JPMorgan Chase & Co.

PILLAR 3 REGULATORY CAPITAL DISCLOSURES

For the quarterly period ended December 31, 2016

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JPMorgan Chase & Co., ("JPMorgan Chase" or the "Firm") a financial holding company incorporated under Delaware law in 1968, is a leading global financial services firm and one of the largest banking institutions in the United States of America ("U.S."), with operations worldwide; the Firm had $2.5 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.

Pillar 3 report overview

This report provides information on the Firm's capital structure, capital adequacy, risk exposures, and risk-weighted assets ("RWA"). This report describes the internal models used to translate risk exposures into required capital.

This report should be read in conjunction with JPMorgan Chase's Annual Report on Form 10-K for the year ended December 31, 2016 ("2016 Form 10-K") which has been filed with the U.S. Securities and Exchange Commission ("SEC").

Basel III overview

The Basel framework consists of a three "Pillar" approach:

- Pillar 1 establishes minimum capital requirements, defines eligible capital instruments, and prescribes rules for calculating RWA.
- Pillar 2 requires banks to have an internal capital adequacy assessment process and requires that banking supervisors evaluate each bank's overall risk profile as well as its risk management and internal control processes.
- Pillar 3 encourages market discipline through disclosure requirements which allow market participants to assess the risk and capital profiles of banks.

The U.S. capital requirements generally follow the Capital Accord of the Basel Committee, as amended from time to time.

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 also includes a requirement for Advanced Approach banking organizations, including the Firm, to calculate a supplementary leverage ratio ("SLR"). Certain 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.

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.

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, Chief Financial Officer ("CFO"), CRO and Chief Operating Officer ("COO"). Line of Business ("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.

➢ Refer to pages 71–75 of the 2016 Form 10-K for information on Enterprise-Wide Risk Management.

There are three categories of risk-based capital under the Basel III Transitional rules: common equity Tier 1 capital ("CET1") capital, as well as Tier 1 capital and Tier 2 capital. CET1 capital predominantly includes common stockholders' equity (including capital for accumulated other comprehensive income AOCI related to debt and equity securities classified as available-for-sale ("AFS") as well as for defined benefit pension and other postretirement employee benefits ("OPEB") plans), less certain deductions for goodwill, mortgage servicing rights ("MSRs") and deferred tax assets that arise from NOL and tax credit carryforwards. Tier 1 capital predominantly consists of CET1 capital as well as perpetual preferred stock. Tier 2 capital includes long-term debt qualifying as Tier 2 and qualifying allowance for credit losses. Total capital is Tier 1 capital plus Tier 2 capital.

Components of capital

A reconciliation of total stockholders' equity to Basel III Advanced Transitional CET1 capital, Tier 1 capital, Tier 2 capital, and Total capital is presented in the table below.

- Refer to the Consolidated balance sheet on page 143 of 2016 Form 10-K for the components of total stockholders' equity.

December 31, 2016 (in millions)	Basel III Advanced Transitional
Total stockholders' equity	**$ 254,190**
Less: Preferred stock	26,068
Common stockholders' equity	**228,122**
Less: AOCI adjustment	(501)
CET1 capital before regulatory adjustments	**228,623**
Less:	
Goodwill	47,288
Other intangible assets	83
Other CET1 capital adjustments[a]	1,515
Add:	
Deferred tax liabilities[b]	3,230
CET1 capital	**182,967**
Preferred stock	26,068
Other Tier 1 capital adjustments	107
Less: Tier 1 capital deductions[a]	1,030
Total Tier 1 capital	**208,112**
Long-term debt and other instruments qualifying as Tier 2 capital	15,253
Qualifying allowance for credit losses	3,893
Other Tier 2 capital adjustments	1,415
Less: Tier 2 capital deductions	81
Total Tier 2 capital	**20,480**
Total capital	**$ 228,592**

(a) Effective January 1, 2016, the adjustment includes the impact of the adoption of debit valuation adjustments ("DVA") through other comprehensive income. For further discussion of the accounting change refer to Note 25 on page 249 of the 4Q16 Form 10-K

(b) 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 tangible common equity.

Terms of capital instruments

The terms and conditions of the Firm's capital instruments are described in the Firm's SEC filings.

- Refer to Note 22 on page 247, and Note 23 on pages 247–248, respectively, of the 2016 Form 10-K for additional information on preferred stock and common stock.
- Refer to Note 21 on page 245 of the 2016 Form 10-K for information on trust preferred securities.
- Refer to the Supervision and Regulation section in Part 1, Item 1 on pages 1–2 of the 2016 Form 10-K.

Restrictions on capital and transfer of funds

There are regulations governing the amount of dividends the Firm's banking subsidiaries could pay without the prior approval of their relevant banking regulators.

- Refer to Note 27 on page 253 of the 2016 Form 10-K for information on restrictions on cash and intercompany funds transfers.

Capital management

For additional information on regulatory capital, capital actions, and regulatory capital outlook, refer to the Capital Risk Management section on pages 76–85 and to Note 28 on pages 253–255 of the 2016 Form 10-K. The Capital Risk Management section of the Form 10-K reflects calculations under the Basel III Advanced and Standardized Fully Phased-In rules, in addition to regulatory capital, RWA, and capital ratios calculated under the Basel III Advanced and Standardized Transitional rules, whereas the related capital metrics presented in this report are calculated under Basel III Advanced Transitional rules, except where explicitly noted. As a result, there are differences in the amounts presented between the two reports.

Risk-weighted assets

Basel III establishes two comprehensive methodologies for calculating RWA (a Standardized approach and an Advanced approach) which include capital requirements for credit risk, market risk, and in the case of Basel III Advanced, also operational risk. Key differences in the calculation of credit risk RWA between the Standardized and Advanced approaches are that for Basel III Advanced, credit risk RWA is based on risk-sensitive approaches which largely rely on the use of internal credit models and parameters, whereas for Basel III Standardized, credit risk RWA is generally based on supervisory risk-weightings which vary primarily by counterparty type and asset class. Market risk RWA is calculated on a generally consistent basis between Basel III Standardized and Basel III Advanced, both of which incorporate the requirements set forth in Basel 2.5. In addition to the RWA calculated under these methodologies, the Firm may supplement such amounts to incorporate management judgment and feedback from its bank regulators.

Covered position definition

The covered position definition determines which positions are subject to market risk RWA treatment and, consequently, which positions are subject to credit risk RWA treatment.

Basel III capital rules define a covered position as:

(1) A trading asset or trading liability that meets both of the following conditions:
   - The position is held for the purpose of short-term resale or with the intent to benefit from actual or expected short-term price movements, or to lock in arbitrage profits;
   - The position is free of any restrictive covenants on its tradability or the Firm is able to hedge the material risk elements of the position in a two-way market;

(2) A hedge of a covered position; or

(3) A foreign exchange or commodity position, regardless of whether the position is a trading position (excluding structural foreign currency positions with prior supervisory approval).

Covered positions exclude certain positions such as equity positions that are not publicly traded, intangible assets including any servicing assets, and liquidity facilities that provide support to asset-backed commercial paper programs.

Basel III capital rules specify that characterization of an asset or liability as "trading" under accounting principles generally accepted in the U.S. ("U.S. GAAP") would not on its own determine whether the asset or liability meets the regulatory definition of a covered position.

Throughout this report, covered positions are also referred to as "trading book" positions. Similarly, non-covered positions are referred to as "banking book" positions. Both covered and non-covered derivative transactions are assigned counterparty credit risk RWA.

Components of risk-weighted assets

Basel III Advanced rules classify capital requirements into three broad categories:

- Credit risk RWA covers the risk of unexpected losses due to obligor, counterparty, or issuer default, and in certain cases adverse changes in credit quality. Credit risk RWA includes retail credit risk, wholesale credit risk, counterparty credit risk, certain securitization exposures, equity investments, other assets, and the credit valuation adjustment (CVA) capital charge.
- Market risk RWA covers the risk of losses due to adverse movements in market conditions and idiosyncratic events.
- Operational risk RWA covers the risk of loss resulting from inadequate or failed processes or systems or due to external events that are neither market- nor credit-related.

The following table presents the Firm's total risk-weighted assets under Basel III Advanced Transitional at December 31, 2016.

December 31, 2016 (in millions)	Basel III Advanced Transitional RWA
Credit risk	$ 949,258
Market risk	127,657
Operational risk	400,000
Total RWA	$ 1,476,915

RWA rollforward

The following table presents changes in the components of RWA under Basel III Advanced Transitional for the three months ended December 31, 2016. The amounts in the rollforward categories are estimates, based on the predominant driver of the change.

	Basel III Advanced Transitional RWA			
Three months ended December 31, 2016 (in millions)	Credit risk	Market risk	Operational risk	Total
September 30, 2016	$974,471	$140,706	$ 400,000	$1,515,177
Model & data changes[a]	(10,082)	(500)	–	(10,582)
Portfolio runoff[b]	(3,500)	–	–	(3,500)
Movement in portfolio levels[c]	(11,631)	(12,549)	–	(24,180)
Changes in RWA	(25,213)	(13,049)	–	(38,262)
December 31, 2016	$949,258	$127,657	$ 400,000	$1,476,915

(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
(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.

Capital requirements

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.

➢ Refer to the Capital Risk Management section on pages 76–85 of the 2016 Form 10-K for information on the Firm's strategy and governance.

The Basel III framework applies to the consolidated results of JPMorgan Chase & Co. The basis of consolidation used for regulatory reporting is the same as that used under U.S. GAAP. There are no material entities within JPMorgan Chase that are deconsolidated or whose capital is deducted.

Under the risk-based capital ("RBC") guidelines of the Federal Reserve, JPMorgan Chase is required to maintain minimum ratios of CET1, Tier 1 and Total capital to risk-weighted assets, as well as a minimum leverage ratio (which is defined as Tier 1 capital divided by adjusted quarterly average assets). Failure to meet these minimum requirements could cause the Federal Reserve to take action. National bank subsidiaries also are subject to these capital requirements by their respective primary regulators.

The following table presents the minimum ratios to which the Firm and its national bank subsidiaries are subject as of December 31, 2016.

	Minimum capital ratios		Well-capitalized ratios	
	BHC[(a)]	IDI[(b)]	BHC[(c)]	IDI[(d)]
Capital ratios				
CET1	6.25%	5.125%	—%	6.5%
Tier 1	7.75	6.625	6.0	8.0
Total	9.75	8.625	10.0	10.0
Tier 1 leverage	4.0	4.0	—	5.0

Note: The ratios presented in the table above are as defined by the regulations issued by the Federal Reserve, OCC and FDIC and to which the Firm and its national bank subsidiaries are subject.

(a) Represents the transitional minimum capital ratios applicable to the Firm under Basel III at December 31, 2016. Commencing in the first quarter of 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% GSIB surcharge.

