



# **Pillar 3 Regulatory Capital Disclosures**

**Advanced Approaches**

**For the quarter ended March 31, 2019**

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**Important Presentation Information**

These disclosures are required by regulatory capital rules set out by the Office of the Comptroller of the Currency, the Board of Governors of the Federal Reserve System (Federal Reserve), and the Federal Deposit Insurance Corporation (FDIC) (collectively, U.S. banking regulators) in alignment with the Basel 3 regulatory capital framework. These disclosures provide qualitative and quantitative information about regulatory capital and risk-weighted assets (RWA) for the Advanced approaches, and should be read in conjunction with our Form 10-K for the year ended December 31, 2018 and the Form 10-Q, the Consolidated Financial Statements for Bank Holding Companies – FR Y-9C, the Market Risk Regulatory Report for Institutions Subject to the Market Risk Capital Rule – FFIEC 102 and the Regulatory Capital Reporting for Institutions Subject to the Advanced Capital Adequacy Framework – FFIEC 101 for the period ended March 31, 2019.

The Corporation’s Pillar 3 disclosures may include some financial information that has not been prepared under generally accepted accounting principles in the United States of America (GAAP). Certain information contained in the Pillar 3 disclosures is prepared pursuant to instructions in the U.S. Basel 3 Final Rule (Basel 3).

U.S. banking regulators permit certain Pillar 3 disclosure requirements to be addressed by their inclusion in the Consolidated Financial Statements of the Corporation. In such instances, incorporation into this report is made by reference to the relevant section(s) of the most recent Forms 10-Q and 10-K filed with the Securities and Exchange Commission (SEC) of the United States. This Pillar 3 report should be read in conjunction with the aforementioned reports as information regarding regulatory capital and risk management is largely contained in those filings. The table below indicates the location of such disclosures.

## DISCLOSURE MAP

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## SCOPE OF APPLICATION

### Corporate Overview

Bank of America Corporation (together, with its consolidated subsidiaries, Bank of America, we or us) is a Delaware corporation, a bank holding company (BHC) and a financial holding company. When used in this report, “the Corporation” may refer to Bank of America Corporation individually, Bank of America Corporation and its subsidiaries or certain of Bank of America Corporation’s subsidiaries or affiliates. Bank of America is one of the world’s largest financial institutions, serving individual consumers, small- and middle-market businesses, institutional investors, large corporations and governments with a full range of banking, investing, asset management and other financial and risk management products and services. Our principal executive offices are located in the Bank of America Corporate Center, 100 North Tryon Street, Charlotte, North Carolina 28255.

### Principles of Consolidation and Basis of Presentation

The Consolidated Financial Statements include the accounts of the Corporation and its majority-owned subsidiaries and those variable interest entities (VIEs) where the Corporation is the primary beneficiary. Intercompany accounts and transactions have been eliminated. Results of operations of acquired companies are included from the dates of acquisition and for VIEs, from the dates that the Corporation became the primary beneficiary. Assets held in an agency or fiduciary capacity are not included in the Consolidated Financial Statements. The Corporation accounts for investments in companies for which it owns a voting interest and for which it has the ability to exercise significant influence over operating and financing decisions using the equity method of accounting. These investments are included in other assets. Equity method investments are subject to impairment testing, and the Corporation’s proportionate share of income or loss is included in other income.

The preparation of the Consolidated Financial Statements in conformity with accounting principles generally accepted in the United States of America (GAAP) requires management to make estimates and assumptions that affect reported amounts and disclosures. Realized results could materially differ from those estimates and assumptions. For additional information, refer to *Note 1 – Summary of Significant Accounting Principles* in the March 31, 2019 Form 10-Q and December 31, 2018 Form 10-K.

### Basel 3 Regulatory Capital Standards and Disclosures

As a financial holding company, the Corporation is subject to regulatory capital rules issued by the U.S. banking regulators, including Basel 3. Basel 3 is a regulatory capital framework composed of three parts, or pillars. Pillar 1 addresses capital adequacy and provides minimum capital requirements. Pillar 2 requires supervisory review of capital adequacy assessments and strategies. Pillar 3 promotes market discipline through prescribed regulatory public disclosures on capital structure, capital adequacy and RWA.

On January 1, 2014, the Corporation and its affiliates became subject to Basel 3. The Corporation and its primary banking subsidiaries, Bank of America, National Association (BANA) and Bank of America California, National Association (BACANA), are Advanced approaches institutions under Basel 3. Basel 3 requires the Corporation and its banking subsidiaries to meet minimum regulatory capital ratios and buffers in order to avoid certain restrictions, including capital distributions. The Corporation is subject to a capital conservation buffer, a countercyclical capital buffer (if any) and a global systemically important bank (G-SIB) surcharge. In addition, banking entities are required to meet adequately capitalized requirements under the Prompt Corrective Action (PCA) framework. The PCA framework establishes categories of capitalization including well capitalized, based on the Basel 3 regulatory capital ratio requirements. U.S. banking regulators are required to take certain mandatory actions depending on the category of capitalization, with no mandatory actions required for well capitalized banking organizations.

Basel 3 provides two methods of calculating RWA, the Standardized approach and the Advanced approaches. As an Advanced approaches institution, the Corporation is required to report regulatory risk-based capital ratios and RWA under both the Standardized and Advanced approaches. The approach that yields the lower ratio is used to assess capital adequacy including under the PCA framework. As of March 31, 2019, Common equity tier 1 and Tier 1 capital ratios for the Corporation were lower under the Standardized approach whereas the Advanced approaches yielded a lower Total capital ratio.

The Corporation is also required to maintain a minimum supplementary leverage ratio (SLR) of 3.0 percent plus a leverage buffer of 2.0 percent in order to avoid certain restrictions, including capital distributions. The Corporation’s insured depository institution subsidiaries are required to maintain a minimum 6.0 percent SLR to be considered well capitalized under the PCA framework.

Effective January 1, 2019, the Corporation is subject to the Federal Reserve’s final rule requiring G-SIBs to maintain minimum levels of total loss-absorbing capacity (TLAC) and long-term debt. TLAC consists of the Corporation’s Tier 1 capital and eligible long-term debt issued directly by the Corporation. Eligible long-term debt for TLAC ratios is comprised of unsecured debt that has a remaining maturity of at least one year and satisfies additional requirements as prescribed in the TLAC final rule. As with the risk-based capital ratios and SLR, the Corporation is required to maintain TLAC ratios in excess of minimum requirements plus applicable buffers in order to avoid certain

restrictions, including capital distributions. For additional information on Basel 3 and management of the Corporation’s regulatory capital and pending or proposed capital changes, refer to *Capital Management* within the Management’s Discussion and Analysis of Financial Condition and Results of Operations (MD&A) section in the March 31, 2019 Form 10-Q and in the December 31, 2018 Form 10-K and *Note 16 – Regulatory Requirements and Restrictions* in the December 31, 2018 Form 10-K.

Information contained in this report is presented in accordance with the Basel 3 rules for RWA and capital measurement under the Advanced approaches, and follows the Pillar 3 disclosure requirements for the quantitative and qualitative presentation of data. Information presented herein may differ from similar information presented in the Consolidated Financial Statements and other publicly available disclosures. Unless specified otherwise, all amounts and information are presented in conformity with the definitions, rules and requirements of Basel 3.

## CAPITAL STRUCTURE

Under Basel 3, Total capital consists of two tiers of capital, Tier 1 and Tier 2. Tier 1 capital is further composed of Common equity tier 1 capital and additional tier 1 capital. Common equity tier 1 capital primarily includes common stock, retained earnings and AOCI. Goodwill, disallowed intangible assets and certain deferred tax assets are excluded from Common equity tier 1 capital. Additional tier 1 capital primarily includes qualifying non-cumulative preferred stock. Tier 2 capital primarily consists of qualifying subordinated debt and a limited portion of eligible credit reserves. The Corporation’s Total capital is the sum of Tier 1 capital and Tier 2 capital.

The following table presents the capital composition as measured under Basel 3 Advanced as of March 31, 2019.

<b>Table 1 - Capital Composition under Basel 3</b>	<b>March 31, 2019</b>
<i>(Dollars in millions)</i>	
Total common shareholders' equity	\$ 244,684
Goodwill, net of related deferred tax liabilities	(68,573)
Deferred tax assets arising from net operating loss and tax credit carryforwards	(5,695)
Intangibles, other than mortgage servicing rights and goodwill, net of related deferred tax liabilities	(1,352)
Other	179
<b>Common equity tier 1 capital</b>	<b>169,243</b>
Qualifying preferred stock, net of issuance cost	22,326
Other	(606)
<b>Tier 1 capital</b>	<b>190,963</b>
Tier 2 capital instruments	22,458
Eligible credit reserves included in Tier 2 capital	2,268
Other	(55)
<b>Total capital under the Advanced approaches</b>	<b>\$ 215,634</b>

For additional information on the components of common shareholders’ equity, refer to Schedule A “Advanced Approaches Regulatory Capital” in Bank of America’s March 31, 2019 Regulatory Capital Reporting for Institutions Subject to the Advanced Capital Adequacy Framework — FFIEC 101. For the related breakdown of AOCI, refer to *Note 14 – Accumulated Other Comprehensive Income (Loss)* in the March 31, 2019 Form 10-Q. For additional information on goodwill and intangibles, refer to *Note 8 – Goodwill and Intangible Assets* in the March 31, 2019 Form 10-Q. For terms and conditions of common stock and preferred stock, refer to *Note 12 – Shareholders’ Equity* in the March 31, 2019 Form 10-Q and *Note 13 – Shareholders’ Equity* in the December 31, 2018 Form 10-K. For additional information on Tier 2 capital instruments, refer to *Note 11 – Long-term Debt* in the December 31, 2018 Form 10-K.

## CAPITAL ADEQUACY

The Corporation manages its capital position so that its capital is more than adequate to support its business activities and aligns with risk, risk appetite and strategic planning. Additionally, we seek to maintain safety and soundness at all times, even under adverse scenarios, take advantage of organic growth opportunities, meet obligations to creditors and counterparties, maintain ready access to financial markets, continue to serve as a credit intermediary, remain a source of strength for our subsidiaries and satisfy current and future regulatory capital requirements. Capital management is integrated into our risk and governance processes, as capital is a key consideration in the development of our strategic plan, risk appetite and risk limits. We conduct an Internal Capital Adequacy Assessment Process (ICAAP) on a periodic basis. The ICAAP is a forward-looking assessment of our projected capital needs and resources, incorporating earnings, balance sheet and risk forecasts under baseline and adverse economic and market conditions. We utilize periodic stress tests to assess the potential impacts to our balance sheet, earnings, regulatory capital and liquidity under a variety of stress scenarios. We perform qualitative risk assessments to identify and assess material risks not fully captured in our forecasts or stress tests. We assess the potential capital impacts of proposed changes to regulatory capital requirements. Management assesses ICAAP results and provides documented quarterly assessments of the adequacy of our capital guidelines and capital position to the Corporation’s Board of Directors (the Board) or its committees.

