocations and asset managers for the U.K. plans are reviewed regularly and the portfolios are rebalanced when deemed necessary.

Investments held by the Plans include financial instruments which are exposed to various risks such as interest rate, market and credit risks. Exposure to a concentration of credit risk is mitigated by the broad diversification of both U.S. and non-U.S. investment instruments. Additionally, the investments in each of the common/collective trust funds and registered investment companies are further diversified into various financial instruments. As of December 31, 2015, assets held by the Firm's U.S. and non-U.S. defined benefit pension and OPEB plans do not include JPMorgan Chase common stock, except through indirect exposures through investments in third-party stock-index funds. The plans hold investments in funds that are sponsored or managed by affiliates of JPMorgan Chase in the amount of $3.2 billion and $3.7 billion for U.S. plans and $1.2 billion and $1.4 billion for non-U.S. plans, 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 range/target allocation by asset category, for the Firm's U.S. and non-U.S. defined benefit pension and OPEB plans.

	Defined benefit pension plans								
	U.S.			Non-U.S.			OPEB plans[c]		
	Target	% of plan assets		Target	% of plan assets		Target	% of plan assets	
December 31,	Allocation	2015	2014	Allocation	2015	2014	Allocation	2015	2014
Asset category									
Debt securities[a]	0-80%	32 %	31 %	59 %	60 %	61 %	30-70%	50 %	50 %

Equity securities	0-85	48	46	40	38	38	30-70	50	50
Real estate	0-10	4	4	—	1	—	—	—	—
Alternatives[b]	0-35	16	19	1	1	1	—	—	—
Total	100%	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %

(a) Debt securities primarily include corporate debt, U.S. federal, state, local and non-U.S. government, and mortgage-backed securities.

(b) Alternatives primarily include limited partnerships.

(c) Represents the U.S. OPEB plan only, as the U.K. OPEB plan is unfunded.

Fair value measurement of the plans' assets and liabilities

For information on fair value measurements, including descriptions of level 1, 2, and 3 of the fair value hierarchy and the valuation methods employed by the Firm, see Note 3.

Pension and OPEB plan assets and liabilities measured at fair value

	U.S. defined benefit pension plans				Non-U.S. defined benefit pension plans[g]		
December 31, 2015 (in millions)	Level 1	Level 2	Level 3	Total fair value	Level 1	Level 2	Total fair value
Cash and cash equivalents	$112	$—	$—	$112	$114	$1	$115
Equity securities	4,826	5	2	4,833	1,002	157	1,159
Common/collective trust funds[a]	339	—	—	339	135	—	135
Limited partnerships[b]	53	—	—	53	—	—	—
Corporate debt securities[c]	—	1,619	2	1,621	—	758	758
U.S. federal, state, local and non-U.S. government debt securities	580	108	—	688	212	504	716
Mortgage-backed securities	—	67	1	68	2	26	28
Derivative receivables	—	104	—	104	—	209	209
Other[d]	1,760	27	534	2,321	257	53	310
Total assets measured at fair value	$7,670	$1,930	$539	$10,139 [e]	$1,722	$1,708	$3,430
Derivative payables	$—	$(35)	$—	$(35)	$—	$(153)	$(153)
Total liabilities measured at fair value	$—	$(35)	$—	$(35) [f]	$—	$(153)	$(153)

	U.S. defined benefit pension plans				Non-U.S. defined benefit pension plans[g]		
December 31, 2014 (in millions)	Level 1	Level 2	Level 3	Total fair value	Level 1	Level 2	Total fair value
Cash and cash equivalents	$87	$—	$—	$87	$128	$1	$129
Equity securities	5,286	20	4	5,310	1,019	169	1,188
Common/collective trust funds[a]	345	—	—	345	112	—	112
Limited partnerships[b]	70	—	—	70	—	—	—
Corporate debt securities[c]	—	1,454	9	1,463	—	724	724
U.S. federal, state, local and non-U.S. government debt securities	446	161	—	607	235	540	775
Mortgage-backed securities	1	73	1	75	2	77	79
Derivative receivables	—	114	—	114	—	258	258
Other[d]	2,031	27	337	2,395	283	58	341
Total assets measured at fair value	$8,266	$1,849	$351	$10,466 [e]	$1,779	$1,827	$3,606
Derivative payables	$—	$(23)	$—	$(23)	$—	$(139)	$(139)
Total liabilities measured at fair value	$—	$(23)	$—	$(23) [f]	$—	$(139)	$(139)

Note: Effective April 1, 2015, the Firm adopted new accounting guidance for certain investments where the Firm 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 limited partnerships and common/collective trust funds, were $4.1 billion and $4.3 billion, respectively, of U.S. defined benefit pension plan investments, and $234 million and $251 million, respectively, of non-U.S. defined benefit pension plan investments. Of these investments $1.3 billion and $3.0 billion, respectively, of U.S. defined benefit pension plan investments had been previously classified in level 2 and level 3, respectively, and $251 million of non-U.S. defined benefit pension plan investments 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) At December 31, 2015 and 2014, common/collective trust funds primarily included a mix of short-term investment funds, domestic and international equity investments (including index) and real estate funds.

