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)	2016	2015	2014	2013	2012
Selected income statement data					
Total net revenue	$ 95,668	$ 93,543	$ 95,112	$ 97,367	$ 97,680
Total noninterest expense	55,771	59,014	61,274	70,467	64,729
Pre-provision profit	39,897	34,529	33,838	26,900	32,951
Provision for credit losses	5,361	3,827	3,139	225	3,385
Income before income tax expense	34,536	30,702	30,699	26,675	29,566
Income tax expense	9,803	6,260	8,954	8,789	8,307
Net income	$ 24,733	$ 24,442	$ 21,745	$ 17,886	$ 21,259
Earnings per share data					
Net income: Basic	$ 6.24	$ 6.05	$ 5.33	$ 4.38	$ 5.21
Diluted	6.19	6.00	5.29	4.34	5.19
Average shares: Basic	3,618.5	3,700.4	3,763.5	3,782.4	3,809.4
Diluted	3,649.8	3,732.8	3,797.5	3,814.9	3,822.2
Market and per common share data					
Market capitalization	$ 307,295	$ 241,899	$ 232,472	$ 219,657	$ 167,260
Common shares at period-end	3,561.2	3,663.5	3,714.8	3,756.1	3,804.0
Share price:[(a)]					
High	$ 87.39	$ 70.61	$ 63.49	$ 58.55	$ 46.49
Low	52.50	50.07	52.97	44.20	30.83
Close	86.29	66.03	62.58	58.48	43.97
Book value per share	64.06	60.46	56.98	53.17	51.19
Tangible book value per share (“TBVPS”)[(b)]	51.44	48.13	44.60	40.72	38.68
Cash dividends declared per share	1.88	1.72	1.58	1.44	1.20
Selected ratios and metrics					
Return on common equity (“ROE”)	10%	11%	10%	9%	11%
Return on tangible common equity (“ROTCE”)[(b)]	13	13	13	11	15
Return on assets (“ROA”)	1.00	0.99	0.89	0.75	0.94
Overhead ratio	58	63	64	72	66
Loans-to-deposits ratio	65	65	56	57	61
High quality liquid assets (“HQLA”) (in billions)[(c)]	$ 524	$ 496	$ 600	$ 522	$ 341
Common equity tier 1 (“CET1”) capital ratio[(d)]	12.4%	11.8%	10.2%	10.7%	11.0%
Tier 1 capital ratio[(d)]	14.1	13.5	11.6	11.9	12.6
Total capital ratio[(d)]	15.5	15.1	13.1	14.3	15.2
Tier 1 leverage ratio[(d)]	8.4	8.5	7.6	7.1	7.1
Selected balance sheet data (period-end)					
Trading assets	$ 372,130	$ 343,839	$ 398,988	$ 374,664	$ 450,028
Securities	289,059	290,827	348,004	354,003	371,152
Loans	894,765	837,299	757,336	738,418	733,796
Core Loans	806,152	732,093	628,785	583,751	555,351
Average core loans	769,385	670,757	596,823	563,809	534,615
Total assets	2,490,972	2,351,698	2,572,274	2,414,879	2,358,323
Deposits	1,375,179	1,279,715	1,363,427	1,287,765	1,193,593
Long-term debt[(e)]	295,245	288,651	276,379	267,446	248,521
Common stockholders’ equity	228,122	221,505	211,664	199,699	194,727
Total stockholders’ equity	254,190	247,573	231,727	210,857	203,785
Headcount	243,355	234,598	241,359	251,196	258,753
Credit quality metrics					
Allowance for credit losses	$ 14,854	$ 14,341	$ 14,807	$ 16,969	$ 22,604
Allowance for loan losses to total retained loans	1.55%	1.63%	1.90%	2.25%	3.02%
Allowance for loan losses to retained loans excluding purchased credit-impaired loans[(f)]	1.34	1.37	1.55	1.80	2.43
Nonperforming assets	$ 7,535	$ 7,034	$ 7,967	$ 9,706	$ 11,906
Net charge-offs	4,692	4,086	4,759	5,802	9,063
Net charge-off rate	0.54%	0.52%	0.65%	0.81%	1.26%

Note: Effective January 1, 2016, the Firm adopted new accounting guidance related to (1) the recognition and measurement of debit valuation adjustments (“DVA”) on financial liabilities where the fair value option has been elected, and (2) the accounting for employee stock-based incentive payments. For additional information, see Accounting and Reporting Developments on pages 135–137 and Notes 3, 4 and 25.

(a) Share prices 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 and Key Financial Performance Measures on pages 48–50.
(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, 2016 and 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. For additional information, see HQLA on page 111.
(d) Ratios presented are calculated under the Basel III Transitional rules, which became effective on January 1, 2014, and for the capital ratios, represent the Collins Floor. Prior to 2014, the ratios were calculated under the Basel I rules. See Capital Risk Management on pages 76–85 for additional information on Basel III.
(e) Included unsecured long-term debt of $212.6 billion, $211.8 billion, $207.0 billion, $198.9 billion and $200.1 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 and Key Performance Measures on pages 48–50. For further discussion, see Allowance for credit losses on pages 105–107.

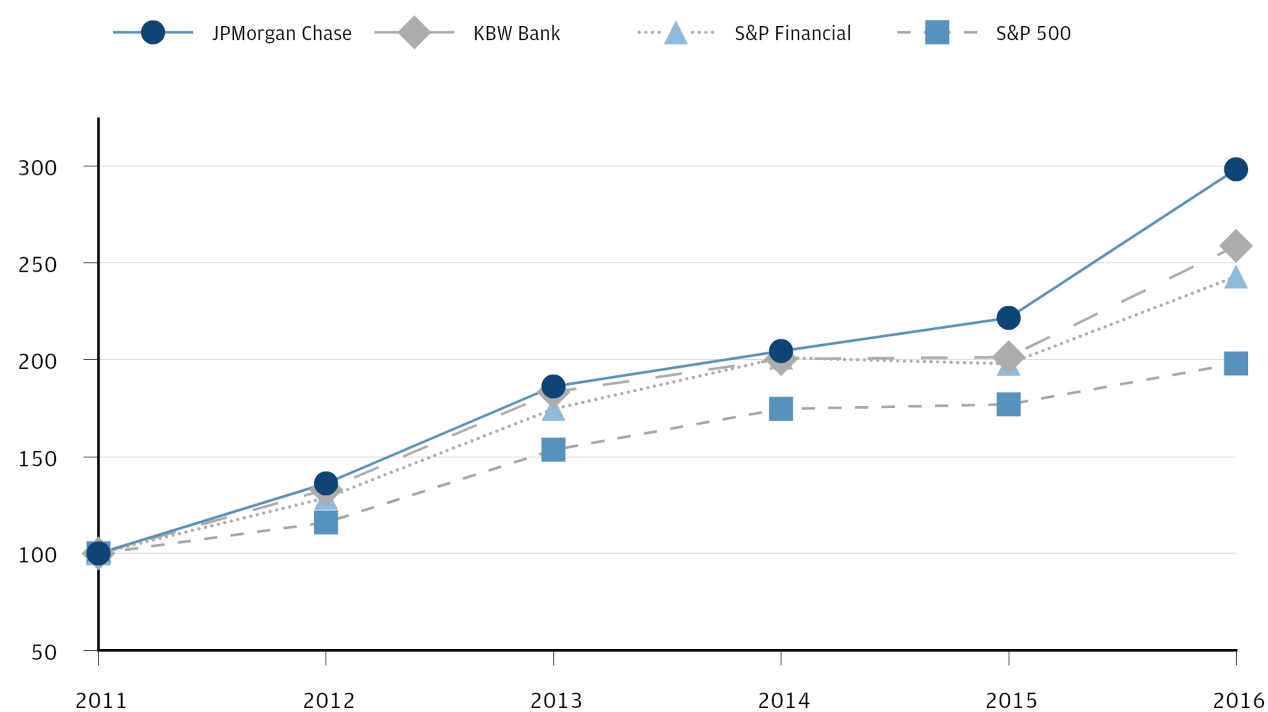
FIVE-YEAR STOCK PERFORMANCE

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 leading national money center and regional banks and thrifts. The S&P Financial Index is an index of 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, 2011, in JPMorgan Chase common stock and in each of the above indices. The comparison assumes that all dividends are reinvested.

December 31, (in dollars)	2011	2012	2013	2014	2015	**2016**
JPMorgan Chase	$ 100.00	$ 136.18	$ 186.17	$ 204.57	$ 221.68	**$ 298.31**
KBW Bank Index	100.00	133.03	183.26	200.42	201.40	**258.82**
S&P Financial Index	100.00	128.75	174.57	201.06	197.92	**242.94**
S&P 500 Index	100.00	115.99	153.55	174.55	176.95	**198.10**

December 31,
(in dollars)



This section of JPMorgan Chase's Annual Report for the year ended December 31, 2016 ("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 and Acronyms on pages 279-285 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 138) and in JPMorgan Chase's Annual Report on Form 10-K for the year ended December 31, 2016 ("2016 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 United States of America ("U.S."), with operations worldwide; the Firm had $2.5 trillion in assets and $254.2 billion in stockholders' equity as of December 31, 2016. 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 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 & Wealth Management ("AWM") (formerly Asset Management or "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 51–70, and Note 33.

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)	2016	2015	Change
Selected income statement data			
Total net revenue	**$ 95,668**	$ 93,543	2%
Total noninterest expense	**55,771**	59,014	(5)
Pre-provision profit	**39,897**	34,529	16
Provision for credit losses	**5,361**	3,827	40
Net income	**24,733**	24,442	1
Diluted earnings per share	**6.19**	6.00	3
Selected ratios and metrics			
Return on common equity	**10%**	11%	
Return on tangible common equity	**13**	13	
Book value per share	**$ 64.06**	$ 60.46	6
Tangible book value per share	**51.44**	48.13	7
Capital ratios[(a)]			
CET1	**12.4%**	11.8%	
Tier 1 capital	**14.1**	13.5	
Total capital	**15.5**	15.1	

(a) Ratios presented are calculated under the Basel III Transitional rules and represent the Collins Floor. See Capital Risk Management on pages 76–85 for additional information on Basel III.

Summary of 2016 results

JPMorgan Chase reported strong results for full year 2016 with net income of $24.7 billion, or $6.19 per share, on net revenue of $95.7 billion. The Firm reported ROE of 10% and ROTCE of 13%.

Net income increased 1% compared with the prior year driven by lower noninterest expense and higher net revenue, predominantly offset by higher income tax expense and provision for credit losses.

Total net revenue increased by 2% primarily reflecting higher net interest income across all the Firm's business segments and higher Markets noninterest revenue in CIB, partially offset by lower card income in CCB and lower asset management fees in AWM.

Noninterest expense was $55.8 billion, down 5% compared with the prior year, driven by lower legal expense.

The provision for credit losses was $5.4 billion, an increase of $1.5 billion, reflecting an increase in the total consumer provision related to additions in the allowance for loan losses and higher net charge-offs in the credit card portfolio, and a lower benefit in the residential real estate portfolio driven by a lower reduction in the allowance for loan losses compared with the prior year. The wholesale provision had a modest increase, largely driven by the impact of downgrades in the Oil & Gas and Natural Gas Pipelines portfolios.

The total allowance for credit losses was $14.9 billion at December 31, 2016, and the Firm had a loan loss coverage ratio, excluding the PCI portfolio, of 1.34%, compared with 1.37% in the prior year. The Firm's nonperforming assets totaled $7.5 billion, an increase from the prior-year level of $7.0 billion.

Firmwide average core loans increased 15% compared with the prior year.

Within CCB, average core loans increased 20% from the prior year. CCB had record growth in average deposits, with a 10% increase from the prior year. Credit card sales volume increased 10%, and merchant processing volume increased 12%, from the prior year. CCB had nearly 27 million active mobile customers at year-end 2016, an increase of 16% from the prior year.

CIB maintained its #1 ranking for Global Investment Banking fees with a 8.1% wallet share for the full-year ended December 31, 2016. Within CB, record average loans increased 14% from the prior year as loans in the commercial and industrial client segment increased 9% and loans in the wholesale commercial real estate client segment increased 18%. AWM had record average loans, an increase of 5% over the prior year, and 79% of AWM's mutual fund assets under management ranked in the 1st or 2nd quartiles over the past 5 years.

For a detailed discussion of results by line of business ("LOB"), refer to the Business Segment Results on pages 51–52.

The Firm added to its capital, ending the full-year of 2016 with a TBVPS of $51.44, up 7% over the prior year. The Firm's estimated Basel III Advanced Fully Phased-In CET1 capital and ratio were $182 billion and 12.2%, respectively. The Fully Phased-In supplementary leverage ratio ("SLR") for the Firm and for JPMorgan Chase Bank, N.A. was 6.5% and 6.6%, respectively, at December 31, 2016. The Firm also was compliant with the Fully Phased-In U.S. LCR and had $524 billion of HQLA as of December 31, 2016. For further discussion of the LCR and HQLA, see Liquidity Risk Management on pages 110–115.

ROTCE and TBVPS are non-GAAP financial measures. Core loans are considered a key performance measure. Each of the Fully Phased-In capital and leverage measures is considered a key regulatory capital measure. For a further discussion of these measures, see Explanation and Reconciliation of the Firm's Use of Non-GAAP Financial Measures and Key Performance Measures on pages 48–50, and Capital Risk Management on pages 76–85.

JPMorgan Chase continues to support consumers, businesses and communities around the globe. The Firm provided credit and raised capital of $2.4 trillion for commercial and consumer clients during the full-year of 2016:

- $265 billion of credit for consumers
- $24 billion of credit for U.S. small businesses
- $772 billion of credit for corporations
- $1.2 trillion of capital raised for corporate clients and non-U.S. government entities
- $90 billion of credit and capital raised for nonprofit and U.S. government entities, including states, municipalities, hospitals and universities

On October 1, 2016, the Firm filed with the Federal Reserve and the FDIC its submission (the "2016 Resolution Submission") describing how the Firm remediated certain deficiencies, and providing a status report on its actions to address certain shortcomings, that had been identified by the Federal Reserve and the FDIC in April 2016 when those agencies provided feedback to the Firm as well as to seven other systemically important domestic banking institutions on their respective 2015 Resolution Plans.

Among the steps taken by the Firm to address the identified deficiencies and shortcomings were: (i) establishing a new subsidiary that has become an "intermediate holding company" and to which JPMorgan Chase & Co. has contributed the stock of substantially all of its direct subsidiaries (other than JPMorgan Chase Bank, N.A.), as well as other assets and intercompany indebtedness owing to JPMorgan Chase & Co.; (ii) increasing the Firm's liquidity reserves and pre-positioning significant amounts of capital and liquidity at the Firm's "material legal entities" (as defined in the 2016 Resolution Submission); (iii) refining the Firm's liquidity and capital governance frameworks, including establishing a Firmwide "trigger framework" that identifies key actions and escalations that would need to be taken, as well as decisions that would need to be made, at critical points in time if certain defined liquidity and/or capital metrics were to fall below defined thresholds; (iv) establishing clear, actionable legal entity rationalization criteria and related governance procedures; and (v) improving divestiture readiness, including determining and analyzing divestiture options in a crisis. On December 13, 2016, the Federal Reserve and the FDIC informed the Firm that they had determined that the Firm's 2016 Resolution Submission adequately remediated the identified deficiencies in the Firm's 2015 Resolution Plan. For more information, see the Federal Reserve and FDIC websites, and the Firm's website for the public portion of the 2016 Resolution Submission.

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 138 and the Risk Factors section on pages 8–21.

Business outlook

JPMorgan Chase's outlook for the full-year 2017 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 2017, management expects net interest income to increase modestly compared with the fourth quarter of 2016. During 2017, assuming no change in interest rates since December 31, 2016, management expects net interest income could be approximately $3 billion higher than in 2016, reflecting the Federal Reserve's rate increase in December 2016 and expected loan growth. Management expects average core loan growth of approximately 10% in 2017.

The Firm continues to experience charge-off rates at or near historically low levels, reflecting favorable credit trends across the consumer and wholesale portfolios. Management expects total net charge-offs of approximately $5 billion in 2017. In Card, management expects the portfolio average net charge-off rate to increase in 2017, but remain below 3.00%, reflecting continued loan growth and the seasoning of newer vintages, with quarterly net-charge offs reflecting normal seasonal trends.

Management believes that the consumer allowance for credit losses could increase by approximately $300 million in 2017, reflecting growth across businesses, offset by reductions in the allowance for the residential real estate portfolio. Excluding the allowance related to the Oil & Gas and Natural Gas Pipelines and Metals & Mining portfolios, management expects that the wholesale allowance for credit losses could increase modestly in 2017 reflecting growth across businesses. Continued stability in the energy sector could result in a reduction in the allowance for credit losses in future periods. As management continually looks to enhance its credit loss estimation methodologies, the outlook for the allowance for credit losses does not take into consideration any such potential refinements.

The Firm continues to take a disciplined approach to managing its expenses, while investing in growth and innovation. As a result, Firmwide adjusted expense in 2017 is expected to be approximately $58 billion (excluding Firmwide legal expense).

In CCB, management expects Mortgage noninterest revenue to decrease approximately $700 million in 2017, driven by margin compression in a smaller mortgage market and continued run-off of the Servicing portfolio, as well as approximately $200 million of MSR gains in 2016 which are not expected to recur in 2017. Management expects Card Services noninterest revenue to decrease approximately $600 million in 2017, reflecting the amortization of premiums on strong new product originations and the absence in 2017 of a gain on the sale of Visa Europe interests in 2016, although total Card Services revenue is expected to increase due to strong growth in net interest income.

In the first quarter of 2017, management expects CCB expense to increase by approximately $150 million, compared to the prior quarter.

In CIB, Investment Banking revenue in the first quarter of 2017 is expected to be approximately in line with the fourth quarter of 2016, dependent on the timing of the closing of a number of transactions. Treasury Services revenue is expected to be approximately $950 million in the first quarter of 2017. In addition, management currently expects Markets revenue in the first quarter of 2017 to increase modestly compared to the prior year quarter, with results sensitive to market conditions in March in light of particularly strong revenue in March 2016. In Securities Services, management expects revenue of approximately $900 million in the first quarter of 2017.

In CB, management expects expense of approximately $775 million in the first quarter of 2017.

In AWM, management expects revenue to be approximately $3 billion in the first quarter of 2017.

CONSOLIDATED RESULTS OF OPERATIONS

This section provides a comparative discussion of JPMorgan Chase's Consolidated Results of Operations on a reported basis for the three-year period ended December 31, 2016, unless otherwise specified. 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 132-134.

Revenue

Year ended December 31, (in millions)	2016	2015	2014
Investment banking fees	**$ 6,448**	$ 6,751	$ 6,542
Principal transactions[(a)]	**11,566**	10,408	10,531
Lending- and deposit-related fees	**5,774**	5,694	5,801
Asset management, administration and commissions	**14,591**	15,509	15,931
Securities gains	**141**	202	77
Mortgage fees and related income	**2,491**	2,513	3,563
Card income	**4,779**	5,924	6,020
Other income[(b)]	**3,795**	3,032	3,013
Noninterest revenue	**49,585**	50,033	51,478
Net interest income	**46,083**	43,510	43,634
Total net revenue	**$ 95,668**	$ 93,543	$ 95,112

(a) Effective January 1, 2016, changes in DVA on fair value option elected liabilities previously recorded in principal transactions revenue are recorded in other comprehensive income ("OCI"). For additional information, see the segment results of CIB and Accounting and Reporting Developments on pages 58-62 and page 135, respectively.
(b) Included operating lease income of $2.7 billion, $2.1 billion and $1.7 billion for the years ended December 31, 2016, 2015 and 2014, respectively.

2016 compared with 2015

Total net revenue increased by 2% primarily reflecting higher net interest income across all the Firm's business segments and higher Markets noninterest revenue in CIB, partially offset by lower card income in CCB and lower asset management fees in AWM.

Investment banking fees decreased predominantly due to lower equity underwriting fees driven by declines in industry-wide fee levels. For additional information on investment banking fees, see CIB segment results on pages 58–62 and Note 7.

Principal transactions revenue increased reflecting broad-based strength across products in CIB's Fixed Income Markets business. Rates performance was strong, with increased client activity driven by high issuance-based flows, global political developments, and central bank actions. Credit revenue improved driven by higher market-making revenue from the secondary market as clients' appetite for risk recovered. For additional information, see CIB and Corporate segment results on pages 58–62 and pages 69–70, respectively, and Note 7.

Asset management, administration and commissions revenue decreased reflecting lower asset management fees in AWM driven by a reduction in revenue related to the disposal of assets at the beginning of 2016, the impact of lower average equity market levels and lower performance fees, as well as due to lower brokerage commissions and other fees in CIB and AWM. For additional information, see the segment discussions of CIB and AWM on pages 58–62 and pages 66–68, respectively, and Note 7.

For information on lending- and deposit-related fees, see the segment results for CCB on pages 53–57, CIB on pages 58–62, and CB on pages 63–65 and Note 7; on securities gains, see the Corporate segment discussion on pages 69–70.

Mortgage fees and related income were relatively flat, as lower mortgage servicing revenue related to lower average third-party loans serviced was predominantly offset by higher MSR risk management results. For further information on mortgage fees and related income, see the segment discussion of CCB on pages 53–57 and Notes 7 and 17.

Card income decreased predominantly driven by higher new account origination costs and the impact of renegotiated co-brand partnership agreements, partially offset by higher card sales volume and other card-related fees. For further information, see CCB segment results on pages 53–57 and Note 7.

Other income increased primarily reflecting:

- higher operating lease income from growth in auto operating lease assets in CCB
- a gain on the sale of Visa Europe interests in CCB
- a gain related to the redemption of guaranteed capital debt securities ("trust preferred securities")
- the absence of losses recognized in 2015 related to the accelerated amortization of cash flow hedges associated with the exit of certain non-operating deposits
- a gain on disposal of an asset in AWM at the beginning of 2016

partially offset by

- a $514 million benefit recorded in the prior year from a legal settlement in Corporate.

For further information on other income, see Note 7.

Net interest income increased primarily driven by loan growth across the businesses and the net impact of higher rates, partially offset by lower investment securities balances and higher interest expense on long-term debt. The Firm's average interest-earning assets were $2.1 trillion in 2016, and the net interest yield on these assets, on a fully taxable equivalent ("FTE") basis, was 2.25%, an increase of 11 basis points from the prior year.

2015 compared with 2014

Total net revenue for 2015 was down by 2%, 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 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.

Principal transactions revenue decreased 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.

Asset management, administration and commissions revenue decreased largely as a result of lower fees in CIB and lower performance fees in AWM. 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 AWM and CCB.

Mortgage fees and related income decreased 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 information on lending- and deposit-related fees, see the segment results for CCB on pages 53–57, CIB on pages 58–62, and CB on pages 63–65 and Note 7; on securities gains, see the Corporate segment discussion on pages 69–70; and card income, see CCB segment results on pages 53–57.

Other income was relatively flat 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 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 FTE basis, was 2.14%, a decrease of 4 basis points from the prior year.

Provision for credit losses

Year ended December 31, (in millions)	**2016**	2015	2014
Consumer, excluding credit card	**$ 467**	$ (81)	$ 419
Credit card	**4,042**	3,122	3,079
Total consumer	**4,509**	3,041	3,498
Wholesale	**852**	786	(359)
Total provision for credit losses	**$ 5,361**	$ 3,827	$ 3,139

2016 compared with 2015

The provision for credit losses reflected an increase in the total consumer provision and, to a lesser extent, the wholesale provision. The increase in the total consumer provision was predominantly driven by:

- a $920 million increase related to the credit card portfolio, due to a $600 million addition in the allowance for loan losses, as well as $320 million of higher net charge-offs, driven by loan growth (including growth in newer vintages which, as anticipated, have higher loss rates compared to the overall portfolio), and
- a $470 million lower benefit related to the residential real estate portfolio, as the current year reduction in the allowance for loan losses was lower than the prior year. The reduction in both periods reflected continued improvements in home prices and lower delinquencies.

The increase in the wholesale provision was largely driven by the impact of downgrades in the Oil & Gas and Natural Gas Pipelines portfolios. For a more detailed discussion of the credit portfolio and the allowance for credit losses, see the segment discussions of CCB on pages 53–57, CIB on pages 58–62 , CB on pages 63–65, the Allowance For Credit Losses on pages 105–107 and Note 15.

2015 compared with 2014

The provision for credit losses increased 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 decrease in the consumer provision was partially offset by a lower reduction in the allowance for loan losses.

Noninterest expense

Year ended December 31, (in millions)	2016	2015	2014
Compensation expense	**$29,979**	$29,750	$30,160
Noncompensation expense:			
Occupancy	**3,638**	3,768	3,909
Technology, communications and equipment	**6,846**	6,193	5,804
Professional and outside services	**6,655**	7,002	7,705
Marketing	**2,897**	2,708	2,550
Other[(a)(b)]	**5,756**	9,593	11,146
Total noncompensation expense	**25,792**	29,264	31,114
Total noninterest expense	**$55,771**	$59,014	$61,274

(a) Included legal (benefit)/expense of $(317) million, $3.0 billion and $2.9 billion for the years ended December 31, 2016, 2015 and 2014, respectively.
(b) Included FDIC-related expense of $1.3 billion, $1.2 billion and $1.0 billion for the years ended December 31, 2016, 2015 and 2014, respectively.

2016 compared with 2015

Total noninterest expense decreased by 5% driven by lower legal expense.

Compensation expense was relatively flat predominantly driven by higher performance-based compensation expense and investments in several businesses, offset by the impact of continued expense reduction initiatives, including lower headcount in certain businesses.

Noncompensation expense decreased as a result of lower legal expense (including lower legal professional services expense), the impact of efficiencies, and reduced non-U.S. tax surcharges. These factors were partially offset by higher depreciation expense from growth in auto operating lease assets and higher investments in marketing. For a further discussion of legal expense, see Note 31.

2015 compared with 2014

Total noninterest expense decreased by 4% 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 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 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.

Income tax expense

Year ended December 31, (in millions, except rate)	2016	2015	2014
Income before income tax expense	**$34,536**	$30,702	$30,699
Income tax expense	**9,803**	6,260	8,954
Effective tax rate	**28.4%**	20.4%	29.2%

2016 compared with 2015

The effective tax rate in 2016 was affected by changes in the mix of income and expense subject to U.S. federal and state and local taxes, tax benefits related to the utilization of certain deferred tax assets, as well as the adoption of new accounting guidance related to employee stock-based incentive payments. These tax benefits were partially offset by higher income tax expense from tax audits. The lower effective tax rate in 2015 was predominantly driven by $2.9 billion of tax benefits, which reduced the Firm's effective tax rate by 9.4 percentage points. The recognition of tax benefits in 2015 resulted from 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 additional details on the impact of the new accounting guidance, see Accounting and Reporting Developments on page 135 and for further information see Note 26.

2015 compared with 2014

The effective tax rate decreased 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. See above for details on the $2.9 billion of tax benefits.

CONSOLIDATED BALANCE SHEETS ANALYSIS

The following is a discussion of the significant changes between December 31, 2016 and 2015.

Selected Consolidated balance sheets data

December 31, (in millions)	2016	2015	Change
Assets			
Cash and due from banks	$ 23,873	$ 20,490	17%
Deposits with banks	365,762	340,015	8
Federal funds sold and securities purchased under resale agreements	229,967	212,575	8
Securities borrowed	96,409	98,721	(2)
Trading assets:			
Debt and equity instruments	308,052	284,162	8
Derivative receivables	64,078	59,677	7
Securities	289,059	290,827	(1)
Loans	894,765	837,299	7
Allowance for loan losses	(13,776)	(13,555)	2
Loans, net of allowance for loan losses	880,989	823,744	7
Accrued interest and accounts receivable	52,330	46,605	12
Premises and equipment	14,131	14,362	(2)
Goodwill	47,288	47,325	–
Mortgage servicing rights	6,096	6,608	(8)
Other intangible assets	862	1,015	(15)
Other assets	112,076	105,572	6
Total assets	$ 2,490,972	$ 2,351,698	6%

Cash and due from banks and deposits with banks
The increase was primarily driven by deposit growth in excess of loan growth. The Firm's excess cash is placed with various central banks, predominantly Federal Reserve Banks.

Federal funds sold and securities purchased under resale agreements
The increase was due to higher demand for securities to cover short positions related to client-driven market-making activities in CIB, and the deployment of excess cash by Treasury and Chief Investment Office ("CIO"). For additional information on the Firm's Liquidity Risk Management, see pages 110–115.

Trading assets and liabilities–debt and equity instruments
The increase in trading assets and liabilities was predominantly related to client-driven market-making activities in CIB. The increase in trading assets reflected higher debt and, to a lesser extent, equity instrument inventory levels to facilitate client demand. The increase in trading liabilities reflected higher levels of client-driven short positions in both debt and equity instruments. For additional information, refer to Note 3.