The Federal Reserve requires BHCs to submit a capital plan and requests for capital actions on an annual basis, consistent with the rules governing the Comprehensive Capital Analysis and Review (CCAR) capital plan. The CCAR capital plan is the central element of the Federal Reserve's approach to ensure that large BHCs have adequate capital and robust processes for managing their capital. For additional information on CCAR and Capital Planning, refer to *Capital Management* within the MD&A section in the March 31, 2019 Form 10-Q and in the December 31, 2018 Form 10-K.

## Regulatory Capital Ratios

March 31, 2019 Key Capital Metrics – Bank of America Corporation



The following table presents capital ratios and related information as well as the regulatory minimum and well capitalized ratio requirements under Basel 3 Advanced and Basel 3 Standardized for the Corporation and its major national bank subsidiaries: BANA and BACANA as of March 31, 2019.

Table 2 - Regulatory Capital March 31, 2019

	Bank of America Corporation		Bank of America, N.A.		Bank of America California, N.A.	
	Basel 3 Standardized	Basel 3 Advanced	Basel 3 Standardized	Basel 3 Advanced	Basel 3 Standardized	Basel 3 Advanced
<i>(Dollars in millions)</i>						
<b>Regulatory Capital</b>						
Common equity tier 1 capital	\$ 169,243	\$ 169,243	\$ 152,171	\$ 152,171	\$ 1,983	\$ 1,983
Tier 1 capital	190,963	190,963	152,171	152,171	1,983	1,983
Total capital <sup>1</sup>	223,745	215,634	164,145	156,344	2,029	1,996
<b>Assets</b>						
Risk-weighted assets	\$ 1,454,657	\$ 1,422,631	\$ 1,204,305	\$ 967,909	\$ 6,453	\$ 4,090
Adjusted quarterly average assets <sup>2</sup>	2,283,978	2,283,978	1,699,950	1,699,950	15,489	15,489
Supplementary Leverage Exposure		2,822,231		2,094,251		15,489
<b>Capital Ratios</b>						
Common equity tier 1 capital	11.6%	11.9%	12.6%	15.7%	30.7%	48.5%
Tier 1 capital	13.1	13.4	12.6	15.7	30.7	48.5
Total capital	15.4	15.2	13.6	16.2	31.4	48.8
Tier 1 leverage	8.4	8.4	9.0	9.0	12.8	12.8
Supplementary Leverage Ratio		6.8		7.3		12.8

	Bank Holding Company Regulatory Minimum <sup>3</sup>	Insured Depository Institutions Regulatory Minimum <sup>4</sup>
<b>Capital Ratios</b>		
Common equity tier 1 capital	9.50%	7.00%
Tier 1 capital	11.00	8.50
Total capital	13.00	10.50
Tier 1 leverage	4.00	5.00
Supplementary Leverage Ratio	5.00	6.00

<sup>1</sup> Total capital under the Advanced approaches differs from the Standardized approach due to differences in the amount permitted in Tier 2 capital related to the qualifying allowance for credit losses.

<sup>2</sup> Reflects adjusted average assets for the three months ended March 31, 2019.

<sup>3</sup> The March 31, 2019 amounts include a capital conservation buffer of 2.5 percent and a G-SIB surcharge of 2.5 percent. The countercyclical capital buffer is zero. The SLR minimum includes a leverage buffer of 2.0 percent.

<sup>4</sup> Risk-based capital regulatory minimums at March 31, 2019 are the minimum ratios under Basel 3 including a capital conservation buffer of 2.5 percent. The regulatory minimums for leverage ratios as of March 31, 2019 are the percent required to be considered well capitalized under the PCA framework.

As of March 31, 2019, Bank of America, all of its U.S. banking subsidiaries and other regulated subsidiaries were well capitalized and exceeded all capital requirements to which each was subject, including applicable capital buffers. Bank of America's capital conservation

buffer was 7.13 percent, in excess of its required capital conservation buffer (including the G-SIB surcharge) of 5.0 percent, and the leverage buffer was 3.77 percent. The aggregate amount of surplus capital of subsidiaries engaged in the insurance business was \$74 million.

The following table presents the Corporation's TLAC and long-term debt ratios and related information as of March 31, 2019.

#### Total Loss-Absorbing Capacity and Long-Term Debt

<i>(Dollars in millions, except ratios)</i>	TLAC	Regulatory Minimum <sup>1</sup>	Long-term Debt	Regulatory Minimum <sup>2</sup>
<b>Regulatory Capital</b>				
Total eligible balance	\$ 360,927		\$ 165,568	
Percentage of risk-weighted assets <sup>3</sup>	24.8%	22.0%	11.4%	8.5%
Percentage of total SLR leverage exposure	12.8	9.5	5.9	4.5

<sup>1</sup> The TLAC risk-weighted assets regulatory minimum consists of 18.0 percent plus a TLAC risk-weighted assets buffer comprised of 2.5 percent plus the method 1 G-SIB surcharge of 1.5 percent. The countercyclical buffer is zero for this period. The TLAC SLR leverage exposure regulatory minimum consists of 7.5 percent plus a 2.0 percent TLAC leverage buffer. The TLAC risk-weighted assets and leverage buffers must be comprised solely of CET1 capital and Tier 1 capital, respectively.

<sup>2</sup> The long-term debt risk-weighted assets regulatory minimum is comprised of 6.0 percent plus an additional 2.5 percent requirement based on the Corporation's method 2 G-SIB surcharge.

<sup>3</sup> The approach that yields the higher risk-weighted assets is used to calculate TLAC and long-term debt ratios, which was the Standardized approach as of March 31, 2019.

Bank of America is not subject to payout ratio limitations, including capital distributions, under Basel 3 requirements. For additional information on regulatory capital, capital ratios, capital conservation and countercyclical capital buffers for the Corporation, refer to *Capital Management* within the MD&A section in the March 31, 2019 Form 10-Q and December 31, 2018 Form 10-K, Schedule A "Advanced Approaches Regulatory Capital" in Bank of America's March 31, 2019 Regulatory Capital Reporting for Institutions Subject to the Advanced Capital Adequacy Framework — FFIEC 101 and Schedule HC-R "Regulatory Capital" in Bank of America's March 31, 2019 Consolidated Financial Statements for Bank Holding Companies – FR Y-9C. For information on retained income, refer to Schedule HI "Consolidated Report of Income" in the Consolidated Financial Statements for Bank Holding Companies – FR Y-9C and Schedule HC-R "Regulatory Capital" in Bank of America's March 31, 2019 Consolidated Financial Statements for Bank Holding Companies – FR Y-9C.

#### Risk-Weighted Assets

Basel 3 Advanced approaches include measures of credit risk, market risk, operational risk and risks related to the credit valuation adjustment (CVA) for over-the-counter (OTC) derivative exposures. The Advanced approaches rely on internal analytical models to measure risk weights for credit risk exposures and allow the use of models to estimate the exposure at default (EAD) for certain exposure types. Market risk applies to covered positions which include trading assets and liabilities, foreign exchange exposures and commodity exposures. Market risk capital is modeled for general market risk as well as specific risk for products where specific risk regulatory approval has been granted; in the absence of specific risk model approval, standard specific risk charges apply. For securitization exposures, institutions are permitted to use the Supervisory Formula Approach (SFA) and would use the Simplified Supervisory Formula Approach (SSFA) if the SFA is unavailable for a particular exposure. Credit risk exposures are measured using internal ratings-based models to determine the applicable risk weight by estimating the probability of default (PD), loss-given default (LGD) and, in certain instances, EAD. The internal analytical models primarily rely on internal historical default and loss experience. Operational risk is measured using internal analytical models which rely on both internal and external operational loss experience and data. The calculations require management to make estimates, assumptions and interpretations, including with respect to the probability of future events based on historical experience. Actual results could differ from those estimates and assumptions. Under the Federal Reserve's reservation of authority, they may require us to hold an amount of capital greater than otherwise required under the capital rules if they determine that our risk-based capital requirement using our internal analytical models is not commensurate with our credit, market, operational or other risks. The following table presents RWA by risk and exposure type under Basel 3 Advanced as of March 31, 2019.

<b>Table 3 - RWA by Risk and Exposure Type</b>		March 31, 2019
<i>(Dollars in millions)</i>		
<b>Wholesale</b>		
Corporate	\$	329,097
Bank	\$	14,120
Sovereign	\$	9,782
Income-Producing Real Estate (IPRE)	\$	54,026
High Volatility Commercial Real Estate (HVCRE)	\$	629
<b>Total Wholesale RWA</b>	<b>\$</b>	<b>407,654</b>
<b>Retail</b>		
Residential Mortgage	\$	62,298
Qualifying Revolving Exposures	\$	68,121
Other Retail Exposures	\$	29,798
<b>Total Retail RWA</b>	<b>\$</b>	<b>160,217</b>
<b>Counterparty</b>		
Eligible Margin Loans and Repo-Style Transactions	\$	30,808
OTC Derivatives	\$	39,766
Cleared Transactions	\$	6,825
Unsettled Transactions	\$	1,177
<b>Total Counterparty RWA</b>	<b>\$</b>	<b>78,576</b>
Securitization Exposures <sup>1</sup>	\$	33,454
Equity Exposures	\$	48,293
Credit Risk Supervisory Scalar	\$	47,456
CVA	\$	32,461
Market Risk	\$	51,783
Operational Risk	\$	500,000
All Other <sup>2</sup>	\$	62,737
<b>Total RWA</b>	<b>\$</b>	<b>1,422,631</b>

<sup>1</sup>Securitization Exposures represent Banking Book only.

<sup>2</sup>Primarily consists of deferred tax assets, non-material portfolios and other assets not subject to the application of internal models to derive credit R/WAs under the Advanced approaches.

Total Advanced RWA increased \$14 billion to \$1,423 billion as of March 31, 2019, from \$1,409 billion as of December 31, 2018, primarily due to an increase in other assets and client activity in Global Markets, partially offset by U.S. credit card loans.

## RISK MANAGEMENT ORGANIZATIONAL STRUCTURE AND RESPONSIBILITIES

The Corporation takes a comprehensive approach to risk management with a defined Risk Framework and an articulated Risk Appetite Statement which are approved annually by the Board's Enterprise Risk Committee (ERC) and the Board. Our Risk Framework is the foundation for the consistent and effective management of risks facing the Corporation. The Risk Framework sets forth clear roles, responsibilities and accountability for the management of risk and provides a blueprint for how the Board, through delegation of authority to committees and executive officers, establishes risk appetite and associated limits for our activities. Our risk appetite provides a common framework and a comparable set of measures for senior management and the Board to clearly indicate the level of risk and to monitor whether the Corporation's risk profile remains in alignment with our strategic and capital plans. Our risk appetite is formally articulated in the Risk Appetite Statement, which includes both qualitative components and quantitative limits.

