BANK OF AMERICA CORP /DE/
Form 10-Q
November 01, 2016

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-Q
(Mark One)
[ü] QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the Quarterly Period Ended September 30, 2016
or
[ ] TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from to
Commission file number:
1-6523
Exact name of registrant as specified in its charter:
Bank of America Corporation
State or other jurisdiction of incorporation or organization:
Delaware
IRS Employer Identification No.:
56-0906609
Address of principal executive offices:
Bank of America Corporate Center
100 N. Tryon Street
Charlotte, North Carolina 28255
Registrant's telephone number, including area code:
(704) 386-5681

Former name, former address and former fiscal year, if changed since last report:
Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15 (d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.
Yes ü No
Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).
Yes ü No
Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act (check one).

Non-accelerated filer
Large accelerated filer ü Accelerated filer (do not check if a smaller Smaller reporting company reporting company)
Indicate by check mark whether the registrant is a shell company (as defined in Exchange Act Rule 12b-2). Yes No ü

On October 31, 2016, there were 10,105,046,654 shares of Bank of America Corporation Common Stock outstanding.
Bank of America Corporation
September 30, 2016
Form 10-Q
INDEX Page
Part I. Financial Information
Item 1. Financial Statements
Consolidated Statement of Income ..... $\underline{94}$
Consolidated Statement of Comprehensive Income ..... $\underline{95}$
Consolidated Balance Sheet ..... $\underline{96}$
Consolidated Statement of Changes in Shareholders' Equity ..... $\underline{98}$
Consolidated Statement of Cash Flows ..... $\underline{99}$
Notes to Consolidated Financial Statements ..... 100
1 - Summary of Significant Accounting Principles ..... $\underline{100}$
2 - Derivatives ..... $\underline{103}$
3-Securities ..... 114
4 - Outstanding Loans and Leases ..... 119
5 - Allowance for Credit Losses ..... 138
6 -Securitizations and Other Variable Interest Entities ..... 140
7 - Representations and Warranties Obligations and Corporate Guarantees ..... 147
8 - Goodwill and Intangible Assets ..... 150
9 - Federal Funds Sold or Purchased. Securities Financing Agreements and Short-term Borrowings ..... 151
10 - Commitments and Contingencies ..... 154
11 - Shareholders' Equity ..... 158
12 - Accumulated Other Comprehensive Income (Loss) ..... $\underline{159}$
13 - Earnings Per Common Share ..... 161
14 - Fair Value Measurements ..... 162
15 - Fair Value Option ..... $\underline{177}$
16 - Fair Value of Financial Instruments ..... $\underline{180}$
17 - Mortgage Servicing Rights ..... 181
18 - Business Segment Information ..... 182
Glossary ..... $\underline{185}$
Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations ..... $\underline{3}$
Executive Summary ..... 4
Recent Events ..... 5
Financial Highlights ..... 6
Supplemental Financial Data ..... 13
Business Segment Operations ..... 17
Consumer Banking ..... 18
Global Wealth \& Investment Management ..... $\underline{25}$
Global Banking ..... $\underline{29}$
Global Markets ..... $\underline{33}$
All Other ..... $\underline{36}$
Off-Balance Sheet Arrangements and Contractual Obligations ..... $\underline{37}$
Managing Risk ..... $\underline{39}$
Capital Management ..... $\underline{39}$
Liquidity Risk ..... 47
Credit Risk Management ..... $\underline{52}$
Consumer Portfolio Credit Risk Management ..... $\underline{52}$
Commercial Portfolio Credit Risk Management ..... $\underline{67}$
Non-U.S. Portfolio ..... 78

1
Provision for Credit Losses ..... 79
Allowance for Credit Losses ..... $\underline{80}$
Market Risk Management ..... $\underline{84}$
Trading Risk Management ..... $\underline{84}$
Interest Rate Risk Management for the Banking Book ..... $\underline{89}$
Mortgage Banking Risk Management ..... $\underline{92}$
Complex Accounting Estimates ..... 92
Item 3. Quantitative and Qualitative Disclosures about Market Risk ..... 93
Item 4. Controls and Procedures ..... $\underline{93}$
Part II. Other Information ..... 188
Item 1. Legal Proceedings ..... 188
Item 1A. Risk Factors ..... 188
Item 2. Unregistered Sales of Equity Securities and Use of Proceeds ..... $\underline{188}$
Item 6. Exhibits ..... $\underline{189}$
Signature ..... 190
Index to Exhibits ..... 191

2

## Table of Contents

## Item 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

This report on Form 10-Q, the documents that it incorporates by reference and the documents into which it may be incorporated by reference may contain, and from time to time Bank of America Corporation (collectively with certain of its subsidiaries and affiliates, the Corporation) and its management may make certain statements that constitute forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. These statements can be identified by the fact that they do not relate strictly to historical or current facts. Forward-looking statements often use words such as "anticipates," "targets," "expects," "hopes," "estimates," "intends," "plans," "goals," "believes," "continue" and other similar expressions or future or conditional verbs such as "will," "may," "might," "should," "would" and "could." Forward-looking statements represent the Corporation's current expectations, plans or forecasts of its future results, revenues, expenses, efficiency ratio, capital measures, and future business and economic conditions more generally, and other future matters. These statements are not guarantees of future results or performance and involve certain known and unknown risks, uncertainties and assumptions that are difficult to predict and are often beyond the Corporation's control. Actual outcomes and results may differ materially from those expressed in, or implied by, any of these forward-looking statements.

You should not place undue reliance on any forward-looking statement and should consider the following uncertainties and risks, as well as the risks and uncertainties more fully discussed elsewhere in this report, including under Item 1A. Risk Factors of the Corporation's 2015 Annual Report on Form 10-K and in any of the Corporation's subsequent Securities and Exchange Commission filings: the Corporation's ability to resolve representations and warranties repurchase and related claims, including claims brought by investors or trustees seeking to distinguish certain aspects of the New York Court of Appeals' ACE Securities Corp v. DB Structured Products, Inc. (ACE) decision or to assert other claims seeking to avoid the impact of the ACE decision; the possibility that the Corporation could face increased servicing, securities, fraud, indemnity, contribution or other claims from one or more counterparties, including trustees, purchasers of loans, underwriters, issuers, other parties involved in securitizations, monolines or private-label and other investors; the possibility that future representations and warranties losses may occur in excess of the Corporation's recorded liability and estimated range of possible loss for its representations and warranties exposures; potential claims, damages, penalties, fines and reputational damage resulting from pending or future litigation and regulatory proceedings, including the possibility that amounts may be in excess of the Corporation's recorded liability and estimated range of possible loss for litigation exposures; the possible outcome of LIBOR, other reference rate, financial instrument and foreign exchange inquiries, investigations and litigation; uncertainties about the financial stability and growth rates of non-U.S. jurisdictions, the risk that those jurisdictions may face difficulties servicing their sovereign debt, and related stresses on financial markets, currencies and trade, and the Corporation's exposures to such risks, including direct, indirect and operational; the impact of U.S. and global interest rates (including negative or continued low interest rates), currency exchange rates and economic conditions; the possibility that future credit losses may be higher than currently expected due to changes in economic assumptions, customer behavior and other uncertainties; the impact on the Corporation's business, financial condition and results of operations of a potential higher interest rate environment; the impact on the Corporation's business, financial condition and results of operations from a protracted period of lower oil prices or ongoing volatility with respect to oil prices; our ability to achieve our expense targets; adverse changes to the Corporation's credit ratings from the major credit rating agencies; estimates of the fair value of certain of the Corporation's assets and liabilities; uncertainty regarding the content, timing and impact of regulatory capital and liquidity requirements, including the potential adoption of total loss-absorbing capacity requirements; the potential for payment protection insurance exposure to increase as a result of Financial Conduct Authority actions; the impact of Federal Reserve actions on the Corporation's capital plans; the possible impact of the Corporation's failure to remediate deficiencies and shortcomings identified by banking regulators in the Corporation's Recovery and Resolution plans; the impact of implementation and compliance with U.S. and international laws, regulations and regulatory interpretations, including, but not limited to, recovery and resolution planning requirements, FDIC assessments, the Volcker Rule, fiduciary

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standards and derivatives regulations; a failure in or breach of the Corporation's operational or security systems or infrastructure, or those of third parties, including as a result of cyber attacks; the impact on the Corporation's business, financial condition and results of operations from the potential exit of the United Kingdom from the European Union; and other similar matters.

Forward-looking statements speak only as of the date they are made, and the Corporation undertakes no obligation to update any forward-looking statement to reflect the impact of circumstances or events that arise after the date the forward-looking statement was made.

Notes to the Consolidated Financial Statements referred to in the Management's Discussion and Analysis of Financial Condition and Results of Operations (MD\&A) are incorporated by reference into the MD\&A. Certain prior-period amounts have been reclassified to conform to current period presentation. Throughout the MD\&A, the Corporation uses certain acronyms and abbreviations which are defined in the Glossary.

The Corporation's Annual Report on Form 10-K for the year ended December 31, 2015 as supplemented by a Current Report on Form 8-K filed on August 1, 2016 to reflect reclassified business segment information is referred to herein as the 2015 Annual Report on Form 10-K.

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## Table of Contents

Executive Summary

## Business Overview

The Corporation 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. Our principal executive offices are located in Charlotte, North Carolina. Through our banking and various nonbank subsidiaries throughout the U.S. and in international markets, we provide a diversified range of banking and nonbank financial services and products through four business segments: Consumer Banking, Global Wealth \& Investment Management (GWIM), Global Banking and Global Markets, with the remaining operations recorded in All Other. We operate our banking activities primarily under the Bank of America, National Association (Bank of America, N.A. or BANA) charter. At September 30, 2016, the Corporation had approximately $\$ 2.2$ trillion in assets and approximately 209,000 full-time equivalent employees.

At September 30, 2016, we operated in all 50 states, the District of Columbia, the U.S. Virgin Islands, Puerto Rico and more than 35 countries. Our retail banking footprint covers approximately 80 percent of the U.S. population, and we serve approximately 47 million consumer and small business relationships with approximately 4,600 retail financial centers, approximately 16,000 ATMs, and leading online (www.bankofamerica.com) and mobile banking platforms with approximately 34 million active accounts and more than 21 million mobile active users. We offer industry-leading support to approximately three million small business owners. Our wealth management businesses, with client balances of approximately $\$ 2.5$ trillion, provide tailored solutions to meet client needs through a full set of investment management, brokerage, banking, trust and retirement products. We are a global leader in corporate and investment banking and trading across a broad range of asset classes, serving corporations, governments, institutions and individuals around the world.

Third-Quarter 2016 Economic and Business Environment
In the third quarter of 2016, the macroeconomic environment in the U.S. was mixed. Continued strengthening in the labor market and a rebound in gross domestic product (GDP) growth were offset by continued weakness in certain sectors. The unemployment rate remained slightly below five percent, close to what is generally regarded as the natural rate of unemployment. However, retail sales and industrial production declined. Manufacturing output was weak, and businesses remained reluctant to invest in equipment and software. The economic pick-up during the quarter stemmed from continued moderate growth in domestic demand, largely reflecting consumption gains, along with a rebound in exports and signs that businesses may have passed the peak of their inventory reductions. Overall, these were minimal changes in the U.S. macroeconomic environment in comparison to the prior quarter.