Trading assets and liabilities–derivative receivables and payables
The change in derivative receivables and payables was predominantly related to client-driven market-making activities in CIB. The increase in derivative receivables reflected the impact of market movements, which increased foreign exchange receivables, partially offset by reduced commodity derivative receivables. The decrease in derivative payables reflected the impact of market movements, which reduced commodity payables. For additional information, refer to Derivative contracts on pages 102–103, and Notes 3 and 6.

Securities
The decrease was predominantly due to net sales, maturities and paydowns during the year of non-agency mortgage-backed securities ("MBS"), corporate debt securities and asset-backed securities ("ABS"), offset by purchases of U.S. Treasuries. For additional information, see Notes 3 and 12.

Loans and allowance for loan losses
The increase in loans was driven by higher consumer and wholesale loans. The increase in consumer loans was due to retention of originated high-quality prime mortgages in CCB and AWM, and growth in credit card and auto loans in CCB. The increase in wholesale loans was predominantly driven by originations of commercial real estate loans in CB and commercial and industrial loans across multiple industries in CB and CIB.

The increase in the allowance for loan losses was attributable to additions to the wholesale allowance driven by downgrades in the Oil & Gas and Natural Gas Pipelines portfolios. The consumer allowance was flat from the prior year and reflected reductions in the allowance for loan losses in the residential real estate portfolio reflecting continued improvement in home prices and delinquencies, and due to runoff in the student loan portfolio; these factors were offset by additions to the allowance reflecting the impact of loan growth in the credit card portfolio (including newer vintages which, as anticipated, have higher loss rates compared to the overall portfolio), as well as due to loan growth in the auto and business banking loan portfolios. For a more detailed discussion of loans and the allowance for loan losses, refer to Credit Risk Management on pages 86–107, and Notes 3, 4, 14 and 15.

Accrued interest and accounts receivable
The increase reflected higher receivables from merchants in CCB and higher client receivables related to client-driven activity in CIB.

Mortgage servicing rights
For additional information on MSRs, see Note 17.

Other assets
The increase reflected higher auto operating lease assets from growth in business volume in CCB and higher cash collateral pledged in CIB.

Selected Consolidated balance sheets data

December 31, (in millions)	2016	2015	Change
Liabilities			
Deposits	**$ 1,375,179**	$ 1,279,715	7
Federal funds purchased and securities loaned or sold under repurchase agreements	**165,666**	152,678	9
Commercial paper	**11,738**	15,562	(25)
Other borrowed funds	**22,705**	21,105	8
Trading liabilities:			
Debt and equity instruments	**87,428**	74,107	18
Derivative payables	**49,231**	52,790	(7)
Accounts payable and other liabilities	**190,543**	177,638	7
Beneficial interests issued by consolidated variable interest entities ("VIEs")	**39,047**	41,879	(7)
Long-term debt	**295,245**	288,651	2
Total liabilities	**2,236,782**	2,104,125	6
Stockholders' equity	**254,190**	247,573	3
Total liabilities and stockholders' equity	**$ 2,490,972**	$ 2,351,698	6%

Deposits
The increase was attributable to higher consumer and wholesale deposits. The consumer increase reflected continuing strong growth from existing and new customers, and the impact of low attrition rates. The wholesale increase was driven by growth in operating deposits related to client activity in CIB's Treasury Services business, and inflows in AWM primarily from business growth and the impact of new rules governing money market funds. For more information on deposits, refer to the Liquidity Risk Management discussion on pages 110–115; and Notes 3 and 19.

Federal funds purchased and securities loaned or sold under repurchase agreements
The increase was predominantly due to higher client-driven market-making activities in CIB. For additional information on the Firm's Liquidity Risk Management, see pages 110–115.

Commercial paper
The decrease reflected lower issuance in the wholesale markets consistent with Treasury and CIO's short-term funding plans. For additional information, see Liquidity Risk Management on pages 110–115.

Accounts payable and other liabilities
The increase was largely driven by higher client-driven 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, partially offset by net new credit card securitizations. For further information on Firm-sponsored VIEs and loan securitization trusts, see Off-Balance Sheet Arrangements on pages 45–46 and Note 16.

Long-term debt
The increase was due to net issuance of structured notes driven by client demand in CIB, and other net issuance consistent with Treasury and CIO's long-term funding plans, including liquidity actions related to the 2016 Resolution Submission. For additional information on the Firm's long-term debt activities, see Liquidity Risk Management on pages 110–115 and Note 21.

Stockholders' equity
The increase was due to net income offset partially by cash dividends on common and preferred stock, and repurchases of common stock. For additional information on changes in stockholders' equity, see page 144, and on the Firm's capital actions, see Capital actions on page 84.

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 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, 2016 and 2015, was $2.7 billion and $8.7 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 $7.4 billion and $5.6 billion at December 31, 2016 and 2015, 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 are refinanced, extended, cancelled, or 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 101 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, 2016. 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, (in millions)	2016					2015
	2017	2018-2019	2020-2021	After 2021	**Total**	Total
On-balance sheet obligations						
Deposits[(a)]	$ 1,356,641	$ 5,512	$ 3,542	$ 3,171	$ 1,368,866	$ 1,276,139
Federal funds purchased and securities loaned or sold under repurchase agreements	163,978	1,307	2	379	165,666	152,738
Commercial paper	11,738	—	—	—	11,738	15,562
Other borrowed funds[(a)]	14,759	—	—	—	14,759	11,331
Beneficial interests issued by consolidated VIEs	17,290	16,240	2,767	2,630	38,927	41,092
Long-term debt[(a)]	44,380	78,676	61,772	103,487	288,315	280,206
Other[(b)]	4,172	1,328	984	2,496	8,980	8,372
Total on-balance sheet obligations	1,612,958	103,063	69,067	112,163	1,897,251	1,785,440
Off-balance sheet obligations						
Unsettled reverse repurchase and securities borrowing agreements[(c)]	50,722	—	—	—	50,722	42,482
Contractual interest payments[(d)]	9,640	10,317	7,638	21,267	48,862	46,149
Operating leases[(e)]	1,598	2,780	2,036	3,701	10,115	11,829
Equity investment commitments[(f)]	356	103	30	579	1,068	921
Contractual purchases and capital expenditures	1,382	723	236	225	2,566	2,598
Obligations under co-brand programs	187	233	201	247	868	496
Total off-balance sheet obligations	63,885	14,156	10,141	26,019	114,201	104,475
Total contractual cash obligations	$ 1,676,843	$ 117,219	$ 79,208	$ 138,182	$ 2,011,452	$ 1,889,915

(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 other postretirement employee benefit 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 $1.4 billion and $1.9 billion at December 31, 2016 and 2015, respectively. See Note 30 for more information on lease commitments.
(f) At December 31, 2016 and 2015, included unfunded commitments of $48 million and $50 million, respectively, to third-party private equity funds, and $1.0 billion and $871 million of unfunded commitments, respectively, to other equity investments.

CONSOLIDATED CASH FLOWS ANALYSIS

	Year ended December 31,		
(in millions)	**2016**	2015	2014
Net cash provided by/(used in)			
Operating activities	**$ 20,196**	$ 73,466	$ 36,593
Investing activities	**(114,949)**	106,980	(165,636)
Financing activities	**98,271**	(187,511)	118,228
Effect of exchange rate changes on cash	**(135)**	(276)	(1,125)
Net increase/(decrease) in cash and due from banks	**$ 3,383**	$ (7,341)	$ (11,940)

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 2016, 2015 and 2014 reflected net income after noncash operating adjustments. Additionally, in 2016 cash provided reflected increases in accounts payable and trading liabilities related to client-driven market-making activities in CIB. The increase in trading liabilities reflected higher levels of client-driven short positions in both debt and equity instruments. Cash used in 2016 reflected an increase in trading assets, an increase in accounts receivable from merchants in CCB and higher client receivables related to client-driven activities in CIB; and higher net originations and purchases from loan held-for-sale activities. The increase in trading assets reflected higher debt and, to a lesser extent, equity instrument inventory levels to facilitate client demand. Cash provided 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 provided reflected 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.

Investing activities

The Firm's investing activities predominantly include originating loans for investment, depositing cash at banks, and investing in the securities portfolio and other short-term interest-earning assets. Cash used in investing activities in 2016 resulted from net originations of consumer and wholesale loans. The increase in consumer loans was due to retention of originated high-quality prime mortgages in CCB and AWM, and growth of credit card and auto loans in CCB. The increase in wholesale loans was predominantly driven by originations of commercial real estate loans in CB and commercial and industrial loans across multiple industries in CB and CIB. Additionally, in 2016, cash outflows reflected an increase in deposits with banks primarily due to growth in deposits in excess of growth in loans; an increase in securities purchased under resale agreements due to higher demand for securities to cover short positions related to client-driven market-making activities in CIB and the deployment of excess cash by Treasury and CIO. 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 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. Partially offsetting these cash outflows in 2014 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 CIO. Investing activities in 2014 also reflected net proceeds from paydowns, maturities, sales and purchases of investment securities.

Financing activities

The Firm's financing activities includes acquiring customer deposits, issuing long-term debt, as well as preferred and common stock. Cash provided by financing activities in 2016 resulted from higher consumer and wholesale deposits, and an increase in securities loaned or sold under repurchase agreements, predominantly due to higher client-driven market-making activities in CIB. 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 predominantly resulted from higher consumer and wholesale deposits. For all periods, cash was provided by net proceeds from long-term borrowings; 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 43–44, Capital Risk Management on pages 76–85, and Liquidity Risk Management on pages 110–115.

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

Non-GAAP financial measures

The Firm prepares its Consolidated Financial Statements using U.S. GAAP; these financial statements appear on pages 141–145. 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. These non-GAAP financial measures allow management to assess the comparability of revenue from year-to-year 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.

Management also uses certain non-GAAP financial measures at the Firm and business-segment level, because these other non-GAAP financial measures provide information to investors about the underlying operational performance and trends of the Firm or of the particular business segment, as the case may be, and, therefore, facilitate a comparison of the Firm or the business segment with the performance of its relevant competitors. For additional information on these non-GAAP measures, see Business Segment Results on pages 51–70.

Additionally, certain credit metrics and ratios disclosed by the Firm exclude PCI loans, and are therefore non-GAAP measures. For additional information on these non-GAAP measures, see Credit Risk Management on pages 86–107.

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.

	2016			2015			2014		
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	**$ 3,795**	**$ 2,265**	**$ 6,060**	$ 3,032	$ 1,980	$ 5,012	$ 3,013	$ 1,788	$ 4,801
Total noninterest revenue	**49,585**	**2,265**	**51,850**	50,033	1,980	52,013	51,478	1,788	53,266
Net interest income	**46,083**	**1,209**	**47,292**	43,510	1,110	44,620	43,634	985	44,619
Total net revenue	**95,668**	**3,474**	**99,142**	93,543	3,090	96,633	95,112	2,773	97,885
Pre-provision profit	**39,897**	**3,474**	**43,371**	34,529	3,090	37,619	33,838	2,773	36,611
Income before income tax expense	**34,536**	**3,474**	**38,010**	30,702	3,090	33,792	30,699	2,773	33,472
Income tax expense	**9,803**	**3,474**	**13,277**	6,260	3,090	9,350	8,954	2,773	11,727
Overhead ratio	**58%**	**NM**	**56%**	63%	NM	61%	64%	NM	63%

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

Net interest income excluding CIB's Markets businesses

In addition to reviewing net interest income on a managed basis, management also reviews net interest income excluding net interest income arising from CIB's Markets businesses to assess the performance of the Firm's lending, investing (including asset-liability management) and deposit-raising activities. CIB's Markets businesses represent both Fixed Income Markets and Equity Markets. The data presented below are non-GAAP financial measures due to the exclusion of net interest income from CIB's Markets businesses ("CIB Markets").

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.

Year ended December 31, (in millions, except rates)	2016	2015	2014
Net interest income – managed basis[a][b]	**$ 47,292**	$ 44,620	$ 44,619
Less: CIB Markets net interest income[c]	**6,334**	5,298	6,032
Net interest income excluding CIB Markets[a]	**$ 40,958**	$ 39,322	$ 38,587
Average interest-earning assets	**$ 2,101,604**	$ 2,088,242	$ 2,049,093
Less: Average CIB Markets interest-earning assets[c]	**520,307**	510,292	522,989
Average interest-earning assets excluding CIB Markets	**$ 1,581,297**	$ 1,577,950	$ 1,526,104
Net interest yield on average interest-earning assets – managed basis	2.25%	2.14%	2.18%
Net interest yield on average CIB Markets interest-earning assets[c]	1.22	1.04	1.15
Net interest yield on average interest-earning assets excluding CIB Markets	2.59%	2.49%	2.53%

(a) Interest includes the effect of related hedges. 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 48.
(c) Prior period amounts were revised to align with CIB's Markets businesses. For further information on CIB's Markets businesses, see page 61.

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, ROTCE and TBVPS

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 net income applicable to common equity 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 utilized by the Firm, as well as investors and analysts, in assessing the Firm's use of equity. The following summary table provides a reconciliation from the Firm's common stockholders' equity to TCE.

	Period-end		Average		
			Year ended December 31,		
(in millions, except per share and ratio data)	**Dec 31, 2016**	Dec 31, 2015	**2016**	2015	2014
Common stockholders' equity	**$ 228,122**	$ 221,505	**$ 224,631**	$ 215,690	$ 207,400
Less: Goodwill	**47,288**	47,325	**47,310**	47,445	48,029
Less: Certain identifiable intangible assets	**862**	1,015	**922**	1,092	1,378
Add: Deferred tax liabilities[(a)]	**3,230**	3,148	**3,212**	2,964	2,950
Tangible common equity	**$ 183,202**	$ 176,313	**$ 179,611**	$ 170,117	$ 160,943
Return on tangible common equity	**NA**	NA	**13%**	13%	13%
Tangible book value per share	**$ 51.44**	$ 48.13	**NA**	NA	NA

(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.

Key performance measures

The Firm's capital, RWA, and capital and leverage ratios that are presented under Basel III Standardized and Advanced Fully Phased-In rules and the Firm's, 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 considered key regulatory capital measures. Such measures are used by banking regulators, investors and analysts to assess the Firm's regulatory capital position and to compare the Firm's regulatory capital to that of other financial services companies.

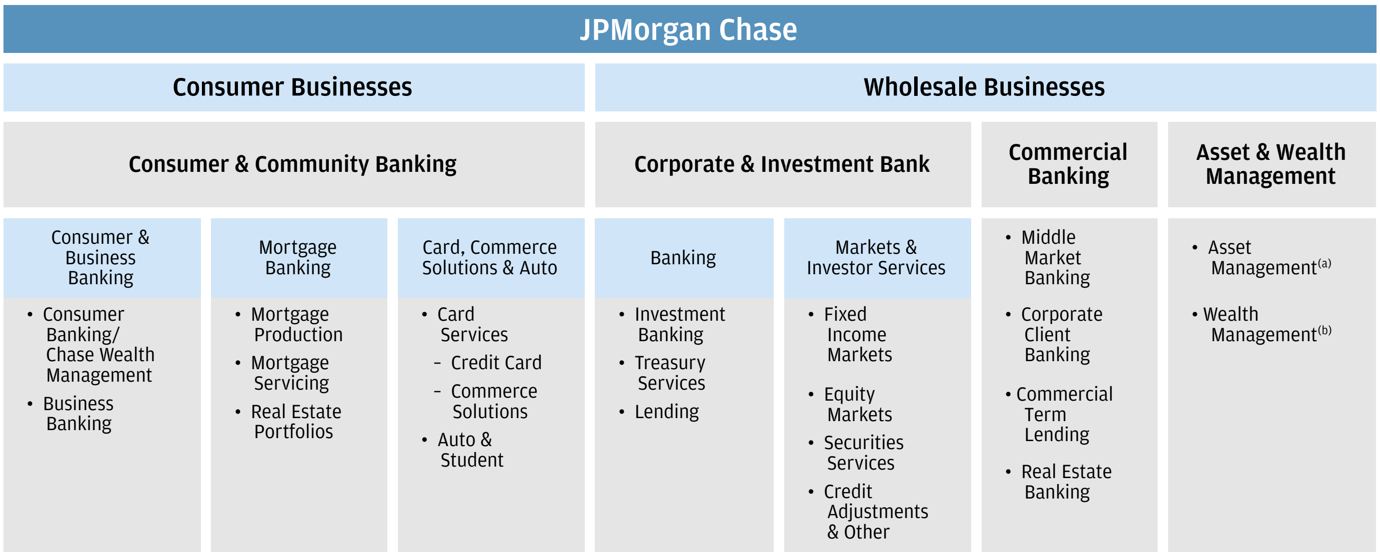
For additional information on these measures, see Capital Risk Management on pages 76–85.

Core loans are also considered a key performance measure. Core loans represent loans considered central to the Firm's ongoing businesses; and exclude loans classified as trading assets, runoff portfolios, discontinued portfolios and portfolios the Firm has an intent to exit. Core loans are utilized by the Firm and its investors and analysts in assessing actual growth in the loan portfolio.

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 & Wealth Management (formerly 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 48–50.



(a) Formerly Global Investment Management
(b) Formerly 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 includes the allocation of certain income and expense items described in more detail below. The Firm also assesses the level of capital required for each line of business on at least an annual basis. For further information about line of business capital, see Line of business equity on page 83.

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 segment and to transfer the primary interest rate risk and liquidity risk exposures to Treasury and CIO within Corporate. The funds transfer pricing process considers the interest rate risk, liquidity risk and regulatory requirements of a business segment as if it were operating independently. This process is overseen by senior management and reviewed by the Firm's Asset-Liability Committee ("ALCO").

Debt expense and preferred stock dividend allocation

As part of the funds transfer pricing process, largely all of the cost of the credit spread component of outstanding unsecured long-term debt and preferred stock dividends is allocated to the reportable business segments, while the balance of the cost is retained in Corporate. The methodology to allocate the cost of unsecured long-term debt and preferred stock dividend to the business segments is aligned with the Firm's process to allocate capital. The allocated cost of unsecured long-term debt is included in a business segment's net interest income, and net income is reduced by preferred stock dividends to arrive at a business segment's net income applicable to common equity.

Business segment capital allocation changes

The amount of capital assigned to each business is referred to as common equity. 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. Through the end of 2016, capital was allocated to the lines of business based on a single measure, Basel III Advanced Fully Phased-In RWA. Effective January 1, 2017, the Firm's methodology used to allocate capital to the Firm's business segments was updated. The new methodology incorporates Basel III Standardized Fully Phased-In RWA (as well as Basel III Advanced Fully Phased-In RWA), leverage, the GSIB surcharge, and a simulation of capital in a severe stress environment. The methodology will continue to be weighted towards Basel III Advanced Fully Phased-In RWA because the Firm believes it to be the best proxy for economic risk. The Firm will consider further changes to its capital allocation methodology as the regulatory framework evolves. In addition, under the new methodology, capital is no longer allocated to each line of business for goodwill and other intangibles associated with acquisitions effected by the line of business.

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 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.

The following provides a comparative discussion of business segment results as of or for the years ended December 31, 2016, 2015 and 2014.

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)	**2016**	2015	2014	**2016**	2015	2014	**2016**	2015	2014
Consumer & Community Banking	**$ 44,915**	$ 43,820	$ 44,368	**$ 24,905**	$ 24,909	$ 25,609	**$ 20,010**	$ 18,911	$ 18,759
Corporate & Investment Bank	**35,216**	33,542	34,595	**18,992**	21,361	23,273	**16,224**	12,181	11,322
Commercial Banking	**7,453**	6,885	6,882	**2,934**	2,881	2,695	**4,519**	4,004	4,187
Asset & Wealth Management	**12,045**	12,119	12,028	**8,478**	8,886	8,538	**3,567**	3,233	3,490
Corporate	**(487)**	267	12	**462**	977	1,159	**(949)**	(710)	(1,147)
Total	**$ 99,142**	$ 96,633	$ 97,885	**$ 55,771**	$ 59,014	$ 61,274	**$ 43,371**	$ 37,619	$ 36,611

Year ended December 31,	Provision for credit losses			Net income/(loss)			Return on common equity		
(in millions, except ratios)	**2016**	2015	2014	**2016**	2015	2014	**2016**	2015	2014
Consumer & Community Banking	**$ 4,494**	$ 3,059	$ 3,520	**$ 9,714**	$ 9,789	$ 9,185	**18%**	18%	18%
Corporate & Investment Bank	**563**	332	(161)	**10,815**	8,090	6,908	**16**	12	10
Commercial Banking	**282**	442	(189)	**2,657**	2,191	2,635	**16**	15	18
Asset & Wealth Management	**26**	4	4	**2,251**	1,935	2,153	**24**	21	23
Corporate	**(4)**	(10)	(35)	**(704)**	2,437	864	**NM**	NM	NM
Total	**$ 5,361**	$ 3,827	$ 3,139	**$ 24,733**	$ 24,442	$ 21,745	**10%**	11%	10%

Consumer & Community Banking offers services to consumers and businesses through bank branches, 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. Consumer & Business Banking offers deposit and investment products and services to consumers, and lending, deposit, and cash management and payment solutions to small businesses. Mortgage Banking includes mortgage origination and servicing activities, as well as portfolios consisting of residential mortgages and home equity loans. Card, Commerce Solutions & Auto issues credit cards to consumers and small businesses, offers payment processing services to merchants, originates and services auto loans and leases, and services student loans.

Selected income statement data

Year ended December 31, (in millions, except ratios)	**2016**	2015	2014
Revenue			
Lending- and deposit-related fees	**$ 3,231**	$ 3,137	$ 3,039
Asset management, administration and commissions	**2,093**	2,172	2,096
Mortgage fees and related income	**2,490**	2,511	3,560
Card income	**4,364**	5,491	5,779
All other income	**3,077**	2,281	1,463
Noninterest revenue	**15,255**	15,592	15,937
Net interest income	**29,660**	28,228	28,431
Total net revenue	**44,915**	43,820	44,368
Provision for credit losses	**4,494**	3,059	3,520
Noninterest expense			
Compensation expense	**9,723**	9,770	10,538
Noncompensation expense[(a)]	**15,182**	15,139	15,071
Total noninterest expense	**24,905**	24,909	25,609
Income before income tax expense	**15,516**	15,852	15,239
Income tax expense	**5,802**	6,063	6,054
Net income	**$ 9,714**	$ 9,789	$ 9,185
Revenue by line of business			
Consumer & Business Banking	**$ 18,659**	$ 17,983	$ 18,226
Mortgage Banking	**7,361**	6,817	7,826
Card, Commerce Solutions & Auto	**18,895**	19,020	18,316
Mortgage fees and related income details:			
Net production revenue	**853**	769	1,190
Net mortgage servicing revenue[(b)]	**1,637**	1,742	2,370
Mortgage fees and related income	**$ 2,490**	$ 2,511	$ 3,560
Financial ratios			
Return on common equity	**18%**	18%	18%
Overhead ratio	**55**	57	58

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.

(a) Included operating lease depreciation expense of $1.9 billion, $1.4 billion and $1.2 billion for the years ended December 31, 2016, 2015 and 2014, respectively.

(b) Included MSR risk management of $217 million, $(117) million and $(28) million for the years ended December 31, 2016, 2015 and 2014, respectively.

2016 compared with 2015

Consumer & Community Banking net income was $9.7 billion, a decrease of 1% compared with the prior year, driven by higher provision for credit losses predominantly offset by higher net revenue.

Net revenue was $44.9 billion, an increase of 2% compared with the prior year. Net interest income was $29.7 billion, up 5%, driven by higher deposit balances and higher loan balances, partially offset by deposit spread compression and an increase in the reserve for uncollectible interest and fees in Credit Card. Noninterest revenue was $15.3 billion, down 2%, driven by higher new account origination costs and the impact of renegotiated co-brand partnership agreements in Credit Card and lower mortgage servicing revenue predominantly as a result of a lower level of third-party loans serviced; these factors were predominantly offset by higher auto lease and card sales volume, higher card- and deposit-related fees, higher MSR risk management results and a gain on the sale of Visa Europe interests. 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 $4.5 billion, an increase of 47% from the prior year. The increase in the provision was driven by:

- a $920 million increase related to the credit card portfolio, due to a $600 million addition in the allowance for loan losses, as well as $320 million of higher net charge-offs, driven by loan growth, including growth in newer vintages which, as anticipated, have higher loss rates compared to the overall portfolio,
- a $450 million lower benefit related to the residential real estate portfolio, as the current year reduction in the allowance for loan losses was lower than the prior year. The reduction in both periods reflected continued improvements in home prices and lower delinquencies and
- a $150 million increase related to the auto and business banking portfolio, due to additions to the allowance for loan losses and higher net charge-offs, reflecting loan growth in the portfolios.

Noninterest expense of $24.9 billion was flat compared with the prior year, driven by lower legal expense and branch efficiencies offset by higher auto lease depreciation and higher investment in marketing.

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, partially 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 balances, higher loan balances largely resulting from originations of high-quality mortgage loans that have been retained, 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 servicing revenue largely as a result of lower average third-party loans serviced, lower net mortgage production revenue reflecting a lower repurchase benefit and the impact of renegotiated co-brand partnership agreements in Credit Card, largely offset by higher auto lease and card sales volume, the impact of non-core portfolio exits in Credit Card in the prior year, and a gain on the investment in Square, Inc. upon its initial public offering.

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 due to continued improvement in home prices and lower delinquencies as well as increased granularity in the impairment estimates in the residential real estate portfolio and runoff in the student loan portfolio. The prior-year provision reflected a $1.3 billion reduction in the allowance for loan losses due to continued improvement in home prices and lower delinquencies in the residential real estate portfolio, a decrease in the Credit Card 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 $24.9 billion, a decrease of 3% from the prior year, driven by lower headcount-related expense and lower professional fees, partially offset by higher auto lease depreciation.

Selected metrics

As of or for the year ended December 31, (in millions, except headcount)	2016	2015	2014
Selected balance sheet data (period-end)			
Total assets	**$535,310**	$502,652	$455,634
Loans:			
Consumer & Business Banking	**24,307**	22,730	21,200
Home equity	**50,296**	58,734	67,994
Residential mortgage and other	**181,196**	164,500	115,575
Mortgage Banking	**231,492**	223,234	183,569
Credit Card	**141,816**	131,463	131,048
Auto	**65,814**	60,255	54,536
Student	**7,057**	8,176	9,351
Total loans	**470,486**	445,858	399,704
Core loans	**382,608**	341,881	273,494
Deposits	**618,337**	557,645	502,520
Common equity	**51,000**	51,000	51,000
Selected balance sheet data (average)			
Total assets	**$516,354**	$472,972	$447,750
Loans:			
Consumer & Business Banking	**23,431**	21,894	20,152
Home equity	**54,545**	63,261	72,440
Residential mortgage and other	**177,010**	140,294	110,231
Mortgage Banking	**231,555**	203,555	182,671
Credit Card	**131,165**	125,881	125,113
Auto	**63,573**	56,487	52,961
Student	**7,623**	8,763	9,987
Total loans	**457,347**	416,580	390,884
Core loans	**361,316**	301,700	253,803
Deposits	**586,637**	530,938	486,919
Common equity	**51,000**	51,000	51,000
Headcount	**132,802**	127,094	137,186

Selected metrics

As of or for the year ended December 31, (in millions, except ratio data)	2016	2015	2014
Credit data and quality statistics			
Nonaccrual loans[(a)(b)]	**$ 4,708**	$ 5,313	$ 6,401
Net charge-offs[(c)]			
Consumer & Business Banking	**257**	253	305
Home equity	**184**	283	473
Residential mortgage and other	**14**	2	10
Mortgage Banking	**198**	285	483
Credit Card	**3,442**	3,122	3,429
Auto	**285**	214	181
Student	**162**	210	375
Total net charge-offs	**$ 4,344**	$ 4,084	$ 4,773
Net charge-off rate[(c)]			
Consumer & Business Banking	**1.10%**	1.16 %	1.51%
Home equity[(d)]	**0.45**	0.60	0.87
Residential mortgage and other[(d)]	**0.01**	–	0.01
Mortgage Banking[(d)]	**0.10**	0.18	0.37
Credit Card[(e)]	**2.63**	2.51	2.75
Auto	**0.45**	0.38	0.34
Student	**2.13**	2.40	3.75
Total net charge-offs rate[(d)]	**1.04**	1.10	1.40
30+ day delinquency rate			
Mortgage Banking[(f)(g)]	**1.23%**	1.57 %	2.61%
Credit Card[(h)]	**1.61**	1.43	1.44
Auto	**1.19**	1.35	1.23
Student[(i)]	**1.60**	1.81	2.35
90+ day delinquency rate - Credit Card[(h)]	**0.81**	0.72	0.70
Allowance for loan losses			
Consumer & Business Banking	**$ 753**	$ 703	$ 703
Mortgage Banking, excluding PCI loans	**1,328**	1,588	2,188
Mortgage Banking – PCI loans[(c)]	**2,311**	2,742	3,325
Credit Card	**4,034**	3,434	3,439
Auto	**474**	399	350
Student	**249**	299	399
Total allowance for loan losses[(c)]	**$ 9,149**	$ 9,165	$10,404

(a) Excludes PCI loans. The Firm is recognizing interest income on each pool of PCI loans as they are all performing.
(b) At December 31, 2016, 2015 and 2014, nonaccrual loans excluded loans 90 or more days past due as follows: (1) mortgage loans insured by U.S. government agencies of $5.0 billion, $6.3 billion and $7.8 billion respectively; and (2) student loans insured by U.S. government agencies under the Federal Family Education Loan Program ("FFELP") of $263 million, $290 million and $367 million, respectively. These amounts have been excluded based upon the government guarantee.
(c) Net charge-offs and the net charge-off rates for the years ended December 31, 2016, 2015 and 2014, excluded $156 million, $208 million, and $533 million, respectively, of write-offs in the PCI portfolio. These write-offs decreased the allowance for loan losses for PCI loans. For further information on PCI write-offs, see summary of changes in the allowance on page 106.