The Board's Audit Committee oversees the qualifications, performance and independence of the Independent Registered Public Accounting Firm, the performance of the Corporation's audit function, the integrity of the Corporation's consolidated financial statements, our compliance with legal and regulatory requirements, and makes inquiries of management or the Corporate General Auditor (CGA) to determine whether there are scope or resource limitations that impede the ability of Corporate Audit to execute its responsibilities. The Audit Committee is also responsible for overseeing compliance risk pursuant to the New York Stock Exchange listing standards.

The ERC has primary responsibility for oversight of the Risk Framework and key risks we face and of the Corporation's overall risk appetite. It approves the Risk Framework and the Risk Appetite Statement and further recommends these documents to the Board for approval. The ERC oversees senior management's responsibilities for the identification, measurement, monitoring and control of key risks facing the Corporation. The ERC may consult with other Board committees on risk-related matters.

Corporate Audit and the CGA maintain their independence from the Front Line Units, Independent Risk Management, and other control functions by reporting directly to the Audit Committee or the Board. The CGA administratively reports to the CEO. Corporate Audit provides independent assessment and validation through testing of key processes and controls across the Corporation. Corporate Audit includes Credit Review which periodically tests and examines credit portfolios and processes.

For additional information on the Corporation's risk management policies, refer to *Managing Risk* within the MD&A section in the March 31, 2019 Form 10-Q and the December 31, 2018 Form 10-K.

## CREDIT RISK

Credit risk is the risk of loss arising from the inability or failure of a borrower or counterparty to meet its obligations. Economic or market disruptions, insufficient credit loss reserves or concentration of credit risk may result in an increase in the provision for credit losses, which could have an adverse effect on our financial condition and results of operations. A number of our products expose us to credit risk, including loans, letters of credit, derivatives, debt securities, trading account assets and assets held for sale. The financial condition of our consumer and commercial borrowers, counterparties and underlying collateral could adversely affect our financial condition and results of operations.

Global and U.S. economic conditions and macroeconomic events, including a decline in global gross domestic product (GDP), consumer spending or real estate prices, as well as increasing leverage, rising unemployment and/or fluctuations in foreign exchange or interest rates, particularly when coupled with rising inflation, may impact our credit portfolios. Economic or market stress or disruptions, including as a result of natural disasters, would likely increase the risk that borrowers or counterparties would default or become delinquent in their obligations to us, potentially resulting in credit loss. Increases in delinquencies and default rates could adversely affect our consumer and commercial portfolios through increased charge-offs and provision for credit losses. A deteriorating economic environment could also adversely affect our consumer and commercial loan portfolios given the increased potential for weakened client and collateral positions. Additionally, simultaneous drawdowns on lines of credit or an increase in a borrower's leverage in a weakening economic environment could result in deterioration in our credit portfolio, should borrowers be unable to fulfill competing financial obligations. More specifically, our consumer portfolio could be negatively impacted by drastic reductions in employment, or increases in underemployment, resulting in lower disposable income.

For additional information on the assessment of credit risk as it relates to loans and leases, refer to *Credit Risk Management* within the MD&A section in the March 31, 2019 Form 10-Q and the December 31, 2018 Form 10-K.

### Credit Risk Exposures

Credit risk exposures (calculated according to exposure type) as reported under GAAP can be found within the Corporation's most recent SEC filings. For additional information, the specific references related to credit risk are listed below.

*Accounting Policies* – For information on internal policies governing past due and delinquency status, nonaccrual, allowance for credit losses, and charge-offs of uncollectible accounts, refer to *Note 1 – Summary of Significant Accounting Principles* in the December 31, 2018 Form 10-K.

*Average Balances* – For average asset balances, refer to *Table 6 – Quarterly Average Balances and Interest Rates – FTE Basis* in the March 31, 2019 Form 10-Q.

*Outstanding Loans and Leases* – The Corporation utilizes a Consumer and Commercial portfolio segmentation approach to present information related to loans and leases. For additional information on loans and leases including nonperforming, past due and impaired loans, refer to *Credit Risk Management* within the MD&A section, *Note 5 – Outstanding Loans and Leases* in the March 31, 2019 Form 10-Q and *Statistical Table IV – Selected Loan Maturity Data* in the December 31, 2018 Form 10-K.

*Credit Risk Management* – For additional information on the change in allowance for credit losses, including charge-offs, recoveries, provision for credit losses and a reconciliation of changes in allowance for loan and lease losses (ALLL), refer to *Allowance for Credit Losses* within the MD&A section, *Note 6 – Allowance for Credit Losses* in the March 31, 2019 Form 10-Q and *Statistical Table V – Allowance for Credit Losses* in the December 31, 2018 Form 10-K.

*Investment Securities* – For additional information on securities, refer to *Note 4 – Securities* in the March 31, 2019 Form 10-Q.

*Derivatives* – For additional information on the derivative positions of the Corporation, refer to *Note 3 – Derivatives* in the March 31, 2019 Form 10-Q. For additional information on purchased and sold credit derivatives, collateral held and gross positive fair value, refer to Schedule HC-L "Derivatives and Off-Balance Sheet Items" in Bank of America's March 31, 2019 Consolidated Financial Statements for Bank Holding Companies – FR Y-9C.

*Off-Balance Sheet Exposures* – For additional information on the off-balance sheet exposures for the Corporation, refer to *Note 11 – Commitments and Contingencies* in the March 31, 2019 Form 10-Q.

*Credit Exposures by Geographic / Industry Distribution* – For additional information on the geographic and industry distribution of credit exposures categorized by exposure type, refer to *Credit Risk Management* within the MD&A section in the March 31, 2019 Form 10-Q.

## RETAIL CREDIT RISK

Credit risk management for the consumer portfolio begins with initial underwriting and continues throughout a borrower's credit cycle. Statistical techniques in conjunction with experiential judgment are used in all aspects of portfolio management including underwriting, product pricing, risk appetite, setting credit limits, and establishing operating processes and metrics to quantify and balance risks and returns. Statistical models are built using detailed behavioral information from external sources such as credit bureaus and/or internal historical experience. These models are a component of our consumer credit risk management process and are used in part to assist in making both new and ongoing credit decisions, as well as portfolio management strategies, including authorizations and line management, collection practices and strategies, possible loan sales, and determination of the ALLL and allocated capital for credit risk.

The Corporation monitors credit quality within its Consumer Real Estate, Credit Card and Other Consumer portfolio segments based on a variety of factors, including primary credit quality indicators. For more information on the portfolio segments, refer to *Note 5 – Outstanding Loans and Leases* in the March 31, 2019 Form 10-Q. Within the Consumer Real Estate portfolio segment, the primary credit quality indicators are refreshed loan-to-value (LTV) and refreshed FICO score. Refreshed LTV measures the carrying value of the loan as a percentage of the value of the property securing the loan, refreshed at least quarterly. Home equity loans are evaluated using combined LTV which measures the carrying value of the Corporation's loan and available line of credit combined with any outstanding senior liens against the property as a percentage of the value of the property securing the loan, refreshed at least quarterly. The FICO score measures the creditworthiness of the borrower based on the financial obligations of the borrower and the borrower's credit history. FICO scores are typically refreshed quarterly or more frequently. Certain borrowers (e.g., borrowers that have had debts discharged in a bankruptcy proceeding) may not have their FICO scores updated. FICO scores are also a primary credit quality indicator for the Credit Card and Other Consumer portfolio segment and the business card portfolio within U.S. small business commercial.

Retail exposures are categorized as residential mortgage, qualifying revolving exposures and other retail exposures. A residential mortgage exposure is a retail exposure (other than a securitization exposure, equity exposure, presold construction loan or statutory multifamily mortgage exposure) that: (1) is primarily secured by a first or subsequent lien on a one-to-four family residential property; or (2) has an original and outstanding amount of \$1 million or less and is primarily secured by a first or subsequent lien on residential property that is not one-to-four family. Qualifying revolving exposures are exposures that are revolving, unsecured and unconditionally cancellable by the Corporation with a maximum exposure amount of \$100,000. In most cases consumer credit card lines are classified as qualified revolving exposures. Other retail exposures include exposures to individuals for non-business purposes that do not meet the dollar threshold for qualifying revolving exposures as well as term loans, margin loans, auto loans and leases and loans to individuals for business purposes up to the amount of \$1 million for a single borrower.

### Retail Risk Rating System

When assessing the credit risk for retail exposures, the Corporation uses a segmentation process where exposures are managed as part of a group with homogeneous risk characteristics, not on an individual exposure basis. The Corporation has defined the segmentation methodology as the optimal grouping of risk parameters into clusters. The grouping process involves a statistical test to identify exposures whose risk parameters are collectively proximate to each other and simultaneously distant from the next identified cluster. Groupings are performed for each PD, EAD and LGD model at a product level. Through this segmentation method, we define homogeneous risk characteristics as groups of exposures that have similar risk parameters. A value for the PD parameter is calculated for each segment, which is then applied towards all exposures within that segment. This process ultimately determines the parameter ranges and capital allocations for Basel 3 RWA calculations.

### Determining Retail Risk Parameters

Retail PD is the Corporation's empirical estimate of the average one-year default rate for the segment based on its underlying risk characteristics and composition. The retail segmentation generally falls along product and delinquency status lines. Historical retail segment performance is viewed over a mix of economic conditions as the best available data for PD estimation. Retail portfolio PD parameters are organized along the Basel 3 retail subcategory definitions of residential mortgage, qualified revolving exposure and other retail. Within these subcategories and the segmentation mentioned above, data is summarized by various risk drivers.

To estimate PDs for the retail portfolios, the Corporation utilizes a regression model to formulate the relationship between segment attributes and credit performance. The exposure data is further summarized by segment and risk attribute through the use of static pools. These pools help determine composite default rates over a one-year time horizon.

Retail LGD is the Corporation's empirical estimate of the loss severity for the product or severity segmentation given downturn economic conditions. Retail LGD segmentation represents a grouping of exposures expected to have homogeneous LGD characteristics based on statistical analyses of historical performance. Severity segmentations are based on product, collateral type, LTV ratio and other risk attributes.

Retail EAD is defined as the estimated dollar amount of the drawn exposure for a defaulted credit line over a 12-month time horizon. Retail EAD has two primary components, current outstanding carrying value and potential utilization of the unfunded commitment. It represents the empirical estimate of the amount of exposure that would be outstanding if an obligor defaulted, based on assumed homogeneous characteristics and statistical analyses of historical performance. Retail EAD segmentation represents a grouping of exposures expected to have homogeneous EAD characteristics based on the statistical analysis of historical performance. Retail EAD models within each subcategory are segmented by product and delinquency status, with the reference data summarized by various risk drivers.