(b) Represents requirements for JPMorgan Chase's banking subsidiaries. The CET1 minimum capital ratio includes 0.625% resulting from the phase in of the 2.5% capital conservation buffer that is applicable to the banking subsidiaries. The banking subsidiaries are not subject to the GSIB surcharge.

(c) Represents requirements for Bank Holding Companies ("BHC") pursuant to regulations issued by the Federal Reserve.

(d) Represents requirements for bank subsidiaries pursuant to regulations issued under the FDIC Improvement Act.

Capital adequacy

As of December 31, 2016, JPMorgan Chase and all of its U.S. banking subsidiaries were well-capitalized and met all capital requirements to which each was subject. Capital ratios for the Firm's significant national bank subsidiaries are presented below.

In addition to its U.S. banking subsidiaries, JPMorgan Chase also has other regulated subsidiaries, all of which meet applicable capital requirements.

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 Wall Street Reform and Consumer Protection Act ("Dodd-Frank Act").

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.

Comprehensive Capital Analysis and Review ("CCAR")

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

Regulatory capital metrics for JPMorgan Chase and its significant national bank subsidiaries

The following tables present the regulatory capital, assets and risk-based capital ratios for JPMorgan Chase and its significant national bank subsidiaries under both Basel III Standardized Transitional and Basel III Advanced Transitional.

December 31, 2016 (in millions, except ratios)	JPMorgan Chase & Co.	
	Basel III Standardized Transitional	**Basel III Advanced Transitional**
Regulatory capital		
CET1 capital	$ 182,967	$ 182,967
Tier 1 capital	208,112	208,112
Total capital[a]	239,553	228,592
Assets		
Risk-weighted	$ 1,464,981	$ 1,476,915
Adjusted average[b]	2,484,631	2,484,631
Capital ratios[c]		
CET1[d]	12.5%	12.4%
Tier 1	14.2	14.1
Total	16.4	15.5
Tier 1 leverage[e]	8.4	8.4

December 31, 2016 (in millions, except ratios)	JPMorgan Chase Bank, N.A.	
	Basel III Standardized Transitional	**Basel III Advanced Transitional**
Regulatory capital		
CET1 capital	$ 179,319	$ 179,319
Tier 1 capital	179,341	179,341
Total capital	191,662	184,637
Assets		
Risk-weighted	$ 1,293,203	$ 1,262,613
Adjusted average[b]	2,088,851	2,088,851
Capital ratios[c]		
CET1[d]	13.9%	14.2%
Tier 1	13.9	14.2
Total	14.8	14.6
Tier 1 leverage[e]	8.6	8.6

December 31, 2016 (in millions, except ratios)	Chase Bank USA, N.A.	
	Basel III Standardized Transitional	**Basel III Advanced Transitional**
Regulatory capital		
CET1 capital	$ 16,784	$ 16,784
Tier 1 capital	16,784	16,784
Total capital	22,862	21,434
Assets		
Risk-weighted	$ 112,297	$ 186,378
Adjusted average[b]	120,304	120,304
Capital ratios[c]		
CET1[d]	14.9%	9.0%
Tier 1	14.9	9.0
Total	20.4	11.5
Tier 1 leverage[e]	14.0	14.0

(a) Total capital for JPMorgan Chase & Co. includes $510 million of surplus capital in insurance subsidiaries

(b) Adjusted average assets, for purposes of calculating the Tier 1 leverage ratio, includes total quarterly average assets adjusted for unrealized gains/(losses) on AFS securities, less deductions for goodwill and other intangible assets, defined benefit pension plan assets, and deferred tax assets related to NOL and tax credit carryforwards.

(c) For each of the risk-based capital ratios, the capital adequacy of the Firm and its national bank subsidiaries are evaluated against the Basel III approach, Standardized or Advanced, resulting in the lower ratio (the "Collins Floor"), as required by the Collins Amendment of the Dodd-Frank Act.

(d) Commencing in the first quarter of 2016, the Firm and its U.S. subsidiary banks are required to maintain a capital conservation buffer in addition to the 4.5% minimum CET1 requirement, or be subject to limitations on the amount of capital that may be distributed, including dividends and common equity repurchases. The capital conservation buffer is calculated as the lowest of the: (i) CET1 ratio less the CET1 minimum requirement, (ii) Tier 1 ratio less the Tier1 minimum requirement and (iii) Total capital ratio less the Total capital minimum requirement. At December 31, 2016, the capital conservation buffer of the Firm, JPMorgan Chase Bank, N.A. and Chase Bank USA, N.A. was 7.5%, 6.6% and 3.0%, respectively. This was in excess of the estimated required capital conservation buffer of 1.75% (inclusive of the GSIB surcharge) for the Firm and 0.625% for JPMorgan Chase Bank, N.A. and Chase Bank USA, N.A. at that date. In addition, the buffer retained earnings of the Firm, JPMorgan Chase Bank, N.A and Chase Bank USA, N.A. was $7.5 billion, $8.5 billion and $1.3 billion respectively.

(e) The Tier 1 leverage ratio is not a risk-based measure of capital. This ratio is calculated by dividing Tier 1 capital by adjusted average assets.

Supplementary leverage ratio ("SLR")

The following table presents the components of the Firm's Advanced Transitional SLR as of December 31, 2016.

(in millions, except ratio)		December 31, 2016
Basel III Advanced Transitional Tier 1 Capital	**$**	**208,112**
Total assets		**2,490,972**
Less: Adjustments for frequency of calculations[a]		(41,778)
Total average assets[b]		**2,532,750**
Less: Adjustments for deductions from tier 1 capital		47,826
Total adjusted average assets[c]		**2,484,924**
Off-balance sheet exposures[d]		707,066
Total leverage exposure	**$**	**3,191,990**
Basel III Advanced Transitional SLR		**6.5%**

(a) The adjustment for frequency of calculations represents the difference between total assets at December 31, 2016, and total average assets for the quarter ended December 31, 2016, excluding the adjustments for frequency of calculations for derivatives and repo-style transactions of ($238) million and $531 million, respectively.

(b) To reconcile to total average assets as reported in SLR table in the 4Q16 Form 10-K, the total average assets reported in this table must be reduced by the aforementioned adjustment for frequency of calculations for derivative and repo-style transactions.

(c) 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.

(d) Off-balance sheet exposures are calculated as the average of the three month-end spot balances in the reporting quarter.

Additional information on the components of the leverage exposure is provided in the SLR section of this report.

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. The consumer credit portfolio refers to exposures held by Consumer & Community Banking ("CCB") as well as prime mortgage loans held in the Asset Management and the Corporate segments. The 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 wholesale credit portfolio refers primarily to exposures held by Corporate & Investment Bank ("CIB"), Commercial Banking ("CB"), Asset Management ("AM"), and Corporate. In addition to providing credit to clients, the Firm engages in client-related activities that give rise to counterparty credit risk such as securities financing, margin lending, and market-making activities in derivatives. Finally, credit risk is also inherent in the Firm's investment securities portfolio held by Treasury and Chief Investment Office ("CIO") in connection with its asset-liability management objectives. Investment securities, as well as deposits with banks and cash due from banks, are classified as wholesale exposures for RWA reporting.

In addition to counterparty default risk, Basel III includes a capital charge for credit valuation adjustments ("CVA") which reflects counterparty credit risk in the valuation of OTC derivatives. The firm calculates CVA RWA using the Simple CVA approach, which uses risk weights based on internal PD ratings and a combination of the current exposure method ("CEM") and the internal model method ("IMM") EADs.

➢ Refer to the Counterparty Credit Risk section on page 17 of this report for further description of the IMM and CEM EAD methodologies.

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 information on risk management policies and practices and accounting policies related to these exposures:

➢ Refer to Credit Risk Management on pages 86–107 of the 2016 Form 10-K.

➢ Refer to the Notes to the Consolidated Financial Statements beginning on page 146 of the 2016 Form 10-K. Specific page references are contained in the Appendix of this report.

Summary of credit risk RWA

Credit risk RWA includes retail, wholesale, and counterparty credit exposures described in this section, as well as securitization and equity exposures in the banking book. Other exposures such as non-material portfolios, unsettled transactions, and other assets that are not classified elsewhere are also included. The following table presents the Firm's total credit risk RWA at December 31, 2016.

December 31, 2016 (in millions)	Basel III Advanced Transitional RWA
Retail exposures	$ 247,157
Wholesale exposures	424,489
Counterparty exposures	93,619
Securitization exposures[(a)]	30,983
Equity exposures	37,481
Other exposures[(b)]	61,426
CVA	54,103
Total credit risk RWA	$ 949,258

(a) Represents banking book securitization RWA only.
(b) Includes other assets, non-material portfolios, and unsettled transactions.

Credit risk exposures

Credit risk exposures as reported under U.S. GAAP as of and for the three months ended December 31, 2016 are contained in the 2016 Form 10-K. Specific references to the 2016 Form 10-K are listed below.

Traditional credit products

- Refer to Credit Risk Management beginning on page 86 for credit-related information on the consumer and wholesale portfolios.
- Refer to Note 14 on pages 208-226 for the distribution of loans by geographic region and industry.
- Refer to Note 29 on pages 255-260 for the contractual amount and geographic distribution of lending-related commitments.

Counterparty credit risk

- Refer to Note 6 on pages 174-186 for the gross positive fair value, netting benefits, and net exposure of derivative receivables.
- Refer to Derivative contracts on pages 102-104 for credit derivatives used in credit portfolio management activities.
- Refer to Note 13 on pages 205-207 for information on gross and net securities purchased under resale agreements and securities borrowed transactions, and for information regarding the credit risk inherent in the securities financing portfolio.
- Refer to the Consumer Credit Portfolio section on pages 89-95, and to the Wholesale Credit Portfolio section on pages 96-104 for margin loans balances.
- Refer to Wholesale Credit Portfolio footnote (d) on page 99, Country Risk on pages 108-109, and Note 5 footnote (f) on page 173 for cash placed with banks.

Investment securities

- Refer to Note 12 on pages 199-205 for the investment securities portfolio by issuer type.

Country risk

- Refer to page 109 for the top 20 country exposures.

Allowance for credit losses

- Refer to Allowance for Credit Losses on pages 105-107 for a summary of changes in the allowance for loan losses and allowance for lending-related commitments.
- Refer to Note 15 on pages 227-231 for the allowance for credit losses and loans and lending-related commitments by impairment methodology.

Average balances

- Refer to page 274 for the Consolidated average balance sheet.

Credit risk concentrations

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

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

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

In the wholesale portfolio, credit risk concentrations are evaluated primarily by industry and monitored regularly on both an aggregate portfolio level and on an individual customer basis. The Firm's wholesale exposure is managed through loan syndications and participations, loan sales, securitizations, credit derivatives, master netting agreements, and collateral and other risk-reduction techniques.