(d) Excludes the impact of PCI loans. For the years ended December 31, 2016, 2015 and 2014, the net charge-off rates including the impact of PCI loans were as follows: (1) home equity of 0.34%, 0.45% and 0.65%, respectively; (2) residential mortgage and other of 0.01%, –% and 0.01%, respectively; (3) Mortgage Banking of 0.09%, 0.14% and 0.27%, respectively; and (4) total CCB of 0.95%, 0.99% and 1.22%, respectively.
(e) Average credit card loans included loans held-for-sale of $84 million, $1.6 billion and $509 million for the years ended December 31, 2016, 2015 and 2014, respectively. These amounts are excluded when calculating the net charge-off rate.
(f) At December 31, 2016, 2015 and 2014, excluded mortgage loans insured by U.S. government agencies of $7.0 billion, $8.4 billion and $9.7 billion, respectively, that are 30 or more days past due. These amounts have been excluded based upon the government guarantee.
(g) Excludes PCI loans. The 30+ day delinquency rate for PCI loans was 9.82%, 11.21% and 13.33% at December 31, 2016, 2015 and 2014, respectively.
(h) Period-end credit card loans included loans held-for-sale of $105 million, $76 million and $3.0 billion at December 31, 2016, 2015 and 2014, respectively. These amounts are excluded when calculating delinquency rates.
(i) Excluded student loans insured by U.S. government agencies under FFELP of $468 million, $526 million and $654 million at December 31, 2016, 2015 and 2014, respectively, that are 30 or more days past due. These amounts have been excluded based upon the government guarantee.

Selected metrics

As of or for the year ended December 31, (in billions, except ratios and where otherwise noted)	2016	2015	2014
Business Metrics			
CCB households (in millions)	**60.0**	57.8	57.2
Number of branches	**5,258**	5,413	5,602
Active digital customers (in thousands)[(a)]	**43,836**	39,242	36,396
Active mobile customers (in thousands)[(b)]	**26,536**	22,810	19,084
Debit and credit card sales volume	**$ 817.9**	$ 753.8	$ 707.0
Consumer & Business Banking			
Average deposits	**$ 570.8**	$ 515.2	$ 472.3
Deposit margin	**1.81%**	1.90%	2.21%
Business banking origination volume	**$ 7.3**	$ 6.8	$ 6.6
Client investment assets	**234.5**	218.6	213.5
Mortgage Banking			
Mortgage origination volume by channel			
Retail	**$ 44.3**	$ 36.1	$ 29.5
Correspondent	**59.3**	70.3	48.5
Total mortgage origination volume[(c)]	**$ 103.6**	$ 106.4	$ 78.0
Total loans serviced (period-end)	**$ 846.6**	$ 910.1	$ 948.8
Third-party mortgage loans serviced (period-end)	**591.5**	674.0	751.5
MSR carrying value (period-end)	**6.1**	6.6	7.4
Ratio of MSR carrying value (period-end) to third-party mortgage loans serviced (period-end)	**1.03%**	0.98%	0.98%
MSR revenue multiple[(d)]	**2.94x**	2.80x	2.72x
Credit Card, excluding Commercial Card			
Credit card sales volume	**$ 545.4**	$ 495.9	$ 465.6
New accounts opened (in millions)	**10.4**	8.7	8.8
Card Services			
Net revenue rate	**11.29%**	12.33%	12.03%
Commerce Solutions			
Merchant processing volume	**$1,063.4**	$ 949.3	$ 847.9
Auto			
Loan and lease origination volume	**$ 35.4**	$ 32.4	$ 27.5
Average Auto operating lease assets	**11.0**	7.8	6.1

(a) Users of all web and/or mobile platforms who have logged in within the past 90 days.
(b) Users of all mobile platforms who have logged in within the past 90 days.
(c) Firmwide mortgage origination volume was $117.4 billion, $115.2 billion and $83.3 billion for the years ended December 31, 2016, 2015 and 2014, respectively.
(d) 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 Firm has resolved the majority of the consent orders and settlements into which it entered with federal and state governmental agencies and private parties related to mortgage servicing, origination, and residential mortgage-backed securities activities. However, among those obligations, the mortgage servicing-related Consent Order entered into with the Federal Reserve on April 13, 2011, as amended on February 28, 2013, and certain other settlements remain outstanding. The Audit Committee of the Board of Directors provides governance and oversight of the Federal Reserve Consent Order.

The Federal Reserve Consent Order and other obligations under certain 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 its commitments with appropriate diligence.

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)	2016	2015	2014
Revenue			
Investment banking fees	**$ 6,424**	$ 6,736	$ 6,570
Principal transactions	**11,089**	9,905	8,947
Lending- and deposit-related fees	**1,581**	1,573	1,742
Asset management, administration and commissions	**4,062**	4,467	4,687
All other income[(a)]	**1,169**	1,012	1,474
Noninterest revenue	**24,325**	23,693	23,420
Net interest income[(a)]	**10,891**	9,849	11,175
Total net revenue	**35,216**	33,542	34,595
Provision for credit losses	**563**	332	(161)
Noninterest expense			
Compensation expense	**9,546**	9,973	10,449
Noncompensation expense	**9,446**	11,388	12,824
Total noninterest expense	**18,992**	21,361	23,273
Income before income tax expense	**15,661**	11,849	11,483
Income tax expense	**4,846**	3,759	4,575
Net income	**$ 10,815**	$ 8,090	$ 6,908

(a) 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; and tax-exempt income from municipal bonds of $2.0 billion, $1.7 billion and $1.6 billion for the years ended December 31, 2016, 2015 and 2014, respectively.

Selected income statement data

Year ended December 31, (in millions, except ratios)	2016	2015	2014
Financial ratios			
Return on common equity	**16%**	12%	10%
Overhead ratio	**54**	64	67
Compensation expense as percentage of total net revenue	**27**	30	30
Revenue by business			
Investment Banking	**$ 5,950**	$ 6,376	$ 6,122
Treasury Services	**3,643**	3,631	3,728
Lending	**1,208**	1,461	1,547
Total Banking	**10,801**	11,468	11,397
Fixed Income Markets	**15,259**	12,592	14,075
Equity Markets	**5,740**	5,694	5,044
Securities Services	**3,591**	3,777	4,351
Credit Adjustments & Other[(a)]	**(175)**	11	(272)
Total Markets & Investor Service	**24,415**	22,074	23,198
Total net revenue	**$35,216**	$33,542	$34,595

(a) Effective January 1, 2016, consists primarily of credit valuation adjustments ("CVA") managed by the Credit Portfolio Group, Funding valuation adjustment ("FVA") and DVA on derivatives. Results are primarily reported in Principal transactions. Prior periods also include DVA on fair value option elected liabilities. Results are presented net of associated hedging activities and net of CVA and FVA amounts allocated to Fixed Income Markets and Equity Markets. Effective January 1, 2016, changes in DVA on fair value option elected liabilities is recognized in OCI. For additional information, see Accounting and Reporting Developments on page 135 and Notes 3, 4 and 25.

2016 compared with 2015

Net income was $10.8 billion, up 34% compared with the prior year, driven by lower noninterest expense and higher net revenue, partially offset by a higher provision for credit losses.

Banking revenue was $10.8 billion, down 6% compared with the prior year. Investment banking revenue was $6.0 billion, down 7% from the prior year, largely driven by lower equity underwriting fees. The Firm maintained its #1 ranking for Global Investment Banking fees, according to Dealogic. Equity underwriting fees were $1.2 billion, down 19% driven by lower industry-wide fee levels; however, the Firm improved its market share and maintained its #1 ranking in equity underwriting fees globally as well as in both North America and Europe and its #1 ranking by volumes across all products, according to Dealogic. Advisory fees were $2.1 billion, down 1%; the Firm maintained its #2 ranking for M&A, according to Dealogic. Debt underwriting fees were $3.2 billion; the Firm maintained its #1 ranking globally in fees across high grade, high yield, and loan products, according to Dealogic. Treasury Services revenue was $3.6 billion. Lending revenue was $1.2 billion, down 17% from the prior year, reflecting fair value losses on hedges of accrual loans.

Markets & Investor Services revenue was $24.4 billion, up 11% from the prior year. Fixed Income Markets revenue was $15.3 billion, up 21% from the prior year, driven by broad strength across products. Rates performance was strong, with increased client activity driven by high issuance-based flows, global political developments, and central bank actions. Credit and Securitized Products revenue improved driven by higher market-making revenue from the secondary market as clients' risk appetite recovered, and due to increased financing activity. Equity Markets revenue was $5.7 billion, up 1%, compared to a strong prior-year. Securities Services revenue was $3.6 billion, down 5% from the prior year, largely driven by lower fees and commissions. Credit Adjustments and Other was a loss of $175 million driven by valuation adjustments, compared with an $11 million gain in prior-year, which included funding spread gains on fair value option elected liabilities.

The provision for credit losses was $563 million, compared to $332 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 $19.0 billion, down 11% compared with the prior year, driven by lower legal and compensation expenses.

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.

Selected metrics

As of or for the year ended December 31, (in millions, except headcount)	2016	2015	2014
Selected balance sheet data (period-end)			
Assets	**$ 803,511**	$ 748,691	$ 861,466
Loans:			
Loans retained[(a)]	**111,872**	106,908	96,409
Loans held-for-sale and loans at fair value	**3,781**	3,698	5,567
Total loans	**115,653**	110,606	101,976
Core Loans	**115,243**	110,084	100,772
Common equity	**64,000**	62,000	61,000
Selected balance sheet data (average)			
Assets	**$ 815,321**	$ 824,208	$ 854,712
Trading assets-debt and equity instruments	**300,606**	302,514	317,535
Trading assets-derivative receivables	**63,387**	67,263	64,833
Loans:			
Loans retained[(a)]	**111,082**	98,331	95,764
Loans held-for-sale and loans at fair value	**3,812**	4,572	7,599
Total loans	**114,894**	102,903	103,363
Core Loans[(b)]	**114,455**	102,142	99,500
Common equity	**64,000**	62,000	61,000
Headcount	**48,748**	49,067	50,965

(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) Prior period amounts were revised to conform with current period presentation.

Selected metrics

As of or for the year ended December 31, (in millions, except ratios)	2016	2015	2014
Credit data and quality statistics			
Net charge-offs/ (recoveries)	**$ 168**	$ (19)	$ (12)
Nonperforming assets:			
Nonaccrual loans:			
Nonaccrual loans retained[(a)]	**467**	428	110
Nonaccrual loans held-for-sale and loans at fair value	**109**	10	11
Total nonaccrual loans	**576**	438	121
Derivative receivables	**223**	204	275
Assets acquired in loan satisfactions	**79**	62	67
Total nonperforming assets	**878**	704	463
Allowance for credit losses:			
Allowance for loan losses	**1,420**	1,258	1,034
Allowance for lending-related commitments	**801**	569	439
Total allowance for credit losses	**2,221**	1,827	1,473
Net charge-off/(recovery) rate	**0.15%**	(0.02)%	(0.01)%
Allowance for loan losses to period-end loans retained	**1.27**	1.18	1.07
Allowance for loan losses to period-end loans retained, excluding trade finance and conduits[(b)]	**1.86**	1.88	1.82
Allowance for loan losses to nonaccrual loans retained[(a)]	**304**	294	940
Nonaccrual loans to total period-end loans	**0.50**	0.40	0.12

(a) Allowance for loan losses of $113 million, $177 million and $18 million were held against these nonaccrual loans at December 31, 2016, 2015 and 2014, 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.

Investment banking fees

	Year ended December 31,		
(in millions)	2016	2015	2014
Advisory	**$ 2,110**	$ 2,133	$ 1,627
Equity underwriting	**1,159**	1,434	1,571
Debt underwriting[(a)]	**3,155**	3,169	3,372
Total investment banking fees	**$ 6,424**	$ 6,736	$ 6,570

(a) Includes loans syndication

League table results – wallet share

Year ended December 31,	2016 Share	2016 Rank	2015 Share	2015 Rank	2014 Share	2014 Rank
Based on fees[a]						
Debt, equity and equity-related						
Global	**7.2%**	**#1**	7.7%	#1	7.6%	#1
U.S.	**11.9**	**1**	11.7	1	10.7	1
Long-term debt[b]						
Global	**6.9**	**1**	8.3	1	7.9	1
U.S.	**11.1**	**2**	11.9	1	11.7	1
Equity and equity-related						
Global[c]	**7.6**	**1**	7.0	1	7.2	3
U.S.	**13.4**	**1**	11.4	1	9.6	3
M&A[d]						
Global	**8.6**	**2**	8.4	2	8.0	2
U.S.	**10.1**	**2**	9.9	2	9.7	2
Loan syndications						
Global	**9.4**	**1**	7.5	1	9.3	1
U.S.	**11.9**	**2**	10.8	2	13.0	1
Global investment banking fees [e]	**8.1%**	**#1**	7.9%	#1	8.0%	#1

(a) Source: Dealogic as of January 3, 2017. Reflects the ranking of revenue wallet and market share.
(b) Long-term debt rankings include investment-grade, high-yield, supranationals, sovereigns, agencies, covered bonds, ABS and MBS; and exclude money market, short-term debt, and U.S. municipal securities.
(c) Global equity and equity-related ranking includes rights offerings and Chinese A-Shares.
(d) Global M&A reflect the removal of any withdrawn transactions. U.S. M&A revenue wallet represents wallet from client parents based in the U.S.
(e) Global investment banking fees exclude money market, short-term debt and shelf deals.

Markets Revenue

The following table summarizes select income statement data for the Markets businesses. Markets includes both Fixed Income Markets and Equity Markets. Markets revenue comprises principal transactions, fees, commissions and other income, as well as net interest income. For a description of the composition of these income statement line items, see Notes 7 and 8.

Principal transactions reflects revenue on financial instruments and commodities transactions that arise from client-driven market making activity. Principal transactions revenue includes amounts recognized upon executing new transactions with market participants, as well as "inventory-related revenue", which is revenue recognized from gains and losses on derivatives and other instruments that the Firm has been holding in anticipation of, or in response to, client demand, and changes in the fair value of instruments used by the Firm to actively manage the risk exposure arising from such inventory. Principal transactions revenue recognized upon executing new transactions with market participants is driven by many factors including the level of client activity, the bid-offer spread (which is the difference between the price at which a market participant is willing to sell an instrument to the Firm and the price at which another market participant is willing to buy it from the Firm, and vice versa), market liquidity and volatility. These factors are interrelated and sensitive to the same factors that drive inventory-related revenue, which include general market conditions, such as interest rates, foreign exchange rates, credit spreads, and equity and commodity prices, as well as other macroeconomic conditions.

For the periods presented below, the predominant source of principal transactions revenue was the amounts recognized upon executing new transactions.

Year ended December 31, (in millions, except where otherwise noted)	2016 Fixed Income Markets	2016 Equity Markets	2016 Total Markets	2015 Fixed Income Markets	2015 Equity Markets	2015 Total Markets	2014 Fixed Income Markets	2014 Equity Markets	2014 Total Markets
Principal transactions	**$ 8,347**	**$ 3,130**	**$ 11,477**	$ 6,899	$ 3,038	$ 9,937	$ 7,014	$ 2,362	$ 9,376
Lending- and deposit-related fees	**220**	**2**	**222**	194	–	194	222	2	224
Asset management, administration and commissions	**388**	**1,551**	**1,939**	383	1,704	2,087	345	1,684	2,029
All other income	**1,014**	**13**	**1,027**	854	(84)	770	1,399	59	1,458
Noninterest revenue	**9,969**	**4,696**	**14,665**	8,330	4,658	12,988	8,980	4,107	13,087
Net interest income	**5,290**	**1,044**	**6,334**	4,262	1,036	5,298	5,095	937	6,032
Total net revenue	**$ 15,259**	**$ 5,740**	**$ 20,999**	$ 12,592	$ 5,694	$ 18,286	$ 14,075	$ 5,044	$ 19,119
Loss days[a]			**0**			2			0

(a) Loss days represent the number of days for which Markets posted losses. 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 118-120.

Selected metrics

As of or for the year ended December 31, (in millions, except where otherwise noted)	2016	2015	2014
Assets under custody ("AUC") by asset class (period-end) (in billions):			
Fixed Income	$ 12,166	$ 12,042	$ 12,328
Equity	6,428	6,194	6,524
Other[(a)]	1,926	1,707	1,697
Total AUC	**$ 20,520**	$ 19,943	$ 20,549
Client deposits and other third party liabilities (average)[(b)]	**$ 376,287**	$ 395,297	$ 417,369
Trade finance loans (period-end)	**15,923**	19,255	25,713

(a) Consists of mutual funds, unit investment trusts, currencies, annuities, insurance contracts, options and other contracts.
(b) Client deposits and other third party liabilities pertain to the Treasury Services and Securities Services businesses.

International metrics

Year ended December 31, (in millions, except where otherwise noted)	2016	2015	2014
Total net revenue[(a)]			
Europe/Middle East/Africa	$ 10,786	$ 10,894	$ 11,598
Asia/Pacific	4,915	4,901	4,698
Latin America/Caribbean	1,225	1,096	1,179
Total international net revenue	16,926	16,891	17,475
North America	18,290	16,651	17,120
Total net revenue	$ 35,216	$ 33,542	$ 34,595
Loans retained (period-end)[(a)]			
Europe/Middle East/Africa	$ 26,696	$ 24,622	$ 27,155
Asia/Pacific	14,508	17,108	19,992
Latin America/Caribbean	7,607	8,609	8,950
Total international loans	48,811	50,339	56,097
North America	63,061	56,569	40,312
Total loans retained	$ 111,872	$ 106,908	$ 96,409
Client deposits and other third-party liabilities (average)[(a)(b)]			
Europe/Middle East/Africa	$ 135,979	$ 141,062	$ 152,712
Asia/Pacific	68,110	67,111	66,933
Latin America/Caribbean	22,914	23,070	22,360
Total international	$ 227,003	$ 231,243	$ 242,005
North America	149,284	164,054	175,364
Total client deposits and other third-party liabilities	$ 376,287	$ 395,297	$ 417,369
AUC (period-end) (in billions)[(a)]			
North America	$ 12,290	$ 12,034	$ 11,987
All other regions	8,230	7,909	8,562
Total AUC	$ 20,520	$ 19,943	$ 20,549

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

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)	2016	2015	2014
Revenue			
Lending- and deposit-related fees	**$ 917**	$ 944	$ 978
Asset management, administration and commissions	**69**	88	92
All other income[(a)]	**1,334**	1,333	1,279
Noninterest revenue	**2,320**	2,365	2,349
Net interest income	**5,133**	4,520	4,533
Total net revenue[(b)]	**7,453**	6,885	6,882
Provision for credit losses	**282**	442	(189)
Noninterest expense			
Compensation expense	**1,332**	1,238	1,203
Noncompensation expense	**1,602**	1,643	1,492
Total noninterest expense	**2,934**	2,881	2,695
Income before income tax expense	**4,237**	3,562	4,376
Income tax expense	**1,580**	1,371	1,741
Net income	**$ 2,657**	$ 2,191	$ 2,635

(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 related to municipal financing activities of $505 million, $493 million and $462 million for the years ended December 31, 2016, 2015 and 2014, respectively.

2016 compared with 2015

Net income was $2.7 billion, an increase of 21% compared with the prior year, driven by higher net revenue and a lower provision for credit losses, partially offset by higher noninterest expense.

Net revenue was $7.5 billion, an increase of 8% compared with the prior year. Net interest income was $5.1 billion, an increase of 14% compared with the prior year, driven by higher loan balances and deposit spreads. Noninterest revenue was $2.3 billion, a decrease of 2% compared with the prior year, largely driven by lower lending-and-deposit-related fees and other revenue, partially offset by higher investment banking revenue.

Noninterest expense was $2.9 billion, an increase of 2% compared with the prior year, reflecting increased hiring of bankers and business-related support staff and investments in technology.

The provision for credit losses was $282 million and $442 million for 2016 and 2015, respectively, with both periods driven by downgrades in the Oil & Gas portfolio and select client downgrades in other industries.

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 select client downgrades in other industries. The prior year was a benefit of $189 million.

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 income statement data (continued)

Year ended December 31, (in millions, except ratios)	2016	2015	2014
Revenue by product			
Lending	**$ 3,795**	$ 3,429	$ 3,358
Treasury services	**2,797**	2,581	2,681
Investment banking[a]	**785**	730	684
Other	**76**	145	159
Total Commercial Banking net revenue	**$ 7,453**	$ 6,885	$ 6,882
Investment banking revenue, gross[b]	**$ 2,286**	$ 2,179	$ 1,986
Revenue by client segment[c]			
Middle Market Banking	**$ 2,885**	$ 2,706	$ 2,765
Corporate Client Banking	**2,392**	2,184	2,134
Commercial Term Lending	**1,408**	1,275	1,252
Real Estate Banking	**456**	358	369
Other	**312**	362	362
Total Commercial Banking net revenue	**$ 7,453**	$ 6,885	$ 6,882
Financial ratios			
Return on common equity	**16%**	15%	18%
Overhead ratio	**39**	42	39

(a) Includes total Firm revenue from investment banking products sold to CB clients, net of revenue sharing with the CIB.
(b) Represents total Firm revenue from investment banking products sold to CB clients.
(c) Certain clients were transferred from Middle Market Banking to Corporate Client Banking and from Real Estate Banking to Corporate Client Banking during 2016. Prior period client segment amounts 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)	**2016**	2015	2014
Selected balance sheet data (period-end)			
Total assets	**$ 214,341**	$ 200,700	$ 195,267
Loans:			
Loans retained	**188,261**	167,374	147,661
Loans held-for-sale and loans at fair value	**734**	267	845
Total loans	**$ 188,995**	$ 167,641	$ 148,506
Core loans	**188,673**	166,939	147,392
Common equity	**16,000**	14,000	14,000
Period-end loans by client segment[(a)]			
Middle Market Banking	**$ 53,931**	$ 50,502	$ 50,040
Corporate Client Banking	**43,025**	37,708	30,564
Commercial Term Lending	**71,249**	62,860	54,038
Real Estate Banking	**14,722**	11,234	9,024
Other	**6,068**	5,337	4,840
Total Commercial Banking loans	**$ 188,995**	$ 167,641	$ 148,506
Selected balance sheet data (average)			
Total assets	**$ 207,532**	$ 198,076	$ 191,857
Loans:			
Loans retained	**178,670**	157,389	140,982
Loans held-for-sale and loans at fair value	**723**	492	782
Total loans	**$ 179,393**	$ 157,881	$ 141,764
Core loans	**178,875**	156,975	140,390
Client deposits and other third-party liabilities	**174,396**	191,529	204,017
Common equity	**16,000**	14,000	14,000
Average loans by client segment[(a)]			
Middle Market Banking	**$ 52,244**	$ 50,336	$ 50,076
Corporate Client Banking	**41,754**	34,495	27,732
Commercial Term Lending	**66,700**	58,138	51,120
Real Estate Banking	**13,063**	9,917	8,324
Other	**5,632**	4,995	4,512
Total Commercial Banking loans	**$ 179,393**	$ 157,881	$ 141,764
Headcount	**8,365**	7,845	7,426

(a) Certain clients were transferred from Middle Market Banking to Corporate Client Banking and from Real Estate Banking to Corporate Client Banking during 2016. Prior period client segment amounts were revised to conform with the current period presentation.

Selected metrics (continued)

As of or for the year ended December 31, (in millions, except ratios)	**2016**	2015	2014
Credit data and quality statistics			
Net charge-offs/(recoveries)	**$ 163**	$ 21	$ (7)
Nonperforming assets			
Nonaccrual loans:			
Nonaccrual loans retained[(a)]	**1,149**	375	317
Nonaccrual loans held-for-sale and loans at fair value	**—**	18	14
Total nonaccrual loans	**1,149**	393	331
Assets acquired in loan satisfactions	**1**	8	10
Total nonperforming assets	**1,150**	401	341
Allowance for credit losses:			
Allowance for loan losses	**2,925**	2,855	2,466
Allowance for lending-related commitments	**248**	198	165
Total allowance for credit losses	**3,173**	3,053	2,631
Net charge-off/(recovery) rate[(b)]	**0.09%**	0.01%	—%
Allowance for loan losses to period-end loans retained	**1.55**	1.71	1.67
Allowance for loan losses to nonaccrual loans retained[(a)]	**255**	761	778
Nonaccrual loans to period-end total loans	**0.61**	0.23	0.22

(a) An allowance for loan losses of $155 million, $64 million and $45 million was held against nonaccrual loans retained at December 31, 2016, 2015 and 2014, respectively.

(b) Loans held-for-sale and loans at fair value were excluded when calculating the net charge-off/(recovery) rate.

ASSET & WEALTH MANAGEMENT

Asset & Wealth Management, with client assets of $2.5 trillion, is a global leader in investment and wealth management. AWM clients include institutions, high-net-worth individuals and retail investors in many major markets throughout the world. AWM offers investment management across most major asset classes including equities, fixed income, alternatives and money market funds. AWM also offers multi-asset investment management, providing solutions for a broad range of clients' investment needs. For Wealth Management clients, AWM also provides retirement products and services, brokerage and banking services including trusts and estates, loans, mortgages and deposits. The majority of AWM's client assets are in actively managed portfolios.

Selected income statement data

Year ended December 31, (in millions, except ratios and headcount)	2016	2015	2014
Revenue			
Asset management, administration and commissions	$ 8,414	$ 9,175	$ 9,024
All other income	598	388	564
Noninterest revenue	9,012	9,563	9,588
Net interest income	3,033	2,556	2,440
Total net revenue	12,045	12,119	12,028
Provision for credit losses	26	4	4
Noninterest expense			
Compensation expense	5,065	5,113	5,082
Noncompensation expense	3,413	3,773	3,456
Total noninterest expense	8,478	8,886	8,538
Income before income tax expense	3,541	3,229	3,486
Income tax expense	1,290	1,294	1,333
Net income	$ 2,251	$ 1,935	$ 2,153
Revenue by line of business			
Asset Management	$ 5,970	$ 6,301	$ 6,327
Wealth Management	6,075	5,818	5,701
Total net revenue	$12,045	$12,119	$12,028
Financial ratios			
Return on common equity	24%	21%	23%
Overhead ratio	70	73	71
Pre-tax margin ratio:			
Asset Management	31	31	31
Wealth Management	28	22	27
Asset & Wealth Management	29	27	29
Headcount	21,082	20,975	19,735
Number of client advisors	2,504	2,778	2,836

2016 compared with 2015

Net income was $2.3 billion, an increase of 16% compared with the prior year, reflecting lower noninterest expense, partially offset by lower net revenue.

Net revenue was $12.0 billion, a decrease of 1%. Net interest income was $3.0 billion, up 19%, driven by higher deposit and loan spreads and loan growth. Noninterest revenue was $9.0 billion, a decrease of 6%, reflecting the impact of lower average equity market levels, a reduction in revenue related to the disposal of assets at the beginning of 2016, and lower performance fees and placement fees.

Revenue from Asset Management was $6.0 billion, down 5% from the prior year, driven by a reduction in revenue related to the disposal of assets at the beginning of 2016, the impact of lower average equity market levels and lower performance fees. Revenue from Wealth Management was $6.1 billion, up 4% from the prior year, reflecting higher net interest income from higher deposit and loan spreads and continued loan growth, partially offset by the impact of lower average equity market levels and lower placement fees.

Noninterest expense was $8.5 billion, a decrease of 5%, predominantly due to a reduction in expense related to the disposal of assets at the beginning of 2016 and lower legal expense.

2015 compared with 2014

Net income was $1.9 billion, a decrease of 10% compared with the prior year, reflecting higher noninterest expense, predominantly 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 Asset 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 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.

AWM's lines of business consist of the following:

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

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.

AWM'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.