Accuracy of the retail models is maintained through the use of backtesting and benchmarking predicted risk parameters against realized losses. For additional information regarding estimated losses, actual losses and factors that impact the loss experience, refer to *Credit Risk Management* within the MD&A section and *Note 6 – Allowance for Credit Losses* in the March 31, 2019 Form 10-Q.

### Retail Credit Exposures

The following table includes first lien and junior lien mortgages and revolving exposures allocated by PD range as of March 31, 2019. First lien mortgages represent approximately 78 percent of the exposure amount, revolving home equity lines of credit exposures approximately 21 percent, and junior lien mortgages exposures approximately 1 percent.

	Balance Sheet		Undrawn	Exposure-Weighted Average					
	Amount	Commitments	EAD	RWA	PD	LGD	Risk Weight		
0.00 to < 0.15	\$ 119,364	\$ 43,753	\$ 128,493	\$ 11,129	0.07%	45.25%	8.66%		
0.15 to < 0.50	81,269	661	81,747	18,222	0.26	45.17	22.29		
0.50 to < 5.50	28,157	163	28,297	20,502	1.29	51.42	72.45		
5.50 to < 20.00	2,724	-	2,735	5,571	10.54	45.29	203.69		
20.00 to < 100.00	1,309	-	1,315	3,045	41.61	47.12	231.56		
100.00 (default) <sup>1</sup>	3,901	10	3,920	3,829	100.00	100.00	97.68		
<b>Total</b>	<b>\$ 236,724</b>	<b>\$ 44,587</b>	<b>\$ 246,507</b>	<b>\$ 62,298</b>	<b>2.20%</b>	<b>46.82%</b>	<b>25.27%</b>		

<sup>1</sup> The exposure-weighted average risk weight for defaulted loans is less than 100 percent due to certain loans being insured and/or guaranteed by U.S. government agencies.

The following table presents a summary of qualifying revolving exposures (primarily consisting of credit card exposures) allocated by PD range as of March 31, 2019.

	Balance Sheet		Undrawn	Exposure-Weighted Average					
	Amount	Commitments	EAD	RWA	PD	LGD	Risk Weight		
0.00 to < 0.50	\$ 18,673	\$ 285,890	\$ 57,287	\$ 5,850	0.21%	95.76%	10.21%		
0.50 to < 1.50	32,845	46,004	45,004	14,944	0.90	95.76	33.21		
1.50 to < 3.50	23,040	5,060	27,257	19,050	2.40	95.76	69.89		
3.50 to < 7.00	11,789	1,688	13,519	15,092	4.73	95.72	111.64		
7.00 to < 10.00	1,429	295	1,589	2,475	7.92	95.76	155.76		
10.00 to < 100.00	4,908	613	5,269	10,709	38.06	95.76	203.25		
100.00 (default)	1	1	1	1	100.00	100.00	100.00		
<b>Total</b>	<b>\$ 92,685</b>	<b>\$ 339,551</b>	<b>\$ 149,926</b>	<b>\$ 68,121</b>	<b>2.63%</b>	<b>95.76%</b>	<b>45.44%</b>		

The following table presents a summary of all other retail exposures that do not meet the Basel 3 definition of either a residential mortgage or a qualifying revolving exposure, allocated by PD range as of March 31, 2019.

	Balance Sheet		Undrawn	Exposure-Weighted Average					
	Amount	Commitments	EAD	RWA	PD	LGD	Risk Weight		
0.00 to < 0.50	\$ 63,966	\$ 34,482	\$ 70,959	\$ 9,410	0.12%	50.81%	13.26%		
0.50 to < 1.50	8,697	7,772	13,403	8,548	0.88	67.84	63.78		
1.50 to < 3.50	4,807	774	5,438	5,208	2.24	72.48	95.77		
3.50 to < 7.00	2,179	240	2,408	2,957	4.92	83.30	122.80		
7.00 to < 10.00	769	58	820	979	8.03	75.32	119.39		
10.00 to < 100.00	1,604	108	1,705	2,651	27.92	78.46	155.48		
100.00 (default)	45	35	45	45	100.00	100.00	100.00		
<b>Total</b>	<b>\$ 82,067</b>	<b>\$ 43,469</b>	<b>\$ 94,778</b>	<b>\$ 29,798</b>	<b>1.09%</b>	<b>56.02%</b>	<b>31.44%</b>		

## WHOLESALE CREDIT RISK

Credit risk management for the wholesale portfolio begins with an assessment of the credit risk profile of the borrower or counterparty based on an analysis of its financial position. As part of the overall credit risk assessment, our wholesale credit exposures are assigned a risk rating and are subject to approval based on defined credit approval standards. Subsequent to loan origination, risk ratings are monitored on an ongoing basis, and if necessary, adjusted to reflect changes in the financial condition, cash flow, risk profile or outlook of a borrower or counterparty. In making credit decisions, we consider risk rating, collateral, country, industry and single-name concentration limits while also balancing this with the total borrower or counterparty relationship. Our business and risk management personnel use a variety of tools to continuously monitor the ability of a borrower or counterparty to perform under its obligations. We use risk rating aggregations to measure and evaluate concentrations within portfolios. In addition, risk ratings are a factor in determining the level of allocated capital and the allowance for credit losses. For additional information on the Corporation's credit risk management policies of its commercial portfolio, refer to *Credit Risk Management* within the MD&A section in the December 31, 2018 Form 10-K.

Wholesale exposures include corporate exposures, real estate exposures, bank exposures and sovereign exposures. Real estate exposures are further divided into income-producing real estate exposures (IPRE) and high-volatility commercial real estate exposures (HVCRE). IPRE exposures represent commercial real estate exposures where the method of reimbursement is tied to the income produced from those exposures. HVCRE exposures are a type of credit facility that finances or has financed the acquisition, development or construction of real property (excluding facilities that finance one-to-four family residential properties or commercial real estate projects that meet certain LTV and capital contribution requirements).

### Wholesale Risk Rating System

The Corporation uses three types of risk rating methodologies to assign risk ratings to wholesale exposure: internally developed scorecards, external mappings and the judgmental approach. Scorecards and external mappings both provide quantifiable and objective means to assess risk. The primary risk rating methodology is internally, empirically developed portfolio or industry scorecards. These scorecards are considered preferable due to the combination of rich data available from financial statements, relationship based obligor specific information that, in general, cannot be extracted from financial statements, and the fact that most are developed on and calibrated to internal bank default experience yielding a generally consistent default behavior among risk ratings across risk rating models. The majority of risk ratings employ empirically estimated, internally developed scorecards.

### Determining Wholesale Risk Parameters

Wholesale PD is an empirical estimate of the average one-year default rate over a mix of economic conditions including downturn conditions for the obligor risk rating grade assigned by the Corporation. PD estimation aligns the scorecard risk ratings with the definition of default according to Basel 3 and a consistent performance observation window.

Wholesale LGD is defined as the greater of (1) the estimated long-run default-weighted average economic loss per dollar of EAD the Corporation would expect to incur if the obligor (or a typical obligor in the loss severity grade assigned to the exposure) were to default within a one-year horizon over a mix of economic conditions, including economic downturn conditions; and (2) the estimated economic loss per dollar of EAD the Corporation would expect to incur if the obligor (or a typical obligor in the loss severity grade assigned to the exposure) were to default within a one-year horizon during economic downturn conditions.

Wholesale EAD is defined as the estimated dollar amount of the drawn exposure for a defaulted credit line over a 12-month time horizon. Wholesale EAD has two components, current outstanding carrying value and potential utilization of the unfunded commitment. Wholesale EAD is the empirical estimate of the amount of exposure that would be outstanding if an obligor defaulted, based on assumed homogeneous characteristics and statistical analyses of historical performance.

Wholesale capital parameters are periodically backtested and benchmarked to evaluate their ongoing performance and appropriateness. Backtesting validates the appropriateness of wholesale parameters by comparing predicted parameters to realized outputs. Benchmarking evaluates the wholesale parameters calibrations against external benchmarks and/or alternative measurement approaches.

For additional information regarding estimated losses, actual losses and factors that impacted the loss experience, refer to *Credit Risk Management* within the MD&A section and *Note 6 – Allowance for Credit Losses* in the March 31, 2019 Form 10-Q and *Complex Accounting Estimates* within the MD&A section in the December 31, 2018 Form 10-K.

### Wholesale Credit Exposures

The following table presents exposures to wholesale clients and issuers allocated by PD range as of March 31, 2019.

	Balance Sheet		Undrawn		Exposure-Weighted Average		
	Amount	Commitments	EAD	RWA	PD	LGD	Risk Weight
0.00 to < 0.15	\$ 788,662	\$ 274,956	\$ 958,699	\$ 125,244	0.04%	27.30%	13.06%
0.15 to < 0.50	139,639	81,051	178,548	85,706	0.30	38.22	48.00
0.50 to < 2.50	141,116	52,695	163,822	125,272	1.09	35.64	76.47
2.50 to < 10.00	35,050	19,758	42,785	51,207	4.31	36.66	119.68
10.00 to < 100.00	9,303	4,497	10,900	17,291	15.35	35.29	158.62
100.00 (default)	2,585	423	3,012	2,934	100.00	37.98	97.41
<b>Total</b>	<b>\$ 1,116,355</b>	<b>\$ 433,380</b>	<b>\$ 1,357,766</b>	<b>\$ 407,654</b>	<b>0.68%</b>	<b>30.13%</b>	<b>30.02%</b>

## COUNTERPARTY CREDIT RISK

Counterparty credit risk is the risk that a counterparty to a transaction may default before completing the satisfactory settlement of the transaction. This risk applies to OTC derivatives, eligible margin loans, repo-style transactions and cleared transactions. Cleared transactions include exchange-traded derivatives, OTC derivatives and repo-style transactions that the Corporation clears through a central counterparty. An economic loss occurs if the transaction or portfolio of transactions with the counterparty has a positive replacement cost or outstanding loan amount that exceeds any collateral posted by the counterparty before the transaction(s) could be unwound, in the case of counterparty default.

When calculating counterparty credit risk RWA under the Advanced approaches, we use a combination of methods to calculate exposure amounts and utilize the PD and LGD methodologies described in the Wholesale Credit Risk section to determine risk weights. IMM is used to calculate EAD for the majority of OTC derivatives, while the current exposure method (CEM) is used for exchange-traded derivatives as well as certain OTC derivatives not covered by the IMM. IMM uses the Corporation's internal credit risk models to measure expected exposures by simulating the future movements of market risk factors underlying the derivative contracts, incorporating the effects of legally enforceable master netting and collateral agreements. Under CEM, EAD is determined by adding the Corporation's current credit exposure and potential future exposure as defined in Basel 3, with an adjustment to reflect the risk reduction associated with legally enforceable master netting agreements and the value of eligible collateral received or posted. The EAD for eligible margin loans and repo-style transactions is calculated using standard supervisory haircuts under the collateral haircut approach.