Oil prices were generally stable over the quarter. Core inflation maintained the momentum gained early in the year, but remained below the Board of Governors of the Federal Reserve System's (Federal Reserve) longer-term annual target of two percent. Treasury yields fell during the quarter, reaching their lows in mid-July. Corporate spreads narrowed on the perception of an improving U.S. economy and strong international demand due to negative rates in Europe and Japan. U.S. equities rose moderately.

The Federal Open Market Committee (FOMC) cited continued improvement in the labor market and progress toward meeting the requirements for another interest rate hike. However, the low level of inflation and weak spots in the economy kept the FOMC on hold regarding the increase in rates.

Following the U.K.'s Referendum on exiting the European Union (EU) (U.K. Referendum) in June, economic indicators in the U.K. proved resilient despite the risk of negative growth during the third quarter. The unemployment

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rate in the U.K., for instance, remained below five percent. Economic momentum in the eurozone was sustained despite the U.K. Referendum, with available indicators pointing to moderate expansion in the third quarter. However, political uncertainty remained elevated and continued to impact financial markets. The European Central Bank maintained accommodative conditions, but did not commit to a possible extension of quantitative easing beyond March 2017. Government bond yields remained low, with German 10-year Bund yields remaining in negative territory.

Amid persistently low inflation, the Bank of Japan introduced a new policy focusing on maintaining the 10-year government bond yield near zero percent. In early July, a coup attempt in Turkey increased political instability, although the current government remained in power and financial market reaction outside of Turkey was minimal. The Chinese economy was stable during the quarter, but real estate remained a major concern.

## Table of Contents

## Recent Events

## Change in Accounting Method Related to Certain Debt Securities

Effective July 1, 2016, the Corporation changed its accounting method for the amortization of premiums and accretion of discounts related to certain debt securities under the Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) 310-20, Nonrefundable fees and other costs, from the prepayment method (also referred to as the retrospective method), to the contractual method. All prior periods presented herein have been restated to conform to current period presentation. Under the applicable bank regulatory rules, we are not required to and, accordingly, will not restate previously-filed capital metrics and ratios. The cumulative impact of the change in accounting method would have resulted in an insignificant pro forma change to our capital metrics and ratios. For additional information, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements.

## Capital Management

Our 2016 Comprehensive Capital Analysis and Review (CCAR) capital plan included requests (i) to repurchase $\$ 5.0$ billion of common stock over four quarters beginning in the third quarter of 2016, (ii) to repurchase common stock to offset the dilution resulting from certain equity-based compensation awards and (iii) to increase the quarterly common stock dividend from $\$ 0.05$ per share to $\$ 0.075$ per share. On June 29, 2016, following the Federal Reserve's non-objection to our 2016 CCAR capital plan, the Board of Directors (the Board) authorized the common stock repurchases described above. The common stock repurchase authorization includes both common stock and warrants. During the three months ended September 30, 2016, pursuant to the Board's authorization, we repurchased $\$ 1.4$ billion of common stock, which includes common stock to offset equity-based compensation awards. On July 27, 2016, the Board declared a quarterly common stock dividend of $\$ 0.075$ per share, payable on September 23, 2016 to shareholders of record as of September 2, 2016. For additional information, see the Corporation's Current Report on Form 8-K as filed on June 29, 2016.

Selected Financial Data
Table 1 provides selected consolidated financial data for the three and nine months ended September 30, 2016 and 2015, and at September 30, 2016 and December 31, 2015.

Table 1
Selected Financial Data
(Dollars in millions, except per share information)
Income statement
Revenue, net of interest expense
Net income
Diluted earnings per common share
Dividends paid per common share
Performance ratios
$\begin{array}{lllllll}\text { Return on average assets } & 0.90 & \% & 0.84 & \% & 0.81 & \% \\ \text { Return on average common shareholders' equity } & 7.27 & 7.16 & 6.61 & 6.67 & \% \\ \text { Return on average tangible common shareholders' equity }{ }^{(1)} & 10.28 & 10.40 & 9.40 & 9.74 & \\ \text { Efficiency ratio } & 62.31 & 66.40 & 65.59 & 68.98\end{array}$

|  | September 30ecember 31 |  |
| :--- | :--- | :--- |
| Balance sheet | 2016 | 2015 |
| Total loans and leases | $\$ 905,008$ | $\$ 896,983$ |
| Total assets | $2,195,314$ | $2,144,287$ |
| Total deposits | $1,232,895$ | $1,197,259$ |
| Total common shareholders' equity | 244,863 | 233,903 |
| Total shareholders' equity | 270,083 | 256,176 |

${ }_{\text {(1) }}$ Return on average tangible common shareholders' equity is a non-GAAP financial measure. For more information and a corresponding reconciliation to GAAP financial measures, see Supplemental Financial Data on page 13.

5

## Table of Contents

Financial Highlights
Net income was $\$ 5.0$ billion, or $\$ 0.41$ per diluted share, and $\$ 13.2$ billion, or $\$ 1.10$ per diluted share for the three and nine months ended September 30, 2016 compared to $\$ 4.6$ billion, or $\$ 0.38$, and $\$ 12.6$ billion, or $\$ 1.03$ for the same periods in 2015. The results for the three months ended September 30, 2016 compared to the prior-year period were primarily driven by increased revenue and lower noninterest expense. The results for the nine months ended September 30, 2016 compared to the prior-year period were primarily driven by lower noninterest expense and increased revenue, offset by higher provision for credit losses.

Total assets increased $\$ 51.0$ billion from December 31, 2015 to $\$ 2.2$ trillion at September 30, 2016 primarily driven by higher securities borrowed or purchased under agreements to resell due to increased customer financing activity, an increase in debt securities driven by the deployment of deposit inflows, higher trading account assets, and an increase in loans and leases driven by demand for commercial loans outpacing consumer loan sales and run-off. Total liabilities increased $\$ 37.1$ billion from December 31, 2015 to $\$ 1.9$ trillion at September 30, 2016 primarily driven by increases in deposits and trading account liabilities, partially offset by a decrease in long-term debt. Shareholders' equity increased $\$ 13.9$ billion from December 31, 2015 driven by earnings, an increase in accumulated other comprehensive income (OCI) due to a positive net change in the fair value of available-for-sale (AFS) debt securities as a result of lower interest rates, and preferred stock issuances, partially offset by returns of capital to shareholders of $\$ 6.9$ billion through common and preferred stock dividends and common stock repurchases.

Table 2
Summary Income Statement
(Dollars in millions)
Net interest income
Noninterest income
Total revenue, net of interest expense
Provision for credit losses
Noninterest expense
Income before income taxes
Income tax expense
Net income
Preferred stock dividends
Net income applicable to common shareholders

| Three Months Ended |  | Nin |  |
| :---: | :---: | :---: | :---: |
|  |  | Ended Septemb |  |
| pt |  | 30 |  |
| 16 | 2015 | 201 |  |
| 0,20 | \$9,90 | \$30 |  |
| ,434 | 11,092 | 32,907 |  |
| 21,635 | 20,99 |  |  |
| 850 | 806 | 2,823 | , |
| ,48 | 13,939 | 41,790 | 43,724 |
| 04 | 6,247 | 19,098 | 17,308 |
| 349 | 1,628 | 5,888 | 4,756 |
| 4,955 | 4,619 | 13,210 | 12,552 |
| 03 | 441 | 1,321 | 1,153 |

Per common share information
$\begin{array}{lllll}\text { Earnings } & \$ 0.43 & \$ 0.40 & \$ 1.15 & \$ 1.09\end{array}$
Diluted earnings

| 0.41 | 0.38 | 1.10 | 1.03 |
| :--- | :--- | :--- | :--- |

## Net Interest Income

Net interest income increased $\$ 301$ million to $\$ 10.2$ billion, and $\$ 1.5$ billion to $\$ 30.8$ billion for the three and nine months ended September 30, 2016 compared to the same periods in 2015. The net interest yield increased four basis points (bps) to 2.18 percent, and six bps to 2.21 percent. The increases for the three- and nine- month periods were primarily driven by growth in commercial loans, the impact from higher short-end interest rates and increased debt securities balances.

## Table of Contents

Noninterest Income
Table 3
Noninterest Income

|  | Three Months <br> Ended September |  | Nine Months <br> Ended |  |
| :--- | :--- | :--- | :--- | :--- |
|  | 30 | 30 |  |  |
|  | 2016 | 2015 | 2016 | 2015 |
| (Dollars in millions) | $\$ 1,455$ | $\$ 1,510$ | $\$ 4,349$ | $\$ 4,381$ |
| Card income | 1,952 | 1,898 | 5,660 | 5,519 |
| Service charges | 1,458 | 1,236 | 9,543 | 10,101 |
| Investment and brokerage services | 3,160 | 4,019 | 4,300 |  |
| Investment banking income | 2,141 | 1,616 | 5,821 | 5,510 |
| Trading account profits | 589 | 407 | 1,334 | 2,102 |
| Mortgage banking income | 51 | 437 | 490 | 886 |
| Gains on sales of debt securities | 618 | 601 | 1,691 | 1,312 |
| Other income | $\$ 11,434$ | $\$ 11,092$ | $\$ 32,907$ | $\$ 34,111$ |

Noninterest income increased $\$ 342$ million to $\$ 11.4$ billion, and decreased $\$ 1.2$ billion to $\$ 32.9$ billion for the three and nine months ended September 30, 2016 compared to the same periods in 2015. The following highlights the significant changes.

Investment and brokerage services income decreased $\$ 176$ million and $\$ 558$ million driven by lower market valuations and lower transactional revenue, partially offset by the impact of long-term assets under management (AUM) flows.

Investment banking income increased $\$ 171$ million for the three-month period primarily driven by an increase in debt and equity issuance fees, partially offset by lower advisory fees. Investment banking income decreased $\$ 281$ million for the nine-month period driven by lower equity issuance and advisory fees due to a decline in market fee pools.

Trading account profits increased $\$ 525$ million and $\$ 311$ million for the three and nine months ended September 30, 2016 compared to the same periods in 2015 primarily due to a stronger performance globally across credit products led by mortgages and continued strength in rates products, partially offset by reduced client activity in equities.

Mortgage banking income increased $\$ 182$ million for the three-month period primarily due to favorable mortgage servicing rights (MSR) results, net of the related hedge performance, partially offset by a decline in production income. Mortgage banking income decreased $\$ 768$ million for the nine-month period primarily driven by a decline in production revenue, a provision for representations and warranties in the current-year period compared to a benefit in the prior-year period, as well as lower servicing fees, partially offset by favorable MSR results, net of the related hedge performance.

Other income increased $\$ 27$ million and $\$ 379$ million primarily due to lower debit valuation adjustment (DVA) losses on structured liabilities, as well as improved results from loans and the related hedging activities in the fair value option portfolio, partially offset by lower gains on asset sales. DVA losses related to structured liabilities were $\$ 24$ million and $\$ 77$ million for the three and nine months ended September 30, 2016 compared to $\$ 54$ million and $\$ 604$ million in the same periods in 2015.