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)	**2016**	2015	2014
% of JPM mutual fund assets rated as 4- or 5-star[(a)(b)]	**63%**	52%	51%
% of JPM mutual fund assets ranked in 1st or 2nd quartile:[(c)]			
1 year	**54**	62	72
3 years	**72**	78	72
5 years[(b)]	**79**	79	76
Selected balance sheet data (period-end)			
Total assets	**$ 138,384**	$ 131,451	$ 128,701
Loans[(d)]	**118,039**	111,007	104,279
Core loans	**118,039**	111,007	104,279
Deposits	**161,577**	146,766	155,247
Common equity	**9,000**	9,000	9,000
Selected balance sheet data (average)			
Total assets	**$ 132,875**	$ 129,743	$ 126,440
Loans	**112,876**	107,418	99,805
Core loans	**112,876**	107,418	99,805
Deposits	**153,334**	149,525	150,121
Common equity	**9,000**	9,000	9,000
Credit data and quality statistics			
Net charge-offs	**$ 16**	$ 12	$ 6
Nonaccrual loans	**390**	218	218
Allowance for credit losses:			
Allowance for loan losses	**274**	266	271
Allowance for lending-related commitments	**4**	5	5
Total allowance for credit losses	**278**	271	276
Net charge-off rate	**0.01%**	0.01%	0.01%
Allowance for loan losses to period-end loans	**0.23**	0.24	0.26
Allowance for loan losses to nonaccrual loans	**70**	122	124
Nonaccrual loans to period-end loans	**0.33**	0.20	0.21

(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 Asset Management retail open-ended mutual funds that have a rating. Excludes money market funds, Undiscovered Managers Fund, and Brazil and India domiciled funds.
(b) Prior period amounts were revised to conform with current period presentation.
(c) 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 Asset 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.
(d) Included $32.8 billion, $26.6 billion and $22.1 billion of prime mortgage loans reported in the Consumer, excluding credit card, loan portfolio at December 31, 2016, 2015 and 2014, respectively.

Client assets

2016 compared with 2015

Client assets were $2.5 trillion, an increase of 4% compared with the prior year. Assets under management were $1.8 trillion, an increase of 3% from the prior year reflecting inflows into both liquidity and long-term products and the effect of higher market levels, partially offset by asset sales at the beginning of 2016.

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 reflecting the effect of lower market levels, partially offset by net inflows to long-term products.

Client assets

December 31, (in billions)	2016	2015	2014
Assets by asset class			
Liquidity[(a)]	**$ 436**	$ 430	$ 425
Fixed income[(a)]	**420**	376	395
Equity	**351**	353	375
Multi-asset and alternatives	**564**	564	549
Total assets under management	**1,771**	1,723	1,744
Custody/brokerage/ administration/deposits	**682**	627	643
Total client assets	**$ 2,453**	$ 2,350	$ 2,387
Memo:			
Alternatives client assets[(b)]	**$ 154**	$ 172	$ 166
Assets by client segment			
Private Banking	**$ 435**	$ 437	$ 428
Institutional	**869**	816	827
Retail	**467**	470	489
Total assets under management	**$ 1,771**	$ 1,723	$ 1,744
Private Banking	**$ 1,098**	$ 1,050	$ 1,057
Institutional	**886**	824	835
Retail	**469**	476	495
Total client assets	**$ 2,453**	$ 2,350	$ 2,387

(a) Prior period amounts were revised to conform with current period presentation.
(b) Represents assets under management, as well as client balances in brokerage accounts.

Client assets (continued)

Year ended December 31, (in billions)	2016	2015	2014
Assets under management rollforward			
Beginning balance	**$ 1,723**	$ 1,744	$ 1,598
Net asset flows:			
Liquidity[(a)]	**24**	–	14
Fixed income[(a)]	**30**	(8)	37
Equity	**(29)**	1	5
Multi-asset and alternatives	**22**	22	42
Market/performance/other impacts	**1**	(36)	48
Ending balance, December 31	**$ 1,771**	$ 1,723	$ 1,744
Client assets rollforward			
Beginning balance	**$ 2,350**	$ 2,387	$ 2,343
Net asset flows	**63**	27	118
Market/performance/other impacts	**40**	(64)	(74)
Ending balance, December 31	**$ 2,453**	$ 2,350	$ 2,387

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

International metrics

Year ended December 31, (in billions, except where otherwise noted)	2016	2015	2014
Total net revenue (in millions)[(a)]			
Europe/Middle East/Africa	**$ 1,849**	$ 1,946	$ 2,080
Asia/Pacific	**1,077**	1,130	1,199
Latin America/Caribbean	**726**	795	841
Total international net revenue	**3,652**	3,871	4,120
North America	**8,393**	8,248	7,908
Total net revenue	**$ 12,045**	$ 12,119	$ 12,028
Assets under management			
Europe/Middle East/Africa	**$ 309**	$ 302	$ 329
Asia/Pacific	**123**	123	126
Latin America/Caribbean	**45**	45	46
Total international assets under management	**477**	470	501
North America	**1,294**	1,253	1,243
Total assets under management	**$ 1,771**	$ 1,723	$ 1,744
Client assets			
Europe/Middle East/Africa	**$ 359**	$ 351	$ 391
Asia/Pacific	**177**	173	174
Latin America/Caribbean	**114**	110	115
Total international client assets	**650**	634	680
North America	**1,803**	1,716	1,707
Total client assets	**$ 2,453**	$ 2,350	$ 2,387

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

The Corporate segment consists of Treasury and Chief Investment Office and Other Corporate, which includes corporate staff units and expense that is centrally managed. Treasury and 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.

Selected income statement data

Year ended December 31, (in millions, except headcount)	2016	2015	2014
Revenue			
Principal transactions	**$ 210**	$ 41	$ 1,197
Securities gains	**140**	190	71
All other income	**588**	569	704
Noninterest revenue	**938**	800	1,972
Net interest income	**(1,425)**	(533)	(1,960)
Total net revenue[(a)]	**(487)**	267	12
Provision for credit losses	**(4)**	(10)	(35)
Noninterest expense[(b)]	**462**	977	1,159
Loss before income tax benefit	**(945)**	(700)	(1,112)
Income tax benefit	**(241)**	(3,137)	(1,976)
Net income/(loss)	**$ (704)**	$ 2,437	$ 864
Total net revenue			
Treasury and CIO	**(787)**	(493)	(1,317)
Other Corporate	**300**	760	1,329
Total net revenue	**$ (487)**	$ 267	$ 12
Net income/(loss)			
Treasury and CIO	**(715)**	(235)	(1,165)
Other Corporate	**11**	2,672	2,029
Total net income/(loss)	**$ (704)**	$ 2,437	$ 864
Selected balance sheet data (period-end)			
Total assets (period-end)	**$ 799,426**	$ 768,204	$ 931,206
Loans	**1,592**	2,187	2,871
Core loans[(c)]	**1,589**	2,182	2,848
Headcount	**32,358**	29,617	26,047

(a) Included tax-equivalent adjustments, predominantly due to tax-exempt income from municipal bond investments of $885 million, $839 million and $730 million for the years ended December 31, 2016, 2015 and 2014, respectively.

(b) Included legal expense/(benefit) of $(385) million, $832 million and $821 million for the years ended December 31, 2016, 2015 and 2014, respectively.

(c) Average core loans were $1.9 billion, $2.5 billion and $3.3 billion for the years ended December 31, 2016, 2015 and 2014, respectively.

2016 compared with 2015

Net loss was $704 million, compared with net income of $2.4 billion in the prior year.

Net revenue was a loss of $487 million, compared with a gain of $267 million in the prior year. The prior year included a $514 million benefit from a legal settlement.

Net interest income was a loss of $1.4 billion, compared with a loss of $533 million in the prior year. The loss in the current year was primarily driven by higher interest expense on long-term debt and lower investment securities balances during the year, partially offset by higher interest income on deposits with banks and securities purchased under resale agreements as a result of higher rates.

Noninterest expense was $462 million, a decrease of $515 million from the prior year driven by lower legal expense, partially offset by higher compensation expense.

The prior year reflected tax benefits of $2.6 billion predominantly from the resolution of various tax audits.

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.

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 ABS, corporate debt securities and obligations of U.S. states and municipalities. At December 31, 2016, the investment securities portfolio was $286.8 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). During 2016, the Firm transferred commercial mortgage-backed securities and obligations of U.S. states and municipalities with a fair value of $7.5 billion from available-for-sale ("AFS") to held-to maturity ("HTM"). These securities were transferred at fair value. The transfers reflect the Firm's intent to hold the securities to maturity in order to reduce the impact of price volatility on accumulated other comprehensive income ("AOCI").
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 110–115. 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 116–123.

Selected income statement and balance sheet data

As of or for the year ended December 31, (in millions)	**2016**	2015	2014
Securities gains	**$ 132**	$ 190	$ 71
Investment securities portfolio (average) [(a)]	**278,250**	314,802	349,285
Investment securities portfolio (period–end)[(b)]	**286,838**	287,777	343,146
Mortgage loans (average)	**1,790**	2,501	3,308
Mortgage loans (period-end)	**1,513**	2,136	2,834

(a) Average investment securities included HTM balances of $51.4 billion, $50.0 billion and $47.2 billion for the years ended December 31, 2016, 2015 and 2014, respectively.
(b) Period-end investment securities included HTM securities of $50.2 billion, $49.1 billion, $49.3 billion at December 31, 2016, 2015 and 2014, respectively.

Private equity portfolio information[(a)]

December 31, (in millions)	**2016**	2015	2014
Carrying value	**$ 1,797**	$ 2,103	$ 5,866
Cost	**2,649**	3,798	6,281

(a) For more information on the Firm's methodologies regarding the valuation of the Private Equity portfolio, see Note 3.

2016 compared with 2015

The carrying value of the private equity portfolio at December 31, 2016 was $1.8 billion, down from $2.1 billion at December 31, 2015, driven by portfolio sales.

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 and porfolio sales.

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 economic and other core risk areas, such as credit, market, liquidity, model, principal, country, operational, compliance, conduct, 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 identification, assessment, data and 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"), Chief Operating Officer ("COO"), Chief Financial Officer ("CFO") and other senior executives, is the ultimate management escalation point in the Firm, and may refer matters to the Firm's Board of Directors. The Operating Committee is responsible and accountable to the Firm's Board of Directors.

The Firm strives for continual improvement through efforts to enhance controls, ongoing employee training and development, talent retention, and other measures. 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 following sections outline the key risks that are inherent in the Firm's business activities:

Risk	Definition	Select risk management metrics	Page references
I. Economic risks			
(i) Capital risk	The risk that the Firm has an insufficient level and composition of capital to support its business activities and associated risks during both normal economic environments and under stressed conditions.	Risk-based capital ratios and leverage ratios; stress	76-85
(ii) Consumer Credit risk	The risk of loss arising from the default of a customer.	Total exposure; geographic and customer concentrations; delinquencies; loss experience; stressed credit performance	89-95
(iii) Wholesale Credit risk	The risk of loss arising from the default of a client or counterparty.	Total exposure; industry, geographic and client concentrations; risk ratings; loss experience; stressed credit performance	96-104
(iv) 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	108-109
(v) 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 and liabilities.	LCR; stress by material legal entity	110-115
(vi) Market risk	The risk of loss arising from potential adverse changes in the value of the Firm's assets and liabilities or future results, resulting from changes in market variables such as interest rates, foreign exchange rates, equity prices, commodity prices, implied volatilities or credit spreads; this includes the structural interest rate and foreign exchange risks managed on a firmwide basis in Treasury and CIO.	VaR; P&L drawdown; economic stress testing; sensitivities; earnings-at-risk; and foreign exchange ("FX") net open position	116-123
(vii) 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 positions that have unique risks due to their illiquidity or for which there is less observable market or valuation data.	Carrying value, stress	124
II. Other core risks			
(i) Compliance risk	The risk of failure to comply with applicable laws, rules, and regulations.	Risk based monitoring and testing for timely compliance with financial obligations	125
(ii) Conduct risk	The risk that an employee's action or inaction causes undue harm to the Firm's clients, damages market integrity, undermines the Firm's reputation, or negatively impacts the Firm's culture.	Relevant risk and control self-assessment results, employee compliance information, code of conduct case information	126
(iii) Legal risk	The risk of loss or imposition of damages, fines, penalties or other liability arising from the failure to comply with a contractual obligation or to comply with laws, rules or regulations to which the Firm is subject.	Not applicable	127
(iv) Model risk	The risk of the potential for adverse consequences from decisions based on incorrect or misused model outputs.	Model status, model tier	128
(v) 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 such as cyber and technology related events.	Risk and control self-assessment results, firm-specific loss experience; industry loss experience; business environment and internal control factors; key risk indicators; key control indicators; operating metrics	129-130
(vi) Reputation risk	The risk that an action, transaction, investment or event will reduce trust in the Firm's integrity or competence by its various constituents, including clients, counterparties, investors, regulators, employees and the broader public.	Not applicable	131

Governance and oversight

The Firm's overall appetite for risk is governed by a "Risk Appetite" framework. The framework and the Firm's risk appetite are set and approved by the Firm's CEO, CFO, CRO and COO. LOB-level risk appetite is set by the respective LOB CEO, CFO and CRO and is approved by the Firm's CEO, CFO, CRO and COO. Quantitative parameters and qualitative factors are used to monitor and measure the Firm's capacity to take risk against stated risk appetite. Quantitative parameters have been established to assess stressed net income, capital, credit risk, market risk, structural interest rate risk and liquidity risk. Qualitative factors have been established for select risks. Risk Appetite results are reported quarterly to the Board of Directors' Risk Policy Committee ("DRPC").

The Firm's CRO is the head of the Independent Risk Management ("IRM") function and reports to the CEO and the DRPC. The CEO appoints the CRO to create the Risk Management Framework subject to approval by the DRPC in the form of the Primary Risk Policies. The Chief Compliance Officer ("CCO"), who reports to the CRO, is also responsible for reporting to the Audit Committee for the Global Compliance Program. The Firm's Global Compliance Program focuses on overseeing compliance with laws, rules and regulations applicable to the Firm's products and services to clients and counterparties.

The IRM function, comprised of Risk Management and Compliance Organizations, is independent of the businesses. The IRM function sets various standards for the risk management governance framework, including risk policy, identification, measurement, assessment, testing, limit setting (e.g., risk appetite, thresholds, etc.), monitoring and reporting. Various groups within the IRM function are aligned to the LOBs and to corporate functions, regions and core areas of risk such as credit, market, country and liquidity risks, as well as operational, model and reputational risk governance.

The Firm places key reliance on each of its LOBs and other functional areas giving rise to risk. Each LOB or other functional area giving rise to risk is expected to operate its activities within the parameters identified by the IRM function, and within their own management-identified risk and control standards. Because these LOBs and functional areas are accountable for identifying and addressing the risks in their respective businesses and for operating within a sound control environment, they are considered the "first line of defense" within the Firm's risk governance framework.

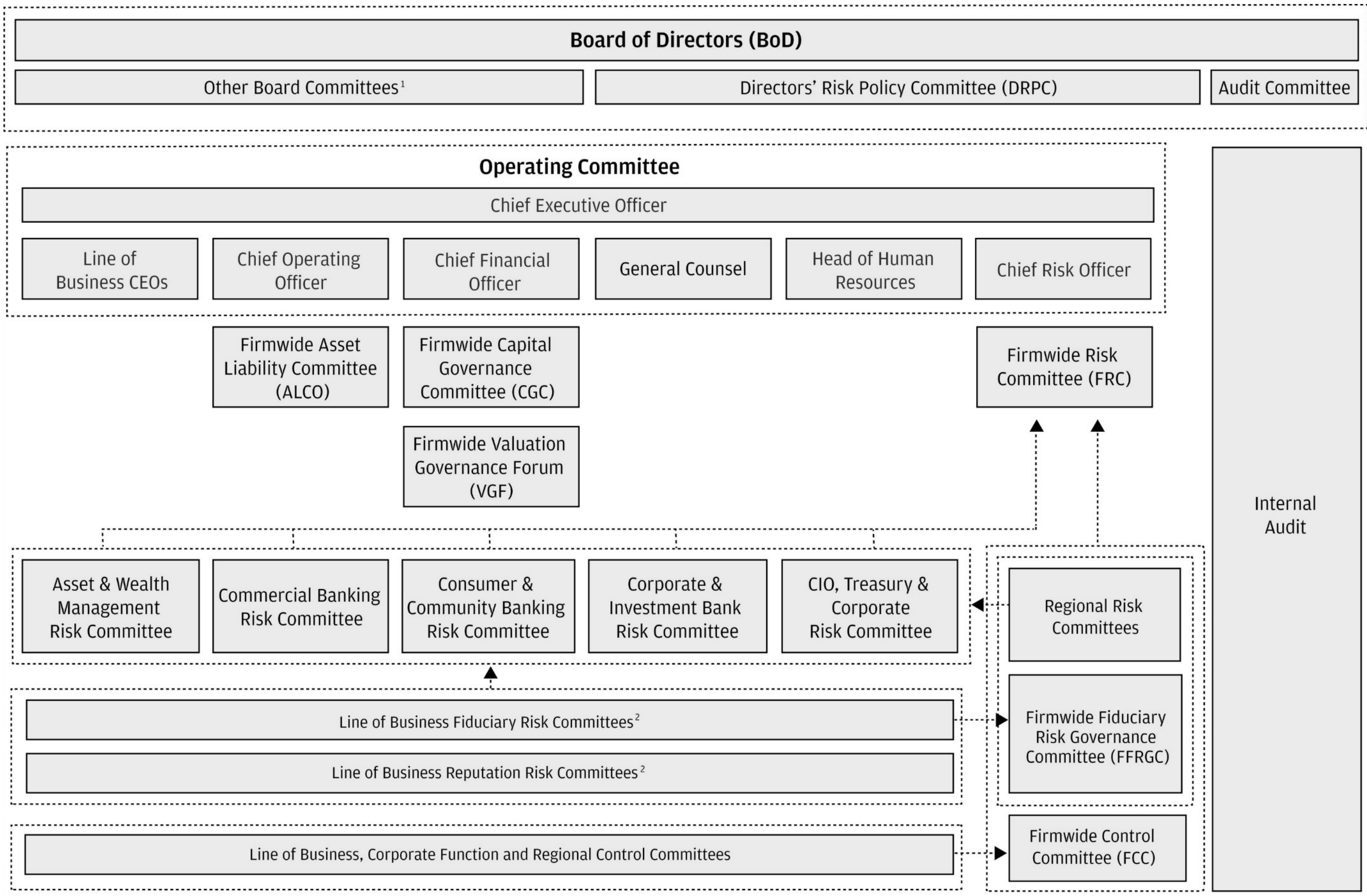
The Firmwide Oversight and Control Group consists of dedicated control officers within each of the lines of business and corporate functions, as well as having a central oversight function. The group is charged with enhancing the Firm's control environment by looking within and across the lines of business and corporate functions to help 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.

As the "second line of defense", the IRM function provides oversight and independent challenge, consistent with its policies and framework, to the risk-creating LOBs and functional areas.

Internal Audit, a function independent of the businesses and the IRM function, tests and evaluates the Firm's risk governance and management, as well as its internal control processes. This function, the "third line of defense" in the risk governance framework, brings a systematic and disciplined approach to evaluating and improving the effectiveness of the Firm's governance, risk management and internal control processes. The Internal Audit Function is headed by the General Auditor, who reports to the Audit Committee.

The independent status of the IRM function is supported by a governance structure that provides for escalation of risk issues to senior management, the Firmwide Risk Committee, or the Board of Directors.

The chart below illustrates the key senior management level committees in the Firm's risk governance structure. Other committees, forums and paths of escalation are in place that are responsible for management and oversight of risk, although they are not shown in the chart below.



1 Other Board Committees include the Compensation & Management Development Committee, Corporate Governance & Nominating Committee and Public Responsibility Committee.
2 As applicable.

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

The Directors' 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 the Firm's risks, and its capital and liquidity planning and analysis. Breaches in risk appetite, 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, independence and performance, and of the performance of the Firm's Internal Audit function.

The Compensation & Management Development Committee ("CMDC") 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. 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, and regional Risk Committees, as appropriate. The Committee escalates significant issues to the DRPC, as appropriate.

The Firmwide Control Committee ("FCC") provides a forum for senior management to review and discuss firmwide operational risks including existing and emerging issues, and operational risk metrics, and to review operational risk management execution in the context of the Operational Risk Management Framework ("ORMF") which provides the framework for the governance, assessment, measurement, and monitoring and reporting of operational risk. The FCC is co-chaired by the Chief Control Officer and the Firmwide Risk Executive for Operational Risk Governance. The committee relies upon the prompt escalation of issues from businesses and functions as the primary owners of the operational risk. Operational risk issues may be escalated by business or function control committees to the FCC, which may, in turn, escalate to the FRC, as appropriate.

The Firmwide Fiduciary Risk Governance Committee 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 issues by the relevant lines of business; establishes policies and best practices to effectuate the Committee's oversight responsibility; and creates metrics reporting to track fiduciary activity and issue resolution Firmwide. The Committee escalates significant fiduciary issues to the FRC, the DRPC and the Audit Committee, as appropriate.

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. LOB risk committees are co-chaired by the LOB CEO and the LOB CRO. Each LOB risk committee may create sub-committees with requirements for escalation. The regional committees are established similarly, as appropriate, for the region.

In addition, each line of business and function is required to have a Control Committee. These control committees oversee the control environment of their respective business or function. As part of that mandate, they are responsible for reviewing data which indicates the quality and stability of the processes in a business or function, reviewing key operational risk issues and focusing on processes with shortcomings and overseeing process remediation. These committees escalate to the FCC, as appropriate.

The Firmwide Asset Liability Committee ("ALCO"), chaired by the Firm's Treasurer and Chief Investment Officer 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 CIO) and the Firm's Intercompany Funding and Liquidity Policy. ALCO is also responsible for reviewing the Firm's Contingency Funding Plan.

The Firmwide Capital Governance Committee, chaired by the Head of the Regulatory Capital Management Office is responsible for reviewing the Firm's Capital Management Policy and the principles underlying capital issuance and distribution alternatives and decisions. The Committee oversees the capital adequacy assessment process, including the overall design, scenario development and macro assumptions and ensures that capital stress test programs are designed to adequately capture the risks specific to 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 Group ("VCG") (under the direction of the Firm's Controller), and includes sub-forums covering the Corporate & Investment Bank, Consumer & Community Banking, Commercial Banking, Asset & Wealth Management and certain corporate functions, including Treasury and CIO.

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. For further information on risk management metrics, see table on key risks on page 72. 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 metrics. 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.

CAPITAL RISK MANAGEMENT

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

A strong capital position is essential to the Firm's business strategy and competitive position. Maintaining a strong balance sheet to manage through economic volatility is considered a strategic imperative of the Firm's Board of Directors, CEO and Operating Committee. The Firm's balance sheet philosophy focuses on risk-adjusted returns, strong capital and robust liquidity. The Firm's capital management strategy focuses on maintaining long-term stability to enable it 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.

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

- Maintain "well-capitalized" status for the Firm and its principal bank subsidiaries;
- Support risks underlying business activities;
- Maintain sufficient capital in order to continue to build and invest in its businesses through the cycle and in stressed environments;
- Retain flexibility to take advantage of future investment opportunities;
- Serve as a source of strength to its subsidiaries;
- Meet capital distribution objectives; and
- Maintain sufficient capital resources to operate throughout a resolution period in accordance with the Firm's preferred resolution strategy.

These objectives are achieved through the establishment of minimum capital targets and a strong capital governance framework. Capital management is intended to be flexible in order to react to a range of potential events. The Firm's minimum capital targets are based on the most binding of three pillars: an internal assessment of the Firm's capital needs; an estimate of required capital under the CCAR and Dodd-Frank Act stress testing requirements; and Basel III Fully Phased-In regulatory minimums. Where necessary, each pillar may include a management-established buffer. The capital governance framework requires regular monitoring of the Firm's capital positions, stress testing and defining escalation protocols, both at the Firm and material legal entity levels.

The following tables present the Firm's Transitional and Fully Phased-In risk-based and leverage-based capital metrics under both the Basel III Standardized and Advanced Approaches. The Firm's Basel III ratios exceed both the current and Fully Phased-In regulatory minimums as of December 31, 2016 and 2015. For further discussion of these capital metrics and the Standardized and Advanced approaches, refer to Monitoring and management of capital on pages 78–82.

	Transitional			Fully Phased-In		
December 31, 2016 (in millions, except ratios)	Standardized	Advanced	Minimum capital ratios [(c)]	Standardized	Advanced	Minimum capital ratios [(d)]
Risk-based capital metrics:						
CET1 capital	**$ 182,967**	**$ 182,967**		**$ 181,734**	**$ 181,734**	
Tier 1 capital	**208,112**	**208,112**		**207,474**	**207,474**	
Total capital	**239,553**	**228,592**		**237,487**	**226,526**	
Risk-weighted assets	**1,464,981**	**1,476,915**		**1,474,665**	**1,487,180**	
CET1 capital ratio	**12.5%**	**12.4%**	6.25%	**12.3%**	**12.2%**	10.5%
Tier 1 capital ratio	**14.2**	**14.1**	7.75	**14.1**	**14.0**	12.0
Total capital ratio	**16.4**	**15.5**	9.75	**16.1**	**15.2**	14.0
Leverage-based capital metrics:						
Adjusted average assets	**2,484,631**	**2,484,631**		**2,485,480**	**2,485,480**	
Tier 1 leverage ratio[(a)]	**8.4%**	**8.4%**	4.0	**8.3%**	**8.3%**	4.0
SLR leverage exposure	**NA**	**$ 3,191,990**		**NA**	**$ 3,192,839**	
SLR[(b)]	**NA**	**6.5%**	NA	**NA**	**6.5%**	5.0 [(e)]

	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	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	2,358,471	2,358,471		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[(b)]	NA	6.5%	NA	NA	6.5%	5.0 [(e)]

Note: As of December 31, 2016 and 2015, 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 78.

(a) The Tier 1 leverage ratio is calculated by dividing Tier 1 capital by adjusted average assets.

(b) The SLR leverage ratio is calculated by dividing Tier 1 capital by SLR leverage exposure.

(c) Represents the Transitional minimum capital ratios applicable to the Firm under Basel III as of December 31, 2016 and 2015. At December 31, 2016, the CET1 minimum capital ratio includes 0.625% resulting from the phase-in of the Firm's 2.5% capital conservation buffer and 1.125%, resulting from the phase-in of the Firm's 4.5% global systemically important banks ("GSIB") surcharge.

(d) Represents the minimum capital ratios applicable to the Firm on a Fully Phased-In Basel III basis. At December 31, 2016, the ratios include the Firm's estimate of its Fully Phased-In U.S. GSIB surcharge of 3.5%. The minimum capital ratios will be fully phased-in effective January 1, 2019. For additional information on the GSIB surcharge, see page 79.

(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 minimum capital targets for the level and composition of capital in both business-as-usual and highly stressed environments. The DRPC assesses and approves the capital management and governance processes of the Firm. The Firm's Audit Committee is responsible for reviewing and approving the capital stress testing end-to-end control framework.

The Capital Governance Committee and the Regulatory Capital Management Office ("RCMO") support the Firm's strategic capital decision-making. The Capital Governance Committee oversees the capital adequacy assessment process, including the overall design, scenario development and macro assumptions and ensures that capital stress test programs are designed to adequately capture the risks specific to the Firm's businesses. RCMO, which reports to the Firm's CFO, is responsible for designing and monitoring the Firm's execution of its capital policies and strategies once approved by the Board, as well as reviewing and monitoring the execution of its capital adequacy assessment process. The Basel Independent Review function ("BIR"), which reports to the RCMO and has direct access to both the DRPC and 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 senior management's responsibility for assessing and managing capital and for the DRPC's oversight of management in executing that responsibility. For additional discussion on the DRPC, see Enterprise-wide Risk Management on pages 71–75.

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.

Basel III overview

Capital rules under Basel III establish minimum capital ratios and overall capital adequacy standards for large and internationally active U.S. bank holding companies and banks, including the Firm and its insured depository institution ("IDI") subsidiaries. Basel III presents two comprehensive methodologies for calculating RWA: a general (standardized) approach ("Basel III Standardized"), and an advanced approach ("Basel III Advanced"). 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").

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. 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 SLR. For additional information on SLR, see page 82.