In connection with certain OTC derivative contracts and other trading agreements, the Corporation can be required to provide additional collateral or to terminate transactions with certain counterparties in the event of a downgrade of the senior debt ratings of the Corporation or certain subsidiaries. The amount of additional collateral required depends on the contract and is usually a fixed incremental amount and/or the market value of the exposure. For additional information on the impact of a credit rating downgrade, refer to *Note 3 – Derivatives* in the March 31, 2019 Form 10-Q.

### Valuation Adjustments

The Corporation records CVA on the Corporation's derivative assets, including our purchased credit default protection, in order to properly reflect the credit risk of the counterparty. CVA is based on a modeled expected exposure that incorporates current market risk factors including changes in market spreads and non-credit related market factors that affect the value of a derivative. The exposure also takes into consideration credit mitigants such as legally enforceable master netting agreements and collateral. We also record a funding valuation adjustment to include funding costs on uncollateralized derivatives and derivatives where the Corporation is not permitted to reuse the collateral it receives. The Corporation also calculates a debit valuation adjustment (DVA) to properly reflect our own credit risk exposure as part of the fair value of derivative liabilities. DVA is deducted from Common equity tier 1 capital if there is a gain, and added back if there is a loss. For additional information, refer to *Capital Management* and *Credit Risk Management* within the MD&A section and *Note 3 – Derivatives* in the March 31, 2019 Form 10-Q and *Note 20 – Fair Value Measurements* in the December 31, 2018 Form 10-K.

### Credit Limits

As part of the overall credit risk assessment, our commercial credit exposures are assigned a risk rating and are subject to approval based on defined credit approval standards. In making credit decisions, we consider risk rating, collateral, country, industry and single-name concentration limits while also balancing this with the total borrower or counterparty relationship. Our business and risk management personnel use a variety of tools to continuously monitor the ability of a borrower or counterparty to perform under its obligations. For additional information on credit limits, refer to *Credit Risk Management* within the MD&A section in the March 31, 2019 Form 10-Q and *Managing Risk* within the MD&A section in the December 31, 2018 Form 10-K.

### Economic Capital

Economic capital for credit risk captures two types of risks. Default risk represents the loss of principal due to outright default or the borrower's inability to repay an obligation in full. Migration risk represents potential loss in market value due to credit deterioration over

the one-year capital time horizon. Credit risk is assessed and modeled for all on- and off-balance sheet credit exposures within subcategories for commercial, retail, counterparty and investment securities. The economic capital methodology captures dimensions such as concentration and country risk. The economic capital methodology is based on the PD, LGD, EAD and maturity for each credit exposure as well as portfolio correlations across exposures. Our economic capital measurement process provides a risk-based measurement of the capital required for unexpected credit, market and operational losses over a one-year time horizon at a 99.97 percent confidence level.

### Collateral Valuation

Many of our derivative transactions are executed under collateral agreements. Collateral consists of assets that are pledged as security by a single counterparty to another as assurance of payment or performance against an obligation. Collateral agreements generally provide the Corporation the right to liquidate collateral held as payment in the event of a counterparty default. Collateral is managed by a centralized team and most contracts are subject to a daily mark-to-market process. Collateral movements are generally executed daily in accordance with the Corporation's standard bilateral agreement with the counterparty. Collateral permits the reduction of the overall exposure to the counterparty by netting the positive market value of a transaction against the market value of the collateral held after haircut adjustment.

Credit enhancements include a variety of provisions that may be used to reduce the credit risk related to a transaction or counterparty. Events such as a credit rating downgrade (depending on the resulting rating level) or a breach of credit covenants would typically require an increase in the amount of collateral required of the counterparty and/or allow the Corporation to take additional protective measures such as early termination of all trades. These contingency features may be for the benefit of the Corporation as well as its counterparties with respect to changes in the Corporation's creditworthiness.

The Corporation's credit policy defines acceptable forms of collateral for OTC derivatives, repo-style transactions and eligible margin loans, and is generally limited to cash, U.S. Treasury securities, U.S. agency securities, select Government-sponsored enterprise (GSE) mortgage-backed securities and certain high quality sovereign securities. For additional information, refer to *Note 1 – Summary of Significant Accounting Principles* in the December 31, 2018 Form 10-K.

### Counterparty Credit Exposures

The following table presents RWA by transaction type as of March 31, 2019.

	<b>Basel 3 Advanced RWA</b>
Margin Loans	\$ 16,741
Repo-style transactions	14,067
OTC derivatives	39,766
Cleared transactions	6,825
Unsettled transactions	1,177
<b>Total</b>	<b>\$ 78,576</b>

The following table presents counterparty credit risk exposures for OTC derivatives, repo-style transactions, and eligible margin loans allocated by PD range as of March 31, 2019. The table does not include cleared or unsettled transactions.

	EAD	RWA	Exposure-Weighted Average		
			PD	LGD	Risk Weight
0.00 to < 0.15	\$ 132,568	\$ 27,641	0.08%	42.72%	20.85%
0.15 to < 0.50	40,024	16,851	0.27	43.03	42.10
0.50 to < 2.50	29,602	21,907	0.96	42.94	74.01
2.50 to < 10.00	1,863	2,855	4.16	48.98	153.25
10.00 to < 100.00	597	1,182	12.15	47.25	197.99
100.00 (default)	41	41	100.00	41.91	100.00
Eligible margin loans - 300%	32	97	n/a	n/a	300.00
<b>Total</b>	<b>\$ 204,727</b>	<b>\$ 70,574</b>	<b>0.33%</b>	<b>42.88%</b>	<b>34.47%</b>

n/a = not applicable

### Wrong-Way Risk

Wrong-way risk arises when credit exposure to a counterparty during the life of a trade is adversely correlated to the counterparty's credit quality. The Corporation uses a range of policies and reporting to detect and monitor wrong-way risk from trade inception until maturity of the transaction. Product approval policies and forums have been established to review potential situations of specific wrong-way risk

prior to trade inception. The Corporation has also developed a stress testing framework that is utilized for scenario analysis to proactively manage wrong-way risk in the portfolio.

For information on Counterparty Credit Risk and Credit Derivatives, refer to *Note 3 – Derivatives* in the March 31, 2019 Form 10-Q and *Note 20 – Fair Value Measurements* in the December 31, 2018 Form 10-K. For information on collateral held, refer to Schedule HC-L “Derivatives and Off-Balance Sheet Items” in Bank of America’s March 31, 2019 Consolidated Financial Statements for Bank Holding Companies – FR Y-9C.

## CREDIT RISK MITIGATION

We manage credit risk based on the risk profile of the borrower or counterparty, repayment sources, the nature of underlying collateral and other support given current events, conditions and expectations. We classify our portfolios as either consumer or commercial and monitor credit risk in each.

For wholesale credit exposures, the Corporation manages credit risk based on the risk profile of the borrower or counterparty, repayment sources, the nature of underlying collateral, hedging options available and other support given current events, conditions and expectations. The Corporation proactively refines its underwriting and credit management practices, as well as credit standards, to meet the changing economic environment. As part of its credit risk and portfolio management activities, the Corporation purchases credit protection in the form of guarantees, private credit risk insurance and credit derivatives to hedge exposures that it purchases, originates or participates in such as loans and investment securities. Under Basel 3, the Corporation recognizes the risk mitigating effect of qualifying credit risk hedges on banking book wholesale exposures in its regulatory capital calculations. Eligible credit hedges that the Corporation typically uses to mitigate credit risk and that also provide regulatory capital relief include guarantees and credit protection purchased from third parties. Eligible credit default swap counterparties serving as guarantors of credit risks in the banking book include commercial banks, investment banks and insurance companies.

Apart from using eligible credit hedges to mitigate credit risk of wholesale exposures as described above, the Corporation also uses other risk mitigation techniques to manage the size and risk profile of the loan portfolio such as loan sales, including syndication of exposures to third parties, and portfolio risk diversification through loan size and geography. The Corporation also reviews, measures and manages commercial real estate loans by geographic location and property type.

The Corporation assesses credit risk using comprehensive tools and measures to allow us to identify and mitigate emerging risks before they become material. One process utilizes an analysis of commercial utilized credit exposure by industry based on S&P industry classifications. This analysis includes commercial loans and leases, standby letters of credit and financial guarantees, derivative assets, assets held-for-sale and commercial letters of credit. Additional analysis focuses on assessing concentrations for outstanding commercial real estate loans by the geographic region where the property is located as well as the type of property.

The following table quantifies the wholesale portfolios which reflected the benefit of eligible credit derivatives and guarantees as of March 31, 2019.

<i>(Dollars in millions)</i>	EAD		RWA	
Corporate	\$	23,581	\$	10,860
Bank		144		34
Sovereign		241		24
IPRE		7,004		3,856
HVCRE		89		76
<b>Total</b>	<b>\$</b>	<b>31,059</b>	<b>\$</b>	<b>14,850</b>

A number of techniques are used by the Corporation to manage counterparty credit risk. These include but are not limited to netting, collateral agreements and credit enhancements. A majority of the Corporation’s derivative contracts contain credit risk-related contingency features. OTC derivative transactions are generally executed under an industry standard approved form of a master netting agreement primarily in the form of International Swaps and Derivatives Association, Inc. master agreements that provide the Corporation the right to offset amounts owed to the counterparty against amounts owed by the same counterparty and provides other rights such as the ability for the Corporation to terminate a transaction upon default. Secured financing transactions are generally executed under standard Master Repurchase Agreements, Securities Lending Agreements and other agreements that would serve similar purposes with respect to netting and termination provisions.

For inherent risk in securitization and resecuritization exposures, the Corporation manages and mitigates risk through offsetting positions and portfolio diversification. The use of offsetting positions includes the use of both macro- and position-level hedges to either reduce exposure to certain risk factors or potential market stress events. In addition, the Corporation maintains a diversified portfolio across securitized product types to reduce its sensitivity to individual product types, issuers and servicers. For further information, please refer to *Note 7 – Securitizations and Other Variable Interest Entities* in the March 31, 2019 Form 10-Q.

For information on retail credit risk mitigation and processes for collateral valuation, refer to *Retail Credit Risk* on page 10 and *Consumer Portfolio Credit Risk Management* within the MD&A section in the December 31, 2018 Form 10-K.

For additional information on the policies and extent to which the Corporation uses netting, refer to *Note 1 – Summary of Significant Accounting Principles* in the December 31, 2018 Form 10-K, *Note 3 – Derivatives* and *Note 10 – Federal Funds Sold or Purchased, Securities Financing Agreements, Short-term Borrowings and Restricted Cash* in the March 31, 2019 Form 10-Q. For additional information on credit risk mitigation, refer to *Credit Risk Management* within the MD&A section in the March 31, 2019 Form 10-Q.