Provision for Credit Losses

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The provision for credit losses increased $\$ 44$ million to $\$ 850$ million, and $\$ 472$ million to $\$ 2.8$ billion for the three and nine months ended September 30, 2016 compared to the same periods in 2015 due to a slower pace of credit quality improvement and, for the nine-month period, an increase in energy sector reserves for the higher risk energy sub-sectors. For more information on the provision for credit losses, see Provision for Credit Losses on page 79. For more information on our energy sector exposure, see Commercial Portfolio Credit Risk Management - Industry Concentrations on page 74 .

7

## Table of Contents

Noninterest Expense
Table 4
Noninterest Expense
$\left.\begin{array}{lllll} & \begin{array}{l}\text { Three Months } \\ \text { Ended September }\end{array} & \begin{array}{l}\text { Nine Months } \\ \text { Ended September }\end{array} \\ & 30 & & 30\end{array}\right]$

Noninterest expense decreased $\$ 458$ million to $\$ 13.5$ billion, and $\$ 1.9$ billion to $\$ 41.8$ billion for the three and nine months ended September 30, 2016 compared to the same periods in 2015. Personnel expense decreased $\$ 125$ million and $\$ 1.1$ billion as we continue to manage headcount and achieve cost savings. Continued expense management, as well as the expiration of certain advisor retention awards, more than offset the increases in client-facing professionals. Other general operating expense decreased $\$ 302$ million for the nine-month period compared to the same period in 2015 primarily driven by lower foreclosed properties expense and lower brokerage fees, partially offset by higher FDIC expense.

Income Tax Expense
Table 5
Income Tax Expense


The effective tax rates for the three and nine months ended September 30, 2016 were driven by our recurring tax preference benefits, and included the $\$ 350$ million charge for the impact of the U.K. tax law changes discussed below. The effective tax rates for the three and nine months ended September 30, 2015 were driven by our recurring tax preference benefits, as well as benefits related to certain non-U.S. restructurings.

The U.K. Finance Bill 2016 was enacted on September 15, 2016. The changes include reducing the U.K. corporate income tax rate by one percent to 17 percent, effective April 1, 2020. This reduction favorably affects income tax expense on future U.K. earnings, but required a remeasurement of our U.K. net deferred tax assets using the lower tax rate. Accordingly, upon enactment, we recorded an income tax charge of approximately $\$ 350$ million. In addition, for banking companies, the portion of U.K. taxable income that can be reduced by existing net operating loss

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carryforwards in any one taxable year has been reduced from 50 percent to 25 percent retroactive to April 1, 2016.
The majority of our U.K. deferred tax assets, which consist primarily of net operating losses, are expected to be realized by certain subsidiaries over a number of years. Significant changes to management's earnings forecasts for those subsidiaries, such as changes caused by a substantial and prolonged worsening of the condition of Europe's capital markets, changes in applicable laws, further changes in tax laws or changes in the ability of our U.K. subsidiaries to conduct business in the EU, could lead management to reassess our ability to realize the U.K. deferred tax assets.

## Table of Contents

Table 6
Selected Quarterly Financial Data

|  | 2016 Quarters |  |  | 2015 Quarters |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| (In millions, except per share information) | Third | Second | First | Fourth | Third |
| Income statement |  |  |  |  |  |
| Net interest income | $\$ 10,201$ | $\$ 10,118$ | $\$ 10,485$ | $\$ 9,686$ | $\$ 9,900$ |
| Noninterest income | 11,434 | 11,168 | 10,305 | 9,896 | 11,092 |
| Total revenue, net of interest expense | 21,635 | 21,286 | 20,790 | 19,582 | 20,992 |
| Provision for credit losses | 850 | 976 | 997 | 810 | 806 |
| Noninterest expense | 13,481 | 13,493 | 14,816 | 14,010 | 13,939 |
| Income before income taxes | 7,304 | 6,817 | 4,977 | 4,762 | 6,247 |
| Income tax expense | 2,349 | 2,034 | 1,505 | 1,478 | 1,628 |
| Net income | 4,955 | 4,783 | 3,472 | 3,284 | 4,619 |
| Net income applicable to common shareholders | 4,452 | 4,422 | 3,015 | 2,954 | 4,178 |
| Average common shares issued and outstanding | 10,250 | 10,328 | 10,370 | 10,399 | 10,444 |
| Average diluted common shares issued and | 11,000 | 11,059 | 11,100 | 11,153 | 11,197 |
| outstanding |  |  |  |  |  |

Performance ratios
$\begin{array}{llllllllll}\text { Return on average assets } & 0.90 & \% & 0.88 & \% & 0.64 & \% & 0.60 & \% & 0.84\end{array}$
Four quarter trailing return on average assets ${ }^{(1)}$
Return on average common shareholders' equity
Return on average tangible common shareholders'
equity ${ }^{(2)}$
Return on average shareholders' equity
Return on average tangible shareholders' equity ${ }^{(2)}$
Total ending equity to total ending assets
Total average equity to total average assets
Dividend payout
Per common share data
Earnings
Diluted earnings
Dividends paid
Book value
Tangible book value (2)
Market price per share of common stock
Closing

|  | 0.88 | 0.64 | 0.6 | 0.84 |
| :--- | :--- | :--- | :--- | :--- |
| 0.76 | 0.74 | 0.73 | 0.73 | 0.74 |
| 7.27 | 7.40 | 5.11 | 4.99 | 7.16 |
| 10.28 | 10.54 | 7.33 | 7.19 | 10.40 |
| 7.33 | 7.25 | 5.36 | 5.07 | 7.22 |
| 9.98 | 9.93 | 7.40 | 7.04 | 10.08 |
| 12.30 | 12.23 | 12.03 | 11.95 | 11.88 |
| 12.28 | 12.13 | 11.98 | 11.79 | 11.70 |
| 17.32 | 11.73 | 17.13 | 17.57 | 12.48 |
|  |  |  |  |  |
| $\$ 0.43$ | $\$ 0.43$ | $\$ 0.29$ | $\$ 0.28$ | $\$ 0.40$ |
| 0.41 | 0.41 | 0.28 | 0.27 | 0.38 |
| 0.075 | 0.05 | 0.05 | 0.05 | 0.05 |
| 24.19 | 23.71 | 23.14 | 22.53 | 22.40 |
| 17.14 | 16.71 | 16.19 | 15.62 | 15.50 |
|  |  |  |  |  |
| $\$ 15.65$ | $\$ 13.27$ | $\$ 13.52$ | $\$ 16.83$ | $\$ 15.58$ |
| 16.19 | 15.11 | 16.43 | 17.95 | 18.45 |
| 12.74 | 12.18 | 11.16 | 15.38 | 15.26 |
| $\$ 158,438$ | $\$ 135,577$ | $\$ 139,427$ | $\$ 174,700$ | $\$ 162,457$ |

Low closing
Market capitalization
\$158,438 \$135,577 \$139,427 \$174,700 \$162,457
(1) Calculated as total net income for four consecutive quarters divided by annualized average assets for four consecutive quarters.
Tangible equity ratios and tangible book value per share of common stock are non-GAAP financial measures. For
${ }^{(2)}$ more information on these ratios and for corresponding reconciliations to GAAP financial measures, see Supplemental Financial Data on page 13.
(3) For more information on the impact of the purchased credit-impaired (PCI) loan portfolio on asset quality, see Consumer Portfolio Credit Risk Management on page 52.
${ }^{(4)}$ Includes the allowance for loan and lease losses and the reserve for unfunded lending commitments.
${ }^{(5)}$ Balances and ratios do not include loans accounted for under the fair value option. For additional exclusions from nonperforming loans, leases and foreclosed properties, see Consumer Portfolio Credit Risk Management -

Nonperforming Consumer Loans, Leases and Foreclosed Properties Activity on page 65 and corresponding Table 35, and Commercial Portfolio Credit Risk Management - Nonperforming Commercial Loans, Leases and Foreclosed Properties Activity on page 73 and corresponding Table 42.
${ }_{(6)}$ Primarily includes amounts allocated to the U.S. credit card and unsecured consumer lending portfolios in Consumer Banking, PCI loans and the non-U.S. credit card portfolio in All Other.
Net charge-offs exclude $\$ 83$ million, $\$ 82$ million, $\$ 105$ million, $\$ 82$ million and $\$ 148$ million of write-offs in the
(7) PCI loan portfolio in the third, second and first quarters of 2016 and in the fourth and third quarters of 2015, respectively. For more information on PCI write-offs, see Consumer Portfolio Credit Risk Management - Purchased Credit-impaired Loan Portfolio on page 62.
Risk-based capital ratios reported under Basel 3 Advanced - Transition beginning in the fourth quarter of 2015.
${ }^{(8)}$ Prior to the fourth quarter of 2015, we were required to report risk-based capital ratios under Basel 3 Standardized - Transition only. For additional information, see Capital Management on page 39.

## Table of Contents

Table 6
Selected Quarterly Financial Data (continued)

2016 Quarters

| Third | Second | First | Fourth | Third |
| :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |
| $\$ 900,594$ | $\$ 899,670$ | $\$ 892,984$ | $\$ 886,156$ | $\$ 877,429$ |
| $2,189,490$ | $2,188,241$ | $2,173,922$ | $2,180,507$ | $2,168,930$ |
| $1,22,186$ | $1,213,291$ | $1,198,455$ | $1,186,051$ | $1,159,231$ |
| 227,269 | 233,061 | 233,654 | 237,384 | 240,520 |
| 243,679 | 240,376 | 237,229 | 234,800 | 231,524 |
| 268,899 | 265,354 | 260,423 | 257,074 | 253,798 |
| $\$ 12,459$ | $\$ 12,587$ | $\$ 12,696$ | $\$ 12,880$ | $\$ 13,318$ |
| 8,737 | 8,799 | 9,281 | 9,836 | 10,336 | (5)

(Dollars in millions)
Average balance sheet
Total loans and leases
Total assets
Total deposits
Long-term debt
Common shareholders' equity
Total shareholders' equity
Asset quality ${ }^{(3)}$
$\begin{array}{llllll}\text { Allowance for credit losses }{ }^{(4)} & \$ 12,459 & \$ 12,587 & \$ 12,696 & \$ 12,880 & \$ 13,318\end{array}$
Nonperforming loans, leases and foreclosed properties (s)

Allowance for loan and lease losses as a percentage of 1.30 total loans and leases outstanding (5)
Allowance for loan and lease losses as a percentage of total nonperforming loans and leases (5)
Allowance for loan and lease losses as a percentage of total nonperforming loans and leases, excluding the 135
PCI loan portfolio ${ }^{(5)}$
Amounts included in allowance for loan and lease
losses for loans and leases that are excluded from $\quad \$ 4,068 \quad \$ 4,087 \quad \$ 4,138 \quad \$ 4,518 \quad \$ 4,682$
nonperforming loans and leases ${ }^{(6)}$
Allowance for loan and lease losses as a percentage of total nonperforming loans and leases, excluding the allowance for loan and lease losses for loans and $\quad 91 \quad \% \quad 93 \quad \% \quad 90 \quad \% \quad 82 \quad \% \quad 81 \quad \%$ leases that are excluded from nonperforming loans and leases ${ }^{(5,6)}$

| Net charge-offs ${ }^{(7)}$ | $\$ 888$ |  | $\$ 985$ |  | $\$ 1,068$ |  | $\$ 1,144$ | $\$ 932$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Annualized net charge-offs as a percentage of average |  |  |  |  |  |  |  |  |
|  | 0.40 | $\%$ | 0.44 | $\%$ | 0.48 | $\%$ | 0.52 | $\%$ |
|  |  | 0.43 | $\%$ |  |  |  |  |  | loans and leases outstanding ( 5,7 )