The retail portfolio is comprised of exposures that are scored and managed on a pool basis rather than on an individual-exposure basis. For the retail 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.

The population of exposures subject to retail capital treatment for regulatory reporting substantially overlaps with the consumer credit portfolio reflected in the Firm's SEC disclosures. The retail population consists of all scored exposures (mainly in the Consumer & Community Banking business segment), certain residential mortgages booked as trading assets (that do not meet the definition of a covered position) and certain wholesale loans under $1 million as required by the Basel III capital rules.

The retail capital population excludes certain risk-rated business banking and auto dealer loans that are included in the consumer portfolio in the Firm's SEC disclosures; these are subject to wholesale capital treatment as required by the Basel III capital rules.

Risk parameter estimation

The internal ratings process for retail exposures covers the assignment of individual loan, line of credit or off-balance exposures into homogeneous segments defined by predominant product and borrower risk characteristics. The criteria for grouping loans into segments was developed using a combination of empirical analysis and management judgment. Predominant risk drivers used for segmentation vary by portfolio and exposure type, but include loan characteristics such as product type, collateral type and loan-to-value, exposure size, origination channel and documentation type and borrower information such as credit score, delinquency history and line of credit utilization rate.

The retail exposures are first broken into their retail subcategories. Residential mortgage exposures include all exposures secured by residential real estate. This includes traditional mortgages, home equity loans, home equity lines of credit and business banking exposures that are primarily secured by residential real estate. Qualifying revolving exposures ("QRE") include credit cards where the overall credit limit is less than or equal to $100,000. Other retail includes all exposures not classified as residential mortgage or QRE. This includes personal auto finance loans, student loans, credit card accounts above $100,000, business card exposures without a personal guarantee and business banking loans that are less than $500,000 and that are scored or managed as a group of loans with homogeneous risk characteristics.

The segmentation process creates differentiated risk buckets spanning a wide-spectrum of relatively-low to relatively-high expected loss rates. The assignment of exposures to segments occurs on a monthly basis for the majority of the retail portfolio, and at least quarterly for all modeled retail exposures. The overall capital requirement for a given retail subcategory fluctuates based on the shift across products and key risk drivers used for segmentation, and may be impacted by any model enhancements or modifications to parameter estimates.

For each retail sub-category, a separate segmentation model exists for probability of default ("PD"), loss given default ("LGD") and, for exposures with available undrawn credit exposure, exposure at default ("EAD"). EAD for a given segment is defined as the Firm's carrying value for on-balance sheet exposure plus a portion of the off-balance sheet exposure based on the Firm's best estimate of net additions to the balance sheet if the exposure were to enter into default in the upcoming year, assuming economic downturn for that period. Quantification of EAD for off-balance sheet exposures is developed through empirical analysis of historical behavior of defaulted exposures in the months leading up to a default.

Probability of default for a given segment estimates the likelihood a borrower will default on the exposure over the next year, based on historical observations over an economic cycle. PD is quantified based on empirical analysis and observed default rate performance over five or more years, including during a period of downturn stress conditions. Generally, the PD rate for a given segment equates to the simple average of observed one-year default rates over the available historical reference data. However, in some instances the Firm makes adjustments to PD estimates to better reflect a full economic cycle.

Loss given default for a given segment is an estimate of expected loss per dollar of EAD under downturn economic conditions. The LGD estimate is based on empirical analysis of post-default loss and recovery information over a historical observation period, and factors in the timing of expected cash flows, estimated recovery costs and accrued interest and fees. The Firm's final estimate is based on the higher of observed performance between the long-run reference data and the downturn-specific performance.

The Model Risk function conducts initial and ongoing reviews of the segmentation system and the risk parameter estimation parameters (PD, LGD, and EAD). The risk drivers comprising the segments are evaluated on their ability to differentiate risk consistently over time. Modifications to the segments are made periodically, driven by the validation results, shifts in risk management strategies, regulatory guidance or risk modeling best practices. Changes to the segmentation model or parameter estimates are reviewed by the Model Risk function, and tested prior to being put into production. The risk characteristics used for segmentation are consistent with the predominant risk drivers used for other internal credit risk models used by the Firm.

Risk-weighted assets

To calculate retail credit RWA, the Firm inputs its risk parameter estimates (PD, LGD, and EAD) into the Internal Ratings Based (IRB) risk weight formula, as specified by the Basel III capital rules. The IRB risk weight formula generates an estimate of unexpected losses at a 99.9% confidence level. Unexpected losses are converted to an RWA measure by application of a 12.5 supervisory multiplier.

December 31, 2016 (in millions)	Basel III Advanced Transitional RWA
Residential mortgages	$ 117,066
Qualifying revolving	101,290
Other retail	28,801
Total retail credit RWA	$ 247,157

Residential mortgage exposures

The following table includes first lien and junior lien mortgages and revolving home equity lines of credit. First lien mortgages were 83% of the exposure amount, revolving exposures were 16%, and the remaining exposures related to junior lien mortgages. Most revolving exposures were originated prior to 2010 and drive approximately 36% of the total risk weighted assets of this portfolio, with nearly 34% of the exposures above a PD of 0.75%. Recent originations are primarily first lien mortgages and are predominantly reflected in the less than 0.75% PD ranges.

December 31, 2016
(in millions, except ratios)

PD range (%)	Balance sheet amount	Off balance sheet commitments	EAD	RWA	Exposure-weighted average PD	Exposure-weighted average LGD	Exposure-weighted average Risk weight
0.00 to < 0.10	$ 20,927	$ 19,262	$ 24,671	$ 2,128	0.04%	56.50%	8.63%
0.10 to < 0.20	176,908	15,528	191,209	25,953	0.15	38.45	13.57
0.20 to < 0.75	39,808	16,375	44,863	17,849	0.47	51.89	39.78
0.75 to < 5.50	29,551	2,492	31,746	37,124	1.91	60.76	116.94
5.50 to < 10.00	3,036	7	3,036	7,710	6.84	64.53	253.97
10.00 to < 100	4,072	2	4,072	11,980	27.25	59.41	294.21
100 (default)	16,254	376	16,516	14,322	100.00	– [a]	86.71 [b]
Total	$ 290,556	$ 54,042	$ 316,113	$ 117,066	6.00%	42.52%	37.03%

(a) The LGD rate is reported as zero for residential mortgage exposures in default because by the time they reach the Basel III capital rules definition of default they have been charged off to the fair value of the underlying collateral less cost to sell.

(b) The exposure-weighted average risk weight for defaulted loans is less than 100% due to certain loans being insured and/or guaranteed by U.S. government agencies.

Qualifying revolving exposures

The following table includes exposures to individuals that are revolving, unsecured, and unconditionally cancelable by JPMorgan Chase; and they have a maximum exposure amount of up to $100,000 (i.e., credit card and overdraft lines on individual checking accounts).

December 31, 2016
(in millions, except ratios)

PD range (%)	Balance sheet amount	Off balance sheet commitments	EAD	RWA	Exposure-weighted average		
					PD	LGD	Risk weight
0.00 to < 0.50	$ 48,190	$ 480,270	$ 206,104	$ 11,305	0.10%	92.54%	5.49%
0.50 to < 2.00	38,246	46,266	46,871	18,484	1.09	92.57	39.44
2.00 to < 3.50	15,792	11,448	17,815	13,576	2.61	92.71	76.21
3.50 to < 5.00	14,667	2,143	14,785	14,504	3.75	92.35	98.10
5.00 to < 8.00	6,755	1,636	6,807	9,883	6.78	92.94	145.20
8.00 to < 100	17,715	1,308	17,761	33,538	19.74	92.52	188.83
100 (default)[a]	–	–	–	–	–	–	–
Total	$ 141,365	$ 543,071	$ 310,143	$ 101,290	1.84%	92.55%	32.66%

(a) There are no balances reported in default because qualifying revolving exposures consist entirely of unsecured credit cards that are charged off at or prior to reaching the Basel III capital rules definition of default.

Other retail exposures

The following table includes other retail exposures to individuals that are not classified as residential mortgage or qualifying revolving exposures (i.e., includes auto loans, student loans, credit card accounts above $100,000, business card exposures without a personal guarantee, scored business banking loans, and certain wholesale loans under $1 million).

December 31, 2016
(in millions, except ratios)

PD range (%)	Balance sheet amount	Off balance sheet commitments	EAD	RWA	Exposure-weighted average		
					PD	LGD	Risk weight
0.00 to < 0.50	$ 40,010	$ 8,504	$ 43,419	$ 5,815	0.17%	35.64%	13.39%
0.50 to < 2.00	16,655	2,855	17,520	9,419	0.96	51.77	53.76
2.00 to < 3.50	4,233	476	4,385	3,574	2.58	56.84	81.51
3.50 to < 5.00	2,402	111	2,435	2,450	4.22	65.33	100.60
5.00 to < 8.00	1,435	51	1,456	1,509	5.99	64.81	103.60
8.00 to < 100	3,842	3	3,829	5,046	22.35	61.72	131.61
100 (default)	1,089	–	1,089	988	100.00	–[a]	90.26[b]
Total	$ 69,666	$ 12,000	$ 74,133	$ 28,801	3.33%	43.10%	38.85%

(a) The LGD rate is reported as zero for retail exposures in default because by the time they reach the Basel III capital rules definition of default they have been charged off to the fair value of the underlying collateral less cost to sell.

(b) The exposure-weighted average risk weight for defaulted loans is less than 100% due to certain loans being insured and/or guaranteed by U.S. government agencies.

The wholesale portfolio is a risk-rated portfolio. Risk-rated portfolios are generally held in the Corporate & Investment Bank, Commercial Banking and Asset Management business segments, and in Corporate but also include certain business banking and auto dealer loans held in the Consumer & Community Banking business segment 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 and loss severity given a default. The estimation process begins when risk-ratings are assigned to each obligor 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 population of risk-rated loans and lending-related commitments receiving wholesale treatment for regulatory capital purposes largely overlaps with the wholesale credit portfolio reflected in the Firm's SEC disclosures. In accordance with the Basel III capital rules, the wholesale population for regulatory capital consists of:

- All risk-rated loans and commitments (excluding certain wholesale loans under $1 million which receive retail regulatory capital treatment);
- Deposits with banks, and cash and due from banks;
- Exposures to issuer risk for debt securities;
- Certain exposures recorded as trading assets that do not meet the definition of a covered position; and
- Repo-style transactions that do not meet the Basel III capital rules requirement for netting.
- Certain off-balance sheet commitments, which are reported net of risk participations for U.S. GAAP, are included gross of risk participations for regulatory reporting.