## SECURITIZATION

Securitization exposures under Basel 3 are defined as on- or off-balance sheet credit exposures that arise from traditional or synthetic securitizations (including credit-enhancing representations and warranties and resecuritizations). Traditional securitization exposures are those where all or a portion of the credit risk of one or more underlying exposures is transferred to one or more third parties other than through the use of credit derivatives or guarantees, whereas synthetic securitizations utilize derivatives or guarantees to transfer the risk to a third-party. Resecuritizations are transactions that contain one or more underlying positions that are securitizations. Additionally, in all instances, securitizations reflect exposures where the credit risk has been separated into at least two tranches reflecting differing levels of seniority; performance of the securitization depends on the performance of the underlying exposures; and all or substantially all of the underlying exposures are financial exposures. On-balance sheet exposures include loans, available-for-sale (AFS) securitizations and trading securities. Off-balance sheet exposures include liquidity commitments, guarantees and derivatives. U.S. agency and GSE mortgage-backed securitizations (e.g., Fannie Mae, Freddie Mac and Ginnie Mae) that issue pass-through securities that are not broken into two or more tranche levels of seniority are not considered securitizations under the Basel 3 definition and are not included in the discussion that follows.

The Corporation periodically securitizes different types of exposures including residential loans, commercial loans, auto loans and leases and student loans. These securitizations are a source of funding for the Corporation and a means of transferring the economic risk of the loans or debt securities to third parties. Through the normal course of business we buy and sell securitization and resecuritization exposures across a number of asset classes. We are focused on making two-way markets and intermediating transfers of risk between clients. We also continue to manage a legacy portfolio with the primary objective of managing the risk while reducing the exposures.

In a securitization, various classes of financial instruments may be issued and are generally collateralized by a single class of transferred assets which may include residential mortgages, commercial mortgages, credit card receivables, home equity loans, automobile loans, municipal bonds or other securities. Loans that have been securitized may be serviced by the Corporation or by third parties. With each securitization, the Corporation may retain a portion of the resulting instruments, such as securities, subordinated tranches, interest-only strips, subordinated interests in accrued interest and fees on the securitized receivables or, in some cases, over collateralization and cash reserve accounts, all of which are referred to as retained interests.

The Corporation may serve as originator, investor and/or servicer/collateral manager of assets transferred into traditional securitization vehicles. The Corporation may also provide credit enhancement or serve as liquidity provider to securitization vehicles. As an investor, the Corporation and its subsidiaries hold securitization positions from third-party originated deals and in some instances from internally originated deals.

The Corporation follows the Basel 3 prescribed hierarchy of approaches for computation of risk-weighted assets related to securitization exposures and applies either SFA or SSFA provided the Corporation is able to meet the operational requirements related to data and modeling as required by these methodologies. The Corporation applies a 1,250 percent risk weight to those securitization exposures where SFA or SSFA cannot be applied.

### Risk Management

The Corporation manages credit and market risks related to securitization and resecuritization positions, including portfolio risk and seller's risk, according to the Corporation's Risk Framework. Methods to monitor credit and market risks may vary based on the type of securitization portfolio.

Credit risk management is responsible for approving credit exposure to new and ongoing securitization and resecuritization exposure. Initial and ongoing reviews include consideration of underlying collateral quality, credit enhancement levels and structural features. Portfolio management is responsible for monitoring periodic servicer reports against any loan performance triggers or covenants, as well as overall performance trends in the context of economic, sector and servicer developments.

Risk management closely monitors the securitization inventory and analyzes changes in trading positions, the composition of portfolios and market risk factors to assess the overall level of market risk of securitizations and resecuritizations to which the Corporation is exposed. For the purpose of managing the Corporation's risk appetite in relation to securitizations and resecuritizations, limits are established and

tracked daily in the centralized limits management system. These limits range from granular measures such as fair value and the sensitivities to changes in market risk factors to aggregated portfolio measures such as Value-at-Risk (VaR) and stress testing results.

The modeling framework for securitization and resecuritization risk is based on a look-through approach to the underlying collateral level data. Models are used to project prepayment speeds, default rates and loss severity, which are key inputs in the valuation for both government guaranteed and private label securities. These models incorporate market variables such as the level and volatility of interest rates and credit spreads, as well as macro-economic variables such as gross domestic product, unemployment and housing prices. Models are backtested periodically to measure the accuracy of the model forecasts against actual underlying collateral performance.

### Due Diligence

The Corporation performs due diligence for each securitization and resecuritization exposure, and documents such due diligence within three days of acquiring each position and on an ongoing basis at least every 90 days as required by Basel 3. The Corporation's due diligence focuses on each position's structural features and credit metrics of the underlying assets of the securitization and resecuritization that would materially affect the performance of the position.

For information on accounting policies for securitizations, refer to *Note 1 – Summary of Significant Accounting Principles* and *Note 7 – Securitizations and Other Variable Interest Entities* in the December 31, 2018 Form 10-K and *Note 7 – Securitizations and Other Variable Interest Entities* in the March 31, 2019 Form 10-Q.

### Securitization Exposures

Table 10 presents the outstanding principal balance of assets which were originated and then securitized by a Bank of America-sponsored vehicle where the Corporation has retained exposure as of March 31, 2019. Third-party assets in which the firm has retained an interest are shown separately. Assets that are 90 days or more past due or in nonaccrual status are shown below in the last column. Tables 11 and 12 present banking book and trading book exposures that receive securitization capital treatment, with the exception of correlation trading positions presented in the Market Risk section of this report.

**Table 10 - Principal Amount Outstanding and Exposures Past Due by Underlying Collateral Type** March 31, 2019  
(Dollars in millions)

Collateral Type:	Principal Amount Outstanding			Assets impaired or past due
	BAC assets held in traditional securitizations	Third-party assets held in traditional securitizations	BAC assets held in synthetic securitizations	
Residential mortgages	\$ 39,466	\$ 4,122	\$ -	\$ 6,252
Commercial mortgages	20,293	-	-	437
Municipal bonds	2,617	-	-	-
Other	-	-	83	-
<b>Total</b>	<b>\$ 62,377</b>	<b>\$ 4,122</b>	<b>\$ 83</b>	<b>\$ 6,689</b>

The following table presents the amount of on- and off-balance sheet securitization exposures by underlying exposure type as of March 31, 2019.

**Table 11 - Total Securitization EAD and RWA** March 31, 2019  
(Dollars in millions)

	EAD			RWA
	On-Balance Sheet	Off-Balance Sheet	Total	
Residential mortgages	\$ 9,619	\$ 753	\$ 10,372	\$ 20,483
Commercial mortgages	1,764	607	2,371	4,008
Commercial and Industrial	12,097	5,323	17,420	8,982
Consumer auto loans	11,018	5,050	16,068	3,505
Student Loans	1,218	433	1,651	724
Municipal bonds	36	1,698	1,735	668
Other	8,593	6,173	14,765	5,620
<b>Total</b>	<b>\$ 44,346</b>	<b>\$ 20,036</b>	<b>\$ 64,381</b>	<b>\$ 43,991</b>

As of March 31, 2019, \$583 million of securitization exposures were deducted from the Corporation's capital.

The following table presents securitization exposures by risk weight bands as of March 31, 2019.

	SFA		SSFA		1.250%		Total	
	EAD	RWA	EAD	RWA	EAD	RWA	EAD	RWA
<b>Securitization</b>								
= 0% to ≤ 20%	\$ 12,325	\$ 2,465	\$ 38,191	\$ 7,636	\$ -	\$ -	\$ 50,516	\$ 10,101
> 20% to ≤ 50%	1,534	397	4,037	1,154	-	-	5,572	1,551
> 50% to ≤ 100%	416	290	715	591	-	-	1,131	881
> 100% to < 1,250%	100	128	5,744	21,419	-	-	5,844	21,547
= 1,250%	-	-	550	6,893	58	726	608	7,619
<b>Resecuritization</b>								
= 0% to ≤ 20%	-	-	444	89	-	-	444	89
> 20% to ≤ 50%	-	-	-	-	-	-	-	-
> 50% to ≤ 100%	-	-	15	9	-	-	15	9
> 100% to < 1,250%	-	-	192	1,454	-	-	192	1,454
= 1,250%	-	-	49	609	10	131	59	740
<b>Total Securitization</b>	<b>\$ 14,375</b>	<b>\$ 3,280</b>	<b>\$ 49,937</b>	<b>\$ 39,854</b>	<b>\$ 69</b>	<b>\$ 857</b>	<b>\$ 64,381</b>	<b>\$ 43,991</b>

No credit risk mitigation is applied to securitization or resecuritization exposures as of March 31, 2019.

The total amount of banking book exposures intended to be securitized as of March 31, 2019 was \$1,056 million in commercial real estate.

For additional information on securitization exposures, including exposures securitized by the Corporation, gains (losses) recognized during the period and securitization activity, refer to *Note 1 – Summary of Significant Accounting Principles* in the December 31, 2018 Form 10-K and *Note 7 – Securitizations and Other Variable Interest Entities* in the March 31, 2019 Form 10-Q.

## MARKET RISK OVERVIEW

Market risk is the risk that changes in market conditions may adversely impact the value of assets or liabilities, or otherwise negatively impact earnings. This risk is inherent in the financial instruments associated with our operations, primarily within our Global Markets segment. We are also exposed to these risks in other areas of the Corporation (e.g., our Asset Liability Management (ALM) activities). In the event of market stress, these risks could have a material impact on the results of the Corporation. For additional information, refer to *Market Risk Management* and *Trading Risk Management* within the MD&A section in the December 31, 2018 Form 10-K.

Our traditional banking loan and deposit products are non-trading positions and are generally reported at amortized cost for assets or the amount owed for liabilities (historical cost). However, these positions are still subject to changes in economic value based on varying market conditions, with one of the primary risks being changes in the levels of interest rates. The risk of adverse changes in the economic value of our non-trading positions arising from changes in interest rates is managed through our ALM activities. We have elected to account for certain assets and liabilities under the fair value option. For additional information, refer to *Interest Rate Risk Management for the Banking Book* on page 23.

### Trading Book

Our trading positions are reported at fair value with changes reflected in income. Trading positions are subject to various changes in market-based risk factors. The majority of this risk is generated by our activities in the interest rate, foreign exchange, credit, equity and commodities markets. In addition, the values of assets and liabilities could change due to market liquidity, correlations across markets and expectations of market volatility. We seek to manage these risk exposures by using a variety of techniques that encompass a broad range of financial instruments.

Global Risk Management is responsible for providing senior management with a clear and comprehensive understanding of the trading risks to which the Corporation is exposed. These responsibilities include ownership of market risk policy, developing and maintaining quantitative risk models, calculating aggregated risk measures, establishing and monitoring position limits consistent with risk appetite, conducting daily reviews and analysis of trading inventory, approving material risk exposures and fulfilling regulatory requirements.