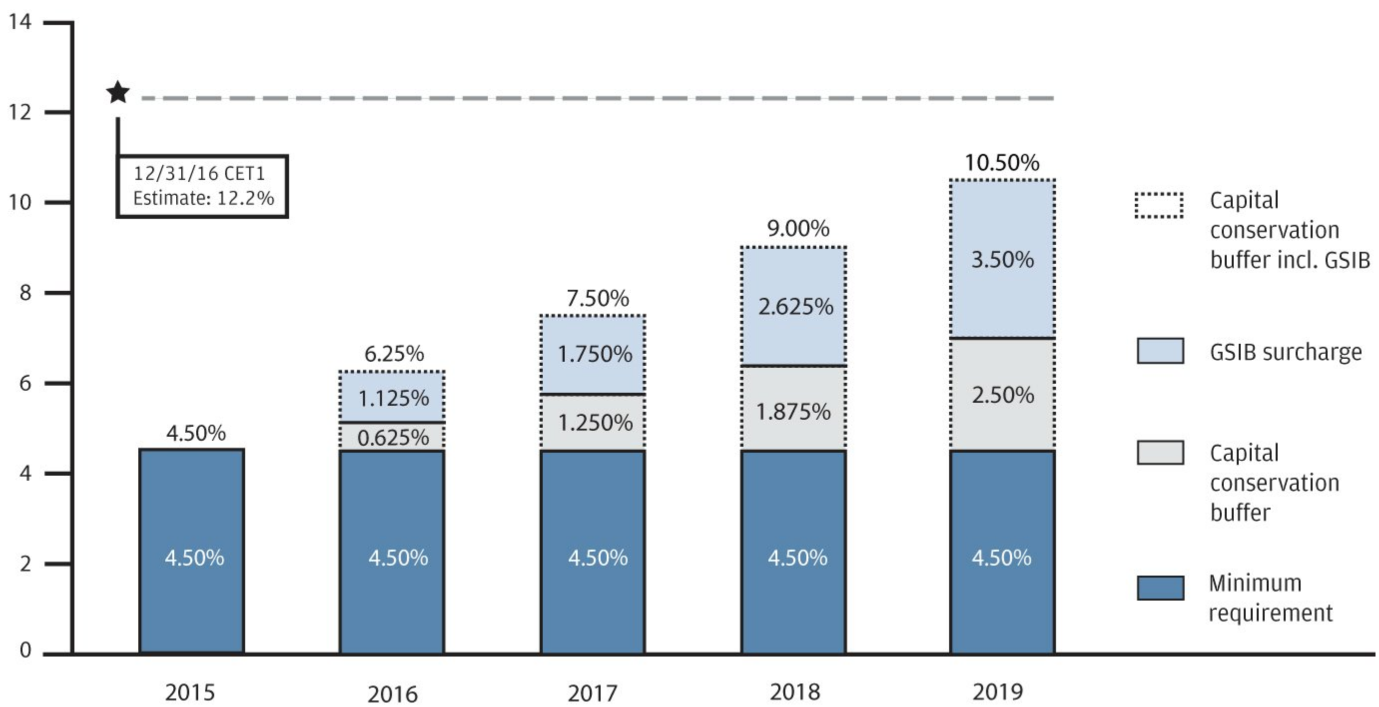
Basel III Fully Phased-In

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. The Firm manages each of the businesses, as well as the corporate functions, primarily on a Basel III Fully Phased-In basis. For additional information on the Firm, JPMorgan Chase Bank, N.A. and Chase Bank USA, N.A.'s capital, RWA and capital ratios under Basel III Standardized and Advanced Fully Phased-In rules and SLRs calculated under the Basel III Advanced Fully Phased-In rules, all of which are considered key regulatory capital measures, see Explanation and Reconciliation of the Firm's Use of Non-GAAP Financial Measures and Key Performance Measures on pages 48–50.

The Firm's estimates of its Basel III Standardized and Advanced Fully Phased-In capital, RWA and capital ratios and SLRs for the Firm, JPMorgan Chase Bank, N.A. and Chase Bank USA, N.A. are based on the current published U.S. Basel III 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.



The Basel III rules include minimum capital ratio requirements that are subject to phase-in periods through the end of 2018. The capital adequacy of the Firm and its national bank subsidiaries, both during the transitional period and upon full-phase in, is evaluated against the Basel III approach (Standardized or Advanced) which results for each quarter in the lower ratio as required by the Collins Amendment of the Dodd-Frank Act (the "Collins Floor"). 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, are 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 subject to a phase-in period that began January 1, 2016 and continues through the end of 2018.

As an expansion of the capital conservation buffer, the Firm is also required to hold additional levels of capital in the form of a GSIB surcharge and a countercyclical capital buffer.

Under the Federal Reserve's final rule, GSIBs, including the Firm, are required to calculate their GSIB surcharge on an annual basis under two separately prescribed methods, and are subject to the higher of the two. The first ("Method 1"), reflects the GSIB surcharge as prescribed by the Basel Committee's assessment methodology, and is calculated across five criteria: size, cross-jurisdictional activity, interconnectedness, complexity and substitutability. The second ("Method 2"), modifies the Method 1 requirements to include a measure of short-term wholesale funding in place of substitutability, and introduces a GSIB score "multiplication factor".

The Firm's Fully Phased-In GSIB surcharge for 2016 was calculated to be 2.5% under Method 1 and 4.5% under Method 2. Accordingly, the Firm's minimum capital ratios applicable in 2016 include a GSIB surcharge of 1.125%, resulting from the application of the transition provisions to the 4.5% fully phased-in GSIB surcharge. For 2017, the Firm has calculated its Fully Phased-In GSIB surcharge to be 2.5% under Method 1 and 3.5% under Method 2 resulting in the inclusion of a GSIB surcharge of 1.75% in the Firm's minimum capital ratios after application of the transition provisions.

The countercyclical capital buffer takes into account the macro financial environment in which large, internationally active banks function. On September 8, 2016 the Federal Reserve published the framework that will apply to the setting of the countercyclical capital buffer. As of October 24, 2016 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 subject to a 12-month implementation period.

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 CET1 capital requirement, at January 1, 2019, would be 10.5% (reflecting the 4.5% CET1 capital requirement, the Fully Phased-In 2.5% capital conservation buffer and the GSIB surcharge of 3.5%). 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 capital and a 10% Total capital requirement. At December 31, 2016 and 2015, JPMorgan Chase maintained Basel III Standardized Transitional and Basel III Advanced Transitional ratios in excess of the well-capitalized standards established by the Federal Reserve.

The Firm continues to believe that over the next several years, it will operate with a Basel III CET1 capital ratio between 11% and 12.5%. It is the Firm's intention that the Firm's capital ratios continue to meet regulatory minimums as they are fully implemented in 2019 and thereafter.

Each of the Firm's IDI subsidiaries must maintain a minimum 6.5% CET1, 8% Tier 1 capital, 10% Total capital and 5% Tier 1 leverage requirement to meet the definition of "well-capitalized" under the Prompt Corrective Action ("PCA") requirements of the FDIC Improvement Act ("FDICIA") for IDI subsidiaries.

Capital

A reconciliation of total stockholders' equity to Basel III Fully Phased-In CET1 capital, Tier 1 capital and Basel III Advanced and Standardized Fully Phased-In Total capital is presented in the table below. For additional information on the components of regulatory capital, see Note 28.

Capital components

(in millions)	December 31, 2016
Total stockholders' equity	**$ 254,190**
Less: Preferred stock	26,068
Common stockholders' equity	**228,122**
Less:	
Goodwill	47,288
Other intangible assets	862
Add:	
Deferred tax liabilities[a]	3,230
Less: Other CET1 capital adjustments	1,468
Standardized/Advanced CET1 capital	**181,734**
Preferred stock	26,068
Less:	
Other Tier 1 adjustments[b]	328
Standardized/Advanced Tier 1 capital	**$ 207,474**
Long-term debt and other instruments qualifying as Tier 2 capital	$ 15,253
Qualifying allowance for credit losses	14,854
Other	(94)
Standardized Fully Phased-In Tier 2 capital	**$ 30,013**
Standardized Fully Phased-in Total capital	**$ 237,487**
Adjustment in qualifying allowance for credit losses for Advanced Tier 2 capital	(10,961)
Advanced Fully Phased-In Tier 2 capital	**$ 19,052**
Advanced Fully Phased-In Total capital	**$ 226,526**

(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.
(b) Includes the deduction associated with the permissible holdings of covered funds (as defined by the Volcker Rule) acquired after December 31, 2013. The deduction was not material as of December 31, 2016.

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, 2016.

(in millions)	December 31, 2016
Transitional CET1 capital	**$ 182,967**
AOCI phase-in[(a)]	(156)
CET1 capital deduction phase-in[(b)]	(695)
Intangible assets deduction phase-in[(c)]	(312)
Other adjustments to CET1 capital[(d)]	(70)
Fully Phased-In CET1 capital	**$ 181,734**

(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 DVA, as well as CET1 deductions for defined benefit pension plan assets and deferred tax assets related to net operating loss ("NOL") 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, 2016.

Year Ended December 31, (in millions)	2016
Standardized/Advanced CET1 capital at December 31, 2015	$ 173,189
Net income applicable to common equity	23,086
Dividends declared on common stock	(6,912)
Net purchase of treasury stock	(7,163)
Changes in additional paid-in capital	(873)
Changes related to AOCI[(a)]	(1,280)
Adjustment related to DVA[(a)]	954
Other	733
Increase in Standardized/Advanced CET1 capital	8,545
Standardized/Advanced CET1 capital at December 31, 2016	**$ 181,734**
Standardized/Advanced Tier 1 capital at December 31, 2015	$ 199,047
Change in CET1 capital	8,545
Net issuance of noncumulative perpetual preferred stock	–
Other	(118)
Increase in Standardized/Advanced Tier 1 capital	8,427
Standardized/Advanced Tier 1 capital at December 31, 2016	**$ 207,474**
Standardized Tier 2 capital at December 31, 2015	$ 30,929
Change in long-term debt and other instruments qualifying as Tier 2	(1,426)
Change in qualifying allowance for credit losses	513
Other	(3)
Increase in Standardized Tier 2 capital	(916)
Standardized Tier 2 capital at December 31, 2016	**$ 30,013**
Standardized Total capital at December 31, 2016	**$ 237,487**
Advanced Tier 2 capital at December 31, 2015	$ 21,132
Change in long-term debt and other instruments qualifying as Tier 2	(1,426)
Change in qualifying allowance for credit losses	(651)
Other	(3)
Increase in Advanced Tier 2 capital	(2,080)
Advanced Tier 2 capital at December 31, 2016	**$ 19,052**
Advanced Total capital at December 31, 2016	**$ 226,526**

(a) Effective January 1, 2016, the adjustment reflects the impact of the adoption of DVA through OCI. For further discussion of the accounting change refer to Note 25.

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, 2016. The amounts in the rollforward categories are estimates, based on the predominant driver of the change.

	Standardized			Advanced			
Year ended December 31, 2016 (in billions)	Credit risk RWA	Market risk RWA	**Total RWA**	Credit risk RWA	Market risk RWA	Operational risk RWA	**Total RWA**
December 31, 2015	$ 1,333	$ 142	**$ 1,475**	$ 954	$ 142	$ 400	**$ 1,496**
Model & data changes[(a)]	–	(14)	**(14)**	2	(14)	–	**(12)**
Portfolio runoff[(b)]	(13)	(2)	**(15)**	(15)	(2)	–	**(17)**
Movement in portfolio levels[(c)]	27	2	**29**	18	2	–	**20**
Changes in RWA	14	(14)	**–**	5	(14)	–	**(9)**
December 31, 2016	**$ 1,347**	**$ 128**	**$ 1,475**	**$ 959**	**$ 128**	**$ 400**	**$ 1,487**

(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 (under both the Standardized and Advanced 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.

U.S. bank holding companies, including the Firm, are required to have a minimum SLR of 5% and IDI subsidiaries, including JPMorgan Chase Bank, N.A. and Chase Bank USA, N.A., are required to have a minimum SLR of 6%, both beginning January 1, 2018. As of December 31, 2016, 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 9.6%, respectively.

The following table presents the components of the Firm's Fully Phased-In SLR as of December 31, 2016.

(in millions, except ratio)	**December 31, 2016**
Fully Phased-in Tier 1 Capital	**$ 207,474**
Total average assets	2,532,457
Less: amounts deducted from Tier 1 capital	46,977
Total adjusted average assets[(a)]	2,485,480
Off-balance sheet exposures[(b)]	707,359
SLR leverage exposure	**$ 3,192,839**
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.

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 and regulatory capital requirements (as estimated under Basel III Advanced Fully Phased-In). For 2016, capital was allocated to each business segment 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 common equity

Year ended December 31, (in billions)	Yearly average 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 & Wealth Management	**9.0**	9.0	9.0
Corporate	**84.6**	79.7	72.4
Total common stockholders' equity	**$ 224.6**	$ 215.7	$ 207.4

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. Through the end of 2016, capital was allocated to the lines of business based on a single measure, Basel III Advanced Fully Phased-In RWA. Effective January 1, 2017, the Firm's methodology used to allocate capital to the Firm's business segments was updated. The new methodology incorporates Basel III Standardized Fully Phased-In RWA (as well as Basel III Advanced Fully Phased-In RWA), leverage, the GSIB surcharge, and a simulation of capital in a severe stress environment. The methodology will continue to be weighted towards Basel III Advanced Fully Phased-In RWA because the Firm believes it to be the best proxy for economic risk. The Firm will consider further changes to its capital allocation methodology as the regulatory framework evolves. In addition, under the new methodology, capital is no longer allocated to each line of business for goodwill and other intangibles associated with acquisitions effected by the line of business. The Firm will continue to establish internal ROE targets for its business segments, against which they will be measured, as a key performance indicator.

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 common equity

(in billions)	January 1, 2017	December 31, 2016	December 31, 2015
Consumer & Community Banking	**$ 51.0**	$ 51.0	$ 51.0
Corporate & Investment Bank	**70.0**	64.0	62.0
Commercial Banking	**20.0**	16.0	14.0
Asset & Wealth Management	**9.0**	9.0	9.0
Corporate	**78.1**	88.1	85.5
Total common stockholders' equity	**$ 228.1**	$ 228.1	$ 221.5

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 BHCs 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 BHC's unique risks to enable them 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 ("ICAAP"), as well as its plans to make capital distributions, such as dividend payments or stock repurchases.

On June 29, 2016, the Federal Reserve informed the Firm that it did not object, on either a quantitative or qualitative basis, to the Firm's 2016 capital plan. For information on actions taken by the Firm's Board of Directors following the 2016 CCAR results, see Capital actions on page 84.

The Firm's CCAR process is integrated into and employs the same methodologies utilized in the Firm's ICAAP process, as discussed below.

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.

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. On May 17, 2016, the Firm announced that its Board of Directors increased the quarterly common stock dividend to $0.48 per share, effective with the dividend paid on July 31, 2016. The Firm's dividends are subject to the Board of Directors' approval at the customary times those dividends are to be declared.

For information regarding dividend restrictions, see Note 22 and Note 27.

The following table shows the common dividend payout ratio based on net income applicable to common equity.

Year ended December 31,	**2016**	2015	2014
Common dividend payout ratio	**30%**	28%	29%

Common equity

During the year ended December 31, 2016, warrant holders exercised their right to purchase 22.5 million shares of the Firm's common stock. The Firm issued from treasury stock 11.1 million shares of its common stock as a result of these exercises. As of December 31, 2016, 24.9 million warrants remained outstanding, compared with 47.4 million outstanding as of December 31, 2015.

On March 17, 2016, the Firm announced that its Board of Directors had authorized the repurchase of up to an additional $1.9 billion of common equity (common stock and warrants) through June 30, 2016 under its equity repurchase program. This amount is in addition to the $6.4 billion of common equity that was previously authorized for repurchase between April 1, 2015 and June 30, 2016.

Following receipt in June 2016 of the Federal Reserve's non-objection to the Firm's 2016 capital plan, the Firm's Board of Directors authorized the repurchase of up to $10.6 billion of common equity (common stock and warrants) between July 1, 2016 and June 30, 2017.

This authorization includes shares repurchased to offset issuances under the Firm's equity-based compensation plans.

As of December 31, 2016, $6.1 billion of authorized repurchase capacity remained under the program.

The following table sets forth the Firm's repurchases of common equity for the years ended December 31, 2016, 2015 and 2014. There were no warrants repurchased during the years ended December 31, 2016, 2015 and 2014.

Year ended December 31, (in millions)	**2016**	2015	2014
Total number of shares of common stock repurchased	**140.4**	89.8	82.3
Aggregate purchase price of common stock repurchases	**$ 9,082**	$ 5,616	$ 4,760

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 22.

Preferred stock

Preferred stock dividends declared were $1.6 billion for the year ended December 31, 2016. For additional information on the Firm's preferred stock, see Note 22.

Redemption of outstanding trust preferred securities

The Firm redeemed $1.6 billion and $1.5 billion of trust preferred securities in the years ended December 31, 2016 and 2015, respectively.

Other capital requirements

TLAC

On December 15, 2016, the Federal Reserve issued its final TLAC rule which requires 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 external TLAC and external long-term debt that satisfies certain eligibility criteria ("eligible LTD") by January 1, 2019. The minimum external TLAC requirement is the greater of (A) 18% of the financial institution's RWA plus applicable buffers, including its GSIB surcharge as calculated under Method 1 and (B) 7.5% of its total leverage exposure plus a buffer equal to 2.0%. The required minimum level of eligible long-term debt is equal to the greater of (A) 6% of the financial institution's RWA, plus its U.S. Method 2 GSIB surcharge and (B) 4.5% of the Firm's total leverage exposure. The final rule permanently grandfathered all long-term debt issued before December 31, 2016, to the extent these securities would be ineligible only due to containing impermissible acceleration rights or being governed by foreign law. While the Firm may have to raise long-term debt to be in full compliance with the rule, management estimates the net amount to be raised is not material and the timing for raising such funds is manageable.

Broker-dealer regulatory capital

JPMorgan Chase's principal U.S. broker-dealer subsidiary is JPMorgan Securities. Prior to October 1, 2016 the Firm had two principal U.S. broker-dealer subsidiaries. Effective October 1, 2016 JPMorgan Clearing merged with JPMorgan Securities. JPMorgan Securities is the surviving entity in the merger and its name remain unchanged.

JPMorgan Securities is subject to Rule 15c3-1 under the Securities Exchange Act of 1934 (the "Net Capital Rule"). JPMorgan Securities is also registered as futures commission merchants and subject to Rule 1.17 of the CFTC.

JPMorgan Securities has elected to compute its minimum net capital requirements in accordance with the "Alternative Net Capital Requirements" of the Net Capital Rule. At December 31, 2016, JPMorgan Securities' net capital, as defined by the Net Capital Rule, was $14.7 billion, exceeding the minimum requirement by $11.9 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 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, 2016, 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. PRA and the FCA. J.P. Morgan Securities plc is subject to the European Union Capital Requirements Regulation and the U.K. PRA capital rules, under which it has implemented Basel III.

At December 31, 2016, J.P. Morgan Securities plc had estimated total capital of $34.5 billion, its estimated CET1 capital ratio was 13.8% and its estimated total capital ratio was 17.4%. Both 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.

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 mortgage banking, 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 monitors and measures 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
- Estimating credit losses and ensuring appropriate credit risk-based capital management

Risk identification and measurement

The Credit Risk Management function 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 held-for-investment 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 that considers alternative economic scenarios as described in the Stress testing section below. For further information, see Critical Accounting Estimates used by the Firm on pages 132–134.

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 AWM, 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 probability of default is the likelihood that a borrower will default on its obligation; the loss given default ("LGD") is the estimated loss on the loan that would be realized upon the default and takes into consideration collateral and structural support for each credit facility. The estimation process includes assigning risk ratings to each borrower and credit 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 calculations and assumptions are based on both internal and external historical 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 underlying parameters are defined centrally, 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.

Consumer credit risk is monitored for delinquency and other trends, including any concentrations at the portfolio level, 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.

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, an independent Credit Review function, is responsible for:

- Independently validating or changing the risk grades assigned to exposures in the Firm's wholesale and commercial-oriented retail credit portfolios, and assessing the timeliness of risk grade changes initiated by responsible business units; and
- Evaluating the effectiveness of business units' credit management processes, including the adequacy of credit analyses and risk grading/LGD rationales, proper monitoring and management of credit exposures, and compliance with applicable grading policies and underwriting guidelines.

For further discussion of consumer and wholesale loans, see Note 14.

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; 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, lending-related commitments, and derivative receivables, including the Firm's accounting policies, see Note 14, Note 29, 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.

For discussion of the consumer credit environment and consumer loans, see Consumer Credit Portfolio on pages 89–95 and Note 14. For discussion of wholesale credit environment and wholesale loans, see Wholesale Credit Portfolio on pages 96–104 and Note 14.

Total credit portfolio

December 31, (in millions)	Credit exposure		Nonperforming[b][c]	
	2016	2015	**2016**	2015
Loans retained	**$ 889,907**	$ 832,792	**$ 6,721**	$ 6,303
Loans held-for-sale	**2,628**	1,646	**162**	101
Loans at fair value	**2,230**	2,861	**–**	25
Total loans – reported	**894,765**	837,299	**6,883**	6,429
Derivative receivables	**64,078**	59,677	**223**	204
Receivables from customers and other	**17,560**	13,497	**–**	–
Total credit-related assets	**976,403**	910,473	**7,106**	6,633
Assets acquired in loan satisfactions				
Real estate owned	**NA**	NA	**370**	347
Other	**NA**	NA	**59**	54
Total assets acquired in loan satisfactions	**NA**	NA	**429**	401
Total assets	**976,403**	910,473	**7,535**	7,034
Lending-related commitments	**976,702**	940,395	**506**	193
Total credit portfolio	**$1,953,105**	$1,850,868	**$ 8,041**	$ 7,227
Credit derivatives used in credit portfolio management activities[a]	**$ (22,114)**	$ (20,681)	**$ –**	$ (9)
Liquid securities and other cash collateral held against derivatives	**(22,705)**	(16,580)	**NA**	NA

Year ended December 31, (in millions, except ratios)	**2016**	2015
Net charge-offs	**$ 4,692**	$ 4,086
Average retained loans		
Loans – reported	**861,345**	780,293
Loans – reported, excluding residential real estate PCI loans	**822,973**	736,543
Net charge-off rates		
Loans – reported	**0.54%**	0.52%
Loans – reported, excluding PCI	**0.57**	0.55

(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 pages 103–104 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, 2016 and 2015, nonperforming assets excluded: (1) mortgage loans insured by U.S. government agencies of $5.0 billion and $6.3 billion, respectively, that are 90 or more days past due; (2) student loans insured by U.S. government agencies under the FFELP of $263 million and $290 million, respectively, that are 90 or more days past due; and (3) Real estate owned ("REO") insured by U.S. government agencies of $142 million and $343 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, and associated lending-related commitments. The Firm's focus is on serving primarily 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, 2015 levels. The Credit Card 30+ day delinquency rate and the net charge-off rate increased from the prior year but remain near record 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 AWM, 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[(h)(i)]		Net charge-offs/ (recoveries)[(j)]		Average annual net charge-off rate[(j)(k)]	
	2016	2015	**2016**	2015	**2016**	2015	**2016**	2015
Consumer, excluding credit card								
Loans, excluding PCI loans and loans held-for-sale								
Home equity	**$ 39,063**	$ 45,559	**$ 1,845**	$ 2,191	**$ 189**	$ 291	**0.45%**	0.59%
Residential mortgage	**192,163**	166,239	**2,247**	2,503	**12**	(4)	**0.01**	–
Auto[(a)]	**65,814**	60,255	**214**	116	**285**	214	**0.45**	0.38
Business banking[(b)]	**22,698**	21,208	**286**	263	**257**	253	**1.17**	1.23
Student and other	**8,989**	10,096	**175**	242	**166**	200	**1.74**	1.89
Total loans, excluding PCI loans and loans held-for-sale	**328,727**	303,357	**4,767**	5,315	**909**	954	**0.28**	0.35
Loans – PCI								
Home equity	**12,902**	14,989	**NA**	NA	**NA**	NA	**NA**	NA
Prime mortgage	**7,602**	8,893	**NA**	NA	**NA**	NA	**NA**	NA
Subprime mortgage	**2,941**	3,263	**NA**	NA	**NA**	NA	**NA**	NA
Option ARMs[(c)]	**12,234**	13,853	**NA**	NA	**NA**	NA	**NA**	NA
Total loans – PCI	**35,679**	40,998	**NA**	NA	**NA**	NA	**NA**	NA
Total loans – retained	**364,406**	344,355	**4,767**	5,315	**909**	954	**0.25**	0.30
Loans held-for-sale	**238** [(g)]	466 [(g)]	**53**	98	**–**	–	**–**	–
Total consumer, excluding credit card loans	**364,644**	344,821	**4,820**	5,413	**909**	954	**0.25**	0.30
Lending-related commitments[(d)]	**54,797**	58,478						
Receivables from customers[(e)]	**120**	125						
Total consumer exposure, excluding credit card	**419,561**	403,424						
Credit Card								
Loans retained[(f)]	**141,711**	131,387	**–**	–	**3,442**	3,122	**2.63**	2.51
Loans held-for-sale	**105**	76	**–**	–	**–**	–	**–**	–
Total credit card loans	**141,816**	131,463	**–**	–	**3,442**	3,122	**2.63**	2.51
Lending-related commitments[(d)]	**553,891**	515,518						
Total credit card exposure	**695,707**	646,981						
Total consumer credit portfolio	**$ 1,115,268**	$ 1,050,405	**$ 4,820**	$ 5,413	**$ 4,351**	$ 4,076	**0.89%**	0.92%
Memo: Total consumer credit portfolio, excluding PCI	**$ 1,079,589**	$ 1,009,407	**$ 4,820**	$ 5,413	**$ 4,351**	$ 4,076	**0.96%**	1.02%

(a) At December 31, 2016 and 2015, excluded operating lease assets of $13.2 billion and $9.2 billion, respectively.
(b) Predominantly includes Business Banking loans as well as deposit overdrafts.
(c) At December 31, 2016 and 2015, approximately 66% and 64%, respectively, of the PCI option adjustable rate mortgages ("ARMs") portfolio has been modified into fixed-rate, fully amortizing loans.
(d) 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.
(e) Receivables from customers represent margin loans to brokerage customers that are collateralized through assets maintained in the clients' brokerage accounts, as such no allowance is held against these receivables. These receivables are reported within accrued interest and accounts receivable on the Firm's Consolidated balance sheets.
(f) Includes billed interest and fees net of an allowance for uncollectible interest and fees.
(g) Predominantly represents prime mortgage loans held-for-sale.
(h) At December 31, 2016 and 2015, nonaccrual loans excluded loans 90 or more days past due as follows: (1) mortgage loans insured by U.S. government agencies of $5.0 billion and $6.3 billion, respectively; and (2) student loans insured by U.S. government agencies under the FFELP of $263 million and $290 million, respectively. These amounts have been excluded from nonaccrual loans 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 FFIEC.
(i) Excludes PCI loans. The Firm is recognizing interest income on each pool of PCI loans as they are all performing.

(j) Net charge-offs and net charge-off rates excluded write-offs in the PCI portfolio of $156 million and $208 million for the years ended December 31, 2016 and 2015. These write-offs decreased the allowance for loan losses for PCI loans. See Allowance for Credit Losses on pages 105–107 for further details.

(k) Average consumer loans held-for-sale were $496 million and $2.1 billion for the years ended December 31, 2016 and 2015, respectively. 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, 2016, predominantly due to originations of high-quality prime mortgage and auto loans that have been retained on the balance sheet, partially offset by paydowns and the charge-off or liquidation of delinquent loans. The credit environment remained favorable 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, 2015 primarily reflecting loan paydowns and charge-offs. Both early-stage and late-stage delinquencies declined from December 31, 2015. Nonaccrual loans improved from December 31, 2015 primarily as a result of loss mitigation activities. Net charge-offs for the year ended December 31, 2016, declined when compared with the prior year as a result of improvement in home prices and delinquencies.

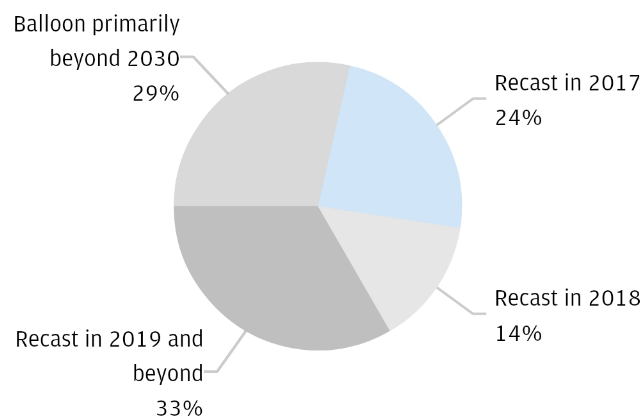
At December 31, 2016, approximately 90% of the Firm's home equity portfolio consists of home equity lines of credit ("HELOCs") and the remainder consists of home equity loans ("HELOANs"). HELOANs are generally fixed-rate, closed-end, amortizing loans, with terms ranging from 3–30 years. In general, HELOCs 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 carrying value of HELOCs outstanding was $34 billion at December 31, 2016. Of such amounts, approximately:

- $13 billion have recast from interest-only to fully amortizing payments or have been modified,
- $15 billion are scheduled to recast from interest-only to fully amortizing payments in future periods, and
- $6 billion are interest-only balloon HELOCs, which primarily mature after 2030.

The following chart illustrates the payment recast composition of the approximately $21 billion of HELOCs scheduled to recast in the future, based upon their current contractual terms.

HELOCs scheduled to recast (at December 31, 2016)



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 PD and loss severity assumptions. As part of its allowance estimate, the Firm also expects, based on observed activity in recent years, that approximately 30% of the carrying value of HELOCs scheduled to recast will voluntarily prepay prior to or after the recast. The HELOCs that have previously recast to fully amortizing payments generally have higher delinquency rates than the HELOCs within the revolving period, primarily as a result of the payment shock at the time of recast. Certain other factors, such as future developments in both unemployment rates and home prices, could also 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 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.