Risk parameter estimation

Risk weights are determined by using internal risk weight parameters. The estimation process for these parameters begins with internal risk-ratings assigned to the obligor and internal loss severity classifications assigned to the credit facility. The obligor ratings are mapped to estimates of PD and the loss severity classifications are mapped to estimates of LGD. Obligor ratings and loss severity classifications are used for both internal risk management and regulatory capital calculations.

For regulatory capital, probability of default is defined as the Firm's best estimate of the long-run, through-the-cycle average one-year default rate. The Firm's PD estimates used in RWA calculations are derived by mapping the internal rating for the relevant obligor to historical external credit rating agency default rates. The Firm's PD estimates are generally in-line with the rating agency default rates.

Regulatory LGD is defined as an estimate of losses given a default event under downturn economic conditions. Loss severity classifications are assigned by Credit Risk taking into account the type of client, the type of collateral, and the facility's seniority, priority under law, and contractual and structural support, if any. The regulatory LGD estimate is based on empirical analysis of post-default loss and recovery information over the historical observation period, and factors in the timing of expected cash flows, estimated recovery costs, and accrued interest and fees. The regulatory LGD used in the RWA calculation reflects the higher of the loss experience over the entire historical observation period and the loss experience during the downturn period.

EAD for a non-defaulted obligor is the estimate of total exposure upon default of the obligor. EAD is a calculation of the full amount of the Firm's exposure to on-balance sheet loans plus a portion of the off-balance sheet exposure based on the Firm's best estimate of net additions of contingent exposure if the obligor were to enter into default in the upcoming year under downturn conditions. Quantification of EAD for off-balance sheet exposures is developed through empirical analysis of historical behavior of defaulted exposures in the months leading up to default. The Firm has developed separate EAD models for different facility types and LOBs. The models incorporate adjustments for downturn conditions whenever the downturn effects are statistically significant.

Both the internal ratings process and the risk parameter estimation process are subject to independent review. The Model Risk function conducts initial and ongoing reviews of the risk parameter estimates (PD, LGD, and EAD), assessing both methodology and implementation.

Risk-weighted assets

To calculate wholesale credit RWA, the Firm inputs its risk parameter estimates (PD, LGD, and EAD) into the IRB risk weight formula, as specified by the U.S. banking supervisors. The IRB risk weight formula generates an estimate of unexpected losses at a 99.9% confidence level. Unexpected losses are converted to an RWA measure by application of a 12.5 supervisory multiplier.

The adjacent table presents risk-weighted assets by Basel reporting classification. The Corporate classification includes both credit and issuer exposure to corporate entities. Similarly, the Bank and Sovereign classifications include both credit and issuer exposure to banks and sovereign entities, respectively. High volatility commercial real estate ("HVCRE") refers to acquisition, development and construction lending. HVCRE is a separate Basel classification because these loans represent higher risk than loans financing income-producing real estate ("IPRE").

December 31, 2016 (in millions)	Basel III Advanced Transitional RWA
Corporate	$ 342,462
Bank	14,349
Sovereign	20,896
Income-producing real estate	42,631
High volatility commercial real estate	4,151
Total wholesale credit RWA	$ 424,489

Wholesale exposures

The following table presents exposures to wholesale clients and issuers by PD range. Exposures are comprised primarily of traditional credit products (i.e., loans and lending-related commitments), investment securities, and cash placed with various central banks, predominantly Federal Reserve Banks. Total EAD is $1.3 trillion, with 76% of this exposure in the first two PD ranges, which are predominantly investment-grade. Exposures meeting the Basel definition of default represent 0.3% of total EAD. The exposure-weighted average LGD for the wholesale portfolio is 31%.

December 31, 2016 (in millions, except ratios)

PD range (%)	Balance sheet amount	Off balance sheet commitments	EAD	RWA	Exposure-weighted average		
					PD	LGD	Risk weight
0.00 to < 0.15	$ 689,186	$ 169,838	$ 819,918	$ 118,419	0.05%	29.45%	14.44%
0.15 to < 0.50	124,018	123,784	196,368	91,218	0.26	36.74	46.45
0.50 to < 1.35	167,578	100,204	225,339	124,116	0.75	29.71	55.08
1.35 to < 10.00	48,748	47,438	74,567	69,098	3.81	32.74	92.67
10.00 to < 100	7,595	10,368	12,365	17,894	22.82	33.64	144.71
100 (default)	2,909	1,185	3,532	3,744	100.00	37.58	105.97
Total	$ 1,040,034	$ 452,817	$ 1,332,089	$ 424,489	0.88%	30.82%	31.87%

Credit risk mitigation

The risk mitigating benefit of eligible guarantees and credit derivative hedges are reflected in the RWA calculation as permitted by the Basel III capital rules. At December 31, 2016, $92.8 billion of EAD for wholesale exposures is covered by eligible guarantees or credit derivatives.

Risk parameter estimation

Counterparty credit risk RWA calculations utilize the PD and LGD methodologies described in the Wholesale Credit Risk section of this report. The EAD methodologies are described below.

Over-the-counter ("OTC") Derivatives

The Firm principally uses the internal model method ("IMM") under the Basel III capital rules for calculating counterparty credit risk regulatory capital for OTC derivatives.

The IMM methodology uses the Firm's internal models to calculate effective expected positive exposure ("EEPE"), which when multiplied by the regulatory-prescribed multiplier, produces the counterparty-level regulatory measure of EAD.

The Firm's IMM methodology simulates forward-looking market risk factors and uses product-specific pricing models to produce the expected exposure profile for the set of OTC derivatives under each legally enforceable master netting agreement ("netting set"). In addition to the regulatory measure of exposure, the IMM model also produces a variety of other risk measures used for internal credit risk management and reporting.

For certain types of derivatives where IMM is not used, regulatory exposure is calculated using the current exposure method ("CEM"). In the CEM methodology, EAD is the sum of the MTM plus an add-on amount based on the notional and a regulatory conversion factor for each derivative transaction. In the EAD calculation, exposures at the transaction level are aggregated to incorporate the effects of legally enforceable master netting agreements.

In addition, both methods incorporate the effects of collateral received or posted. The EAD is used in the regulatory capital formula to calculate counterparty-level RWA.

All models are subject to initial and ongoing review by the Firm's independent Model Risk function prior to use. The model is also subject to periodic backtesting to demonstrate that performance continues to be acceptable.

Further, the internal models are also used to project the impact of various internal and regulatory stress events to enhance knowledge of the impact potential events have on a credit exposure and capital adequacy.

Certain OTC derivatives are considered securitization exposures and reported in the Securitization section of this report.

Repo-style transactions

Counterparty credit risk for repo style transactions stems from the inability or unwillingness of the firm's trading counterparty to fulfill contractual obligations; the risk is attributed to the difference, upon default, between the market value of the exposure to the counterparty and the market value of the collateral collected from the counterparty.

Counterparty credit risk RWA for repo-style transactions is calculated using the Collateral Haircut Approach. Under this method, the credit risk mitigation benefits of collateral are recognized in the EAD.

EAD is calculated as the net market value of exposure and collateral under a "netting set" adjusted for potential increases in net exposure by applying standard supervisory market price volatility haircuts.

EAD for repo-style transactions includes certain exposures which are not reflected on the balance sheet such as:

- Securities borrowing and lending transactions collateralized by securities, and
- Securities lending indemnification agreements and guarantees.

Repo-style transactions that do not meet eligibility requirements specified in the Basel III capital rules are treated as loans for regulatory capital purposes and reported as wholesale exposures in this report.

Margin loans

Counterparty credit risk RWA for margin loans is calculated using the LGD Estimation Method. Under this method, the benefits of financial collateral are recognized in the LGD rather than in the EAD. Exposure at default is calculated as the amount of the margin loan plus the market value of any short trading positions in the customer's account less any cash balance.

Cleared transactions

Cleared transactions include exchange-traded derivatives such as futures and options, OTC derivatives and repo-style transactions that the Firm clears through a central counterparty ("CCP") for its own account and for client accounts. A CCP is a counterparty (for example, a clearing house) that interposes itself between counterparties to contracts traded in one or more financial markets, becoming the buyer to every seller and the seller to every buyer. A CCP becomes counterparty to trades with market participants through novation, an open offer system, or another legally binding arrangement.

Basel III introduced capital requirements for cleared transactions. The calculations of EAD for cleared trades are similar to the calculations for OTC derivatives and repo-style transactions discussed previously. Only cleared trades where the counterparty is a CCP are classified as cleared transactions under the Basel III capital rules. A cleared derivative where the counterparty is a client is classified as an OTC derivative for regulatory reporting.

Wrong-way risk

Wrong-way risk is 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. This risk would result in greater EAD when compared with a transaction with another counterparty that does not have this risk. The Firm has policies and processes in place to actively monitor and control wrong-way risk throughout the life of each transaction. Wrong- way risk is factored into the Firm's EAD and RWA calculations in line with the Basel III capital rules.

Risk-weighted assets

Counterparty credit risk exposures consist of OTC derivatives, repo-style transactions, margin loans, and cleared transactions.

To calculate counterparty credit risk RWA, the Firm inputs its risk parameter estimates (PD, LGD, and EAD) into the same IRB risk weight formula as wholesale exposures. The IRB risk weight formula generates an estimate of unexpected losses at a 99.9% confidence level.

Unexpected losses are converted to an RWA measure by application of a 12.5 supervisory multiplier. RWA for exposures where the counterparty is a CCP depends on whether the CCP meets the criteria for classification as a qualifying CCP.

The following table presents risk-weighted assets by transaction type.

December 31, 2016 (in millions)	Basel III Advanced Transitional RWA
OTC derivatives	$ 61,008
Repo-style transactions	23,350
Margin loans	2,440
Cleared transactions	6,821
Total counterparty credit RWA	$ 93,619

Counterparty credit exposures

The following table presents counterparty credit risk exposures for OTC derivatives and netted repo-style transactions by PD range. The table does not include margin loans or cleared transactions. Total EAD is $209.9 billion, with 85% of this exposure in the first two PD ranges, which are predominantly investment-grade. Exposures meeting the Basel definition of default represent 0.3% of total EAD. The exposure-weighted average LGD for this portfolio is 43%. The collateral benefit is reflected in the EAD.

December 31, 2016
(in millions, except ratios)

			Exposure-weighted average		
PD range (%)	EAD	RWA	PD	LGD	Risk weight
0.00 to < 0.15	$ 150,918	$ 42,862	0.10%	43.27%	28.40%
0.15 to < 0.50	26,694	12,611	0.26	43.98	47.24
0.50 to < 1.35	20,960	15,272	0.76	43.10	72.86
1.35 to < 10.00	9,819	11,143	4.01	40.38	113.48
10.00 to < 100	961	1,869	22.70	36.51	194.46
100 (default)	567	601	100.00	40.11	106.00
Total	$ 209,919	$ 84,358	0.74%	43.17%	40.19%

Credit risk mitigation

The risk mitigating benefit of eligible guarantees and credit derivative hedges are reflected in the RWA calculation as permitted by the Basel III capital rules. At December 31, 2016, $4.8 billion of EAD for OTC derivatives is covered by eligible guarantees.