Annualized net charge-offs as a percentage of average $\begin{array}{llllll}\text { loans and leases outstanding, excluding the PCI loan } & 0.40 & 0.45 & 0.49 & 0.53 & 0.43\end{array}$ portfolio ${ }^{(5)}$
Annualized net charge-offs and PCI write-offs as a percentage of average loans and leases outstanding (5) 0.43

| 0.48 | 0.53 | 0.55 | 0.49 |
| :--- | :--- | :--- | :--- |

Nonperforming loans and leases as a percentage of total loans and leases outstanding (5)
Nonperforming loans, leases and foreclosed properties as a percentage of total loans, leases and foreclosed 0.97 properties ${ }^{(5)}$
Ratio of the allowance for loan and lease losses at period end to annualized net charge-offs ${ }^{(7)}$
Ratio of the allowance for loan and lease losses at period end to annualized net charge-offs, excluding the PCI loan portfolio

| 3.31 | 2.99 | 2.81 | 2.70 | 3.42 |
| :--- | :--- | :--- | :--- | :--- |
| 3.18 | 2.85 | 2.67 | 2.52 | 3.18 |
| 3.03 | 2.76 | 2.56 | 2.52 | 2.95 |

Ratio of the allowance for loan and lease losses at period end to annualized net charge-offs and PCI
write-offs
Capital ratios at period end
Risk-based capital: ${ }^{(8)}$
Common equity tier 1 capital
Tier 1 capital
Total capital
Tier 1 leverage
Tangible equity ${ }^{(2)}$
Tangible common equity ${ }^{(2)}$

| 11.0 | $\%$ | 10.6 | $\%$ | 10.3 | $\%$ | 10.2 | $\%$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 11.6 | $\%$ |  |  |  |  |  |  |
| 12.4 | 12.0 | 11.5 |  | 11.3 | 12.9 |  |  |
| 14.2 | 13.9 |  | 13.4 |  | 13.2 |  | 15.8 |
| 9.1 | 8.9 | 8.7 |  | 8.6 | 8.5 |  |  |
| 9.4 | 9.3 | 9.1 |  | 8.9 | 8.8 |  |  |
| 8.2 | 8.1 | 7.9 |  | 7.8 |  | 7.8 |  |

For footnotes see page 9.

## Table of Contents

Table 7
Selected Year-to-Date Financial Data
(In millions, except per share information)
Income statement
Net interest income
Noninterest income
Total revenue, net of interest expense
Provision for credit losses
Noninterest expense
Nine Months Ended
September 30
20162015

Income before income taxes
\$30,804 \$29,272
32,907 34,111
63,711 63,383
2,823 2,351
41,790 43,724
Income tax expense
19,098 17,308

Net income
Net income applicable to common shareholders
5,888 4,756
13,210 12,552
Average common shares issued and outstanding
11,889 11,399
Average diluted common shares issued and outstanding $\quad 11,047 \quad 11,234$
Performance ratios
Return on average assets $\quad 0.81$ \% 0.78 \%
$\begin{array}{lll}\text { Return on average common shareholders' equity } & 6.61 & 6.67\end{array}$
Return on average tangible common shareholders' equity ${ }^{(1)} \quad 9.40 \quad 9.74$
$\begin{array}{lll}\text { Return on average shareholders' equity } & 6.66 & 6.71\end{array}$
Return on average tangible shareholders' equity ${ }^{(1)} \quad 9.13 \quad 9.42$
Total ending equity to total ending assets
Total average equity to total average assets
$12.30 \quad 11.88$
Dividend payout
$12.13 \quad 11.62$
Per common share data
Earnings \$1.15 \$1.09
Diluted earnings $\quad 1.10 \quad 1.03$
Dividends paid
Book value
Tangible book value ${ }^{(1)}$
$0.175 \quad 0.15$

Market price per share of common stock
Closing
15.65
\$15.58
High closing
$16.43 \quad 18.45$
Low closing
Market capitalization
$11.16 \quad 15.15$

Tangible equity ratios and tangible book value per share of common stock are non-GAAP financial measures. For
${ }^{(1)}$ more information on these ratios and for corresponding reconciliations to GAAP financial measures, see Supplemental Financial Data on page 13.
${ }_{(2)}$ For more information on the impact of the PCI loan portfolio on asset quality, see Consumer Portfolio Credit Risk Management on page 52.
${ }^{(3)}$ Includes the allowance for loan and lease losses and the reserve for unfunded lending commitments. Balances and ratios do not include loans accounted for under the fair value option. For additional exclusions from nonperforming loans, leases and foreclosed properties, see Consumer Portfolio Credit Risk Management -
${ }^{(4)}$ Nonperforming Consumer Loans, Leases and Foreclosed Properties Activity on page 65 and corresponding Table 35, and Commercial Portfolio Credit Risk Management - Nonperforming Commercial Loans, Leases and Foreclosed Properties Activity on page 73 and corresponding Table 42.
(5)

Primarily includes amounts allocated to the U.S. credit card and unsecured consumer lending portfolios in Consumer Banking, PCI loans and the non-U.S. credit card portfolio in All Other.
Net charge-offs exclude $\$ 270$ million and $\$ 726$ million of write-offs in the PCI loan portfolio for the nine months
${ }^{(6)}$ ended September 30, 2016 and 2015. For more information on PCI write-offs, see Consumer Portfolio Credit Risk Management - Purchased Credit-impaired Loan Portfolio on page 62.

11

## Table of Contents

Table 7
Selected Year-to-Date Financial Data (continued)

|  | Nine Months Ended September 30 |  |
| :---: | :---: | :---: |
| (Dollars in millions) | 2016 | 2015 |
| Average balance sheet |  |  |
| Total loans and leases | \$897,760 | \$873,630 |
| Total assets | 2,183,905 | 2,153,353 |
| Total deposits | 1,213,029 | 1,145,686 |
| Long-term debt | 231,313 | 240,960 |
| Common shareholders' equity | 240,440 | 228,614 |
| Total shareholders' equity | 264,907 | 250,265 |
| Asset quality ${ }^{(2)}$ |  |  |
| Allowance for credit losses ${ }^{(3)}$ | \$12,459 | \$13,318 |
| Nonperforming loans, leases and foreclosed properties (4) | 8,737 | 10,336 |
| Allowance for loan and lease losses as a percentage of total loans and leases outstanding (4) | 1.30 | \% 1.45 \% |
| Allowance for loan and lease losses as a percentage of total nonperforming loans and leases (4) | 140 | 129 |
| Allowance for loan and lease losses as a percentage of total nonperforming loans and leases, excluding the PCI loan portfolio ${ }^{(4)}$ | 135 | 120 |
| Amounts included in allowance for loan and lease losses for loans and leases that are excluded from nonperforming loans and leases ${ }^{(5)}$ | \$4,068 | \$4,682 |
| Allowance for loan and lease losses as a percentage of total nonperforming loans and leases, excluding the allowance for loan and lease losses for loans and leases that are excluded from nonperforming loans and leases $(4,5)$ | 91 | \% 81 \% |
| Net charge-offs ${ }^{(6)}$ | \$2,941 | \$3,194 |
| Annualized net charge-offs as a percentage of average loans and leases outstanding (4, 6) | 0.44 | \% 0.49 \% |
| Annualized net charge-offs as a percentage of average loans and leases outstanding, excluding the PCI loan portfolio ${ }^{(4)}$ | 0.45 | 0.50 |
| Annualized net charge-offs and PCI write-offs as a percentage of average loans and leases outstanding ${ }^{(4)}$ | 0.48 | 0.61 |
| Nonperforming loans and leases as a percentage of total loans and leases outstanding ${ }^{(4)}$ | 0.93 | 1.12 |
| Nonperforming loans, leases and foreclosed properties as a percentage of total loans, leases and foreclosed properties ${ }^{(4)}$ | 0.97 | 1.18 |
| Ratio of the allowance for loan and lease losses at period end to annualized net charge-offs ( | 2.98 | 2.96 |
| Ratio of the allowance for loan and lease losses at period end to annualized net charge-offs, excluding the PCI loan portfolio | 2.86 | 2.76 |
| Ratio of the allowance for loan and lease losses at period end to annualized net charge-offs and PCI write-offs | 2.73 | 2.41 |

For footnotes see page 11.
12

## Edgar Filing: BANK OF AMERICA CORP /DE/ - Form 10-Q

## Table of Contents

## Supplemental Financial Data

In this Form 10-Q, we present certain non-GAAP financial measures. Non-GAAP financial measures exclude certain items or otherwise include components that differ from the most directly comparable measures calculated in accordance with GAAP. Non-GAAP financial measures are provided as additional useful information to assess our financial condition, results of operations (including period-to-period operating performance) or compliance with prospective regulatory requirements. These non-GAAP financial measures are not intended as a substitute for GAAP financial measures and may not be defined or calculated the same way as non-GAAP financial measures used by other companies.

We view net interest income and related ratios and analyses on an fully taxable-equivalent (FTE) basis, which when presented on a consolidated basis, are non-GAAP financial measures. To derive the FTE basis, net interest income is adjusted to reflect tax-exempt income on an equivalent before-tax basis with a corresponding increase in income tax expense. For purposes of this calculation, we use the federal statutory tax rate of 35 percent and a representative state tax rate. In addition, certain performance measures including the efficiency ratio and net interest yield utilize net interest income (and thus total revenue) on an FTE basis. The efficiency ratio measures the costs expended to generate a dollar of revenue, and net interest yield measures the bps we earn over the cost of funds. We believe that presentation of these items on an FTE basis allows for comparison of amounts from both taxable and tax-exempt sources and is consistent with industry practices.

We may present certain key performance indicators and ratios excluding certain items (e.g., DVA) which result in non-GAAP financial measures. We believe that the presentation of measures that exclude these items are useful because they provide additional information to assess the underlying operational performance and trends of our businesses and to allow better comparison of period-to-period operating performance.

We also evaluate our business based on certain ratios that utilize tangible equity, a non-GAAP financial measure. Tangible equity represents an adjusted shareholders' equity or common shareholders' equity amount which has been reduced by goodwill and certain acquired intangible assets (excluding MSRs), net of related deferred tax liabilities. These measures are used to evaluate our use of equity. In addition, profitability, relationship and investment models use both return on average tangible common shareholders' equity and return on average tangible shareholders' equity as key measures to support our overall growth goals. These ratios are as follows:

Return on average tangible common shareholders' equity measures our earnings contribution as a percentage of adjusted common shareholders' equity. The tangible common equity ratio represents adjusted ending common shareholders' equity divided by total assets less goodwill and certain acquired intangible assets (excluding MSRs), net of related deferred tax liabilities.

Return on average tangible shareholders' equity measures our earnings contribution as a percentage of adjusted average total shareholders' equity. The tangible equity ratio represents adjusted ending shareholders' equity divided by total assets less goodwill and certain acquired intangible assets (excluding MSRs), net of related deferred tax liabilities.

Tangible book value per common share represents adjusted ending common shareholders' equity divided by ending common shares outstanding.