Junior lien loans where the borrower has a senior lien loan that is either delinquent or has been modified are considered high-risk seconds. 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. At December 31, 2016, the Firm estimated that the carrying value of its home equity portfolio contained approximately $1.1 billion of current junior lien loans that were considered high risk seconds, compared with $1.4 billion at December 31, 2015. 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 Firm considers the increased PD associated with these high-risk seconds in estimating the allowance for loan losses and classifies those loans that are subordinated to a first lien loan that is more than 90 days delinquent as nonaccrual loans. 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. The Firm continues to monitor the risks associated with these loans. For further information, see Note 14.

Residential mortgage: The residential mortgage portfolio predominantly consists of high-quality prime mortgage loans with a small component (approximately 2%) of the residential mortgage portfolio in subprime mortgage loans. These subprime mortgage loans continue to run-off and are performing in line with expectations. The residential mortgage portfolio, including loans held-for-sale, increased from December 31, 2015 due to retained originations of primarily high-quality fixed rate prime mortgage loans partially offset by paydowns. Both early-stage and late-stage delinquencies showed improvement from December 31, 2015. Nonaccrual loans decreased from the prior year primarily as a result of loss mitigation activities. Net charge-offs for the year ended December 31, 2016 remain low, reflecting continued improvement in home prices and delinquencies.

At December 31, 2016 and 2015, the Firm's residential mortgage portfolio, including loans held-for-sale, included $9.5 billion and $11.1 billion, respectively, of mortgage loans insured and/or guaranteed by U.S. government agencies, of which $7.0 billion and $8.4 billion, respectively, were 30 days or more past due (of these past due loans, $5.0 billion and $6.3 billion, respectively, were 90 days or more past due). The Firm monitors its exposure to certain potential unrecoverable claim payments related to government insured loans and considers this exposure in estimating the allowance for loan losses.

At December 31, 2016 and 2015, the Firm's residential mortgage portfolio included $19.1 billion and $17.8 billion, respectively, of interest-only loans. 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 residential mortgage portfolio and the Firm's expectations. The Firm continues to monitor the risks associated with these loans.

Auto: Auto loans increased from December 31, 2015, as a result of growth in new originations. Nonaccrual loans increased compared with December 31, 2015, primarily due to downgrades of select auto dealer risk-rated loans. Net charge-offs for the year ended December 31, 2016 increased compared with the prior year, as a result of higher retail auto loan balances and a moderate increase in loss severity. The auto portfolio predominantly consists of prime-quality loans.

Business banking: Business banking loans increased compared with December 31, 2015 as a result of growth in loan originations. Nonaccrual loans at December 31, 2016 and net charge-offs for the year ended December 31, 2016 increased from the prior year as a result of growth in the portfolio.

Student and other: Student and other loans decreased from December 31, 2015 primarily as a result of 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 decreased as the portfolio continues to run off. As of December 31, 2016, approximately 12% of the option ARM PCI loans were delinquent and approximately 66% of the portfolio had 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 PCI loans lifetime principal loss estimates

	Lifetime loss estimates[(a)]		Life-to-date liquidation losses[(b)]	
December 31, (in billions)	**2016**	2015	**2016**	2015
Home equity	**$ 14.4**	$ 14.5	**$ 12.8**	$ 12.7
Prime mortgage	**4.0**	4.0	**3.7**	3.7
Subprime mortgage	**3.2**	3.3	**3.1**	3.0
Option ARMs	**10.0**	10.0	**9.7**	9.5
Total	**$ 31.6**	$ 31.8	**$ 29.3**	$ 28.9

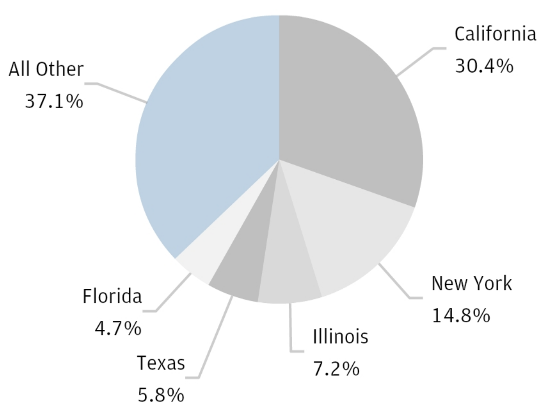
(a) Includes the original nonaccretable difference established in purchase accounting of $30.5 billion for principal losses plus additional principal losses recognized subsequent to acquisition through the provision and allowance for loan losses. The remaining nonaccretable difference for principal losses was $1.1 billion and $1.5 billion at December 31, 2016 and 2015, respectively.
(b) Life-to-date 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.

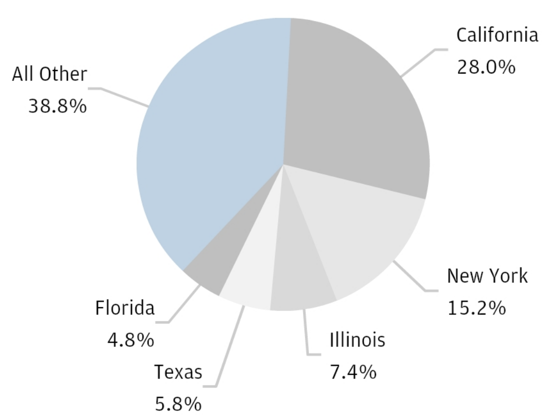
Geographic composition of residential real estate loans

At December 31, 2016, $139.7 billion, or 63% 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 $123.0 billion, or 61%, at December 31, 2015. California had the greatest concentration of retained residential loans with 30% at December 31, 2016, compared with 28% at December 31, 2015. The unpaid principal balance of PCI loans concentrated in California represented 55% of total PCI loans at both December 31, 2016 and 2015. The following charts illustrate the percentages of the total retained residential real estate portfolio held in the top 5 states, excluding mortgage loans insured by U.S. government agencies and PCI loans. For further information on the geographic composition of the Firm's residential real estate loans, see Note 14.

Top 5 States - Residential real estate, excluding PCI loans (at December 31, 2016)



Top 5 States - Residential real estate, excluding PCI loans (at December 31, 2015)



Current estimated loan-to-values of residential real estate loans

The current estimated average loan-to-value ("LTV") ratio for residential real estate loans retained, excluding mortgage loans insured by U.S. government agencies and PCI loans, was 58% at December 31, 2016 compared with 59% at December 31, 2015.

Although the delinquency rate for loans with high LTV ratios is generally greater than the delinquency rate for loans in which the borrower has greater equity in the collateral, the average LTV ratios have declined consistent with improvements in home prices, reducing the number of loans with a current estimated LTV ratio greater than 100%.

The current estimated average LTV ratio for residential real estate PCI loans, based on the unpaid principal balances, was 64% at December 31, 2016, compared with 69% at December 31, 2015. Of the total PCI portfolio, 4% of the loans had a current estimated LTV ratio greater than 100%, and 1% had a current LTV ratio greater than 125% at December 31, 2016, compared with 6% and 1%, respectively, at December 31, 2015.

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 21% for home equity and 22% for residential 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 32% for subprime mortgages. 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, 2016.

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 commencing in 2014 by 1% per year, and 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. At December 31, 2016, the carrying value of non-PCI loans and the unpaid principal balance of PCI loans modified in active step-rate modifications were $3 billion and $9 billion, respectively. The Firm continues to monitor this risk exposure and the impact of these potential interest rate increases is considered in the Firm's allowance for loan losses.

The following table presents information as of December 31, 2016 and 2015, 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, 2016 and 2015, see Note 14.

Modified residential real estate loans

December 31, (in millions)	2016 Retained loans	2016 Nonaccrual retained loans[d]	2015 Retained loans	2015 Nonaccrual retained loans[d]
Modified residential real estate loans, excluding PCI loans[a][b]				
Home equity	**$ 2,264**	**$ 1,116**	$ 2,358	$ 1,220
Residential mortgage	**6,032**	**1,755**	6,690	1,957
Total modified residential real estate loans, excluding PCI loans	**$ 8,296**	**$ 2,871**	$ 9,048	$ 3,177
Modified PCI loans[c]				
Home equity	**$ 2,447**	**NA**	$ 2,526	NA
Prime mortgage	**5,052**	**NA**	5,686	NA
Subprime mortgage	**2,951**	**NA**	3,242	NA
Option ARMs	**9,295**	**NA**	10,427	NA
Total modified PCI loans	**$19,745**	**NA**	$21,881	NA

(a) Amounts represent the carrying value of modified residential real estate loans.
(b) At December 31, 2016 and 2015, $3.4 billion and $3.8 billion, respectively, of loans modified subsequent to repurchase from Ginnie Mae in accordance with the standards of the appropriate government agency (i.e., Federal Housing Administration ("FHA"), U.S. Department of Veterans Affairs ("VA"), Rural Housing Service of the U.S. Department of Agriculture ("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, 2016 and 2015, nonaccrual loans included $2.3 billion and $2.5 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, 2016 and 2015, about consumer, excluding credit card, nonperforming assets.

Nonperforming assets[(a)]

December 31, (in millions)	2016	2015
Nonaccrual loans[(b)]		
Residential real estate	**$ 4,145**	$ 4,792
Other consumer	**675**	621
Total nonaccrual loans	**4,820**	5,413
Assets acquired in loan satisfactions		
Real estate owned	**292**	277
Other	**57**	48
Total assets acquired in loan satisfactions	**349**	325
Total nonperforming assets	**$ 5,169**	$ 5,738

(a) At December 31, 2016 and 2015, nonperforming assets excluded: (1) mortgage loans insured by U.S. government agencies of $5.0 billion and $6.3 billion, respectively, that are 90 or more days past due; (2) student loans insured by U.S. government agencies under the FFELP of $263 million and $290 million, respectively, that are 90 or more days past due; and (3) real estate owned insured by U.S. government agencies of $142 million and $343 million, respectively. These amounts have been excluded based upon the government guarantee.
(b) Excludes PCI loans 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. The Firm is recognizing interest income on each pool of loans as they are all performing.

Nonaccrual loans in the residential real estate portfolio decreased to $4.1 billion from $4.8 billion at December 31, 2016, and 2015, respectively, of which 29% and 31% were greater than 150 days past due, respectively. In the aggregate, the unpaid principal balance of residential real estate loans greater than 150 days past due was charged down by approximately 43% and 44% to the estimated net realizable value of the collateral at December 31, 2016 and 2015, 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, 2016 and 2015.

Nonaccrual loans

Year ended December 31, (in millions)	2016	2015
Beginning balance	**$ 5,413**	$ 6,509
Additions	**3,858**	3,662
Reductions:		
Principal payments and other[(a)]	**1,437**	1,668
Charge-offs	**843**	800
Returned to performing status	**1,589**	1,725
Foreclosures and other liquidations	**582**	565
Total reductions	**4,451**	4,758
Net changes	**(593)**	(1,096)
Ending balance	**$ 4,820**	$ 5,413

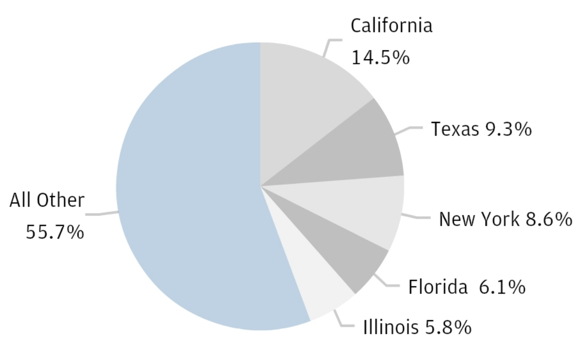
(a) Other reductions includes loan sales.

Credit card

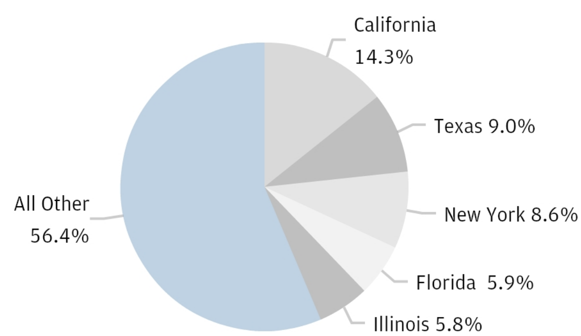
Total credit card loans increased from December 31, 2015 due to strong new account growth and higher sales volume. The December 31, 2016 30+ day delinquency rate increased to 1.61% from 1.43% at December 31, 2015. For the years ended December 31, 2016 and 2015, the net charge-off rates were 2.63% and 2.51%, respectively. The credit card portfolio continues to reflect a largely well-seasoned, rewards-based portfolio that has good U.S. geographic diversification. New originations continue to grow as a percentage of the total portfolio, in line with the Firm's credit parameters; these originations have generated higher loss rates, as anticipated, than the more seasoned portion of the portfolio, given the higher mix of near-prime accounts being originated. These near-prime accounts have net revenue rates and returns on equity that are higher than the portfolio average.

Loans outstanding in the top five states of California, Texas, New York, Florida and Illinois consisted of $62.8 billion in receivables, or 44% of the retained loan portfolio, at December 31, 2016, compared with $57.5 billion, or 44%, at December 31, 2015. The greatest geographic concentration of credit card retained loans is in California, which represented 15% and 14% of total retained loans at December 31, 2016 and 2015, respectively. For further information on the geographic and FICO composition of the Firm's credit card loans, see Note 14.

Top 5 States Credit Card - Retained (at December 31, 2016)



Top 5 States Credit Card - Retained (at December 31, 2015)



Modifications of credit card loans

At December 31, 2016 and 2015, the Firm had $1.2 billion and $1.5 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, 2015, 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 and billed 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 the Oil & Gas, Natural Gas Pipelines, and Metals & Mining portfolios, continued to be generally stable for the year ended December 31, 2016, characterized by low levels of criticized exposure, nonaccrual loans and charge-offs. See industry discussion on pages 97–101 for further information. Growth in retained loans was predominantly driven within the commercial real estate portfolio in Commercial Banking, and across multiple commercial and industrial industries in Commercial Banking and the Corporate & Investment Bank. 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, (in millions)	Credit exposure		Nonperforming[c]	
	2016	2015	**2016**	2015
Loans retained	**$383,790**	$357,050	**$ 1,954**	$ 988
Loans held-for-sale	**2,285**	1,104	**109**	3
Loans at fair value	**2,230**	2,861	**–**	25
Loans – reported	**388,305**	361,015	**2,063**	1,016
Derivative receivables	**64,078**	59,677	**223**	204
Receivables from customers and other[a]	**17,440**	13,372	**–**	–
Total wholesale credit-related assets	**469,823**	434,064	**2,286**	1,220
Lending-related commitments	**368,014**	366,399	**506**	193
Total wholesale credit exposure	**$837,837**	$800,463	**$ 2,792**	$ 1,413
Credit derivatives used in credit portfolio management activities[b]	**$ (22,114)**	$ (20,681)	**$ –**	$ (9)
Liquid securities and other cash collateral held against derivatives	**(22,705)**	(16,580)	**NA**	NA

(a) Receivables from customers and other include $17.3 billion and $13.3 billion of margin loans at December 31, 2016 and 2015, respectively, to prime 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 pages 103–104, 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, 2016 and 2015. The ratings scale is based on the Firm's internal risk ratings, which generally correspond to the ratings 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

	Maturity profile[d]				Ratings profile			
					Investment-grade	Noninvestment-grade		
December 31, 2016 (in millions, except ratios)	Due in 1 year or less	Due after 1 year through 5 years	Due after 5 years	**Total**	AAA/Aaa to BBB-/Baa3	BB+/Ba1 & below	**Total**	Total % of IG
Loans retained	**$ 117,238**	**$ 167,235**	**$ 99,317**	**$ 383,790**	**$ 289,923**	**$ 93,867**	**$ 383,790**	**76%**
Derivative receivables				**64,078**			**64,078**	
Less: Liquid securities and other cash collateral held against derivatives				**(22,705)**			**(22,705)**	
Total derivative receivables, net of all collateral	**14,019**	**8,510**	**18,844**	**41,373**	**33,081**	**8,292**	**41,373**	**80**
Lending-related commitments	**88,399**	**271,825**	**7,790**	**368,014**	**269,820**	**98,194**	**368,014**	**73**
Subtotal	**219,656**	**447,570**	**125,951**	**793,177**	**592,824**	**200,353**	**793,177**	**75**
Loans held-for-sale and loans at fair value[a]				**4,515**			**4,515**	
Receivables from customers and other				**17,440**			**17,440**	
Total exposure – net of liquid securities and other cash collateral held against derivatives				**$ 815,132**			**$ 815,132**	
Credit derivatives used in credit portfolio management activities[b][c]	**$ (1,354)**	**$ (16,537)**	**$ (4,223)**	**$ (22,114)**	**$ (18,710)**	**$ (3,404)**	**$ (22,114)**	**85%**

	Maturity profile[d]				Ratings profile			
					Investment-grade	Noninvestment-grade		
December 31, 2015 (in millions, except ratios)	Due in 1 year or less	Due after 1 year through 5 years	Due after 5 years	Total	AAA/Aaa to BBB-/Baa3	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 [b][c]	$ (808)	$ (14,427)	$ (5,446)	$ (20,681)	$ (17,754)	$ (2,927)	$ (20,681)	86%

(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 qualify 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. Predominantly all of the credit derivatives entered into by the Firm where it has purchased protection for credit portfolio management activities are executed with investment-grade counterparties.
(d) 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, 2016, may become a payable prior to maturity based on their cash flow profile or changes in market conditions.

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 $19.8 billion at December 31, 2016, compared with $14.6 billion at December 31, 2015, driven by downgrades, including within the Oil & Gas, Natural Gas Pipelines, and Metals & Mining portfolios.

Below are summaries of the Firm's exposures as of December 31, 2016 and 2015. 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, 2016** (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	$ 135,041	$ 104,575	$ 29,295	$ 971	$ 200	$ 157	$ (7)	$ (54)	$ (27)
Consumer & Retail	85,435	55,495	28,146	1,554	240	75	24	(424)	(69)
Technology, Media & Telecommunications	62,950	39,756	21,619	1,559	16	9	2	(589)	(30)
Industrials	55,449	36,597	17,690	1,026	136	128	3	(434)	(40)
Healthcare	47,866	37,852	9,092	882	40	86	37	(286)	(246)
Banks & Finance Cos	44,614	35,308	8,892	404	10	21	(2)	(1,336)	(7,319)
Oil & Gas	40,099	18,497	12,138	8,069	1,395	31	222	(1,532)	(18)
Asset Managers	31,886	27,378	4,507	1	–	14	–	–	(5,737)
Utilities	29,622	24,184	4,960	392	86	8	–	(306)	39
State & Municipal Govt[(b)]	28,263	27,603	624	6	30	107	(1)	(130)	398
Central Govt	20,408	20,123	276	9	–	4	–	(11,691)	(4,183)
Transportation	19,029	12,170	6,362	444	53	9	10	(93)	(188)
Automotive	16,635	9,229	7,204	201	1	7	–	(401)	(14)
Chemicals & Plastics	14,988	10,365	4,451	142	30	3	–	(35)	(3)
Metals & Mining	13,419	5,523	6,744	1,133	19	–	36	(621)	(62)
Insurance	13,151	10,766	2,252	–	133	9	–	(275)	(2,538)
Financial Markets Infrastructure	8,732	7,980	752	–	–	–	–	–	(390)
Securities Firms	3,867	1,543	2,324	–	–	–	–	(273)	(491)
All other[(c)]	144,428	128,456	15,305	373	294	650	17	(3,634)	(1,787)
Subtotal	$ 815,882	$ 613,400	$ 182,633	$ 17,166	$ 2,683	$ 1,318	$ 341	$ (22,114)	$ (22,705)
Loans held-for-sale and loans at fair value	4,515								
Receivables from customers and other	17,440								
Total[(d)]	$ 837,837								

As of or for the year ended December 31, 2015 (in millions)			Noninvestment-grade			Selected metrics			
	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	$ 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)
Asset Managers	23,815	20,214	3,570	31	–	18	–	(6)	(4,453)
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)
Central Govt	17,968	17,871	97	–	–	7	–	(9,359)	(2,393)
Transportation	19,227	13,258	5,801	167	1	15	3	(51)	(243)
Automotive	13,864	9,182	4,580	101	1	4	(2)	(487)	(1)
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)
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 other	13,372								
Total[(d)]	$ 800,463								

(a) The industry rankings presented in the table as of December 31, 2015, are based on the industry rankings of the corresponding exposures at December 31, 2016, not actual rankings of such exposures at December 31, 2015.

(b) In addition to the credit risk exposure to states and municipal governments (both U.S. and non-U.S.) at December 31, 2016 and 2015, noted above, the Firm held: $9.1 billion and $7.6 billion, respectively, of trading securities; $31.6 billion and $33.6 billion, respectively, of AFS securities; and $14.5 billion and $12.8 billion, respectively, of 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 56%, 36%, 4% and 4%, respectively, at December 31, 2016, and 54%, 37%, 5% and 4%, respectively, at December 31, 2015.

(d) Excludes cash placed with banks of $380.2 billion and$351.0 billion, at December 31, 2016 and 2015, respectively, which is predominantly placed with various central banks, primarily 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.

Presented below is a discussion of certain industries to which the Firm has significant exposures and/or which present actual or potential credit concerns.

Real Estate

Exposure to the Real Estate industry was approximately 16.1% and 14.6% of the Firm's total wholesale exposure as of December 31, 2016 and 2015, respectively. Exposure to this industry increased by $18.2 billion, or 16%, in 2016 to $135.0 billion primarily driven by Commercial Banking. The investment-grade percentage of the portfolio increased to 77% in 2016, up from 75% in 2015. As of December 31, 2016, $106.3 billion of the exposure was drawn, of which 83% was investment-grade, and 83% of the $135.0 billion exposure was secured. As of December 31, 2016, $80.1 billion of the $135.0 billion was multifamily, largely in California; of the $80.1 billion, 82% was investment-grade and 98% was secured. For further information on commercial real estate loans, see Note 14.

Oil & Gas and Natural Gas Pipelines

The following table presents Oil & Gas and Natural Gas Pipeline exposures as of December 31, 2016, and December 31, 2015.

	December 31, 2016				
(in millions, except ratios)	Loans and Lending-related Commitments	Derivative Receivables	Credit exposure	% Investment-grade	% Drawn
Exploration & Production ("E&P") and Oilfield Services[(a)]	$ 20,829	$ 1,256	$ 22,085	26%	34%
Other Oil & Gas[(b)]	17,392	622	18,014	71	30
Total Oil & Gas	38,221	1,878	40,099	46	33
Natural Gas Pipelines[(c)]	4,253	106	4,359	66	30
Total Oil & Gas and Natural Gas Pipelines	$ 42,474	$ 1,984	$ 44,458	48	32

	December 31, 2015				
(in millions, except ratios)	Loans and Lending-related Commitments	Derivative Receivables	Credit exposure	% Investment-grade	% Drawn
E&P and Oilfield Services[(a)]	$ 23,055	$ 400	$ 23,455	44%	36%
Other Oil & Gas[(b)]	17,120	1,502	18,622	76	27
Total Oil & Gas	40,175	1,902	42,077	58	32
Natural Gas Pipelines[(c)]	4,093	158	4,251	64	21
Total Oil & Gas and Natural Gas Pipelines	$ 44,268	$ 2,060	$ 46,328	59	31

(a) Noninvestment-grade exposure to E&P and Oilfield Services is largely secured.
(b) Other Oil & Gas includes Integrated Oil & Gas companies, Midstream/Oil Pipeline companies and refineries.
(c) Natural Gas Pipelines is reported within the Utilities Industry.

Exposure to the Oil & Gas and Natural Gas Pipelines portfolios was approximately 5.3% and 5.8% of the Firm's total wholesale exposure as of December 31, 2016 and 2015, respectively. Exposure to these industries decreased by $1.9 billion in 2016 to $44.5 billion; of the $44.5 billion, $14.4 billion was drawn at year-end. As of December 31, 2016, approximately $21.4 billion of the exposure was investment-grade, of which approximately $5.3 billion was drawn, and approximately $23.1 billion of the exposure was noninvestment grade, of which approximately $9.0 billion was drawn; 21% of the total exposure to the Oil & Gas and Natural Gas Pipelines industries was criticized. Secured lending, of which approximately half is reserve-based lending to the Exploration & Production sub-sector of the Oil & Gas industry, was $14.3 billion as of December 31, 2016; 44% of the secured lending exposure was drawn. Exposure to commercial real estate, which is reported within the Real Estate industry, in certain areas of Texas, California and Colorado that are deemed sensitive to the Oil & Gas industry, was $4.5 billion as of December 31, 2016. While the overall trends and sentiment have been stabilizing, the Firm continues to actively monitor and manage its exposure to these portfolios.

Metals & Mining

Exposure to the Metals & Mining industry was approximately 1.6% and 1.8% of the Firm's total wholesale exposure as of December 31, 2016 and 2015, respectively. Exposure to the Metals & Mining industry decreased by $630 million in 2016 to $13.4 billion, of which $4.4 billion was drawn. The portfolio largely consisted of exposure in North America, and was concentrated in the Steel and Diversified Mining sub-sectors. Approximately 41% and 46% of the exposure in the Metals & Mining portfolio was investment-grade as of December 31, 2016 and December 31, 2015, respectively. While the overall trends and sentiment have been stabilizing, the Firm continues to actively monitor and manage its exposure to this industry.

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. 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, 2016 and 2015. Wholesale nonaccrual loans increased primarily driven by downgrades in the Oil & Gas portfolio.

Wholesale nonaccrual loan activity(a)

Year ended December 31, (in millions)	2016	2015
Beginning balance	$ 1,016	$ 624
Additions	2,981	1,307
Reductions:		
Paydowns and other	1,148	534
Gross charge-offs	385	87
Returned to performing status	242	286
Sales	159	8
Total reductions	1,934	915
Net changes	1,047	392
Ending balance	$ 2,063	$ 1,016

(a) Loans are placed on nonaccrual status when management believes full payment of principal or interest is not expected, regardless of delinquency status, or when principal or interest have been in default for a period of 90 days or more unless the loan is both well-secured and in the process of collection.

The following table presents net charge-offs/recoveries, which are defined as gross charge-offs less recoveries, for the years ended December 31, 2016 and 2015. The amounts in the table below do not include gains or losses from sales of nonaccrual loans.

Wholesale net charge-offs/(recoveries)

Year ended December 31, (in millions, except ratios)	2016	2015
Loans – reported		
Average loans retained	$ 371,778	$ 337,407
Gross charge-offs	398	95
Gross recoveries	(57)	(85)
Net charge-offs	341	10
Net charge-off rate	0.09%	—%

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 fulfill 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 future credit exposure or funding requirements. In determining the amount of credit risk exposure the Firm has to wholesale lending-related commitments, the Firm has estimated a loan-equivalent amount for each commitment. The loan-equivalent amount of the Firm's lending-related commitments was $204.6 billion and $212.4 billion as of December 31, 2016 and 2015, 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. 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)	2016	2015
Interest rate	$ **28,302**	$ 26,363
Credit derivatives	**1,294**	1,423
Foreign exchange	**23,271**	17,177
Equity	**4,939**	5,529
Commodity	**6,272**	9,185
Total, net of cash collateral	**64,078**	59,677
Liquid securities and other cash collateral held against derivative receivables[(a)]	**(22,705)**	(16,580)
Total, net of all collateral	$ **41,373**	$ 43,097

(a) Includes collateral related to derivative instruments where an appropriate legal opinion has not been either sought or obtained.

Derivative receivables reported on the Consolidated balance sheets were $64.1 billion and $59.7 billion at December 31, 2016 and 2015, 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 $22.7 billion and $16.6 billion at December 31, 2016 and 2015, respectively, that may be used as security when the fair value of the client's exposure is in the Firm's favor. The change in derivative receivables was predominantly related to client-driven market-making activities in CIB. The increase in derivative receivables reflected the impact of market movements, which increased foreign exchange receivables, partially offset by reduced commodity derivative receivables.

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. 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 over the life of the transaction. 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.

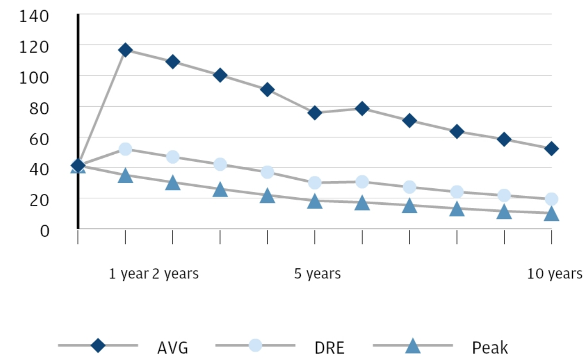
Finally, AVG is a measure of the expected fair value of the Firm's derivative receivables at future time periods, including the benefit of collateral. AVG exposure over the total life of the derivative contract is used as the primary metric for pricing purposes and is used to calculate credit capital and the CVA, as further described below. The three year AVG exposure was $31.1 billion and $32.4 billion at December 31, 2016 and 2015, respectively, compared with derivative receivables, net of all collateral, of $41.4 billion and $43.1 billion at December 31, 2016 and 2015, 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, 2016
(in billions)



The following table summarizes the ratings profile by derivative counterparty of the Firm's derivative receivables, including credit derivatives, net of all 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	2016		2015[(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	**$ 11,449**	**28%**	$ 10,371	24%
A+/A1 to A-/A3	**8,505**	**20**	10,595	25
BBB+/Baa1 to BBB-/Baa3	**13,127**	**32**	13,807	32
BB+/Ba1 to B-/B3	**7,308**	**18**	7,500	17
CCC+/Caa1 and below	**984**	**2**	824	2
Total	**$ 41,373**	**100%**	$ 43,097	100%

(a) Prior period amounts have been revised to conform with the 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 90% as of December 31, 2016, largely unchanged compared with 87% as of December 31, 2015.