Securitizations are transactions in which:

- The credit risk of the underlying exposure is transferred to third parties, and has been separated into two or more tranches;
- The performance of the securitization depends upon the performance of the underlying exposures or reference assets; and
- All or substantially all of the underlying exposures or reference assets are financial exposures.

Securitizations are classified as either traditional or synthetic. In a traditional securitization, the originator establishes a special purpose entity ("SPE") and sells assets (either originated or purchased) off its balance sheet into the SPE, which issues securities to investors. In a synthetic securitization, credit risk is transferred to an investor through the use of credit derivatives or guarantees. In a synthetic securitization, there is no change in accounting treatment for the assets securitized.

Securitizations include on- or off-balance sheet exposures (including credit enhancements) that arise from a securitization or re-securitization transaction; or an exposure that directly or indirectly references a securitization (e.g., credit derivative). A re-securitization is a securitization transaction in which one or more of the underlying exposures that have been securitized is itself a securitization.

On-balance sheet exposures include securities, loans, as well as servicing advances related to private-label mortgage backed securitizations for which the Firm acts as servicer. Off-balance sheet exposures include liquidity commitments, certain recourse obligations, and derivatives for which the counterparty risk or the reference obligation is a securitization exposure.

The Firm plays a variety of roles in asset securitizations such as investor or originator in traditional and synthetic securitization transactions and servicer/collateral manager of assets transferred into traditional securitizations. The Firm also provides liquidity facilities to securitization transactions.

This section includes both banking book and trading book securitizations, with the exception of modeled correlation trading positions which are included in the Market Risk section.

Due diligence

For each securitization and re-securitization exposure, the Firm is required to perform due diligence prior to acquiring that exposure, and document such due diligence within three business days as required by the Basel III capital rules. The Firm's due diligence procedures are designed to provide it with a comprehensive understanding of the features that would materially affect the performance of a securitization or re-securitization.

The Firm's due diligence procedures include analyzing and monitoring:

- The quality of the credit risk, including information regarding the performance of the underlying credit exposures and relevant market data;
- The structural and other enhancement features that may affect the credit quality of a securitization or re-securitization; and
- For re-securitization positions, information on the performance of the underlying securitization exposures.

The level of detail included in the due diligence process is commensurate with the complexity of each securitization or re-securitization exposure held. In addition to pre-trade due diligence, due diligence is also performed no less frequently than quarterly as required by the Basel III capital rules.

Risk management

The risks related to securitization and re-securitization transactions are managed in accordance with the Firm's credit risk and market risk management policies.

Credit risk mitigation

Various strategies are employed by the Firm to mitigate the risks that arise from securitization and re-securitization positions. These include credit risk mitigation at both the transaction and portfolio levels through diversification and hedging.

Market risk monitoring

Each line of business that transacts in securitizations and the Market Risk function work together to monitor the positions, position changes, and the composition of the total portfolio. This includes, but is not limited to, the review of daily positions against approved risk limits using risk measures such as market values, risk factor sensitivities and stress loss scenarios. Covered securitization and re-securitization positions are included in the Firm's Risk Management VaR and Regulatory VaR. These positions are included in the market risk and limit reports that are distributed on a daily basis to the trading desks, Risk Management and senior managers within the lines of business.

Securitization positions can be sensitive to interest rate levels and the overall credit environment. The Firm may hedge credit spread and interest rate risk, and non-U.S. dollar foreign exchange risk associated with non-U.S. dollar denominated assets, as needed, related to its securitization and re-securitization positions. JPMorgan Chase's policies allow various financial instruments to be employed to mitigate or hedge the risks of securitization and re-securitization positions. Examples of these instruments include U.S. Treasuries, interest rate swaps, FX forwards, and various credit derivatives.

Hierarchy of approaches

Basel III Advanced rules prescribe a hierarchy of approaches for calculating securitization RWA starting with the Supervisory Formula Approach ("SFA"), which uses internal models to determine RWA; followed by the Simplified Supervisory Formula Approach ("SSFA"), which uses supervisory risk weights and other inputs to determine RWA; and finally the application of a 1250% risk weight.

For securitization exposures, the Basel III capital rules overlay a maximum capital requirement which can result in an effective risk weight lower than the risk weight calculated in the hierarchy of approaches. Additionally, the regulatory prescribed scalar applied broadly to credit risk RWA may result in a banking book exposure receiving a risk weight greater than 1250%.

Risk-weighted assets

The following table presents banking book and trading book exposures receiving securitization capital treatment (with the exception of modeled correlation trading positions which are presented in the Market Risk section). The amounts include traditional and synthetic securitization exposures, with re-securitizations shown separately.

	Securitization							
	SFA		SSFA		1250%		Total	
December 31, 2016 (in millions)	Exposure	RWA	Exposure	RWA	Exposure	RWA	Exposure	RWA
Risk weight								
= 0% ≤ 20%	$ 59,194	$ 12,525	$ 62,298	$ 13,125	$ –	$ –	$ 121,492	$ 25,650
> 20% ≤ 50%	1,844	483	4,121	1,236	–	–	5,965	1,719
> 50% ≤ 100%	31	19	722	592	–	–	753	611
> 100% < 1250%	91	391	330	1,045	–	–	421	1,436
= 1250%	8	103	26	317	294	3,873	328	4,293
Securitization, excluding re-securitization	$ 61,168	$ 13,520	$ 67,496	$ 16,315	$ 294	$ 3,873	$ 128,958	$ 33,709

	Re-securitization							
	SFA		SSFA		1250%		Total	
December 31, 2016 (in millions)	Exposure	RWA	Exposure	RWA	Exposure	RWA	Exposure	RWA
Risk weight								
= 0% ≤ 20%	$ 1,429	$ 299	$ 83	$ 17	$ –	$ –	$ 1,512	$ 316
> 20% ≤ 50%	4	1	6	3	–	–	10	4
> 50% ≤ 100%	–	–	1	1	–	–	1	1
> 100% < 1250%	10	71	29	103	–	–	39	174
= 1250%	–	3	2	23	28	338	30	364
Re-securitization[a]	$ 1,443	$ 374	$ 120	$ 146	$ 28	$ 338	$ 1,592	$ 859
Total securitization [b]	$ 62,611	$ 13,894	$ 67,616	$ 16,461	$ 322	$ 4,211	$ 130,550	$ 34,568

(a) As of December 31, 2016, there were no re-securitizations to which credit risk mitigation has been applied.
(b) Total securitization RWA includes $3.6 billion of RWA on trading book exposure of $6.6 billion. The trading book RWA represents non-modeled securitization charges in the Market Risk section of this report.

Any gain-on-sale in connection with a securitization exposure must be deducted from common equity tier 1 capital. The amount deducted as of December 31, 2016 was immaterial.

Exposure by collateral type

The following table presents banking book and trading book exposures receiving securitization capital treatment (with the exception of modeled correlation trading positions which are presented in the Market Risk section). The amounts below include traditional and synthetic securitization exposures

December 31, 2016 (in millions)	Exposure			RWA
	On-balance sheet	Off-balance sheet[a]	Total	
Collateral type:				
Residential mortgages	$ 20,004	$ 531	$ 20,535	$ 7,882
Commercial mortgages	21,576	143	21,719	5,393
Commercial and industrial loans	35,475	827	36,302	8,373
Consumer auto loans	16,376	4,289	20,665	4,802
Student loans	10,982	748	11,730	2,686
Municipal bonds	1	5,660 [b]	5,661	1,233
Other	10,877	3,061	13,938	4,199
Total securitization exposure	$ 115,291	$ 15,259	$ 130,550	$ 34,568

(a) Includes the counterparty credit risk EAD associated with derivative transactions for which the counterparty credit risk is a securitization exposure.
(b) Represents liquidity facilities supporting nonconsolidated municipal bond VIEs of which $662 million relate to JPMorgan Chase-sponsored securitization trusts.

Assets securitized

The following table presents the total outstanding principal balance of JPMorgan Chase-sponsored securitization trusts in which the Firm has retained exposure in either the banking book or the trading book. Third-party assets in deals sponsored by JPMorgan Chase are shown separately.

December 31, 2016 (in millions)	Principal amount outstanding			Assets impaired or past due[b]
	JPMorgan Chase assets held in traditional securitizations[a]	Third-party assets held in traditional securitizations[a]	JPMorgan Chase assets held in synthetic securitizations	
Collateral type:				
Residential mortgages	$ 88,140 [c]	$ 11	$ –	$ 12,160 [c]
Commercial mortgages	48,172	30,160	–	1,670
Commercial and industrial loans	–	–	–	–
Consumer auto loans	–	–	–	–
Student loans	439	–	–	49
Municipal bonds	1,024	–	–	–
Other	–	–	–	–
Total	$ 137,775	$ 30,171	$ –	$ 13,879

(a) Represents assets held in nonconsolidated securitization VIEs.
(b) Represents assets 90 days or more past due or on nonaccrual status.
(c) Effective with the quarter ended September 30, 2016, residential mortgages now include the Principal amount outstanding and Assets impaired or past due related to assets held in JPMorgan Chase-sponsored securitization trusts which are not serviced by the Firm.

Securitization activity

The following table presents assets pending securitization (i.e., assets held with the intent to securitize) at December 31, 2016, and the Firm's securitization activities for year ended December 31, 2016, related to assets held in JPMorgan Chase-sponsored securitization entities that were not consolidated by the Firm, and where sale accounting was achieved based on the accounting rules in effect at the time of the securitization. All instruments transferred into securitization trusts during the year ended December 31, 2016 were classified as trading assets under U.S. GAAP. As such, changes in fair value were recorded in principal transactions revenue, and there were no significant gains or losses associated with the securitization activity.

As of or for the year December 31, 2016 (in millions)	Carrying value	Original principal amount	
	Assets pending securitization	Assets securitized with retained exposure	Assets securitized without retained exposure
Collateral type:			
Residential mortgages	$ 13,077	$ 1,404	$ 413
Commercial mortgages	1,998	5,882	3,082
Commercial and industrial loans	–	–	–
Consumer auto loans	–	–	–
Student loans	–	–	–
Municipal bonds	–	–	–
Other	–	–	–
Total	$ 15,075	$ 7,286	$ 3,495

EQUITY RISK IN THE BANKING BOOK

Equity investments in the banking book include AFS equity securities, principal investments, investments in unconsolidated subsidiaries, other equity investments classified within other assets, and certain equity investments classified within trading assets that do not meet the definition of a covered position.

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. 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 (including, investments in hedge funds), investments funds (including separate accounts) and various debt investments.