We believe that the use of ratios that utilize tangible equity provides additional useful information because they present measures of those assets that can generate income. Tangible book value per share provides additional useful information about the level of tangible assets in relation to outstanding shares of common stock.

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The aforementioned supplemental data and performance measures are presented in Tables 6 and 7.
Table 8 presents certain non-GAAP financial measures and performance measurements on an FTE basis.
Table 8
Supplemental Financial Data
(Dollars in millions)
Three Months Ended Nine Months Ended
September $30 \quad$ September 30
Fully taxable-equivalent basis data
Net interest income
2016201520162015
$\begin{array}{llll}\$ 10,429 & \$ 10,127 & \$ 31,470 & \$ 29,936\end{array}$
Total revenue, net of interest expense $21,863 \quad 21,219 \quad 64,377 \quad 64,047$
$\begin{array}{lllllllll}\text { Net interest yield } & 2.23 & \% & 2.19 & \% & 2.26 & \% & 2.20 & \text { \% } \\ \text { Efficiency ratio } & 61.66 & & 65.70 & & 64.91 & & 68.27 & \end{array}$

13

## Table of Contents

Tables 9 and 10 provide reconciliations of these non-GAAP financial measures to GAAP financial measures.
Table 9
Quarterly and Year-to-Date Supplemental Financial Data and Reconciliations to GAAP Financial Measures Three Months Ended September 30
20162015


Nine Months Ended September 30
20162015

| Net interest income | $\$ 30,804$ | $\$$ | 666 | $\$ 31,470$ | $\$ 29,272$ | $\$ 664$ | $\$ 29,936$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Total revenue, net of interest | 63,711 | 666 | 64,377 | 63,383 | 664 | 64,047 |  |
| expense | 5,888 | 666 | 6,554 | 4,756 | 664 | 5,420 |  |

Table 10
Period-end and Average Supplemental Financial Data and Reconciliations to GAAP Financial Measures Average

|  | Period-end |  | Three Months Ended September 30 |  | Nine Months Ended September 30 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| (Dollars in millions) | September 3 <br> 2016 | $\begin{aligned} & \text { 30December } 31 \\ & 2015 \end{aligned}$ | 12016 | 2015 | 2016 | 2015 |
| Common shareholders' equity | \$244,863 | \$ 233,903 | \$243,679 | \$231,524 | \$240,440 | \$228,614 |
| Goodwill | (69,744 | ) $(69,761$ | ) $(69,744$ | ) $(69,774$ | ) $(69,752$ | ) $(69,775$ |
| Intangible assets (excluding MSRs) | (3,168 | ) (3,768 ) | ) $(3,276$ | ) $(4,099$ | ) $(3,480$ | ) $(4,307$ |
| Related deferred tax liabilities | 1,588 | 1,716 | 1,628 | 1,811 | 1,666 | 1,885 |
| Tangible common shareholders' equity | \$173,539 | \$ 162,090 | \$172,287 | \$159,462 | \$168,874 | \$156,417 |
| Shareholders' equity | \$270,083 | \$256,176 | \$268,899 | \$253,798 | \$264,907 | \$250,265 |
| Goodwill | (69,744 | ) (69,761 ) | ) $(69,744$ | ) $(69,774$ | ) $(69,752$ | ) ( 69,775 ) |
| Intangible assets (excluding MSRs) | (3,168 | ) $(3,768$ | ) $(3,276$ | ) $(4,099$ | ) $(3,480$ | ) $(4,307$ |
| Related deferred tax liabilities | 1,588 | 1,716 | 1,628 | 1,811 | 1,666 | 1,885 |
| Tangible shareholders' equity | \$198,759 | \$ 184,363 | \$197,507 | \$ 181,736 | \$ 193,341 | \$178,068 |
| Total assets | \$2,195,314 | \$2,144,287 |  |  |  |  |
| Goodwill | (69,744 | ) $(69,761$ | ) |  |  |  |
| Intangible assets (excluding MSRs) | (3,168 | ) $(3,768$ | ) |  |  |  |
| Related deferred tax liabilities | 1,588 | 1,716 |  |  |  |  |
| Tangible assets | \$2,123,990 | \$2,072,474 |  |  |  |  |

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## Table of Contents

Table 11
Quarterly Average Balances and Interest Rates - FTE Basis

Third Quarter 2016
(Dollars in millions)
Earning assets
Interest-bearing deposits with the Federal Reserve, non-U.S. central banks and other banks
Time deposits placed and other short-term investments
Federal funds sold and securities borrowed or purchased under agreements to resell
Trading account assets
Debt securities
Loans and leases ${ }^{(1)}$ :
Residential mortgage
Home equity
U.S. credit card

Non-U.S. credit card
Direct/Indirect consumer ${ }^{(2)}$
Other consumer ${ }^{(3)}$
Total consumer
U.S. commercial

Commercial real estate ${ }^{(4)}$
Commercial lease financing
Non-U.S. commercial
Total commercial
Total loans and leases
Other earning assets
Total earning assets ${ }^{(5)}$
Cash and due from banks
Other assets, less allowance for loan and lease losses
Total assets
Interest-bearing liabilities
U.S. interest-bearing deposits:

Savings
NOW and money market deposit accounts
Consumer CDs and IRAs
Negotiable CDs, public funds and other deposits
Total U.S. interest-bearing deposits
Non-U.S. interest-bearing deposits:
Banks located in non-U.S. countries
Governments and official institutions
Time, savings and other
Total non-U.S. interest-bearing deposits
Total interest-bearing deposits
Federal funds purchased, securities loaned or sold under agreements to repurchase and short-term borrowings
Trading account liabilities

| Third Quarter 2016 |  | Third Quarter 2015 |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Average Balance | Interest <br> Income/ <br> Expense | Yield/ <br> Rate | Average Balance | Interest <br> Income/ <br> Expense | Yield/ <br> Rate |
| \$ 133,866 | \$148 | 0.44\% | \$ 145,174 | \$96 | 0.26 \% |
| 9,336 | 34 | 1.45 | 11,503 | 38 | 1.32 |
| 214,254 | 267 | 0.50 | 210,127 | 275 | 0.52 |
| 128,879 | 1,111 | 3.43 | 140,484 | 1,170 | 3.31 |
| 423,182 | 2,169 | 2.07 | 394,265 | 2,282 | 2.32 |
| 188,234 | 1,612 | 3.42 | 193,791 | 1,690 | 3.49 |
| 70,603 | 681 | 3.84 | 79,715 | 730 | 3.64 |
| 88,210 | 2,061 | 9.30 | 88,201 | 2,033 | 9.15 |
| 9,256 | 231 | 9.94 | 10,244 | 267 | 10.34 |
| 92,870 | 585 | 2.51 | 85,975 | 515 | 2.38 |
| 2,358 | 18 | 2.94 | 1,980 | 15 | 3.01 |
| 451,531 | 5,188 | 4.58 | 459,906 | 5,250 | 4.54 |
| 276,833 | 2,040 | 2.93 | 251,908 | 1,744 | 2.75 |
| 57,606 | 452 | 3.12 | 53,605 | 384 | 2.84 |
| 21,194 | 153 | 2.88 | 20,013 | 153 | 3.07 |
| 93,430 | 599 | 2.55 | 91,997 | 514 | 2.22 |
| 449,063 | 3,244 | 2.87 | 417,523 | 2,795 | 2.66 |
| 900,594 | 8,432 | 3.73 | 877,429 | 8,045 | 3.65 |
| 59,951 | 677 | 4.50 | 62,848 | 717 | 4.52 |
| 1,870,062 | 12,838 | 2.73 | 1,841,830 | 12,623 | 2.73 |
| 27,361 |  |  | 27,730 |  |  |
| 292,067 |  |  | 299,370 |  |  |
| \$2,189,490 |  |  | \$2,168,930 |  |  |


| $\$ 49,885$ | $\$ 2$ | $0.01 \%$ | $\$ 46,297$ | $\$ 2$ | 0.02 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| 592,907 | 73 | 0.05 | 545,741 | 67 | 0.05 |
| 48,695 | 33 | 0.27 | 53,174 | 38 | 0.29 |
| 32,023 | 43 | 0.54 | 30,631 | 26 | 0.33 |
| 723,510 | 151 | 0.08 | 675,843 | 133 | 0.08 |
|  |  |  |  |  |  |
| 4,294 | 9 | 0.87 | 4,196 | 7 | 0.71 |
| 1,391 | 3 | 0.61 | 1,654 | 1 | 0.33 |
| 59,340 | 103 | 0.70 | 53,793 | 73 | 0.53 |
| 65,025 | 115 | 0.71 | 59,643 | 81 | 0.54 |
| 788,535 | 266 | 0.13 | 735,486 | 214 | 0.12 |
| 207,634 | 569 | 1.09 | 257,323 | 597 | 0.92 |
| 73,452 | 244 | 1.32 | 77,443 | 342 | 1.75 |

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| Long-term debt | 227,269 | 1,330 | 2.33 | 240,520 | 1,343 | 2.22 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Total interest-bearing liabilities ${ }^{(5)}$ | 1,296,890 | 2,409 | 0.74 | 1,310,772 | 2,496 | 0.76 |
| Noninterest-bearing sources: |  |  |  |  |  |  |
| Noninterest-bearing deposits | 438,651 |  |  | 423,745 |  |  |
| Other liabilities | 185,050 |  |  | 180,615 |  |  |
| Shareholders' equity | 268,899 |  |  | 253,798 |  |  |
| Total liabilities and shareholders' equity | \$2,189,490 |  |  | \$2,168,930 |  |  |
| Net interest spread |  |  | 1.99\% |  |  | 1.97 \% |
| Impact of noninterest-bearing sources |  |  | 0.24 |  |  | 0.22 |
| Net interest income/yield on earning assets |  | \$ 10,429 | 2.23\% |  | \$ 10,127 | 2.19 \% |

Nonperforming loans are included in the respective average loan balances. Income on these nonperforming loans is
${ }^{(1)}$ generally recognized on a cost recovery basis. PCI loans were recorded at fair value upon acquisition and accrete interest income over the estimated life of the loan.
(2)

Includes non-U.S. consumer loans of $\$ 3.2$ billion and $\$ 4.0$ billion for the three months ended September 30, 2016 and 2015.
Includes consumer finance loans of $\$ 501$ million and $\$ 605$ million, consumer leases of $\$ 1.7$ billion and $\$ 1.2$
${ }^{(3)}$ billion, and consumer overdrafts of $\$ 187$ million and $\$ 177$ million for the three months ended September 30, 2016 and 2015.
(4) Includes U.S. commercial real estate loans of $\$ 54.3$ billion and $\$ 49.8$ billion, and non-U.S. commercial real estate loans of $\$ 3.3$ billion and $\$ 3.8$ billion for the three months ended September 30, 2016 and 2015.
Interest income includes the impact of interest rate risk management contracts, which decreased interest income on the underlying assets by $\$ 64$ million and $\$ 8$ million for the three months ended September 30, 2016 and 2015.
${ }^{(5)}$ Interest expense includes the impact of interest rate risk management contracts, which decreased interest expense on the underlying liabilities by $\$ 560$ million and $\$ 590$ million for the three months ended September 30, 2016 and 2015. For additional information, see Interest Rate Risk Management for the Banking Book on page 89.