Covered positions are defined by regulatory standards as trading assets and liabilities, both on- and off-balance sheet, that meet a defined set of specifications. These specifications identify the most liquid trading positions which are intended to be held for a short-term horizon and where the Corporation is able to hedge the material risk elements in a two-way market. Positions in less liquid markets, or where there are restrictions on the ability to trade the positions, typically do not qualify as covered positions. Foreign exchange and commodity positions are always considered covered positions, except for structural foreign currency positions that are excluded with prior regulatory approval. The characterization of an exposure as a trading asset or liability under GAAP does not necessarily determine its treatment under Basel 3. Trading assets or liabilities that do not meet the regulatory definition of a covered position are excluded from market risk capital treatment and subject to the credit risk capital rules as non-covered exposures. The Corporation maintains policies and procedures for

determination of exposures meeting the covered position definition. Throughout this report, covered positions are also referred to as “trading book” positions. Similarly, non-covered positions are referred to as “banking book” positions.

The following table presents the components of Market Risk RWA as of March 31, 2019.

	Capital	RWA
Regulatory VaR 10-day holding period <sup>1</sup>	\$ 194	\$ 2,428
Stressed VaR 10-day holding period <sup>1</sup>	798	9,975
Incremental risk charge	161	2,011
Comprehensive risk measure	120	1,500
<b>Total internal models</b>	<b>1,273</b>	<b>15,914</b>
Standard specific risk		
Securitization	843	10,537
Non-securitization	1,847	23,091
Other charges	179	2,241
<b>Total market risk</b>	<b>\$ 4,143</b>	<b>\$ 51,783</b>

<sup>1</sup> A multiplier of 3.00 is used to determine VaR and Stressed VaR capital numbers based on a 60-day average as of March 31, 2019.

For additional information on market risk RWA calculated by capital requirement component under both the Standardized and Advanced approaches, refer to the Market Risk Regulatory Report for Institutions Subject to the Market Risk Capital Rule – FFIEC 102 for the period ended March 31, 2019.

### Trading Risk Management

To evaluate risk arising from trading activities, the Corporation focuses on the actual and potential volatility of revenues generated by individual positions as well as portfolios of positions. VaR is a common statistic used to measure market risk as it allows the aggregation of market risk factors, including the effects of portfolio diversification. A VaR model simulates the value of a portfolio under a range of scenarios in order to generate a distribution of potential gains and losses. VaR represents the loss a portfolio is not expected to exceed more than a certain number of times per period, based on a specified holding period, confidence level and window of historical data. We use one VaR model consistently across the trading portfolios and it uses a historical simulation approach based on a three-year window of historical data. Our primary VaR statistic is equivalent to a 99 percent confidence level. This means that for a VaR with a one-day holding period, there should not be losses in excess of VaR, on average, 99 out of 100 trading days.

### Regulatory VaR

The VaR statistic used for the regulatory capital calculation shown in Table 14 is defined by regulatory standards (Regulatory VaR) and it differs from the VaR statistic disclosed in the Corporation’s SEC disclosures (disclosed VaR) due to differences in the population and holding period. Regulatory standards require that Regulatory VaR only include the covered position portfolio, while the disclosed VaR also includes non-covered positions. The holding period for Regulatory VaR is ten days while for disclosed VaR it is one day. Both Regulatory VaR and disclosed VaR utilize the same framework and the same historical data.

Within the tables below, the VaR for each of the risk factors captures the expected loss with a 99 percent confidence level, similar to a stress scenario for each discrete risk factor. For example, the VaR for the interest rate risk factor identifies the potential loss the Corporation is not expected to exceed more than one out of every 100 days based on the previous three years of historical data for just the interest rate risk in the Corporation’s portfolio. The historical days that generate these hypothetical losses might be different than the historical days that generate the hypothetical losses for the credit spread risk factor or for the Corporation’s total portfolio. The combination of the potentially different historical days that generate the hypothetical losses for each risk factor is what produces the diversification benefit across the portfolio. As a result, the sum of the VaRs by risk factor is greater than the total Regulatory VaR.

Regulatory VaR does not incorporate the value that covered positions would gain or lose, in the absence of market moves, as they move toward expiration, which is known as time decay. Therefore, for certain portfolios the distribution of potential gains and losses estimated by the VaR model can produce a Regulatory VaR result that is not a loss.

The market risk related to all covered positions to which the Corporation is exposed is included in the total Regulatory VaR results. The majority of this portfolio is within the Global Markets segment. The table below presents the Regulatory VaR results by risk factors for the period end, average, high and low results.

**Table 14 - Market Risk - Total Regulatory VaR***(Dollars in millions)*

	10-day Holding Period			
	Three months ended			
	March 31, 2019			
	Period End	Average	High <sup>1</sup>	Low <sup>1</sup>
Foreign exchange	\$ 39	\$ 29	\$ 74	\$ 16
Interest rate	78	67	108	52
Credit	63	70	92	58
Equities	32	16	32	1
Commodities	11	21	48	7
Portfolio diversification	(153)	(138)	NM	NM
<b>Total Regulatory VaR</b>	<b>\$ 70</b>	<b>\$ 65</b>	<b>\$ 110</b>	<b>\$ 36</b>

<sup>1</sup> Designated as not meaningful ("NM"), because the High and Low for the total portfolio may have occurred during different trading days than the High and Low for the individual components. Therefore the amount of portfolio diversification, which is the difference between the total portfolio and the sum of the individual components, is not relevant for the High and Low results.

### Backtesting

The accuracy of the VaR methodology is evaluated by backtesting, which compares the daily VaR results, utilizing a one-day holding period, against a comparable subset of trading revenue. A backtesting excess occurs when a trading loss exceeds the VaR for the corresponding day. These excesses are evaluated to understand the positions and market moves that produced the trading loss with a goal of ensuring that the VaR methodology accurately represents those losses.

Backtesting excesses for our total Regulatory VaR results, utilizing a one-day holding period, did not occur during the three months prior to March 31, 2019, and occurred on two days in the twelve months prior to March 31, 2019.

### Stressed Value-at-Risk

Stressed VaR is a variation of VaR in which the historical window is not the previous three years but is calibrated to a continuous 12-month window that reflects a period of significant financial stress appropriate to the Corporation's current portfolio. Stressed VaR is calculated daily based on a 99 percent confidence level, a ten-day holding period and the same population of exposures as the Regulatory VaR. The Corporation utilizes a single model and process to calculate all Regulatory VaR, Stressed VaR, and disclosed VaR statistics. The following table presents the Stressed VaR results for the period end, average, high and low calculated over a ten-day holding period.

**Table 15 - Market Risk - Total Regulatory Stressed VaR***(Dollars in millions)*

	10-day Holding Period			
	Three months ended			
	March 31, 2019			
	Period End	Average	High	Low
<b>Total Regulatory Stressed VaR</b>	<b>\$ 414</b>	<b>\$ 266</b>	<b>\$ 474</b>	<b>\$ 114</b>

### Incremental Risk Charge

The incremental risk charge (IRC) model is one component of the regulatory capital calculation for market risk. The model is intended to capture the potential losses that non-securitized covered position credit products in the trading portfolio might experience over a one-year period of financial stress from defaults, ratings migration and significant basis risk factors. To calculate potential losses at the required 99.9 percent confidence level, the Corporation utilizes a Monte-Carlo simulation calibrated using relevant, available historical data for each risk factor in order to sample potential market scenarios. The model reflects the impact of concentrated risks, including issuer, sector, region and product basis risks, and assigns a higher potential loss to a concentrated portfolio than a more diversified portfolio with a similar credit profile. The model framework also captures the broad relationships between the different risk factors and is flexible enough to allow additional dependencies or risk factors to be incorporated in the future. The IRC model assumes a constant position and a one-year liquidity horizon.

The following table presents the period end, average, high and low IRC over the period as of March 31, 2019. The IRC value used for the regulatory capital calculation is based on the higher of the period end value or the average value of the preceding 12 weeks.

**Table 16 - Market Risk - Incremental Risk Charge***(Dollars in millions)*

	Three months ended March 31, 2019			
	Period End	Average	High	Low
Total incremental risk charge	\$ 119	\$ 161	\$ 214	\$ 119

**Comprehensive Risk Measure**

The Corporation's comprehensive risk measure (CRM) is another component of the regulatory capital calculation for market risk. Following confirmation from the Federal Reserve that the Corporation meets the requirements outlined in Section 209(a)(2)(ii) of Basel 3 with respect to CRM, effective July 1, 2017 and for all subsequent disclosures, the Corporation computes the metric as the greater of the modeled measure of all price risk or the total specific risk add-on applied to the Corporation's modeled correlation trading positions.

The modeled component of the CRM takes into account all of the risk factors that materially impact the value of the positions within the correlation trading portfolio. The model captures the complexity of these positions including the non-linear nature of the trade valuations, particularly during periods of market stress, and the impact of the joint evolution of the risk factors. The modeled component of the CRM utilizes the same Monte-Carlo simulation framework as our IRC model with the additional risk factors required for the correlation products in order to calculate the potential losses at the required 99.9 percent confidence level. The modeled component of the CRM, like the IRC model, assumes a constant position and a one-year liquidity horizon.

The CRM surcharge is calculated using two components. The first is the assessment made using the SFA, which calculates capital on securitization exposures based on the amount and the level of subordination available as credit support to each exposure. The second component of the surcharge is the capital for hedges of the correlation portfolio which are calculated under the specific risk standard charge framework. The surcharge is equal to 8 percent of the greater of the net longs or shorts of these aggregated components.

The following table presents the period end, average, high and low values for the CRM over the period as of March 31, 2019. The CRM value used for the regulatory capital calculation is based on the higher of the period end value or the average value of the preceding 12 weeks.

**Table 17 - Market Risk - Comprehensive Risk Measure***(Dollars in millions)*

	Three months ended March 31, 2019			
	Period End	Average	High	Low
Total comprehensive risk measure	\$ 120	\$ 119	\$ 121	\$ 116

The following table presents the aggregate modeled amount of correlation trading positions as of March 31, 2019. Hedges to the correlation trading positions that are included in the modeled component of CRM are considered part of the aggregate correlation trading positions and are included in the table below. The values shown in the table are fair values.

**Table 18 - Market Risk - Correlation Trading Positions***(Dollars in millions)*

	March 31, 2019	
	Correlation Positions	Hedges
Positions subject to comprehensive risk measure	\$ (183)	\$ 283
<b>Total correlation trading positions</b>	<b>\$ (183)</b>	<b>\$ 283</b>

The Corporation conducted an analysis to assess the validity of the IRC and CRM models and respective methodologies prior to being granted approval by the U.S. banking regulators to utilize the models. This analysis consisted of a comparison of alternative theories and approaches along with an understanding of the necessary assumptions and limitations of the models, as well as assessing the impact of stressing the calibrated parameters. This analysis was shared and discussed with the relevant regulatory agencies to ensure compliance with regulatory guidelines. The models are continually monitored to ensure that the implementation and applicability remain valid. We perform stress tests of these models on a regular basis. The calibration of these models is regularly reviewed. We incorporate relevant market data and changing market conditions on a regular basis. As with our other quantitative risk models, Stressed VaR, IRC and CRM models fall under the oversight of the Enterprise Model Risk Committee (EMRC) and adhere to its independent analysis and ongoing governance and standards policies.