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)	**2016**	2015
Credit derivatives used to manage:		
Loans and lending-related commitments	**$ 2,430**	$ 2,289
Derivative receivables	**19,684**	18,392
Credit derivatives used in credit portfolio management activities	**$ 22,114**	$ 20,681

(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 credit default swaps ("CDS") as a hedge against 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 132–134 and Note 15.

At least quarterly, the allowance for credit losses is reviewed by the CRO, the CFO and the Controller of the Firm, and discussed with the DRPC and the Audit Committee. As of December 31, 2016, JPMorgan Chase deemed the allowance for credit losses to be appropriate and sufficient to absorb probable credit losses inherent in the portfolio.

The consumer allowance for loan losses remained relatively unchanged from December 31, 2015. Changes to the allowance for loan losses included reductions in the residential real estate portfolio, reflecting continued improvements in home prices and lower delinquencies, as well as runoff in the student loan portfolio. These reductions were offset by increases in the allowance for loan losses reflecting loan growth in the credit card portfolio (including newer vintages which, as anticipated, have higher loss rates compared to the overall portfolio), as well as loan growth in the auto and business banking loan portfolios. For additional information about delinquencies and nonaccrual loans in the consumer, excluding credit card, loan portfolio, see Consumer Credit Portfolio on pages 89–95 and Note 14.

The wholesale allowance for credit losses increased from December 31, 2015, reflecting the impact of downgrades in the Oil & Gas and Natural Gas Pipelines portfolios. For additional information on the wholesale portfolio, see Wholesale Credit Portfolio on pages 96–104 and Note 14.

Summary of changes in the allowance for credit losses

Year ended December 31, (in millions, except ratios)	2016 Consumer, excluding credit card	2016 Credit card	2016 Wholesale	2016 Total	2015 Consumer, excluding credit card	2015 Credit card	2015 Wholesale	2015 Total
Allowance for loan losses								
Beginning balance at January 1,	$ 5,806	$ 3,434	$ 4,315	$ 13,555	$ 7,050	$ 3,439	$ 3,696	$ 14,185
Gross charge-offs	1,500	3,799	398	5,697	1,658	3,488	95	5,241
Gross recoveries	(591)	(357)	(57)	(1,005)	(704)	(366)	(85)	(1,155)
Net charge-offs	909	3,442	341	4,692	954	3,122	10	4,086
Write-offs of PCI loans[(a)]	156	–	–	156	208	–	–	208
Provision for loan losses	467	4,042	571	5,080	(82)	3,122	623	3,663
Other	(10)	–	(1)	(11)	–	(5)	6	1
Ending balance at December 31,	$ 5,198	$ 4,034	$ 4,544	$ 13,776	$ 5,806	$ 3,434	$ 4,315	$ 13,555
Impairment methodology								
Asset-specific[(b)]	$ 308	$ 358	$ 342	$ 1,008	$ 364	$ 460	$ 274	$ 1,098
Formula-based	2,579	3,676	4,202	10,457	2,700	2,974	4,041	9,715
PCI	2,311	–	–	2,311	2,742	–	–	2,742
Total allowance for loan losses	$ 5,198	$ 4,034	$ 4,544	$ 13,776	$ 5,806	$ 3,434	$ 4,315	$ 13,555
Allowance for lending-related commitments								
Beginning balance at January 1,	$ 14	$ –	$ 772	$ 786	$ 13	$ –	$ 609	$ 622
Provision for lending-related commitments	–	–	281	281	1	–	163	164
Other	12	–	(1)	11	–	–	–	–
Ending balance at December 31,	$ 26	$ –	$ 1,052	$ 1,078	$ 14	$ –	$ 772	$ 786
Impairment methodology								
Asset-specific	$ –	$ –	$ 169	$ 169	$ –	$ –	$ 73	$ 73
Formula-based	26	–	883	909	14	–	699	713
Total allowance for lending-related commitments[(c)]	$ 26	$ –	$ 1,052	$ 1,078	$ 14	$ –	$ 772	$ 786
Total allowance for credit losses	$ 5,224	$ 4,034	$ 5,596	$ 14,854	$ 5,820	$ 3,434	$ 5,087	$ 14,341
Memo:								
Retained loans, end of period	$ 364,406	$ 141,711	$ 383,790	$ 889,907	$ 344,355	$ 131,387	$ 357,050	$ 832,792
Retained loans, average	358,486	131,081	371,778	861,345	318,612	124,274	337,407	780,293
PCI loans, end of period	35,679	–	3	35,682	40,998	–	4	41,002
Credit ratios								
Allowance for loan losses to retained loans	1.43%	2.85%	1.18%	1.55%	1.69%	2.61%	1.21%	1.63%
Allowance for loan losses to retained nonaccrual loans[(d)]	109	NM	233	205	109	NM	437	215
Allowance for loan losses to retained nonaccrual loans excluding credit card	109	NM	233	145	109	NM	437	161
Net charge-off rates	0.25	2.63	0.09	0.54	0.30	2.51	–	0.52
Credit ratios, excluding residential real estate PCI loans								
Allowance for loan losses to retained loans	0.88	2.85	1.18	1.34	1.01	2.61	1.21	1.37
Allowance for loan losses to retained nonaccrual loans[(d)]	61	NM	233	171	58	NM	437	172
Allowance for loan losses to retained nonaccrual loans excluding credit card	61	NM	233	111	58	NM	437	117
Net charge-off rates	0.28%	2.63%	0.09%	0.57%	0.35%	2.51%	–%	0.55%

Note: In the table above, the financial measures which exclude the impact of PCI loans are non-GAAP financial measures.

(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).

(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 accounts payable and 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, 2016, the provision for credit losses was $5.4 billion, compared with $3.8 billion for the year ended December 31, 2015.

The total consumer provision for credit losses increased for the year ended December 31, 2016 when compared with the prior year. The increase in the provision was driven by:

- a $920 million increase related to the credit card portfolio, due to a $600 million addition in the allowance for loan losses, as well as $320 million of higher net charge-offs, driven by loan growth, including growth in newer vintages which, as anticipated, have higher loss rates compared to the overall portfolio,
- a $450 million lower benefit related to the residential real estate portfolio, as the current year reduction in the allowance for loan losses was lower than the prior year. The reduction in both periods reflected continued improvements in home prices and lower delinquencies and
- a $150 million increase related to the auto and business banking portfolio, due to additions to the allowance for loan losses and higher net charge-offs, reflecting loan growth in the portfolios.

The wholesale provision for credit losses increased for the year ended December 31, 2016 reflecting the impact of downgrades in the Oil & Gas and Natural Gas Pipelines portfolios.

Year ended December 31, (in millions)	Provision for loan losses			Provision for lending-related commitments			Total provision for credit losses		
	2016	2015	2014	**2016**	2015	2014	**2016**	2015	2014
Consumer, excluding credit card	**$ 467**	$ (82)	$ 414	**$ –**	$ 1	$ 5	**$ 467**	$ (81)	$ 419
Credit card	**4,042**	3,122	3,079	**–**	–	–	**4,042**	3,122	3,079
Total consumer	**4,509**	3,040	3,493	**–**	1	5	**4,509**	3,041	3,498
Wholesale	**571**	623	(269)	**281**	163	(90)	**852**	786	(359)
Total	**$ 5,080**	$ 3,663	$ 3,224	**$ 281**	$ 164	$ (85)	**$ 5,361**	$ 3,827	$ 3,139

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 assess 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 and deposits, 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
- Deposits are measured as the cash balances placed with central and commercial banks
- 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

Some activities may create contingent or indirect exposure related to a country (for example, providing clearing services or secondary exposure to collateral on securities financing receivables). These 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 292.

Country risk stress testing

The country risk stress framework aims to estimate 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, 2016. 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 client activity and market flows.

The increase in exposure to Germany, Japan and Luxembourg since December 31, 2015 largely reflects higher Euro and Yen balances, predominantly placed on deposit at the central banks of these countries, driven by changing client positions and prevailing market and liquidity conditions.

Top 20 country exposures

	December 31, 2016			
(in billions)	Lending and deposits[a]	Trading and investing[b][c]	Other[d]	Total exposure
Germany	$ 46.9	$ 15.2	$ –	$ 62.1
United Kingdom	25.0	15.8	0.6	41.4
Japan	33.9	4.0	0.1	38.0
France	13.0	12.0	0.2	25.2
China	9.8	6.5	0.8	17.1
Canada	10.9	2.6	0.1	13.6
Australia	6.8	5.6	–	12.4
Netherlands	6.3	3.1	1.1	10.5
Luxembourg	10.0	0.2	–	10.2
Brazil	5.0	5.0	–	10.0
Switzerland	7.5	0.6	1.6	9.7
India	3.8	4.5	0.4	8.7
Italy	3.3	3.7	–	7.0
Korea	3.9	2.3	0.8	7.0
Hong Kong	2.1	1.4	1.9	5.4
Singapore	2.5	1.3	1.2	5.0
Mexico	3.1	1.4	–	4.5
Saudi Arabia	3.5	0.8	–	4.3
United Arab Emirates	3.2	1.1	–	4.3
Ireland	1.6	0.3	2.3	4.2

(a) Lending and deposits includes loans and accrued interest receivable (net of collateral and the allowance for loan losses), deposits with banks (including central 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.

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 and liabilities.

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 CIO, Treasury and Corporate ("CTC") CRO, who reports to the 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 material legal entity liquidity stress tests, and monitoring and reporting regulatory defined liquidity 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. In addition, the DRPC reviews and recommends to the Board of Directors, for formal approval, the Firm's liquidity risk tolerances, liquidity strategy, and liquidity policy at least annually. For further discussion of ALCO and other risk-related committees, see Enterprise-wide Risk Management on pages 71–75.

Internal Stress testing

Liquidity stress tests are intended to ensure the Firm has sufficient liquidity under a variety of adverse scenarios, including scenarios analyzed as part of the Firm's resolution and recovery planning. Stress scenarios are produced for JPMorgan Chase & Co. ("Parent Company") and the Firm's material legal entities on a regular basis and ad hoc stress tests are performed, as needed, in response to specific market events or concerns. Liquidity stress tests assume all of the Firm's contractual obligations are met and take into consideration varying levels of access to unsecured and secured funding markets, estimated non-contractual and contingent outflows and potential impediments to the availability and transferability of liquidity between jurisdictions and material legal entities such as regulatory, legal or other restrictions. Liquidity outflow assumptions are modeled across a range of time horizons and contemplate both market and idiosyncratic stress.

Results of stress tests are considered in the formulation of the Firm's funding plan and assessment of its liquidity position. The Parent Company acts as a source of funding for the Firm through stock and long-term debt issuances, and the IHC provides funding support to the ongoing operations of the Parent Company and its subsidiaries, as necessary. The Firm maintains liquidity at the Parent Company and the IHC, in addition to liquidity held at the operating subsidiaries, at levels sufficient to comply with liquidity risk tolerances and minimum liquidity requirements, to manage through periods of stress where access to normal funding sources is disrupted.

Liquidity management

Treasury and CIO is responsible for liquidity management. The primary objectives of effective liquidity management are to ensure that the Firm's core businesses and material legal entities 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 an optimal funding mix, and availability of liquidity sources. The Firm manages liquidity and funding using a centralized, global approach across its entities, taking into consideration both their current liquidity profile and any potential changes over time, in order to optimize liquidity sources and uses.

In the context of the Firm's liquidity management, Treasury and CIO 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-specific 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.

LCR and NSFR

The U.S. LCR rule requires the Firm 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 was required to be 90% at January 1, 2016, increased to a minimum of 100% commencing January 1, 2017. At December 31, 2016, the Firm was compliant with the Fully Phased-In U.S. LCR.

On December 19, 2016 the Federal Reserve published final U.S. LCR public disclosure requirements for certain bank holding companies and nonbank financial companies. Starting with the second quarter of 2017, the Firm will be required to disclose quarterly its consolidated LCR pursuant to the U.S. LCR rule, including the Firm's average LCR for the quarter and the key quantitative components of the average LCR in a standardized template, along with a qualitative discussion of material drivers of the ratio, changes over time, and causes of such changes.

The Basel Committee final standard for the net stable funding ratio ("Basel NSFR") is intended to measure the adequacy of "available" and "required" amounts of stable funding over a one-year horizon. Basel 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.

On April 26, 2016, the U.S. NSFR proposal was released for large banks and bank holding companies and was largely consistent with Basel NSFR. The proposed requirement would apply beginning on January 1, 2018, consistent with the Basel NSFR timeline.

The Firm estimates it was compliant with the proposed U.S. NSFR as of December 31, 2016 based on its current understanding of the proposed rule.

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, 2016, the Firm's HQLA was $524 billion, compared with $496 billion as of December 31, 2015. The increase in HQLA primarily reflects the impact of sales, maturities and paydowns in non-HQLA-eligible securities, as well as deposit growth in excess of loan growth. Certain of these actions resulted in increased excess liquidity at JPMorgan Chase Bank, N.A. and Chase Bank USA, N.A. which is excluded from the Firm's HQLA as required under the U.S. LCR rules. The Firm's HQLA may fluctuate from period to period primarily due to normal flows from client activity.

The following table presents the Firm's estimated HQLA included in the U.S. LCR broken out by HQLA-eligible cash and securities as of December 31, 2016.

December 31, (in billions)		2016
HQLA		
Eligible cash[(a)]	$	323
Eligible securities[(b)]		201
Total HQLA[(c)]	$	524

(a) Cash on deposit at central banks.
(b) Predominantly includes U.S. agency MBS, U.S. Treasuries, and sovereign bonds net of applicable haircuts under U.S. LCR rules.
(c) Excludes excess HQLA at JPMorgan Chase Bank, N.A. and Chase Bank USA, N.A.

As of December 31, 2016, in addition to HQLA reported above, the Firm had approximately $262 billion of unencumbered marketable securities, such as equity securities and fixed income debt securities, available to raise liquidity, if required. This includes HQLA-eligible securities included as part of the excess liquidity at JPMorgan Chase Bank, N.A. The Firm also 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, 2016, the Firm's remaining borrowing capacity at various FHLBs and the Federal Reserve Bank discount window was approximately $221 billion. This remaining borrowing capacity excludes the benefit of securities included in HQLA or other unencumbered securities that are currently held at the Federal Reserve Bank discount window, but 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 ($894.8 billion at December 31, 2016), is funded with a portion of the Firm's deposits ($1,375.2 billion at December 31, 2016) 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

The table below summarizes, by line of business, the period-end and average deposit balances as of and for the years ended December 31, 2016 and 2015.

Deposits			Year ended December 31,	
As of or for the year ended December 31,			Average	
(in millions)	**2016**	2015	**2016**	2015
Consumer & Community Banking	**$ 618,337**	$ 557,645	**$ 586,637**	$ 530,938
Corporate & Investment Bank	**412,434**	395,228	**409,680**	414,064
Commercial Banking	**179,532**	172,470	**172,835**	184,132
Asset & Wealth Management	**161,577**	146,766	**153,334**	149,525
Corporate	**3,299**	7,606	**5,482**	17,129
Total Firm	**$ 1,375,179**	$ 1,279,715	**$ 1,327,968**	$ 1,295,788

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. 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.

The Firm's loans-to-deposits ratio was 65% at both December 31, 2016 and 2015.

As of December 31, 2016, total deposits for the Firm were $1,375.2 billion, compared with $1,279.7 billion at December 31, 2015 (61% of total liabilities at each of December 31, 2016 and 2015). The increase was attributable to higher consumer and wholesale deposits. The increase in consumer deposits reflected continuing strong growth from existing and new customers, and the impact of low attrition rates. The wholesale increase was driven by growth in operating deposits related to client activity in CIB's Treasury Services business, and inflows in AWM primarily from business growth and the impact of new rules governing money market funds.

The Firm believes average deposit balances are generally more representative of deposit trends. The increase in average deposits for the year ended December 31, 2016 compared with the year ended December 31, 2015, was predominantly driven by an increase in consumer deposits, partially offset by a reduction in wholesale non-operating deposits, driven by the Firm's actions in 2015 to reduce such deposits. 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 51–70 and pages 43–44, respectively.

The following table summarizes short-term and long-term funding, excluding deposits, as of December 31, 2016 and 2015, and average balances for the years ended December 31, 2016 and 2015. For additional information, see the Consolidated Balance Sheet Analysis on pages 43–44 and Note 21.

Sources of funds (excluding deposits)

As of or for the year ended December 31, (in millions)	2016	2015	Average 2016	Average 2015	
Commercial paper:					
Wholesale funding	$ 11,738	$ 15,562	$ 15,001	$ 19,340	
Client cash management	—	—	—	18,800	(i)
Total commercial paper	$ 11,738	$ 15,562	$ 15,001	$ 38,140	
Obligations of Firm-administered multi-seller conduits[(a)]	$ 2,719	$ 8,724	$ 5,153	$ 11,961	
Other borrowed funds	$ 22,705	$ 21,105	$ 21,139	$ 28,816	
Securities loaned or sold under agreements to repurchase:					
Securities sold under agreements to repurchase	$ 149,826	$ 129,598	$ 160,458	$ 168,163	
Securities loaned[(b)]	12,137	16,877	13,195	18,633	
Total securities loaned or sold under agreements to repurchase[(b)(c)(d)(e)]	$ 161,963	$ 146,475	$ 173,653	$ 186,796	
Senior notes	$ 151,042	$ 149,964	$ 153,768	$ 147,498	
Trust preferred securities	2,345	3,969	3,724	4,341	
Subordinated debt	21,940	25,027	24,224	27,310	
Structured notes	37,292	32,813	35,978	31,309	
Total long-term unsecured funding	$ 212,619	$ 211,773	$ 217,694	$ 210,458	
Credit card securitization[(a)]	31,181	27,906	29,428	30,382	
Other securitizations[((a)(f)]	1,527	1,760	1,669	1,909	
FHLB advances	79,519	71,581	73,260	70,150	
Other long-term secured funding[(g)]	3,107	5,297	4,619	4,332	
Total long-term secured funding	$ 115,334	$ 106,544	$ 108,976	$ 106,773	
Preferred stock[(h)]	$ 26,068	$ 26,068	26,068	$ 24,040	
Common stockholders' equity[(h)]	$ 228,122	$ 221,505	224,631	$ 215,690	

(a) Included in beneficial interest issued by consolidated variable interest entities on the Firm's Consolidated balance sheets.
(b) Prior period amounts have been revised to conform with current period presentation.
(c) Excludes federal funds purchased.
(d) Excludes long-term structured repurchase agreements of $1.8 billion and $4.2 billion as of December 31, 2016 and 2015, respectively, and average balances of $2.9 billion and $3.9 billion for the years ended December 31, 2016 and 2015, respectively.
(e) Excludes long-term securities loaned of $1.2 billion and $1.3 billion as of December 31, 2016, and December 31, 2015, respectively, and average balances of $1.3 billion and $0.9 billion for the years ended December 31, 2016 and 2015, respectively.
(f) Other securitizations includes securitizations of 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.
(g) Includes long-term structured notes which are secured.
(h) For additional information on preferred stock and common stockholders' equity see Capital Risk Management on pages 76–85, Consolidated statements of changes in stockholders' equity, Note 22 and Note 23.
(i) During 2015 the Firm discontinued its commercial paper customer sweep cash management program.

Short-term funding

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 the average balance of securities loaned or sold under agreements to repurchase for the year ended December 31, 2016, compared with the balance at December 31, 2015, was largely due to lower secured financing of trading assets-debt and equity instruments in the CIB related to client-driven market-making activities. 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, including TLAC requirements. Long-term funding objectives include maintaining diversification, maximizing market access and optimizing funding costs. 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 needs. The Parent Company advances substantially all net funding proceeds to the IHC. The IHC does not issue debt to external counterparties. The following table summarizes long-term unsecured issuance and maturities or redemptions for the years ended December 31, 2016 and 2015. For additional information, see Note 21.

Long-term unsecured funding

Year ended December 31, (in millions)	2016	2015
Issuance		
Senior notes issued in the U.S. market	**$ 25,639**	$ 19,212
Senior notes issued in non-U.S. markets	**7,063**	10,188
Total senior notes	**32,702**	29,400
Subordinated debt	**1,093**	3,210
Structured notes	**22,865**	22,165
Total long-term unsecured funding – issuance	**$ 56,660**	$ 54,775
Maturities/redemptions		
Senior notes	**$ 29,989**	$ 18,454
Trust preferred securities	**1,630**	1,500
Subordinated debt	**3,596**	6,908
Structured notes	**15,925**	18,099
Total long-term unsecured funding – maturities/redemptions	**$ 51,140**	$ 44,961

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, 2016 and 2015.

Long-term secured funding

Year ended December 31,	Issuance		Maturities/Redemptions	
(in millions)	**2016**	2015	**2016**	2015
Credit card securitization	**$ 8,277**	$ 6,807	**$ 5,025**	$ 10,130
Other securitizations[(a)]	**–**	–	**233**	248
FHLB advances	**17,150**	16,550	**9,209**	9,960
Other long-term secured funding[(b)]	**455**	1,105	**2,645**	383
Total long-term secured funding	**$ 25,882**	$ 24,462	**$ 17,112**	$ 20,721

(a) Other securitizations includes securitizations of student loans.
(b) Includes long-term structured notes which are secured.

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.

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 SPEs on page 45, and credit risk, liquidity risk and credit-related contingent features in Note 6 on page 181.

The credit ratings of the Parent Company and the Firm's principal bank and nonbank subsidiaries as of December 31, 2016, were as follows.

	JPMorgan Chase & Co.			JPMorgan Chase Bank, N.A. Chase Bank USA, N.A.			J.P. Morgan Securities LLC		
December 31, 2016	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[(a)]	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

(a) On February 22, 2017, Moody's published its updated rating methodologies for securities firms. Subsequently, as a result of this action, J.P. Morgan Securities LLC's long-term issuer rating was downgraded by one notch from Aa3 to A1. The short-term issuer rating was unchanged and the outlook remained 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.

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.

MARKET RISK MANAGEMENT

Market risk is 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.

Market Risk Management

Market Risk Management monitors market risks throughout the Firm and defines market risk policies and procedures. The Market Risk Management function reports to the Firm's CRO.

Market Risk Management seeks to manage 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 Management 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 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, to assess risk including:

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

Risk monitoring and control

Market risk exposure is managed 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.

Market Risk Management sets limits and regularly reviews and updates them as appropriate, with any changes approved by line of business management and Market Risk Management. 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 Management 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 Management and senior management. In the event of a breach, Market Risk Management 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.

The following table summarizes by line of business the predominant business activities that give rise to market risk, and the primary market risk management tools utilized to manage those risks.

Risk identification and classification by line of business

Line of Business	Predominant business activities and related market risks	Positions included in Risk Management VaR	Positions included in earnings-at-risk	Positions included in other sensitivity-based measurements

CCB	• Services mortgage loans which give rise to 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
	• Originates loans and takes deposits
		• 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 - debt instruments, and related hedges, classified as derivatives
		• Marketable equity investments measured at fair value through earnings
			• Retained loan portfolio
			• Deposits	

CIB	• Makes markets and services clients across fixed income, foreign exchange, equities and commodities • Market risk arises from changes in market prices (e.g., rates and credit spreads) resulting in a potential decline in net income	• Trading assets/liabilities – debt and marketable equity instruments, and derivatives, including hedges of the retained loan portfolio • Certain securities purchased, loaned or sold under resale agreements and securities borrowed • Fair value option elected liabilities • Derivative CVA and associated hedges	• Retained loan portfolio • Deposits	• Private-equity investments measured at fair value • Derivatives DVA/FVA and fair value option elected liabilities DVA
CB	• Engages in traditional wholesale banking activities which include extensions of loans and credit facilities and taking deposits • Risk arises from changes in interest rates and prepayment risk with potential for adverse impact on net interest income and interest-rate sensitive fees		• Retained loan portfolio • Deposits	
AWM	• Provides initial capital investments in products such as mutual funds, which give rise to market risk arising from changes in market prices in such products	• Debt securities held in advance of distribution to clients, classified as trading assets - debt and equity instruments	• Retained loan portfolio • Deposits	• Initial seed capital investments and related hedges, classified as derivatives • Capital invested alongside third-party investors, typically in privately distributed collective vehicles managed by AWM (i.e., co-investments)
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	• Derivative positions measured at fair value through noninterest revenue in earnings • Marketable equity investments measured at fair value through earnings	• Investment securities portfolio and related interest rate hedges • Deposits • Long-term debt and related interest rate hedges	• Private equity investments measured at fair value • Foreign exchange exposure related to Firm-issued non-USD long-term debt ("LTD") and related hedges

As part of the Firm's evaluation and periodic enhancement of its market risk measures, during the third quarter of 2016 the Firm refined the scope of positions included in risk management VaR. In particular, certain private equity positions in the CIB, exposure arising from non-U.S. dollar denominated funding activities in Corporate, as well as seed capital investments in AWM were removed from the VaR calculation. Commencing with the third quarter of 2016, exposure arising from these positions is captured using other sensitivity-based measures, such as a 10% decline in market value or a 1 basis point parallel shift in spreads, as appropriate. For more information, see Other sensitivity-based measures at page 123. The Firm believes this refinement to its reported VaR measures more appropriately captures the risk of its market risk sensitive instruments. This change did not impact Regulatory VaR as these positions are not included in the calculation of Regulatory VaR. Regulatory VaR is used to derive the Firm's regulatory VaR-based capital requirements under Basel III.

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 is closely aligned to the day-to-day risk management decisions made by the lines of business, and provides the appropriate information needed to respond to risk events on a daily basis.

The Firm's Risk Management VaR is calculated assuming a one-day holding period and an expected tail-loss methodology which approximates a 95% confidence level. Risk Management VaR provides a consistent framework to measure risk profiles and levels of diversification across product types and is used for aggregating risks and monitoring limits across businesses. Those 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 "back-testing exceptions," defined as losses greater than that predicted by VaR estimates, on average five times every 100 trading days. The number of VaR back-testing exceptions observed can differ from the statistically expected number of back-testing exceptions 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.

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.

For certain products, specific risk parameters are not captured in VaR due to the lack of inherent liquidity and availability of appropriate historical data. 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. The Firm therefore considers other measures such as stress testing, in addition to VaR, to capture and manage its market risk positions.

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

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 measurements, and other factors. Such changes may affect historical comparisons of VaR results. For information regarding model reviews and approvals, see Model Risk Management on page 128.

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.

For additional information on Regulatory VaR and the other components of market risk regulatory capital for the Firm (e.g. VaR-based measure, stressed VaR-based measure and the respective backtesting), see JPMorgan Chase's Basel III Pillar 3 Regulatory Capital Disclosures reports, which are available on the Firm's website at: (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,	2016			2015			At December 31,	
(in millions)	Avg.	Min	Max	Avg.	Min	Max	2016	2015
CIB trading VaR by risk type								
Fixed income	**$ 45**	**$ 33**	**$ 65**	$ 42	$ 31	$ 60	**$ 37**	$ 37
Foreign exchange	**12**	**7**	**27**	9	6	16	**14**	6
Equities	**13**	**5**	**32**	18	11	26	**12**	21
Commodities and other	**9**	**7**	**11**	10	6	14	**9**	10
Diversification benefit to CIB trading VaR	**(36)** (a)	**NM** (b)	**NM** (b)	(35) (a)	NM (b)	NM (b)	**(38)** (a)	(28) (a)
CIB trading VaR	**43**	**28**	**79**	44	27	68	**34**	46
Credit portfolio VaR	**12**	**10**	**16**	14	10	20	**11**	10
Diversification benefit to CIB VaR	**(10)** (a)	**NM** (b)	**NM** (b)	(9) (a)	NM (b)	NM (b)	**(7)** (a)	(10) (a)
CIB VaR	**45**	**32**	**81**	49	34	71	**38**	46
Consumer & Community Banking VaR	**3**	**1**	**6**	4	2	8	**3**	4
Corporate VaR	**6**	**3**	**13**	4	3	7	**3**	5
Asset & Wealth Management VaR	**2**	**—**	**4**	3	2	4	**—**	3
Diversification benefit to other VaR	**(3)** (a)	**NM** (b)	**NM** (b)	(3) (a)	NM (b)	NM (b)	**(2)** (a)	(4) (a)
Other VaR	**8**	**4**	**16**	8	5	12	**4**	8
Diversification benefit to CIB and other VaR	**(8)** (a)	**NM** (b)	**NM** (b)	(10) (a)	NM (b)	NM (b)	**(4)** (a)	(9) (a)
Total VaR	**$ 45**	**$ 33**	**$ 78**	$ 47	$ 34	$ 67	**$ 38**	$ 45

(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 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 discussed on page 117, during the third quarter of 2016 the Firm refined the scope of positions included in Risk Management VaR. In the absence of these refinements, the average VaR, without diversification, for each of the following reported components would have been higher by the following amounts for the full year 2016: CIB Equities VaR by $3 million; CIB trading VaR by $2 million; CIB VaR by $3 million; Corporate VaR by $4 million; AWM VaR by $2 million; Other VaR by $4 million; and Total VaR by $3 million. Additionally, the Total VaR at December 31, 2016 would have been higher by $7 million in the absence of these refinements.