## Table of Contents

Table 12
Year-to-Date Average Balances and Interest Rates - FTE Basis
Nine Months Ended September 30

2016
(Dollars in millions)
Earning assets
Interest-bearing deposits with the Federal Reserve, non-U.S. central banks and other banks
Time deposits placed and other short-term investments
Federal funds sold and securities borrowed or purchased
under agreements to resell
Trading account assets
Debt securities
Loans and leases ${ }^{(1)}$ :
Residential mortgage
Home equity
U.S. credit card

Non-U.S. credit card
Direct/Indirect consumer (2)
Other consumer ${ }^{(3)}$
Total consumer
U.S. commercial

Commercial real estate ${ }^{(4)}$
Commercial lease financing
Non-U.S. commercial
Total commercial
Total loans and leases
Other earning assets
Total earning assets ${ }^{(5)}$
Cash and due from banks
Other assets, less allowance for loan and lease losses
Total assets
Interest-bearing liabilities
U.S. interest-bearing deposits:

Savings
NOW and money market deposit accounts
Consumer CDs and IRAs
Negotiable CDs, public funds and other deposits
Total U.S. interest-bearing deposits
Non-U.S. interest-bearing deposits:
Banks located in non-U.S. countries
Governments and official institutions
Time, savings and other
Total non-U.S. interest-bearing deposits
Total interest-bearing deposits
Federal funds purchased, securities loaned or sold under agreements to repurchase and short-term borrowings

| Average | Interest | Yield/ | Average |
| :--- | :--- | :--- | :--- |
| Balance | Interest <br> Income/ <br> Expense | Rate <br> Balance | Income/ <br> Expense |
|  |  |  | Rate |

\$135,910 \$460 $0.45 \%$ \$132,445 \$261 $0.26 \%$

| 8,784 | 101 | 1.54 | 9,366 | 105 | 1.50 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| 215,476 | 803 | 0.50 | 212,781 | 774 | 0.49 |
| 130,785 | 3,432 | 3.50 | 138,861 | 3,406 | 3.28 |
| 414,115 | 6,990 | 2.27 | 387,988 | 6,763 | 2.34 |


| 73,015 | 2,095 | 3.83 | 82,404 | 2,269 | 3.68 |
| :--- | :--- | :--- | :--- | :--- | :--- |


| 87,362 | 6,065 | 9.27 | 88,117 | 6,040 | 9.17 |
| :--- | :--- | :--- | :--- | :--- | :--- |


| 9,687 | 734 | 10.12 | 10,087 | 793 | 10.51 |
| :--- | :--- | :--- | :--- | :--- | :--- |


| 91,291 | 1,698 | 2.48 | 83,481 | 1,510 | 2.42 |
| :--- | :--- | :--- | :--- | :--- | :--- |


| 2,240 | 50 | 2.99 | 1,904 | 45 | 3.14 |
| :--- | :--- | :--- | :--- | :--- | :--- |


| 450,920 | 15,509 | 4.59 | 471,308 | 15,980 | 4.53 |
| :--- | :--- | :--- | :--- | :--- | :--- |


| 274,669 | 5,982 | 2.91 | 243,849 | 5,093 | 2.79 |
| :--- | :--- | :--- | :--- | :--- | :--- |


| 57,550 | 1,320 | 3.06 | 50,792 | 1,113 | 2.93 |
| :--- | :--- | :--- | :--- | :--- | :--- |


| 21,049 | 482 | 3.05 | 19,592 | 473 | 3.22 |
| :--- | :--- | :--- | :--- | :--- | :--- |


| 93,572 | 1,748 | 2.50 | 88,089 | 1,478 | 2.24 |
| :--- | :--- | :--- | :--- | :--- | :--- |


| 446,840 | 9,532 | 2.85 | 402,322 | 8,157 | 2.71 |
| :--- | :--- | :--- | :--- | :--- | :--- |


| 897,760 | 25,041 | 3.72 | 873,630 | 24,137 | 3.69 |
| :--- | :--- | :--- | :--- | :--- | :--- |


| 58,189 | 2,031 | 4.66 | 62,366 | 2,142 | 4.59 |
| :--- | :--- | :--- | :--- | :--- | :--- |

$\begin{array}{llllll}1,861,019 & 38,858 & 2.79 & 1,817,437 & 37,588 & 2.76\end{array}$
28,041 28,726
294,845 307,190
\$2,183,905 \$2,153,353

| $\$ 49,281$ | $\$ 4$ | 0.01 | $\%$ | $\$ 46,634$ | $\$ 6$ |
| :--- | :--- | :--- | :--- | :--- | :--- |

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| Trading account liabilities | 73,176 | 778 | 1.42 | 77,996 | 1,071 | 1.84 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Long-term debt | 231,313 | 4,066 | 2.35 | 240,960 | 4,063 | 2.25 |
| Total interest-bearing liabilities ${ }^{(5)}$ | 1,299,481 | 7,388 | 0.76 | 1,300,885 | 7,652 | 0.79 |
| Noninterest-bearing sources: |  |  |  |  |  |  |
| Noninterest-bearing deposits | 433,168 |  |  | 414,988 |  |  |
| Other liabilities | 186,349 |  |  | 187,215 |  |  |
| Shareholders' equity | 264,907 |  |  | 250,265 |  |  |
| Total liabilities and shareholders' equity | \$2,183,905 |  |  | \$2,153,353 |  |  |
| Net interest spread |  |  | 2.03 | \% |  | 1.97 \% |
| Impact of noninterest-bearing sources |  |  | 0.23 |  |  | 0.23 |
| Net interest income/yield on earning assets |  | \$31,470 | 2.26 | \% | \$29,936 | 2.20 \% |

Nonperforming loans are included in the respective average loan balances. Income on these nonperforming loans is
${ }^{(1)}$ generally recognized on a cost recovery basis. PCI loans were recorded at fair value upon acquisition and accrete interest income over the estimated life of the loan.
(2) Includes non-U.S. consumer loans of $\$ 3.5$ billion and $\$ 4.0$ billion for the nine months ended September 30, 2016 and 2015. Includes consumer finance loans of $\$ 526$ million and $\$ 633$ million, consumer leases of $\$ 1.5$ billion and $\$ 1.1$
${ }^{(3)}$ billion, and consumer overdrafts of $\$ 171$ million and $\$ 150$ million for the nine months ended September 30, 2016 and 2015.
(4) Includes U.S. commercial real estate loans of $\$ 54.1$ billion and $\$ 47.7$ billion, and non-U.S. commercial real estate loans of $\$ 3.4$ billion and $\$ 3.1$ billion for the nine months ended September 30, 2016 and 2015.
Interest income includes the impact of interest rate risk management contracts, which decreased interest income on the underlying assets by $\$ 155$ million and $\$ 27$ million for the nine months ended September 30, 2016 and 2015.
${ }^{(5)}$ Interest expense includes the impact of interest rate risk management contracts, which decreased interest expense on the underlying liabilities by $\$ 1.7$ billion and $\$ 1.7$ billion for the nine months ended September 30, 2016 and 2015. For additional information, see Interest Rate Risk Management for the Banking Book on page 89.

## Table of Contents

Business Segment Operations
Segment Description and Basis of Presentation
We report our results of operations through the following four business segments: Consumer Banking, GWIM, Global Banking, and Global Markets, with the remaining operations recorded in All Other.

The Corporation periodically reviews capital allocated to its businesses and allocates capital annually during the strategic and capital planning processes. We utilize a methodology that considers the effect of regulatory capital requirements in addition to internal risk-based capital models. The Corporation's internal risk-based capital models use a risk-adjusted methodology incorporating each segment's credit, market, interest rate, business and operational risk components. For more information on the nature of these risks, see Managing Risk on page 39.

The change in accounting method for certain debt securities, as described in Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements, impacted the amount of residual net interest income that is allocated to the business segments.

For more information on the basis of presentation for business segments and reconciliations to consolidated total revenue, net income and period-end total assets, see Note 18 - Business Segment Information to the Consolidated Financial Statements.

17

## Table of Contents

Consumer Banking

| (Dollars in millions) | Three Months Ended September 30 |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Deposits |  | Consumer <br> Lending |  |  | Total Consumer Banking |  |  |  |
|  | 2016 | 2015 | 2016 |  | 2015 |  | 2016 | 2015 | \% |
| Net interest income (FTE basis) | \$2,630 | \$2,397 | \$2,660 |  | \$2,696 |  | \$5,290 | \$5,093 | 4 \% |
| Noninterest income: |  |  |  |  |  |  |  |  |  |
| Card income | 2 | 2 | 1,216 |  | 1,246 |  | 1,218 | 1,248 | (2 |
| Service charges | 1,071 | 1,057 | 1 |  | - |  | 1,072 | 1,057 | 1 |
| Mortgage banking income | - | - | 297 |  | 290 |  | 297 | 290 | 2 |
| All other income (loss) | 98 | 132 | (7 | ) | 161 |  | 91 | 293 | (69 ) |
| Total noninterest income | 1,171 | 1,191 | 1,507 |  | 1,697 |  | 2,678 | 2,888 | (7 |
| Total revenue, net of interest expense (FTE basis) | 3,801 | 3,588 | 4,167 |  | 4,393 |  | 7,968 | 7,981 | <(1) |
| Provision for credit losses | 43 | 58 | 655 |  | 465 |  | 698 | 523 | 33 |
| Noninterest expense | 2,395 | 2,501 | 1,976 |  | 2,210 |  | 4,371 | 4,711 | (7 |
| Income before income taxes (FTE basis) | 1,363 | 1,029 | 1,536 |  | 1,718 |  | 2,899 | 2,747 | 6 |
| Income tax expense (FTE basis) | 511 | 370 | 575 |  | 620 |  | 1,086 | 990 | 10 |
| Net income | \$852 | \$659 | \$961 |  | \$1,098 |  | \$1,813 | \$1,757 | 3 |
| Net interest yield (FTE basis) | 1.73 \% | \% 1.72 | \% 4.31 | \% | 4.64 | \% | 3.30 | \% 3.46 | \% |
| Return on average allocated capital | 28 | 22 | 17 |  | 21 |  | 21 | 21 |  |
| Efficiency ratio (FTE basis) | 63.03 | 69.69 | 47.40 |  | 50.31 |  | 54.86 | 59.02 |  |

Balance Sheet
Three Months Ended September 30

| Average | 2016 | 2015 | 2016 | 2015 | 2016 | 2015 | $\%$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Cotal loans and leases | $\$ 4,837$ | $\$ 4,662$ | $\$ 243,846$ | $\$ 228,441$ | $\$ 248,683$ | $\$ 233,103$ | 7 |
| Cotal earning assets ${ }^{(1)}$ | 604,223 | 552,534 | 245,540 | 230,523 | 636,838 | 583,368 | 9 |
| Total assets ${ }^{(1)}$ | 630,394 | 579,604 | 257,167 | 243,409 | 674,636 | 623,324 | 8 |
| Total deposits | 598,117 | 547,727 | 7,591 | 8,260 | 605,708 | 555,987 | 9 |
| Allocated capital | 12,000 | 12,000 | 22,000 | 21,000 | 34,000 | 33,000 | 3 |

${ }_{\text {(1) }}$ In segments and businesses where the total of liabilities and equity exceeds assets, we allocate assets from All Other ${ }^{(1)}$ to match the segments' and businesses' liabilities and allocated shareholders' equity. As a result, total earning assets and total assets of the businesses may not equal total Consumer Banking.