(b) Unfunded commitments to purchase limited partnership investments for the plans were $895 million and $1.2 billion for 2015 and 2014, respectively.

(c) Corporate debt securities include debt securities of U.S. and non-U.S. corporations.

(d) Other consists of money markets funds, exchange-traded funds and participating and non-participating annuity contracts. Money markets funds and exchange-traded funds are primarily classified within level 1 of the fair value hierarchy given they are valued using market observable prices. Participating and non-participating annuity contracts are classified within level 3 of the fair value hierarchy due to lack of market mechanisms for transferring each policy and surrender restrictions.

(e) At December 31, 2015 and 2014, excluded U.S. defined benefit pension plan receivables for investments sold and dividends and interest receivables of $74 million and $106 million, respectively.

(f) At December 31, 2015 and 2014, excluded $106 million and $241 million, respectively, of U.S. defined benefit pension plan payables for investments purchased; and $17 million and $16 million, respectively, of other liabilities.

(g) 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.

The Firm's U.S. OPEB plan was partially funded with COLI policies of $1.9 billion at both December 31, 2015 and 2014, which were classified in level 3 of the valuation hierarchy.

Notes to consolidated financial statements

Changes in level 3 fair value measurements using significant unobservable inputs

Year ended December 31, 2015 (in millions)	Fair value, January 1, 2015	Actual return on plan assets		Purchases, sales and settlements, net	Transfers in and/or out of level 3	Fair value, December 31, 2015
		Realized gains/(losses)	Unrealized gains/(losses)			
U.S. defined benefit pension plans						
Equities	$4	$—	$(2)	$—	$—	$2
Corporate debt securities	9	—	—	(7)	—	2
Mortgage-backed securities	1	—	—	—	—	1
Other	337	—	197	—	—	534
Total U.S. defined benefit pension plans	$351	$—	$195	$(7)	$—	$539
OPEB plans						
COLI	$1,903	$—	$(48)	$—	$—	$1,855
Total OPEB plans	$1,903	$—	$(48)	$—	$—	$1,855

Year ended December 31, 2014 (in millions)	Fair value, January 1, 2014	Actual return on plan assets		Purchases, sales and settlements, net	Transfers in and/or out of level 3	Fair value, December 31, 2014
		Realized gains/(losses)	Unrealized gains/(losses)			
U.S. defined benefit pension plans						
Equities	$4	$—	$—	$—	$—	$4
Corporate debt securities	7	(2)	2	4	(2)	9
Mortgage-backed securities	—	—	—	1	—	1
Other	430	—	(93)	—	—	337
Total U.S. defined benefit pension plans	$441	$(2)	$(91)	$5	$(2)	$351
OPEB plans						
COLI	$1,749	$—	$154	$—	$—	$1,903
Total OPEB plans	$1,749	$—	$154	$—	$—	$1,903

Year ended December 31, 2013 (in millions)	Fair value, January 1, 2013	Actual return on plan assets		Purchases, sales and settlements, net	Transfers in and/or out of level 3	Fair value, December 31, 2013
		Realized gains/(losses)	Unrealized gains/(losses)			
U.S. defined benefit pension plans						
Equities	$4	$—	$—	$—	$—	$4
Corporate debt securities	1	—	—	—	6	7
Mortgage-backed securities	—	—	—	—	—	—
Other	420	—	10	—	—	430
Total U.S. defined benefit pension plans	$425	$—	$10	$—	$6	$441
OPEB plans						
COLI	$1,554	$—	$195	$—	$—	$1,749
Total OPEB plans	$1,554	$—	$195	$—	$—	$1,749

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. The OPEB medical and life insurance payments are net of expected retiree contributions.

Year ended December 31, (in millions)	U.S. defined benefit pension plans	Non-U.S. defined benefit pension plans	OPEB before Medicare Part D subsidy	Medicare Part D subsidy
2016	$762	$107	$68	$1
2017	798	110	66	1
2018	927	119	63	1
2019	966	123	61	1
2020	1,009	129	59	1
Years 2021–2025	4,409	722	259	4

Note 10 – Employee stock-based incentives

Employee stock-based awards

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 common stock were available for issuance through May 2019. The LTIP is the only active plan under which the Firm is currently granting stock-based incentive awards. In the following discussion, the LTIP, plus prior Firm plans and plans assumed as the result of acquisitions, are referred to collectively as the “LTI Plans,” and such plans constitute the Firm’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.

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. The Firm 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.

The Firm 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, the Firm 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-career eligibility date or the vesting date of the respective tranche.