Principal investments 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. All other equity and investment fund positions are held primarily for reasons other than capital gains including client relationships and employee benefits.

Investments in separate accounts are held in connection with corporate- and bank-owned life insurance ("COLI/ BOLI") and certain asset management activities.

- Refer to Note 9 on pages 189–196 of the 2016 Form 10-K for a discussion of COLI and the related investment strategy and asset allocation.

Investments in marketable equity securities in the banking book are accounted for at fair value or under the equity method where the Firm has significant influence but has not elected the fair value option. Investments in nonmarketable equity securities in the banking book are accounted for using one of the following methods:

- Equity method for investments where the Firm has the ability to exercise significant influence but has not elected the fair value option
- Fair value when elected under the fair value option
- Cost for all other nonmarketable equity investments
- Proportional amortization method for certain investments in affordable housing projects that qualify for the low-income housing tax credit

Accounting and valuation policies for equity investments

- Refer to Principal Risk Management, on page 124 of the 2016 Form 10-K for a discussion of principal risk management related to privately-held investments.
- Refer to Note 1 on pages 146–148 of the 2016 Form 10-K for a discussion of the accounting for investments in unconsolidated subsidiaries and investments in affordable housing projects.
- Refer to Note 3 on pages 149–167 of the 2016 Form 10-K for more information on the Firm's methodologies regarding the valuation of private equity direct investments and fund investments (i.e., mutual/collective investment funds, private equity funds, hedge funds and real estate funds).
- Refer to Note 12 on pages 199–204 of the 2016 Form 10-K for further discussion of the accounting for AFS equity securities.

Other

- Refer to Other sensitivity-based measures, on page 123 of the 2016 Form 10-K for a discussion of other sensitivity-based measures.

Risk-weight approaches

For equity exposures to investment funds, the Firm uses a combination of the Full Look-Through Approach and the Simple Modified Look-Through Approach to calculate RWA. Under these approaches, RWA is calculated on the underlying exposures held by the fund as if they were held directly by the Firm and, then, multiplying that amount by the Firm's proportional ownership share of the fund. For all other equity exposures, the Firm uses the Simple Risk-Weight Approach ("SRWA"). Under the SRWA, the Firm applies the regulatory prescribed risk weights to the carrying value of each equity exposure.

Equity risk-weighted assets

The table below presents the exposure and RWA by risk weight.

December 31, 2016
(in millions)

Risk-weight category	Exposure[a]	RWA
0%	$ 5,837 [b]	$ –
20%	2,852	604
100%	22,312	23,651
600%	362	2,303
Look-through	18,750	10,923
Total	$ 50,113	$ 37,481

(a) Includes off-balance sheet unfunded commitments for equity investments of $1.1 billion.
(b) Consists of Federal Reserve Bank stock.

Carrying value and fair value

The following table presents the carrying value and fair value of equity investments in the banking book.

December 31, 2016 (in millions)	Carrying value	Fair value
Publicly traded	$ 21,837	$ 22,016
Privately held and third-party fund investments	26,652	30,158
Total	$ 48,489	$ 52,174

Realized gains/(losses)

Cumulative realized gains/(losses) from sales and liquidations during the three months ended December 31, 2016 were $89 million. This includes previously recognized unrealized gains/(losses) that have been reversed and booked as realized gains/(losses).

Unrealized gains/(losses)

At December 31, 2016 (in millions)	Cumulative unrealized gains/(losses), pre-tax
Recognized in AOCI[(a)]	$ 12
Unrecognized [(b)]	3,827

(a) Unrealized gains of $2 million were included in Tier 2 capital under the Basel III Transitional rules.
(b) Unrecognized gains/(losses) apply to cost and proportional amortization method investments.

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.

- For a discussion of the Firm's Market Risk Management organization, risk identification and classification, tools used to measure risk, and risk monitoring and control, see Market Risk Management on pages 116–123 of the 2016 Form 10-K

Measures included in market risk RWA

The following table presents the Firm's market risk-based capital and risk-weighted assets at December 31, 2016. The components of market risk RWA are discussed in detail in the Regulatory market risk capital models section on pages 25-29 of this report. RWA is calculated as RBC times a multiplier of 12.5; any calculation differences are due to rounding.

Three months ended December 31, 2016 (in millions)	Risk-based capital	RWA
Internal models		
Value-at-Risk based measure ("VBM")	$ 742	$ 9,273
Stressed Value-at-Risk based measure ("SVBM")	2,225	27,818
Incremental risk charge ("IRC")	274	3,421
Comprehensive risk measure ("CRM")	528	6,594
Total internal models	3,768	47,106
Non-modeled specific risk[(a)]	4,791	59,880
Other charges	1,654	20,671
Total Market risk	$ 10,213	$ 127,657

(a) Non-modeled specific risk includes trading book securitization RWA of $3.6 billion.

Material portfolio of covered positions

The Firm's market risks arise predominantly from activities in the Firm's Corporate & Investment Bank ("CIB") business. CIB makes markets in products across fixed income, foreign exchange, equities and commodities markets; the Firm's portfolio of covered positions under the Basel III capital rules is predominantly comprised of positions held by the CIB. Other lines of business have covered positions with an immaterial firmwide impact.

- Refer to pages 51–52 and to pages 58–62 of the 2016 Form 10-K for a discussion of CIB's Business Segment Results.

Value-at-Risk ("VaR")

VaR is a statistical risk measure used 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 Regulatory VaR and Risk Management VaR.

- Refer to Market Risk Management on pages 116–123 of the 2016 Form 10-K for information on the Firm's VaR framework.

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

- Refer to the Economic-value stress testing section on page 30 for further information on stress testing.

Risk management VaR comparison to Regulatory VaR

Risk Management VaR is calculated assuming a one-day holding period and an expected tail-loss methodology which approximates a 95% confidence level. VaR provides a consistent framework to measure risk profiles and levels of diversification across product types and is used for aggregating risks 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, not more than five times every 100 trading days. For risk management purposes, the Firm believes the use of a 95% confidence level with a one-day holding period 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 disclosed in its SEC filings.

As required by the Basel III capital rules, the Firm calculates Regulatory VaR assuming a 10-day holding period and an expected tail loss methodology, which approximates a 99% confidence level. Under the Firm's Regulatory VaR methodology, assuming current changes in market values are consistent with the historical changes used in the simulation, the Firm would expect to incur Regulatory VaR "back-testing exceptions", defined as losses greater than that predicted by Regulatory VaR estimates, not more than once every 100 trading days. In contrast to the Firm's Risk Management VaR, Regulatory VaR currently excludes the diversification benefit for certain VaR models.

As noted above, Regulatory VaR is applied to "covered positions" as defined by the Basel III capital rules, which may be different from 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.

Regulatory market risk capital models

VaR-Based Measure ("VBM")

The VBM is an aggregate loss measure combining Regulatory VaR and modeled specific risk ("SR") factors over a 10-day holding period and a 99% confidence level. While the Regulatory VaR measures the risk of loss due to market price or rate movements, the modeled SR portion of the VBM measures the risk of loss from factors other than broad market movements. Modeled SR factors include event risk and idiosyncratic risk for a subset of covered positions for which the model is approved by the Firm's banking supervisors.

The Firm's VBM is converted to a capital requirement using a regulatory multiplier. The capital requirement is then translated to risk-weighted assets using a multiplier of 12.5 as prescribed by the Basel III capital rules.

The following table presents the results of the Firm's VBM converted risk-weighted assets based on the application of regulatory multipliers as specified by the Basel III capital rules.

Three months ended December 31, 2016 (in millions)	Average VBM	Risk-based capital[a]	RWA
Firm modeled VBM	$ 247	$ 742	$ 9,273

(a) The Firm's multiplier for determining risk-based capital associated with VBM is 3.

CIB VaR-Based Measure ("VBM")

For the three months ended December 31, 2016, JPMorgan Chase's average CIB VBM was $247 million, compared with CIB average Risk Management VaR of $39 million. The CIB VBM was higher due to the longer holding period (10 days), the higher confidence level (99%), differences in population, and the exclusion of the diversification benefit for certain VaR models.

The following table presents the average, minimum, maximum and period-end VBM by risk type for the CIB and total VBM for the Firm. In addition, the table presents the reduction of total risk resulting from the diversification of the portfolio, which is the sum of the CIB VBMs for each risk type less the total CIB VBM.

	Three months ended December 31, 2016			
(in millions)	Avg.	Min	Max	At December 31, 2016
CIB VBM by risk type				
Interest rate[a]	$149	$110	$189	$ 128
Credit spread[a]	178	147	208	158
Foreign exchange	88	38	114	69
Equities	36	22	53	44
Commodities and other	46	36	58	51
Diversification benefit	(250) [b]	NM [c]	NM [c]	(212) [b]
Total CIB VBM	247	216	274	238
Total Firm VBM	$247	$214	$276	$ 233

(a) For certain products and portfolios, a full revaluation model is used to calculate VBM, which considers both interest rate and credit spread risks together. As such, the Firm allocates the results of the full revaluation model between interest rate and credit spread risk based on the predominant characteristics of the product or portfolio.
(b) Average portfolio VBM and period-end portfolio VBM were less than the sum of the components described above due to portfolio diversification.
(c) Designated as not meaningful ("NM"), because the minimum and maximum may occur on different days for different risk components, and hence it is not meaningful to compute a portfolio-diversification effect.

The average CIB VBM diversification benefit was $250 million, or 50% of the sum of the individual risk components for the three months ended December 31, 2016 . The CIB average Risk Management trading and credit portfolio VaR diversification benefit was $44 million, or 53% of the sum of the individual risk components, for the three months ended December 31, 2016. The difference in diversification benefit between the two methodologies is consistent with the description provided on page 24 of this report.