Average Total VaR decreased $2 million for the full year ending December 31, 2016 as compared with the respective prior year period. The reduction in average Total VaR is due to the aforementioned scope changes as well as a lower risk profile in the Equities risk type. This was offset by changes in the risk profiles of the Foreign exchange and Fixed Income risk types. Additionally, average Credit portfolio VaR declined as a result of lower exposures arising from select positions.

The Firm's average Total VaR diversification benefit was $8 million or 18% of the sum for 2016, compared with $10 million or 21% of the sum for 2015.

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

VaR can vary significantly as positions change, market volatility fluctuates, and diversification benefits change.

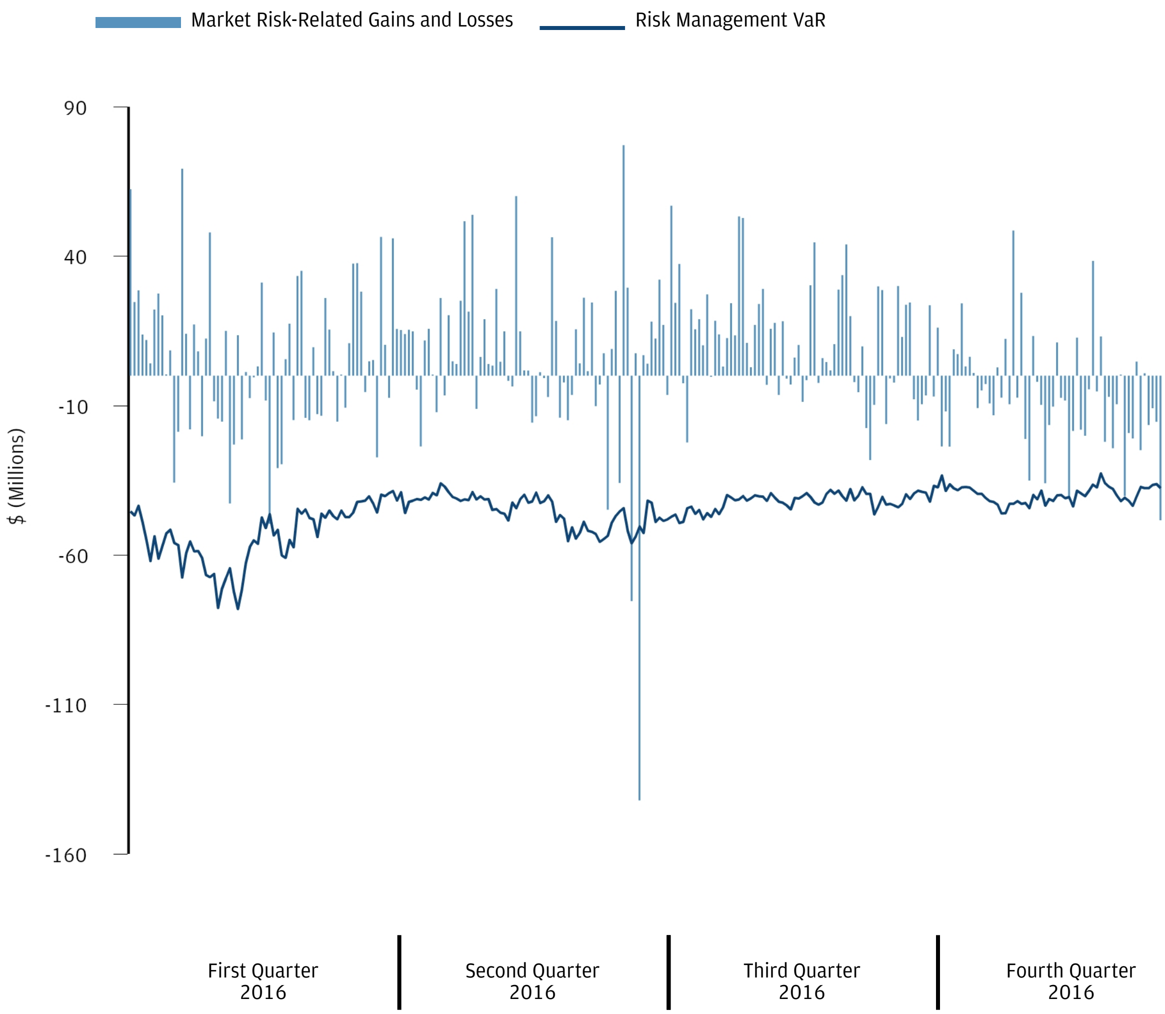
VaR back-testing

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, 2016. 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, 2016 the Firm observed 5 VaR back-testing exceptions and posted Market-risk related gains on 151 of the 260 days in this period.

Daily Market Risk-Related Gains and Losses
vs. Risk Management VaR (1-day, 95% Confidence level)
Year ended December 31, 2016



For the year ended December 31, 2016, there were 5 back-testing exceptions. The two exceptions that occurred towards the end of June 2016, subsequent to the U.K. referendum on membership in the European Union, reflect the elevated market volatility observed across multiple asset classes following the outcome of the vote.

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

Stress-test results, trends and qualitative explanations based on current market risk positions are reported to the respective LOBs 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. Results are also reported to the Board of Directors.

The Firm's stress testing framework is utilized in calculating results under scenarios mandated by the Federal Reserve's CCAR and 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 sensitivity 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 certain interest rate-sensitive fees. For a summary by line of business, identifying positions included in earnings-at-risk, see the table on page 117.

The CTC Risk Committee establishes the Firm's structural interest rate risk policies and market risk limits, which are subject to approval by the DRPC. Treasury and 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 baseline for net interest income and certain interest rate sensitive fees, 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 baseline, over the following 12 months utilizing multiple assumptions. These scenarios 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 that could be taken by the Firm in response to any such instantaneous rate changes. Mortgage prepayment assumptions are based on scenario 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.

The Firm's U.S. dollar sensitivities are presented in the table below. The non-U.S. dollar sensitivity scenarios are not material to the Firm's earnings-at-risk at December 31, 2016 and 2015.

JPMorgan Chase's 12-month earnings-at-risk sensitivity profiles

U.S. dollar	Instantaneous change in rates			
(in billions)	+200 bps	+100 bps	-100 bps	-200 bps
December 31, 2016	**$ 4.0**	**$ 2.4**	**NM** [(a)]	**NM** [(a)]
December 31, 2015	$ 5.2	$ 3.1	NM [(a)]	NM [(a)]

(a) Given the current level of market interest rates, downward parallel 100 and 200 basis point earnings-at-risk scenarios are not considered to be 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 to a 200 bps and 100 bps instantaneous increase in rates decreased by approximately $1.2 billion and $700 million, respectively, when compared to December 31, 2015. The primary driver of that decrease was the updating of the Firm's baseline to reflect higher interest rates. As higher interest rates are reflected in the Firm's baselines, the magnitude of the sensitivity to further increases in rates would be expected to be less significant. The net change in mix in the Firm's spot and forecasted balance sheet also contributed to a decrease in the net U.S. dollar sensitivity when compared to December 31, 2015.

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 benefit to net interest income of approximately $800 million. The increase 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 foreign exchange 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 non-U.S. dollar-denominated debt issuance. 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.

Other sensitivity-based measures

The Firm quantifies the market risk of certain investment and funding activities by assessing the potential impact on net revenue and OCI due to changes in relevant market variables. For additional information on the positions captured in other sensitivity-based measures, please refer to the Risk identification and classification table on page 117.

The table below represents the potential impact to net revenue or OCI for market risk sensitive instruments that are not included in VaR or earnings-at-risk. Where appropriate, instruments used for hedging purposes are reported along with the positions being hedged. The sensitivities disclosed in the table below may not be representative of the actual gain or loss that would have been realized at December 31, 2016, as the movement in market parameters across maturities may vary and are not intended to imply management's expectation of future deterioration in these sensitivities.

(in millions) December 31, 2016 **Activity**	**Description**	**Sensitivity measure**	**Gain/(Loss)**
Investment Activities			
Investment management activities	Consists of seed capital and related hedges; and fund co-investments	10% decline in market value	$ (166)
Other investments	Consists of private equity and other investments held at fair value	10% decline in market value	$ (358)
Funding Activities			
Non-USD LTD Cross-currency basis	Represents the basis risk on derivatives used to hedge the foreign exchange risk on the non-USD LTD	1 basis point parallel tightening of cross currency basis	$ (7)
Non-USD LTD hedges FX exposure	Primarily represents the foreign exchange revaluation on the fair value of the derivative hedges	10% depreciation of currency	$ (23)
Funding Spread Risk - Derivatives	Impact of changes in the spread related to derivatives DVA/FVA	1 basis point parallel increase in spread	$ (4)
Funding Spread Risk - Fair value option elected liabilities[(a)]	Impact of changes in the spread related to fair value option elected liabilities DVA	1 basis point parallel increase in spread	$ 17

(a) Impact recognized through OCI.

PRINCIPAL RISK MANAGEMENT

Principal investments are predominantly privately-held financial assets and instruments, typically representing ownership or junior capital positions, that have unique risks due to their illiquidity or for which there is less observable market or valuation data. Such positions 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. Increasingly, new principal investment activity seeks to enhance or accelerate line of business strategic business initiatives.

The Firm's principal investments are managed under various lines of business and are reflected within the respective LOBs 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.

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 senior 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, 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.

Other Functions such as Finance (including Tax), Technology and Human Resources provide oversight of significant regulatory obligations that are specific to their respective areas of responsibility.

Compliance implements various practices designed to identify and mitigate compliance risk by establishing policies, testing, 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' CCO who reports, effective September 2016, to the Firm's CRO.

The Firm maintains oversight and coordination of its Compliance Risk Management practices through the Firm's CCO, lines of business CCOs and regional CCOs to implement the Compliance program globally across the lines of business and regions. The Firm's CCO is a member of the FCC and the FRC. 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 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.

Conduct risk is the risk that an employee's action or inaction causes undue harm to the Firm's clients and customers, damages market integrity, undermines the Firm's reputation, or negatively impacts the Firm's culture.

Overview

Each line of business or function is accountable for identifying and managing its conduct risk to provide appropriate engagement, ownership and sustainability of a culture consistent with the Firm's How We Do Business Principles ("Principles"). The Principles serve as a guide for how employees are expected to conduct themselves. With the Principles serving as a guide, the Firm's Code sets out the Firm's expectations for each employee and provides certain information and the resources to help employees conduct business ethically and in compliance with the law everywhere the Firm operates. For further discussion of the Code, see Compliance Risk Management on page 125.

Governance and oversight

The CMDC is the primary Board-level Committee that oversees the Firm's culture and conduct programs. The Audit Committee has responsibility to review the program established by management that monitors compliance with the Code. Additionally, the DRPC reviews, at least annually, the Firm's qualitative factors included in the Risk Appetite Framework, including conduct risk. The DRPC also meets annually with the CMDC to review and discuss aspects of the Firm's compensation practices.

Conduct risk management is incorporated into various aspects of people management practices throughout the employee life cycle, including recruiting, onboarding, training and development, performance management, promotion and compensation processes. Businesses undertake annual Risk and Control Self-Assessment ("RCSA") assessments; and, as part of these RCSA reviews, they identify their respective key inherent operational risks (including conduct risks), evaluate the design and effectiveness of their controls, identify control gaps and develop associated action plans. The Firm's Know Your Employee framework generally addresses how the Firm manages, oversees and responds to workforce conduct related matters that may otherwise expose the Firm to financial, reputational, compliance and other operating risks. The Firm also has a HR Control Forum, the primary purpose of which is to discuss conduct and accountability for more significant risk and control issues and review, when appropriate, employee actions including but not limited to promotion and compensation actions.

Legal risk is the risk of loss or imposition of damages, fines, penalties or other liability arising from the failure to comply with a contractual obligation or to comply with laws, rules 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, rules 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. In addition, they advise 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.

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 FCC. 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.

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

The Firm uses models across various businesses and functions. The models are of varying levels of sophistication and are used for many purposes including, for example, the valuation of positions and the measurement of risk, such as assessing regulatory capital requirements, conducting stress testing, and making business decisions.

Model risks are owned by the users of the models within the various businesses and functions in the Firm based on the specific purposes of such models. Users and developers of models are responsible for developing, implementing and testing their models, as well as referring models to the Model Risk function for review and approval. Once models have been approved, model users and developers are responsible for maintaining a robust operating environment, and must monitor and evaluate the performance of the models on an ongoing basis. Model users and developers 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 function reviews and approves a wide range of models, including risk management, valuation and regulatory capital models used by the Firm. The Model Risk function is independent of model users and developers. 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 model tier.

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 user 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 on pages 132–134 and Note 3.

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 employee behavior, 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 damages 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, and the markets and regulatory environments in which it operates.

Operational Risk Management Framework

To monitor and control operational risk, the Firm has an Operational Risk Management Framework which is designed to enable the Firm to maintain a sound and well-controlled operational environment. The ORMF is comprised of four main components: Governance, Risk Assessment, Measurement, and Monitoring and Reporting.

Governance

The lines of business and corporate functions are responsible for owning and managing their operational risks. The Firmwide Oversight and Control Group, which consists of control officers within each line of business and corporate function, is responsible for the day-to-day execution of the ORMF.

Line of business and corporate function control committees oversee the operational risk and control environments of their respective businesses and functions. These committees escalate operational risk issues to the FCC, as appropriate. For additional information on the FCC, see Enterprise Risk Management on pages 71–75.

The Firmwide Risk Executive for Operational Risk Governance ("ORG"), a direct report to the CRO, is responsible for defining the ORMF and establishing minimum standards for its execution. Operational Risk Officers report to both the line of business CROs and to the Firmwide Risk Executive for ORG, and are independent of the respective businesses or corporate functions they oversee.

The Firm's Operational Risk Appetite Policy is approved by the DRPC. This policy establishes the Operational Risk Management Framework for the Firm. The assessments of operational risk using this framework are reviewed with the DRPC.

Risk assessment

The Firm utilizes several tools to identify, assess, mitigate and manage its operational risk. One such tool is the RCSA program which is executed by LOBs and corporate functions in accordance with the minimum standards established by ORG. As part of the RCSA program, lines of business and corporate functions identify key operational risks inherent in their activities, evaluate the effectiveness of relevant controls in place to mitigate identified risks, and define actions to reduce residual risk. Action plans are developed for identified control issues and businesses are held accountable for tracking and resolving issues in a timely manner. Operational Risk Officers independently challenge the execution of the RCSA program and evaluate the appropriateness of the residual risk results.

In addition to the RCSA program, the Firm tracks and monitors events that have or could lead to actual operational risk losses, including litigation-related events. Responsible businesses and corporate functions analyze their losses to evaluate the efficacy of their control environment to assess where controls have failed, and to determine where targeted remediation efforts may be required. ORG provides oversight of these activities and may also perform independent assessments of significant operational risk events and areas of concentrated or emerging risk.

Measurement

In addition to the level of actual operational risk losses, operational risk measurement includes operational risk-based capital and operational risk losses under both baseline and stressed conditions.

The primary component of the operational risk capital estimate is the Loss Distribution Approach ("LDA") statistical model, which simulates the frequency and severity of future operational risk loss projections 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.

As required under the Basel III capital framework, the Firm's operational risk-based capital methodology, which uses the Advanced Measurement Approach, incorporates internal and external losses as well as management's view of tail risk captured through operational risk scenario analysis, and evaluation of key business environment and internal control metrics.

The Firm considers the impact of stressed economic conditions on operational risk losses and develops 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 and ICAAP processes.

For information related to operational risk RWA, CCAR or ICAAP, see Capital Risk Management section, pages 76–85.

Monitoring and reporting
ORG has established standards for consistent operational risk reporting. The standards also reinforce escalation protocols to senior management and to the Board of Directors. Operational risk reports are produced on a firmwide basis as well as by line of business and corporate function.

Other operational risks

As mentioned previously, operational risk can manifest itself in various ways. Risks such as Compliance risk, Conduct risk, Legal risk and Model risk as well as other operational risks, can lead to losses which are captured through the Firm's operational risk measurement processes. More information on Compliance risk, Conduct risk, Legal risk and Model risk are discussed on pages 125, 126, 127 and 128, respectively. Details on other select operational risks are provided below.

Cybersecurity risk
The Firm devotes significant resources to protect the security of the Firm's computer systems, software, networks and other technology assets. The Firm's security efforts are intended to protect against cybersecurity attacks by unauthorized parties to obtain access to confidential information, destroy data, disrupt or degrade service, sabotage systems or cause other damage. The Firm continues to make significant investments in enhancing its cyber defense capabilities and to strengthen its partnerships with the appropriate government and law enforcement agencies and other businesses in order to understand the full spectrum of cybersecurity risks in the environment, enhance defenses and improve resiliency against cybersecurity threats. 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. Third party cybersecurity incidents such as system breakdowns or failures, misconduct by the employees of such parties, or cyberattacks 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. Clients 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. However, where cybersecurity incidents are due to client failure to maintain the security of their own systems and processes, clients will generally be responsible for losses incurred.

To protect the confidentiality, integrity and availability of the Firm's infrastructure, resources and information, the Firm leverages the ORMF to ensure risks are identified and managed within defined corporate tolerances. The Firm's Board of Directors and the Audit Committee are regularly briefed on the Firm's cybersecurity policies and practices as well as its efforts regarding significant cybersecurity events.

Payment fraud risk
Payment fraud risk is the risk of external and internal parties unlawfully obtaining personal benefit at the expense of the Firm. Over the past year, the risk of payment fraud has increased across the industry, with the number of attempts hitting record highs. The complexities of these attacks along with perpetrators' strategies continue to evolve. A Payments Control Program has been established that includes Cybersecurity, Operations, Technology, Risk and the lines of business to manage the risk, implement controls and provide client education and awareness training. The program monitors and measures payment fraud activity, evaluates the Firm's cybersecurity defenses, limits access to sensitive data, and provides training to both employees and clients.

Third-party outsourcing risk
To identify and manage the operational risk inherent in its outsourcing activities, the Firm has a Third-Party Oversight ("TPO") framework to assist lines of business and corporate functions in selecting, documenting, onboarding, monitoring and managing their supplier relationships. The objective of the TPO framework is to hold third parties to the same high level of operational performance as is expected of the Firm's internal operations. The Third-Party Oversight group is responsible for Firmwide TPO training, monitoring, reporting and standards.

Business and technology resilience risk
Business disruptions can occur due to forces beyond the Firm's control such as severe weather, power or telecommunications loss, flooding, transit strikes, terrorist threats or infectious disease. The safety of the Firm's employees and customers is of the highest priority. The Firm's global resiliency 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. The program includes corporate governance, awareness and training, as well as strategic and tactical initiatives to identify, assess, and manage business interruption and public safety risks.

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.

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.

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 its 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 monitoring of reputation risk issues firmwide.

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 credit losses includes a formula-based component, an asset-specific component, and a component related to PCI loans. The determination of each of these components involves significant judgment on a number of matters. For further discussion of these components, areas of judgment and methodologies used in establishing the Firm's allowance for credit losses, see Note 15.

Allowance for credit losses sensitivity

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 changes to underlying external or Firm-specific historical data. The use of alternate estimates, data sources, adjustments to modeled loss estimates for model imprecision and other factors 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 credit loss estimates as of December 31, 2016, 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 100 basis point increase in unemployment rates from current levels could imply an increase to modeled credit loss estimates of approximately $600 million.
- For the residential real estate portfolio, excluding PCI loans, a combined 5% decline in housing prices and a 100 basis point increase in unemployment rates from current levels could imply an increase to modeled annual loss estimates of approximately $125 million.
- For credit card loans, a 100 basis point increase in unemployment rates from current levels could imply an increase to modeled annual loss estimates of approximately $900 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 $2.3 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 credit 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, 2016 (in billions, except ratio data)	Total assets at fair value	Total level 3 assets
Trading debt and equity instruments	$ 308.0	$ 7.9
Derivative receivables[(a)]	64.1	5.8
Trading assets	372.1	13.7
AFS securities	238.9	0.7
Loans	2.2	0.6
MSRs	6.1	6.1
Private equity investments[(b)]	1.7	1.6
Other	26.4	0.5
Total assets measured at fair value on a recurring basis	647.4	23.2
Total assets measured at fair value on a nonrecurring basis	1.6	0.8
Total assets measured at fair value	$ 649.0	$ 24.0
Total Firm assets	$ 2,491.0	
Level 3 assets as a percentage of total Firm assets[(a)]		1.0%
Level 3 assets as a percentage of total Firm assets at fair value[(a)]		3.7%

(a) For purposes of table above, the derivative receivables total reflects the impact of netting adjustments; however, the $5.8 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. The level 3 balances would be reduced if netting were applied, including the netting benefit associated with cash collateral.

(b) Private equity instruments represent investments within Corporate.

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 creditworthiness, 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, (b) long-term growth rates and (c) the estimated market 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, 2016. The fair values of these reporting units exceeded their carrying values by approximately 10% - 130% for all reporting units and did not indicate a significant risk of goodwill impairment based on current projections and valuations.

The projections for all of the Firm's reporting units are consistent with management's current 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 market 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 business 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 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, 2016, 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 management has determined 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.

Financial Accounting Standards Board (“FASB”) Standards adopted during 2016

Standard	Summary of guidance	Effects on financial statements
Amendments to the consolidation analysis	• Eliminates the deferral issued by the FASB in February 2010 of 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.	• Adopted January 1, 2016. • There was no material impact on the Firm’s Consolidated Financial Statements. • For further information, see Note 1.
Improvements to employee share-based payment accounting	• Requires that all excess tax benefits and tax deficiencies that pertain to employee stock-based incentive payments be recognized within income tax expense in the Consolidated statements of income, rather than within additional paid-in capital.	• Adopted January 1, 2016. • There was no material impact on the Firm’s Consolidated Financial Statements.
Measuring the financial assets and financial liabilities of a consolidated collateralized financing entity	• 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.	• Adopted January 1, 2016. • There was no material impact on the Firm’s Consolidated Financial Statements as the Firm has historically measured the financial assets and liabilities using the more observable fair value.
Recognition and measurement of financial assets and financial liabilities – DVA to OCI	• For financial liabilities where the fair value option has been elected, the portion of the total change in fair value caused by changes in the Firm’s own credit risk (i.e., DVA) is required to be presented separately in OCI. • Requires a cumulative-effect adjustment to retained earnings as of the beginning of the period of adoption.	• Adopted January 1, 2016. • There was no material impact on the Firm’s Consolidated Financial Statements. • For additional information about the impact of the adoption of the new accounting guidance, see Notes 3, 4 and 25.

FASB Standards issued but not yet adopted

Standard	Summary of guidance	Effects on 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 Consolidated 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 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 Consolidated 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. The Firm's implementation efforts include the identification of revenue within the scope of the guidance, as well as the evaluation of revenue contracts and related accounting policies. While the Firm has not yet identified any material changes in the timing of revenue recognition, the Firm's review is ongoing, and it continues to evaluate the presentation of certain contract costs (whether presented gross or offset against noninterest revenue).
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. • Generally requires a cumulative-effect adjustment to retained earnings as of the beginning of the reporting period of adoption.	• Required effective date: January 1, 2018. • The Firm is currently evaluating the potential impact on the Consolidated Financial Statements. The Firm's implementation efforts include the identification of securities within the scope of the guidance, the evaluation of the measurement alternative available for equity securities without a readily determinable fair value, and the related impact to accounting policies, presentation, and disclosures.
Leases *Issued February 2016*	• Requires lessees to recognize all leases longer than twelve months on the Consolidated balance sheets as lease liabilities with corresponding right-of-use assets. • Requires lessees and lessors to classify most leases using principles similar to existing lease accounting, but eliminates the "bright line" classification tests. • Expands qualitative and quantitative disclosures regarding leasing arrangements. • Requires adoption using a modified cumulative effect approach wherein the guidance is applied to all periods presented.	• Required effective date: January 1, 2019.[a] • The Firm is currently evaluating the potential impact on the Consolidated Financial Statements by reviewing its existing lease contracts and service contracts that may include embedded leases. The Firm expects to recognize lease liabilities and corresponding right-of-use assets (at their present value) related to predominantly all of the $10 billion of future minimum payments required under operating leases as disclosed in Note 30. However, the population of contracts subject to balance sheet recognition and their initial measurement remains under evaluation. The Firm does not expect material changes to the recognition of operating lease expense in its Consolidated statements of income.

FASB Standards issued but not yet adopted (continued)

Standard	Summary of guidance	Effects on financial statements
Financial instruments - credit losses *Issued June 2016*	• Replaces existing incurred loss impairment guidance and establishes a single allowance framework for financial assets carried at amortized cost (including HTM securities), which will reflect management's estimate of credit losses over the full remaining expected life of the financial assets. • Eliminates existing guidance for PCI loans, and requires recognition of an allowance for expected credit losses on financial assets purchased with more than insignificant credit deterioration since origination. • Amends existing impairment guidance for AFS securities to incorporate an allowance, which will allow for reversals of impairment losses in the event that the credit of an issuer improves. • Requires a cumulative-effect adjustment to retained earnings as of the beginning of the reporting period of adoption.	• Required effective date: January 1, 2020.[b] • The Firm has begun its implementation efforts by establishing a firmwide, cross-discipline governance structure. The Firm is currently identifying key interpretive issues, and is assessing existing credit loss forecasting models and processes against the new guidance to determine what modifications may be required. • The Firm expects that the new guidance will result in an increase in its allowance for credit losses due to several factors, including: 1. The allowance related to the Firm's loans and commitments will increase to cover credit losses over the full remaining expected life of the portfolio, and will consider expected future changes in macroeconomic conditions 2. The nonaccretable difference on PCI loans will be recognized as an allowance, offset by an increase in the carrying value of the related loans 3. An allowance will be established for estimated credit losses on HTM securities • The extent of the increase is under evaluation, but will depend upon the nature and characteristics of the Firm's portfolio at the adoption date, and the macroeconomic conditions and forecasts at that date.
Classification of certain cash receipts and cash payments in the statement of cash flows *Issued August 2016*	• Provides targeted amendments to the classification of certain cash flows, including treatment of cash payments for settlement of zero-coupon debt instruments and distributions received from equity method investments. • Requires retrospective application to all periods presented.	• Required effective date: January 1, 2018.[a] • The Firm is currently evaluating the potential impact on the Consolidated Financial Statements.
Treatment of restricted cash on the statement of cash flows *Issued November 2016*	• Requires inclusion of restricted cash in the cash and cash equivalents balances in the Consolidated statements of cash flows. • Requires additional disclosures to supplement the Consolidated statements of cash flows. • Requires retrospective application to all periods presented.	• Required effective date: January 1, 2018.[a] • The Firm is currently evaluating the potential impact on the Consolidated Financial Statements.
Definition of a business *Issued January 2017*	• Narrows the definition of a business and clarifies that, to be considered a business, the fair value of the gross assets acquired (or disposed of) may not be substantially all concentrated in a single identifiable asset or a group of similar assets. • In addition, in order to be considered a business, a set of activities and assets must include, at a minimum, an input and a substantive process that together significantly contribute to the ability to create outputs.	• Required effective date: January 1, 2018.[a] • No material impact is expected because the guidance is to be applied prospectively, although it is anticipated that after adoption, fewer transactions will be treated as acquisitions or dispositions of a business.
Goodwill *Issued January 2017*	• Requires an impairment loss to be recognized when the estimated fair value of a reporting unit falls below its carrying value. • Eliminates the second condition in the current guidance that requires an impairment loss to be recognized only if the estimated implied fair value of the goodwill is below its carrying value.	• Required effective date: January 1, 2020.[a] • Based on current impairment test results, the Firm does not expect a material effect on the Consolidated Financial Statements. • After adoption, the guidance may result in more frequent goodwill impairment losses due to the removal of the second condition.

(a) Early adoption is permitted.
(b) Early adoption is permitted on January 1, 2019.

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 SEC. 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 affecting the Firm's businesses, and the ability of the Firm to address those requirements;
- Heightened regulatory and governmental oversight and scrutiny of JPMorgan Chase's business practices, including dealings with retail customers;
- Changes in trade, monetary and fiscal policies and laws;
- Changes in income tax laws and regulations;
- 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;
- 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, including the introduction of new accounting standards;
- 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 operational systems and facilities;
- 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, 2016.

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.