The Firm’s policy for issuing shares upon settlement of employee stock-based incentive awards is to issue either new shares of common stock or treasury shares. During 2015, 2014 and 2013, the Firm settled all of its employee stock-based awards by issuing treasury shares.

In January 2008, the Firm 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 the Firm. On July 15, 2014, the Compensation & Management Development Committee and Board of Directors 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. The Firm recognized $3 million and $14 million in compensation expense in 2014 and 2013, respectively, for this award.

Notes to consolidated financial statements

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's RSUs, employee stock options and SARs activity for 2015.

	RSUs		Options/SARs			
Year ended December 31, 2015 (in thousands, except weighted-average data, and where otherwise stated)	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	100,568	$ 47.81	59,195	$ 45.00		
Granted	36,096	56.31	107	64.41		
Exercised or vested	(47,709)	41.64	(14,313)	40.44		
Forfeited	(3,648)	54.17	(943)	43.04		
Canceled	NA	NA	(580)	278.93		
Outstanding, December 31	85,307	$ 54.60	43,466	$ 43.51	4.6	$1,109,411
Exercisable, December 31	NA	NA	31,853	43.85	4.0	832,929

The total fair value of RSUs that vested during the years ended December 31, 2015, 2014 and 2013, was $2.8 billion, $3.2 billion and $2.9 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 $335 million, $539 million and $507 million, respectively.

Compensation expense

The Firm recognized the following noncash 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	$1,109	$1,371	$1,440
Accrual of estimated costs of stock-based awards to be granted in future periods including those to full-career eligible employees	878	819	779
Total noncash compensation expense related to employee stock-based incentive plans	$1,987	$2,190	$2,219

At December 31, 2015, approximately $688 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 0.9 years. The Firm does not capitalize any compensation expense related to share-based compensation awards to employees.

Cash flows and tax benefits

Income tax benefits related to stock-based incentive arrangements recognized in the Firm's Consolidated statements of income for the years ended December 31, 2015, 2014 and 2013, were $746 million, $854 million and $865 million, respectively.

The following table sets forth the cash received from the exercise of stock options under all stock-based incentive arrangements, and the actual income tax benefit realized related to tax deductions from the exercise of the stock options.

Year ended December 31, (in millions)	2015	2014	2013
Cash received for options exercised	$20	$63	$166
Tax benefit realized[a]	64	104	42

(a)

The tax benefit realized from dividends or dividend equivalents paid on equity-classified share-based payment awards that are charged to retained earnings are recorded as an increase to additional paid-in capital and included in the pool of excess tax benefits available to absorb tax deficiencies on share-based payment awards.

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	
Weighted-average annualized valuation assumptions		
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 the Firm’s historical experience.

Note 11 – Noninterest expense

For details on noninterest expense, see Consolidated statements of income on page 176. Included within other expense is the following:

Year ended December 31, (in millions)	2015	2014	2013
Legal expense	$2,969	$2,883	$11,143
Federal Deposit Insurance Corporation-related (“FDIC”) expense	1,227	1,037	1,496

Note 12 – Securities

Securities are classified as trading, AFS or held-to-maturity (“HTM”). Securities classified as trading assets are discussed in Note 3. Predominantly all of the Firm’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, the Firm 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 the Firm’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.

Notes to consolidated financial statements

The amortized costs and estimated fair values of the investment securities portfolio were as follows for the dates indicated.

December 31, (in millions)	2015 Amortized cost	2015 Gross unrealized gains	2015 Gross unrealized losses	2015 Fair value	2014 Amortized cost	2014 Gross unrealized gains	2014 Gross unrealized losses	2014 Fair value
Available-for-sale debt securities								
Mortgage-backed securities:								
U.S. government agencies[a]	$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	22,990	150	243	22,897	20,687	438	17	21,108
Total mortgage-backed securities	103,980	2,021	419	105,582	133,598	3,842	118	137,322
U.S. Treasury and government agencies[a]	11,202	—	166	11,036	13,603	56	14	13,645
Obligations of U.S. states and municipalities	31,328	2,245	23	33,550	27,841	2,243	16	30,068
Certificates of deposit	282	1	—	283	1,103	1	1	1,103
Non-U.S. government debt securities	35,864	853	41	36,676	51,492	1,272	21	52,743
Corporate debt securities	12,464	142	170	12,436	18,158	398	24	18,532
Asset-backed securities:								
Collateralized loan obligations	31,146	52	191	31,007	30,229	147	182	30,194
Other	9,125	72	100	9,097	12,442	184	11	12,615
Total available-for-sale debt securities	235,391	5,386	1,110	239,667	288,466	8,143	387	296,222
Available-for-sale equity securities	2,067	20	—	2,087	2,513	17	—	2,530
Total available-for-sale securities	237,458	5,406	1,110	241,754	290,979	8,160	387	298,752
Total held-to-maturity securities[b]	$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