## Table of Contents



Balance Sheet

| Average | Nine Months Ended September 30 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2016 | 2015 | 2016 | 2015 | 2016 | 2015 |  |
| Total loans and leases | \$4,787 | \$ 4,733 | \$238,404 | \$ 226,666 | \$243,191 | \$ 231,399 | 5 \% |
| Total earning assets ${ }^{(1)}$ | 591,913 | 545,708 | 239,870 | 228,681 | 623,840 | 576,309 | 8 |
| Total assets ${ }^{(1)}$ | 618,466 | 572,723 | 251,610 | 241,916 | 662,133 | 616,559 | 7 |
| Total deposits | 586,334 | 540,850 | 7,170 | 8,363 | 593,504 | 549,213 | 8 |
| Allocated capital | 12,000 | 12,000 | 22,000 | 21,000 | 34,000 | 33,000 | 3 |
| Period end | SeptemberDecember 31 September 30ecember 31 September 3December $31 \%$ |  |  |  |  |  |  |
|  | 2016 | 2015 | 2016 | 2015 | 2016 | 2015 | Change |
| Total loans and leases | \$4,810 | \$ 4,735 | \$246,315 | \$ 234,116 | \$251,125 | \$ 238,851 | 5 \% |
| Total earning assets ${ }^{(1)}$ | 616,853 | 576,108 | 248,233 | 235,496 | 648,978 | 605,012 | 7 |
| Total assets ${ }^{(1)}$ | 643,025 | 603,448 | 260,330 | 248,571 | 687,247 | 645,427 | 6 |
| Total deposits | 610,752 | 571,467 | 7,278 | 6,365 | 618,030 | 577,832 | 7 |

For footnote see page 18.
Consumer Banking, which is comprised of Deposits and Consumer Lending, offers a diversified range of credit, banking and investment products and services to consumers and small businesses. Our customers and clients have access to a franchise network that stretches coast to coast through 33 states and the District of Columbia. The franchise network includes approximately 4,600 financial centers, 16,000 ATMs, nationwide call centers, and online

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and mobile platforms.

## Consumer Banking Results

Three Months Ended September 30, 2016 Compared to Three Months Ended September 30, 2015

Net income for Consumer Banking increased $\$ 56$ million to $\$ 1.8$ billion primarily driven by lower noninterest expense, partially offset by higher provision for credit losses. Revenue remained relatively unchanged at $\$ 8.0$ billion. Net interest income increased $\$ 197$ million to $\$ 5.3$ billion primarily due to the beneficial impact of an increase in investable assets as a result of higher deposits. Noninterest income decreased $\$ 210$ million to $\$ 2.7$ billion as the prior-year period included gains on certain divestitures.

The provision for credit losses increased $\$ 175$ million to $\$ 698$ million primarily driven by a slower pace of improvement in the credit card portfolio. Noninterest expense decreased $\$ 340$ million to $\$ 4.4$ billion primarily driven by improved operating efficiencies and lower fraud costs, partially offset by higher FDIC expense.

The return on average allocated capital remained unchanged at 21 percent. For more information on capital allocations, see Business Segment Operations on page 17.

## Table of Contents

Nine Months Ended September 30, 2016 Compared to Nine Months Ended September 30, 2015
Net income for Consumer Banking increased $\$ 340$ million to $\$ 5.3$ billion. Net interest income increased $\$ 626$ million to $\$ 15.8$ billion primarily driven by the same factor as described in the three-month discussion above. Noninterest income decreased $\$ 519$ million to $\$ 7.8$ billion due to lower mortgage banking income and gains in the prior-year period on certain divestitures, partially offset by higher service charges and higher card income.

The provision for credit losses increased $\$ 293$ million to $\$ 2.0$ billion and noninterest expense decreased $\$ 755$ million to $\$ 13.3$ billion, both primarily driven by the same factors as described in the three-month discussion above.

The return on average allocated capital was 21 percent, up from 20 percent, reflecting higher net income.

## Deposits

Deposits includes the results of consumer deposit activities which consist of a comprehensive range of products provided to consumers and small businesses. Our deposit products include traditional savings accounts, money market savings accounts, CDs and IRAs, noninterest- and interest-bearing checking accounts, as well as investment accounts and products. The revenue is allocated to the deposit products using our funds transfer pricing process that matches assets and liabilities with similar interest rate sensitivity and maturity characteristics. Deposits generates fees such as account service fees, non-sufficient funds fees, overdraft charges and ATM fees, as well as investment and brokerage fees from Merrill Edge accounts. Merrill Edge is an integrated investing and banking service targeted at customers with less than $\$ 250,000$ in investable assets. Merrill Edge provides investment advice and guidance, client brokerage asset services, a self-directed online investing platform and key banking capabilities including access to the Corporation's network of financial centers and ATMs.

Deposits includes the net impact of migrating customers and their related deposit and brokerage asset balances between Deposits and GWIM as well as other client-managed businesses. For more information on the migration of customer balances to or from GWIM, see GWIM on page 25.

Three Months Ended September 30, 2016 Compared to Three Months Ended September 30, 2015
Net income for Deposits increased $\$ 193$ million to $\$ 852$ million driven by higher revenue and lower noninterest expense. Net interest income increased $\$ 233$ million to $\$ 2.6$ billion primarily due to the beneficial impact of an increase in investable assets as a result of higher deposits. Noninterest income decreased $\$ 20$ million to $\$ 1.2$ billion due to gains in the prior-year period on certain divestitures, partially offset by higher service charges.

The provision for credit losses decreased $\$ 15$ million to $\$ 43$ million. Noninterest expense decreased $\$ 106$ million to $\$ 2.4$ billion primarily driven by improved operating efficiencies, partially offset by higher FDIC expense.

Average deposits increased $\$ 50.4$ billion to $\$ 598.1$ billion driven by a continuing customer shift to more liquid products in the low rate environment. Growth in checking, traditional savings and money market savings of $\$ 55.6$ billion was partially offset by a decline in time deposits of $\$ 5.2$ billion. As a result of our continued pricing discipline and the shift in the mix of deposits, the rate paid on average deposits declined by one bp to four bps.

Nine Months Ended September 30, 2016 Compared to Nine Months Ended September 30, 2015
Net income for Deposits increased $\$ 607$ million to $\$ 2.5$ billion driven by higher revenue and lower noninterest expense. Net interest income increased $\$ 857$ million to $\$ 7.9$ billion primarily due to the same factor as described in the three-month discussion above. Noninterest income of $\$ 3.4$ billion remained relatively unchanged.

The provision for credit losses decreased $\$ 13$ million to $\$ 132$ million. Noninterest expense decreased $\$ 127$ million to $\$ 7.2$ billion driven by the same factors as described in the three-month discussion above.

Average deposits increased $\$ 45.5$ billion to $\$ 586.3$ billion driven by a continuing customer shift to more liquid products in the low rate environment.

20

## Edgar Filing: BANK OF AMERICA CORP /DE/ - Form 10-Q

## Table of Contents

Key Statistics - Deposits

|  | Three Months Ended <br> September 30 | Nine Months Ended <br> September 30 |  |
| :---: | :---: | :---: | :---: |
|  | 20162015 | 2016 | 2015 |
| Total deposit spreads (excludes noninterest costs) ${ }^{(1)}$ | 1.64\% 1.62\% | 1.65 \% | \% 1.61 \% |
| Period end |  |  |  |
| Client brokerage assets (in millions) |  | \$137,985 | \$ 117,210 |
| Online banking active accounts (units in thousands) |  | 33,722 | 31,627 |
| Mobile banking active users (units in thousands) |  | 21,305 | 18,398 |
| Financial centers |  | 4,629 | 4,741 |
| ATMs |  | 15,959 | 16,062 |
| ${ }^{(1)}$ Includes deposits held in Consumer Lending. |  |  |  |

Client brokerage assets increased $\$ 20.8$ billion driven by underlying client flows and strong market performance. Mobile banking active users increased 2.9 million reflecting continuing changes in our customers' banking preferences. The number of financial centers declined 112 driven by changes in customer preferences to self-service options as we continue to optimize our consumer banking network and improve our cost-to-serve.

## Consumer Lending

Consumer Lending offers products to consumers and small businesses across the U.S. The products offered include credit and debit cards, residential mortgages and home equity loans, and direct and indirect loans such as automotive, recreational vehicle and consumer personal loans. In addition to earning net interest spread revenue on its lending activities, Consumer Lending generates interchange revenue from credit and debit card transactions, late fees, cash advance fees, annual credit card fees, mortgage banking fee income and other miscellaneous fees. Consumer Lending products are available to our customers through our retail network, direct telephone, and online and mobile channels. Consumer Lending results also include the impact of servicing residential mortgages and home equity loans in the core portfolio, including loans held on the balance sheet of Consumer Lending and loans serviced for others.

The Corporation classifies consumer real estate loans as core or non-core based on loan and customer characteristics such as origination date, product type, loan-to-value (LTV), Fair Isaac Corporation (FICO) score and delinquency status. At September 30, 2016, total owned loans in the core portfolio held in Consumer Lending were $\$ 97.8$ billion, up $\$ 9.1$ billion from September 30, 2015 primarily driven by higher residential mortgage balances, partially offset by a decline in home equity balances. For more information on the core and non-core portfolios, see Consumer Portfolio Credit Risk Management on page 52.

Consumer Lending includes the net impact of migrating customers and their related loan balances between Consumer Lending and GWIM. For more information on the migration of customer balances to or from GWIM, see GWIM on page 25.

Three Months Ended September 30, 2016 Compared to Three Months Ended September 30, 2015
Net income for Consumer Lending decreased $\$ 137$ million to $\$ 961$ million driven by a decline in noninterest income and higher provision for credit losses, partially offset by lower noninterest expense. Net interest income remained relatively unchanged at $\$ 2.7$ billion. Noninterest income decreased $\$ 190$ million to $\$ 1.5$ billion due to gains in the prior-year period on certain divestitures and lower card income.

The provision for credit losses increased $\$ 190$ million to $\$ 655$ million primarily driven by a slower pace of improvement in the credit card portfolio. Noninterest expense decreased $\$ 234$ million to $\$ 2.0$ billion primarily driven by improved operating efficiencies and lower fraud costs due to the benefit of the Europay, MasterCard and Visa (EMV) chip implementation.

Average loans increased $\$ 15.4$ billion to $\$ 243.8$ billion primarily driven by increases in residential mortgages and consumer vehicle loans, partially offset by lower home equity loans.

21

## Table of Contents

Nine Months Ended September 30, 2016 Compared to Nine Months Ended September 30, 2015
Net income for Consumer Lending decreased $\$ 267$ million to $\$ 2.7$ billion. Net interest income decreased $\$ 231$ million to $\$ 7.9$ billion primarily driven by higher funding costs, partially offset by the impact of an increase in consumer auto lending balances. Noninterest income decreased $\$ 499$ million to $\$ 4.4$ billion driven by lower mortgage banking income and gains in the prior-year period on certain divestitures, partially offset by higher card income.