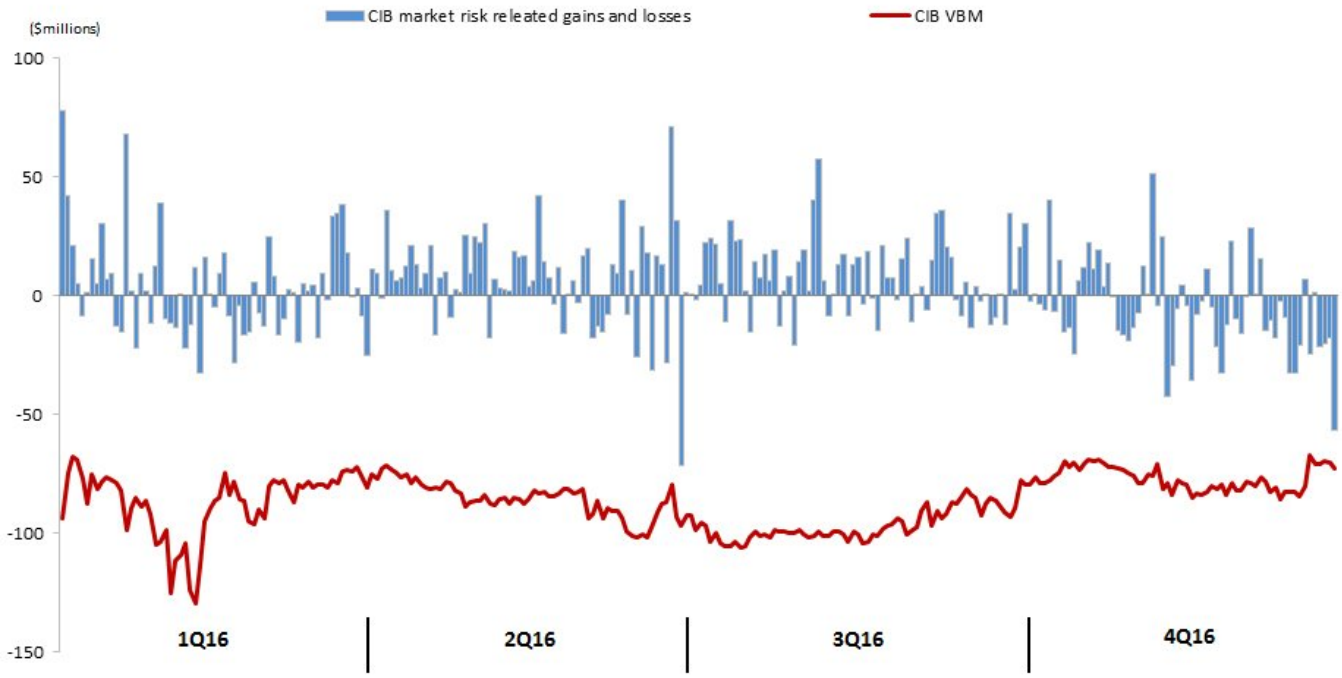
- Refer to pages 118-120 of the 2016 Form 10-K for additional information on Value-at-risk and Risk Management VaR in the Market Risk Management section.

VBM back-testing

The Firm evaluates the effectiveness of its VBM methodology by back-testing, which compares daily market risk-related gains and losses with daily VBM results for a one-day holding period and a 99% confidence level as prescribed by the Basel III capital rules. Market risk-related gains and losses are defined as profits and losses on covered positions, excluding fees, commissions, certain valuation adjustments "(e.g., liquidity, DVA)", net interest income, and gains and losses arising from intraday trading. VBM "back-testing exceptions" occur when market risk-related losses are greater than the estimate predicted by the VBM for the corresponding day.

The following chart presents the VBM back-testing results for CIB's covered positions. The VBM presented in the chart reflects the exclusion of the diversification benefit for certain VaR models. The chart shows that for the year ended December 31, 2016, the CIB observed no back-testing exceptions and posted market risk related gains on 156 of the 260 trading days. The results in the table below are different from the results of VaR back-testing disclosed in the Firm's SEC filings due to the differences between the Risk Management VaR and Regulatory VaR as described on page 24 of this report.

CIB daily market risk-related gains and losses on covered positions
Total VBM (1-day, 99.0% confidence-level)
Year ended December 31, 2016



Stressed VaR-Based Measure ("SVBM")

The SVBM uses the same Regulatory VaR and SR models as are used to calculate the VBM, but the models are calibrated to reflect historical data from a continuous 12-month period that reflects significant financial stress appropriate to the Firm's current portfolio.

The SVBM presented in the tables below reflects an interim approach until the Firm finalizes its SVBM model.

The following table presents the results of the Firm's SVBM converted to risk-based capital based on the application of regulatory multipliers as specified by the Basel III capital rules. The capital requirement is then translated to risk-weighted assets using a multiplier of 12.5 as prescribed by the Basel III capital rules.

Three months ended December 31, 2016 (in millions)	Average SVBM	Risk-based capital[a]	RWA
Firm modeled SVBM	$ 742	2,225	$ 27,818

(a) The Firm's multiplier for determining risk-based capital associated with SVBM is 3.

The following table presents the average, minimum, maximum and period-end SVBM for the CIB and the Firm.

	Three months ended December 31, 2016			
(in millions)	Avg.	Min	Max	At December 31, 2016
Total CIB SVBM	$ 741	$ 647	$ 823	$ 715
Total Firm SVBM	$ 742	$ 643	$ 828	$ 699

Incremental Risk Charge ("IRC")

The IRC measure captures the risks of issuer default and credit migration that are incremental to the risks already captured in the VBM. The model is intended to measure the potential loss over a one-year holding period at a 99.9% confidence level, and is applicable to debt positions which are not correlation trading or securitization positions. The IRC is calculated on a weekly basis.

JPMorgan Chase has developed a Monte Carlo simulation-based model to compute the IRC measure. Modeling of default events is based on a proprietary multi-factor asset approach, which incorporates the effects of issuer, regional and industry risk concentrations. Credit migration risk is captured in the IRC model by an explicit simulation of credit spread distributions. Product concentrations are captured by incorporating product-specific factors such as bond-credit default swap ("CDS") basis risk. The underlying simulation model is calibrated to provide joint distributions across all risk factors (e.g., default, spread, recovery, basis effects), while capturing important cross-effects that can have a significant impact on the tail risk of the portfolio, such as the correlation between defaults and recoveries.

The IRC model assumes the level of trading positions remains constant in order to model profit and loss distributions over a one-year holding period. This approach effectively assumes a one-year liquidity horizon for all positions, while all risk factor shocks are applied to the portfolio instantaneously. The IRC measures the potential loss in the current value of the portfolio at a 99.9% confidence level. The IRC model uses a full revaluation approach to capture the re-pricing risk of all positions due to credit migration and default events. This approach requires full economic details on all positions for re-pricing, thereby capturing the non-linear effects of risk factors on the value of the portfolio during large market moves.

The IRC is validated through the evaluation of modeling assumptions, sensitivity analysis, ongoing monitoring, benchmarking and outcome analysis. In order to ensure continued applicability and relevance, the IRC model's calibration to historical market data is updated quarterly. In addition, over time, as market conditions and portfolios change, periodic testing of the model (including sensitivity analysis, accuracy and convergence testing) is conducted to ensure the appropriateness and accuracy of model settings, parameters and outputs.

The following table presents the IRC risk-based capital requirement for the CIB, which is the same as the risk measure itself, and the risk-weighted assets which is calculated by multiplying the risk measure by 12.5 as prescribed by the Basel III capital rules.

Three months ended December 31, 2016 (in millions)	IRC[a]	RWA
Total CIB IRC	$ 274	$ 3,421

(a) IRC reflects the higher of the quarterly average and period-end spot measure under the Basel III capital rules.

The following table presents the average, minimum, maximum and period-end IRC for the CIB.

	Three months ended December 31, 2016			
(in millions)	Avg.	Min	Max	At December 31, 2016
CIB IRC on trading positions	$ 274	$ 233	$ 357	$ 273

Comprehensive Risk Measure ("CRM")

The CRM captures material price risks of one or more portfolios of correlation trading positions. Correlation trading positions refer to client-driven, market-making activities in credit index and bespoke tranche swaps that are delta hedged with single-name and index credit default positions. The CRM risk-based capital requirement is comprised of a model-based component and an additional charge, referred to as the CRM surcharge, (that is) equal to 8% of the total specific risk add-on for such positions using the non-modeled approach.

Similar to the IRC, the CRM measures potential losses over a one-year holding period at a 99.9% confidence level. The CRM is calculated on a weekly basis.

The CRM model is an extension of the previously described Monte-Carlo simulation-based IRC model, and it includes additional risk factors that are relevant for index tranches, bespoke tranches, and first-to-default positions in the Firm's correlation trading portfolio. The range of risk factors simulated by the CRM model includes default events, credit spreads, recovery rates, implied correlations and inherent basis risks within these products.

The CRM model assumes the level of trading positions remains constant in order to model profit and loss distributions over a one-year holding period. This approach effectively assumes a one-year liquidity horizon for all positions, while all risk factor shocks are applied to the portfolio instantaneously. The CRM measures the potential loss in the current value of the portfolio at a 99.9% confidence level. The CRM model uses a full revaluation approach to capture the re-pricing risk of all correlation trading positions, thereby capturing the non-linear effects of risk factors on the value of the portfolio during large market moves.

The CRM model is validated through the evaluation of modeling assumptions, sensitivity analysis, ongoing monitoring, benchmarking and outcome analysis. In order to ensure continued applicability and relevance, the CRM model's calibration to historical market data is updated quarterly. As an additional validation, and to comply with the requirements of the Basel III capital rules, weekly CRM stress testing is performed for all correlation trading positions. The weekly CRM stress testing leverages pre-defined stress scenarios across major risk factors including default, spread, index-CDS basis spreads, and base correlation. In addition, over time, as market conditions and portfolios change, periodic testing of the model (including sensitivity analysis, accuracy and convergence testing) is conducted to ensure the appropriateness and accuracy of model settings, parameters and outputs.

The following table presents the CRM risk-based capital requirement (which is the same as the risk measure itself) and the risk-weighted assets (which is calculated by multiplying the capital requirement by 12.5 as prescribed by the Basel III capital rules) for the CIB.

Three months ended December 31, 2016 (in millions)	CRM[a]	RWA
Total CIB CRM	$ 528	$ 6,594

(a) CRM reflects the higher of the quarterly average and period-end spot measure under the Basel III capital rules.

The following table presents the average, minimum, maximum and period-end CRM for the CIB.

(in millions)	Three months ended December 31, 2016 Avg.	Min	Max	At December 31, 2016
CRM model on CIB trading positions	$ 215	$ 141	$ 261	$ 150
CRM surcharge on CIB trading positions	313	270	331	270
Total CIB CRM	$ 528	$ 411 [a]	$ 593 [a]	$ 421

(a) The minimum and maximum for the CRM model, CRM surcharge, and total CRM measure are determined independently of each other. Therefore, the minimum and maximum for each of the three metrics can occur on different dates and thus may not always be additive.

Aggregate securitization positions

➢ For information on the aggregate amount of on-balance sheet and off-balance sheet securitization positions by exposure type, refer to Securitization on page 21 of this Pillar 3 Report.

Aggregate correlation trading positions

The following table presents the net notional amount and fair value of the Firm's aggregate correlation trading positions and the associated credit hedges. Credit hedges of the correlation trading positions are included as they are considered to be part of the aggregate correlation trading positions. The presentation distinguishes between positions that are modeled in CRM and those that are not modeled in CRM (included in non-modeled specific risk).