**Trading Portfolio Stress Testing**

Because the very nature of a VaR model suggests results can exceed our estimates and it is dependent on a limited historical window, we also stress test our portfolio using scenario analysis. This analysis estimates the change in the value of our trading portfolio that may result from abnormal market movements. For additional information on enterprise-wide stress testing, refer to *Managing Risk* and *Trading Risk Management* within the MD&A section in the December 31, 2018 Form 10-K.

## EQUITY EXPOSURES IN THE BANKING BOOK

Equity exposures in the banking book are primarily held for strategic business purposes and comprised of a diversified portfolio of investments in Bank-Owned Life Insurance, private equity investments and other equity investments primarily reported in other assets, as well as certain equity investments included in trading assets on the balance sheet that do not meet the criteria for market risk regulatory capital treatment. These positions are held either as direct investments or through a fund.

### Accounting and Valuation

Under GAAP, equity investments are generally required to be carried at fair value through net income with certain exceptions, including those accounted for under the equity method, ownership interests in exchanges, equity interests held by a broker dealer or investment company entity and Federal Home Loan and Federal Reserve Bank stock. Additionally, GAAP permits equity investments that do not have a readily determinable fair value to be carried at cost less impairment plus or minus observable price changes for identical or similar investments of the same issuer if certain criteria are met. Equity securities in the banking book are measured at fair value with all changes in fair value recorded in equity investment income. Certain equity investments in the portfolio are subject to investment company accounting under GAAP, and accordingly, are carried at fair value with changes in fair value reported in equity investment income. At inception, the transaction price of an investment is generally considered to be the best indicator of fair value. Thereafter, valuation is based on an assessment of each individual investment using methodologies that include publicly traded comparable companies derived by multiplying a key performance metric (e.g., earnings before interest, taxes, depreciation and amortization) of the portfolio company by the relevant valuation multiple observed for comparable companies, acquisition companies, entry-level multiples and discounted cash flows, and are subject to appropriate discounts for lack of liquidity or marketability. Certain factors that may influence changes in fair value include, but are not limited to, recapitalizations, subsequent rounds of financing and offerings in the equity or debt capital markets. For additional information on fair value accounting and valuation techniques, refer to *Note 1 – Summary of Significant Accounting Principles* and *Note 20 – Fair Value Measurements* in the December 31, 2018 Form 10-K.

Under Basel 3, approaches for determining risk weights for equity investments in the banking book vary based on the type of exposure. If the equity exposure is to an investment fund, the Corporation applies the full look-through approach, the simple modified look-through approach or the alternative modified look-through approach. For all other equity investments in the banking book, the Corporation uses the simple risk weight approach and applies the appropriate multiplier to each exposure according to the prescribed regulatory percentages.

### Equity Exposures

The following table presents the carrying values, fair values, exposures and RWA of the Corporation's equity investments by risk weight categories as of March 31, 2019.

(Dollars in millions)	Carrying Value		Fair Value		Exposure <sup>3</sup>		Risk-Weighted Assets	Risk Weight %
<b>Simple Risk Weight Approach:</b>								
0% Risk Weight <sup>1</sup>	\$	5,354	\$	5,354	\$	5,354	-	0%
20% Risk Weight	\$	543		543	\$	543	109	20%
Community Development Equity Exposures	\$	8,397		8,397	\$	8,482	8,482	100%
Publicly Traded Equity Exposures <sup>2</sup>	\$	665		754	\$	4,126	4,126	100%
Non-publicly Traded Equity Exposures <sup>2</sup>	\$	27,698		28,330	\$	28,612	28,612	100%
Significant Investments in Unconsolidated Financial Institutions	\$	41		41	\$	41	102	250%
600% Risk Weight Equity Exposures Under the SRWA	\$	10		10	\$	11	66	600%
<b>Total Simple Risk Weight Approach</b>		<b>42,708</b>		<b>43,430</b>		<b>47,169</b>	<b>41,497</b>	<b>88%</b>
<b>Equity Exposures to Investment Funds:</b>								
Full Look-through Approach		25,442		25,442	\$	25,638	6,796	27%
<b>Total Equity Exposures to Investment Funds</b>		<b>25,442</b>		<b>25,442</b>		<b>25,638</b>	<b>6,796</b>	<b>27%</b>
<b>Total Equity Exposures</b>	<b>\$</b>	<b>68,150</b>	<b>\$</b>	<b>68,872</b>	<b>\$</b>	<b>72,807</b>	<b>48,293</b>	<b>66%</b>

<sup>1</sup> Consists of Federal Reserve Bank stock.

<sup>2</sup> Equity exposures within the 300 percent and 400 percent risk weight categories were risk-weighted at 100 percent due to the aggregate carrying value of such exposures not exceeding the total capital threshold for higher risk weighting, or the exposure being the effective portion of hedge pairs.

<sup>3</sup> Includes off-balance sheet equity exposures of \$4.7B.

Total cumulative net realized gains arising from the sale and liquidation of equity investments were \$14 million for the quarter ended March 31, 2019.

## OPERATIONAL RISK OVERVIEW

The Corporation defines operational risk as the risk of loss resulting from inadequate or failed processes, people and systems or from external events. Operational risk may occur anywhere in the Corporation, including third-party business processes, and is not limited to operations functions. Effects may extend beyond financial losses and may result in reputational risk impacts. Operational risk includes legal risk. Successful operational risk management is particularly important to diversified financial services companies because of the nature, volume and complexity of the financial services business. Operational risk is a significant component in the calculation of total RWA used in the Basel 3 capital estimate under the Advanced approaches.

Insurance maintained by the Corporation may mitigate the impact of operational losses. Certain insurance is purchased to be in compliance with laws, regulations or legal requirements, and in conjunction with specific hedging strategies to reduce adverse financial impacts arising from operational losses.

### Advanced Measurement Approach

The Advanced Measurement Approach (AMA) is used to quantify operational risk capital requirements. However, under the Federal Reserve's reservation of authority, they may require us to hold an amount of capital greater than otherwise required under the capital rules if they determine that our risk-based capital requirement using our internal analytical models is not commensurate with our Corporation's risks.

For additional information regarding operational risk, refer to *Compliance and Operational Risk Management* and *Capital Management* within the MD&A section in the December 31, 2018 Form 10-K.

## INTEREST RATE RISK MANAGEMENT FOR THE BANKING BOOK

Interest rate risk represents the most significant market risk exposure to our banking book balance sheet. Interest rate risk is measured as the potential change in net interest income caused by movements in market interest rates. Client-facing activities, primarily lending and deposit-taking, create interest rate sensitive positions on our balance sheet.

### Risk Measurement

We prepare forward-looking forecasts of net interest income. The baseline forecast takes into consideration expected future business growth, ALM positioning and the direction of interest rate movements as implied by the market-based forward curve. We then measure and evaluate the impact that alternative interest rate scenarios have on the baseline forecast in order to assess interest rate sensitivity under varied conditions. The net interest income forecast is frequently updated for changing assumptions and differing outlooks based on economic trends, market conditions and business strategies. Thus, we continually monitor our balance sheet position in order to maintain an acceptable level of exposure to interest rate changes.

The interest rate scenarios that we analyze incorporate balance sheet assumptions such as loan and deposit growth and pricing, changes in funding mix, product repricing and maturity characteristics. Our overall goal is to manage interest rate risk so that movements in interest rates do not significantly adversely affect earnings and capital.

Below is the pretax dollar impact to forecasted net interest income over the next 12 months from March 31, 2019, resulting from instantaneous parallel and non-parallel shocks to the market-based forward curve. While the scenarios reflect all currencies in aggregate, U.S. dollar represents materially all of the banking book net interest income sensitivity.

**Table 20 - Estimated Banking Book Net Interest Income Sensitivity**

Curve Change	Short Rate (bps)	Long Rate (bps)	March 31, 2019
<i>(Dollars in millions)</i>			
<b>Parallel shifts</b>			
+100 bps instantaneous shift	+100	+100	\$3,673
-100 bps instantaneous shift	-100	-100	(\$5,285)
<b>Flatteners</b>			
Short-end instantaneous change	+100	-	\$2,652
Long-end instantaneous change	-	-100	(\$2,243)
<b>Steepeners</b>			
Short-end instantaneous change	-100	-	(\$3,019)
Long-end instantaneous change	-	+100	\$1,026

For additional information on interest rate risk management for the banking book, including the impact to earnings from upward and downward rate shocks, refer to *Interest Rate Risk Management for the Banking Book* within the MD&A section in the March 31, 2019 Form 10-Q.

## SUPPLEMENTARY LEVERAGE RATIO

The Corporation is subject to minimum SLR requirements under Basel 3. The numerator of the SLR is quarter-end Basel 3 Tier 1 capital. The denominator is total leverage exposure based on the daily average of the sum of on-balance sheet exposures less permitted Tier 1 deductions, as well as the simple average of certain off-balance sheet exposures, as of the end of each month in a quarter. Off-balance sheet exposures primarily include undrawn lending commitments, letters of credit, potential future derivative exposures and repo-style transactions. Total leverage exposure includes the effective notional principal amount of credit derivatives and similar instruments through which credit protection is sold. The credit conversion factors (CCFs) applied to certain off-balance sheet exposures conform to the graduated CCF utilized under the Basel 3 Standardized approach, but are subject to a minimum 10 percent CCF.

For additional information on the Supplementary Leverage Ratio, refer to Schedule A “Advanced Approaches Regulatory Capital” in Bank of America’s March 31, 2019 Regulatory Capital Reporting for Institutions Subject to the Advanced Capital Adequacy Framework — FFIEC 101.

## MODEL RISK MANAGEMENT

Model risk is the potential for adverse consequences from decisions based on incorrect or misused model outputs and reports. Given that models are used across the Corporation, model risk impacts all risk types including credit risk, market risk and operational risk. The EMRC, a subcommittee of the Management Risk Committee (MRC), is responsible for providing management oversight and approval of model risk management and governance. The EMRC defines model risk standards, consistent with the Corporation’s Risk Framework and risk appetite, prevailing regulatory guidance and industry best practice. All models, including risk management, valuation and regulatory capital models, must meet certain validation criteria, including effective challenge of the model development process and a sufficient demonstration of developmental evidence incorporating a comparison of alternative theories and approaches. The EMRC ensures model standards are consistent with model risk requirements and monitors the effective challenge in the model validation process across the Corporation. In addition, the relevant stakeholders must agree on any required actions or restrictions to the models and maintain a stringent monitoring process to ensure continued compliance.

## APPENDIX

Bank of America's Forms 10-K and 10-Q contain pertinent information related to the Basel 3 disclosure requirements. A summary of the references made in the preceding disclosure can be found in the following table.

<b>References to Form 10-Q</b>	
<b>Section</b>	<b>Location</b>
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