December 31, 2016 (in millions)	Notional amount[a]	Fair value[b]
Positions modeled in CRM	$ 8,189	$ 69
Positions not modeled in CRM	(80)	18
Total correlation trading positions	$ 8,109	$ 87

(a) Reflects the net of the notional amount of the correlation trading portfolio, including credit hedges. Negative balances reflect aggregate net short correlation trading positions.
(b) Reflects the fair value of securities and derivatives, including credit hedges.

Non-modeled specific risk

Non-modeled specific risk is calculated using supervisory-prescribed risk weights and methodologies for covered debt, equity and securitization positions that are not included in modeled SR. The market risk-based capital and risk-weighted assets (which is calculated by multiplying the capital requirement by 12.5 as prescribed by the Basel III capital rules)for non-modeled specific risk are shown in the table below.

December 31, 2016 (in millions)	Risk-based capital	RWA
Securitization positions	$ 287	$ 3,585
Nonsecuritization positions	4,504	56,295
Total Non-modeled specific risk	$ 4,791	$ 59,880

Other charges

Other charges reflect exposures receiving alternative capital treatments. The capital requirement is translated to risk-weighted assets using a multiplier of 12.5 as prescribed by the Basel III capital rules.

December 31, 2016 (in millions)	Risk-based capital	RWA
Total Firm other charges	$ 1,654	$ 20,671

Independent review of market risk regulatory capital models

The Model Risk function within the Firm's Model Risk unit reviews and approves market risk regulatory capital models used by the Firm. Model Risk applies a consistent approach to evaluate the models used to calculate regulatory capital. The critical elements of the validation process are:

- An evaluation of the completeness of the risk factors for each product/instrument, and of the conceptual soundness of the risk factor simulation models;
- An analysis of model outcomes, including a comparison of the outputs with empirical experience and, where relevant, with alternative model specifications;
- An evaluation of the adequacy of model calibration procedures and model implementation testing performed by model developers; and
- An ongoing process to monitor the performance of models.

The evaluation of the soundness of a model seeks to assess the reasonableness of model specifications, and takes into consideration the purpose of the model and the state of current modeling technologies. The process to evaluate models also seeks to identify the main model assumptions, evaluate their adequacy, understand their strengths and weaknesses, and the impact that such assumptions may have on model output. Model Risk requires that critical weaknesses that have been identified in models have remediation plans that include specific action steps and analyses to resolve deficiencies within a specified period of time.

The output of models, and the models' response to changes in inputs, are evaluated via outcome analysis, which include comparing model results against empirical evidence, comparing model results against the results obtained with alternative settings or models, and assessing the reasonableness of the sensitivity of model results to changes in portfolio and market inputs.

While evidence of the integrity of model implementation is collected throughout the entire validation process, Model Risk dedicates a stand-alone workstream to assess the completeness and quality of the testing performed by model developers. The evaluation also considers operational risk, including access and change controls. Special attention is devoted to model inputs, in particular the quality of the specifications provided to model developers, and whether inputs require transformation or involve business logic prior to being input into the model.

Model Risk also evaluates the approach used by model developers to ensure the numerical accuracy of the results, such as the setting of the number of trials in a Monte Carlo simulation or the number of points used in a numerical integration performed to revalue a financial instrument under different market conditions. To evaluate the testing performed on models, Model Risk relies on walk-through examples that describe the sequence of steps performed in calculations and specifies the outputs, including reported quantities and model diagnostics. Additional model testing may be requested of the model development team by Model Risk or may be performed directly by Model Risk. The model validation process requires ongoing monitoring of model performance. This includes periodic reviews of:

- Model results and sensitivity analysis of key model parameters for significant sub-portfolios and for benchmark test portfolios specified by Model Risk;
- Results and impact analysis of model parameter recalibration; and
- Test results of the adequacy of the numerical settings in models.

For further information, refer to Model Risk Management on page 128 of the 2016 Form 10-K.

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.

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.

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.

- Refer to pages 129–130 of the 2016 Form 10-K for a discussion of Operational Risk Management.

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.

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.

- Refer to Operational Risk Management on pages 129–130 of the 2016 Form 10-K for information related to operational risk measurement and page 82 of Capital Risk Management for operational risk RWA.

INTEREST RATE RISK IN THE BANKING BOOK

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.

➢ Refer to the table on page 123 of the 2016 Form 10-K for a summary of positions included in Earnings-at-risk.

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 Asset and Liability Committee "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.

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.

➢ Refer to page 121 of the 2016 Form 10-K for a detailed discussion of Earnings-at-risk.

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.

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
U.S. dollar	**$ 4.0**	**$ 2.4**	**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.

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.

The SLR is defined as Tier 1 capital under the Basel III capital rules divided by the Firm's total leverage exposure. The tables below present the components of the Firm's SLR as of December 31, 2016 with on-balance sheet amounts calculated as the quarterly average and the off-balance sheet amounts calculated as the average of each of the three month's period-end balances.

Summary comparison of accounting assets and total leverage exposure

(in millions, except ratio)	Dec. 31, 2016
Basel III Advanced Transitional Tier 1 capital	**$ 208,112**
Total assets	**2,490,972**
Less: Adjustments for frequency of calculations[(a)]	(41,778)
Total average assets	**2,532,750**
Less: Adjustments for deductions from Tier 1 capital	47,826
Total adjusted average assets	**2,484,924**
Adjustment for derivative transactions	364,592
Adjustment for repo-style transactions	29,697
Adjustment for off-balance sheet exposures	312,777
Total leverage exposure	**$ 3,191,990**
Basel III Advanced Transitional SLR	**6.5%**

(a) The adjustment for frequency of calculations represents the difference between total assets at December 31, 2016, and average assets for the quarter ended December 31, 2016, excluding frequency of calculations for derivatives and repo-style transactions (of ($238) million and $531 million, respectively) which are included in the adjustment for the requisite exposure lines.

Derivative transactions

The following table presents the components of total derivative exposure.

(in millions)	Dec. 31, 2016
Replacement cost for all derivative transactions[(a)]	$ 74,818
Add-on amounts for potential future exposure ("PFE") for all derivative transactions	375,062
Gross-up for collateral posted in derivative transactions if collateral is deducted from on-balance sheet assets	3,066
Less: Exempted exposures to central counterparties ("CCPs") in cleared transactions	60,021
Adjusted effective notional principal amount of sold credit protection	1,174,537
Less: Effective notional principal amount offsets and PFE deductions for sold credit protection	1,132,929
Total derivative exposure[(b)]	**434,533**
Less: On-balance-sheet average derivative receivables	70,179
Less: Adjustments for frequency calculations[(c)]	(238)
Adjustment for derivative transactions	**$ 364,592**

(a) Includes cash collateral received of $4.6 billion.
(b) Receivables for cash variation margin that are posted under a qualifying derivative master netting agreement are netted against derivative liabilities and are not included in on-balance sheet assets.
(c) The adjustment for frequency of calculations represents the difference between total assets at December 31, 2016, and average assets for the quarter ended December 31, 2016.

Repo-style transactions

The following table presents the components of total exposures for repo-style transactions.

(in millions)	Dec. 31, 2016
Gross assets for repo-style transactions[(a)]	$ 547,387
Less: amounts netted[(b)]	228,122
Counterparty credit risk for all repo-style transactions	32,482
Exposure amount for repo-style transactions where the Firm acts as an agent[(c)]	316
Total exposures for repo-style exposures	**352,063**
Less: on-balance sheet amounts	
Federal funds sold and securities purchased under resale agreements	217,907
Securities borrowed	103,928
Less: Adjustments for frequency calculations[(d)]	531
Adjustment for repo-style transactions	**$ 29,697**

(a) Includes adjustments for securities received where the securities lender has not sold or rehypothecated securities received.
(b) Reflects netting of transactions where the Firm has has obtained an appropriate legal opinion with respect to master netting agreements with the same counterparty, and where other relevant criteria under U.S. GAAP are met.
(c) Includes exposures where the Firm's guarantee is greater than the difference between the fair value of the security or cash the Firm's customer has lent and the value of the collateral provided.
(d) The adjustment for frequency of calculations represents the difference between total assets at December 31, 2016, and average assets for the quarter ended December 31, 2016

Other off-balance sheet exposures

The following table presents wholesale and retail commitments after applying the relevant credit conversion factors.

(in millions)	Dec. 31, 2016
Off-balance sheet exposures - gross notional amounts	$ 1,095,471
Less: Adjustments for conversion to credit equivalent amounts	782,694
Adjustment for other off-balance sheet exposures	**$ 312,777**

Valuation process

The accounting and financial reporting policies of JPMorgan Chase and its subsidiaries conform to accounting principles generally accepted in the U.S. ("U.S. GAAP"). Additionally, where applicable, the policies conform to the accounting and reporting guidelines prescribed by regulatory authorities. It is JPMorgan Chase's policy to carry its covered positions at fair value.

Risk-taking functions are responsible for providing fair value estimates for assets and liabilities carried on the Consolidated balance sheets at fair value. The Firm's VCG, which is part of the Firm's Finance function and independent of the risk-taking functions, is responsible for verifying these estimates and determining any fair value adjustments that may be required to ensure that the Firm's positions are recorded at fair value. The 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 VCG (under the direction of the Firm's Controller), and includes sub-forums covering the CIB, CCB, CB, Asset & Wealth Management ("AWM") and certain corporate functions including Treasury and CIO.

Price verification process

The VCG verifies fair value estimates provided by the risk-taking functions by leveraging independently derived prices, valuation inputs and other market data, where available. Where independent prices or inputs are not available, the VCG performs additional review to ensure the reasonableness of the estimates. The additional review may include evaluating the limited market activity including client unwinds, benchmarking valuation inputs to those used for similar instruments, decomposing the valuation of structured instruments into individual components, comparing expected to actual cash flows, reviewing profit and loss trends, and reviewing trends in collateral valuation. There are also additional levels of management review for more significant or complex positions.

The VCG determines any valuation adjustments that may be required to the estimates provided by the risk-taking functions. No adjustments are applied for instruments classified within level 1 of the fair value hierarchy.

➢ Refer to Note 3 on pages 149–167 of the 2016 Form 10-K, for information on the fair value hierarchy.

For other positions, judgment is required to assess the need for valuation adjustments to appropriately reflect liquidity considerations, unobservable parameters, and, for certain portfolios that meet specified criteria, the size of the net open risk position. The determination of such adjustments follows a consistent framework across the Firm:

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

➢ Refer to Note 3 on pages 164–165 of the 2016 Form 10-K, for information on credit and funding valuation adjustments.

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

The Model Risk function 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. 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.

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.

Model risk management
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.

➢ Refer to the Model Risk Management section on page 128 of the 2016 Form 10-K for additional information.

References to JPMorgan Chase's 2016 Form 10-K

JPMorgan Chase's 2016 Form 10-K contains important information on the Firm's risk management policies and practices, capital management processes, and accounting policies relevant to this report. Specific references are listed below.

Management's discussion and analysis

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