The provision for credit losses increased $\$ 306$ million to $\$ 1.8$ billion primarily driven by the same factor as described in the three-month discussion above. Noninterest expense decreased $\$ 628$ million to $\$ 6.1$ billion primarily driven by the same factors as described in the three-month discussion above, as well as lower personnel expense.

Average loans increased $\$ 11.7$ billion to $\$ 238.4$ billion primarily driven by the same factors as described in the three-month discussion above.

Key Statistics - Consumer Lending

| Three Months Ended |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
| September 30 | Nine Months Ended <br> September 30 |  |  |  |  |
| 2016 | 2015 | 2016 | 2015 |  |  |
|  |  |  |  |  |  |
| 9.30 | $\%$ | 9.15 | $\%$ | 9.27 | $\% .17$ |$\quad \%$

(Dollars in millions)
Total U.S. credit card ${ }^{(1)}$
Gross interest yield $\quad 9.30 \quad \% \quad 9.15 \quad \% 9.27 \quad \% 9.17 \quad \%$
$\begin{array}{lllll}\text { Risk-adjusted margin } & 9.11 & 9.51 & 8.99 & 9.14\end{array}$
New accounts (in thousands)
Purchase volumes
Debit card purchase volumes
${ }_{\text {(1) }}$ In addition to the U.S. credit card portfolio in Consumer Banking, the remaining U.S. credit card portfolio is in GWIM.

During the three and nine months ended September 30, 2016, the total U.S. credit card risk-adjusted margin decreased 40 bps and 15 bps compared to the same periods in 2015. The decrease for the three-month period was primarily driven by the impact of a gain on a divestiture in the prior-year period, which was included in the risk-adjusted margin. Total U.S. credit card purchase volumes increased $\$ 1.1$ billion to $\$ 57.6$ billion, and $\$ 2.8$ billion to $\$ 165.4$ billion, and debit card purchase volumes increased $\$ 1.8$ billion to $\$ 71.0$ billion, and $\$ 5.4$ billion to $\$ 212.3$ billion, reflecting higher levels of consumer spending. The increases in total U.S. credit card purchase volumes were partially offset by the impact of certain divestitures.

## Table of Contents

Mortgage Banking Income
Mortgage banking income is earned primarily in Consumer Banking and All Other. Total production income within mortgage banking income is comprised primarily of revenue from the fair value gains and losses recognized on our interest rate lock commitments (IRLCs) and loans held-for-sale (LHFS), the related secondary market execution, and costs related to representations and warranties in the sales transactions along with other obligations incurred in the sales of mortgage loans. Servicing income within mortgage banking income includes income earned in connection with servicing activities and MSR valuation adjustments, net of results from risk management activities used to hedge certain market risks of the MSRs. Servicing income for the core portfolio is recorded in Consumer Banking. Servicing income for the non-core portfolio, including hedge ineffectiveness on MSR hedges, is recorded in All Other. The costs associated with our servicing activities are included in noninterest expense.

The table below summarizes the components of mortgage banking income. Amounts for other mortgage banking income are included in this Consumer Banking table to show the components of consolidated mortgage banking income.

Mortgage Banking Income

| - | Three <br> Months <br> Ended <br> September 30 | Nine Months <br> Ended <br> September 30 |  |
| :---: | :---: | :---: | :---: |
| (Dollars in millions) | 20162015 | 2016 | 2015 |
| Mortgage banking income |  |  |  |
| Consumer Banking mortgage banking income |  |  |  |
| Total production income | \$212 \$223 | \$532 | \$801 |
| Net servicing income |  |  |  |
| Servicing fees | 179204 | 542 | 655 |
| Amortization of expected cash flows ${ }^{(1)}$ | (139) (159) | (439 | ) (506 |
| Fair value changes of MSRs, net of risk management activities used to hedge certain market risks ${ }^{(2)}$ | $45 \quad 22$ | 119 | 167 |
| Total net servicing income | $85 \quad 67$ | 222 | 316 |
| Total Consumer Banking mortgage banking income | 297290 | 754 | 1,117 |
| Other mortgage banking income |  |  |  |
| Other production income ${ }^{(3)}$ | 434 | 112 | 58 |
| Representations and warranties provision | (102) (77 | (168 | ) 37 |
| Net servicing income |  |  |  |
| Servicing fees | 106109 | 343 | 415 |
| Amortization of expected cash flows ${ }^{(1)}$ | (18 ) (20 ) | (55 | ) (58 ) |
| Fair value changes of MSRs, net of risk management activities used to hedge certain market risks ${ }^{(2)}$ | 36362 | 478 | 359 |
| Total net servicing income | 451151 | 766 | 716 |
| Eliminations ${ }^{(4)}$ | (61 ) 9 | (130 | ) 174 |
| Total other mortgage banking income | 292117 | 580 | 985 |
| Total consolidated mortgage banking income | \$589 \$407 | \$ 1,334 | \$2,102 |
| ${ }^{(1)}$ Represents the net change in fair value of the MSR asset due to the recognition of modeled cash flows. Includes changes in fair value of MSRs due to changes in inputs and assumptions, net of risk management |  |  |  |
| ${ }^{(2)}$ activities, and gains (losses) on sales of MSRs. For additional information see Note to the Consolidated Financial Statements. | $\text { e } 17 \text { - Mortgag }$ | e Servic | cing Rights |
| ${ }^{(3)}$ Consists primarily of revenue from sales of repurchased loans that had returned | erforming |  |  |

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Includes the effect of transfers of mortgage loans from Consumer Banking to the asset and liability management
${ }^{(4)}$ (ALM) portfolio included in All Other and net gains or losses on intercompany trades related to MSR risk management.

Total production income for Consumer Banking for the three and nine months ended September 30, 2016 decreased $\$ 11$ million to $\$ 212$ million, and $\$ 269$ million to $\$ 532$ million compared to the same periods in 2015 due to a decrease in production volume to be sold, resulting from a decision to retain certain residential mortgage loans in Consumer Banking.

## Table of Contents

## Servicing

The costs associated with servicing activities related to the residential mortgage and home equity loan portfolios, including owned loans and loans serviced for others (collectively, the mortgage serviced portfolio) are allocated to the business segment that owns the loans or MSRs, or All Other.

Servicing activities include collecting cash for principal, interest and escrow payments from borrowers, disbursing customer draws for lines of credit, accounting for and remitting principal and interest payments to investors and escrow payments to third parties, and responding to customer inquiries. Our home retention efforts, including single point of contact resources, are also part of our servicing activities, along with supervision of foreclosures and property dispositions. Prior to foreclosure, we evaluate various workout options in an effort to help our customers avoid foreclosure.

Consumer Banking servicing income for the three months ended September 30, 2016 increased $\$ 18$ million to $\$ 85$ million due to improved MSR results, net of the related hedge performance, partially offset by lower servicing fees due to a smaller servicing portfolio. Servicing income for the nine months ended September 30, 2016 decreased $\$ 94$ million to $\$ 222$ million compared to the same period in 2015 driven by lower servicing fees due to a smaller servicing portfolio, partially offset by improved MSR results, net of the related hedge performance. Servicing fees for the three and nine months ended September 30, 2016 declined 12 percent to $\$ 179$ million and 17 percent to $\$ 542$ million compared to the same periods in 2015 reflecting the decline in the size of the servicing portfolio.

## Mortgage Servicing Rights

At September 30, 2016, the core MSR portfolio, held within Consumer Lending, was $\$ 1.8$ billion compared to $\$ 2.3$ billion at September 30, 2015. The decrease was primarily driven by the amortization of expected cash flows, which exceeded new additions, as well as changes in fair value due to changes in inputs and assumptions. For more information on MSRs, see Note 17 - Mortgage Servicing Rights to the Consolidated Financial Statements.

Key Statistics - Mortgage Banking Income
Three Months Nine Months Ended September Ended September
3030
(Dollars in millions)
201620152016
2015
Loan production ${ }^{(1)}$ :
Total (2):
First mortgage
\$16,865 \$13,712 \$45,802 \$43,386
Home equity
3,541 $3,140 \quad 11,649 \quad 9,566$
Consumer Banking:
First mortgage
\$11,588 \$ 10,026 \$32,207 \$31,146
Home equity
$\begin{array}{llll}3,139 & 2,840 & 10,535 & 8,797\end{array}$
${ }_{(1)}$ The loan production amounts represent the unpaid principal balance of loans and in the case of home equity, the principal amount of the total line of credit.
(2) In addition to loan production in Consumer Banking, there is also first mortgage and home equity loan production in GWIM.

First mortgage loan originations in Consumer Banking and for the total Corporation increased $\$ 1.6$ billion and $\$ 3.2$ billion for the three months ended September 30, 2016 compared to the same period in 2015 driven by higher refinance activity due to the low rate environment. First mortgage loan originations in Consumer Banking and for the total Corporation increased $\$ 1.1$ billion and $\$ 2.4$ billion for the nine months ended September 30, 2016 compared to
the same period in 2015 driven by higher purchase activity.
Home equity production for the total Corporation was $\$ 3.5$ billion and $\$ 11.6$ billion for the three and nine months ended September 30, 2016 compared to $\$ 3.1$ billion and $\$ 9.6$ billion for the same periods in 2015, with the increases due to a higher demand in the market based on improving housing trends, as well as improved financial center engagement with customers and more competitive pricing.

## Table of Contents

Global Wealth \& Investment Management
(Dollars in millions)

Net interest income (FTE basis)
Noninterest income:
Investment and brokerage services
All other income
Total noninterest income
Total revenue, net of interest expense (FTE basis)

Provision for credit losses
Noninterest expense
Income before income taxes (FTE basis)
Income tax expense (FTE basis)
Income tax expense (FTE basis)
Net income
Net interest yield (FTE basis)
Return on average allocated capital
Efficiency ratio (FTE basis)

Three Months Ended
September 30

| 2016 | 2015 |  |  | 2016 | 2015 | \% <br> Change |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |
| \$1,394 | \$1,360 |  | \% | \$4,310 | \$4,081 | 6 \% |
| 2,584 | 2,682 | (4 | ) | 7,718 | 8,154 |  |
| 401 | 411 | (2) | ) | 1,245 | 1,321 | (6) |
| 2,985 | 3,093 | (3 | ) | 8,963 | 9,475 |  |
| 4,379 | 4,453 | (2 | ) | 13,273 | 13,556 | (2) |


| 7 | $(2$ | $)$ | $\mathrm{n} / \mathrm{m}$ | 46 | 36 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| 3,257 | 3,470 | $(6$ | $)$ | 9,822 | 10,446 |
| 1,115 | 985 | 13 | 3,405 | 3,074 | 11 |
| 418 | 353 | 18 | 1,267 | 1,130 | 12 |
| $\$ 697$ | $\$ 632$ | 10 | $\$ 2,138$ | $\$ 1,944$ | 10 |


| 2.03 | $\%$ | 2.10 | $\%$ | 2.09 | $\%$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
| 21 | 21 |  | 22 | 22 | $\%$ |
| 74.36 | 77.92 |  | 74.00 | 77.06 |  |

September 30
Average
Total loans and leases
Total earning assets
Total assets
Total deposits
Allocated capital

Period end
Total loans and leases
Total earning assets
Total assets
Total deposits
$\mathrm{n} / \mathrm{m}=$ not meaningful

| September |  | 3December $31 \%$ |  |
| :--- | :--- | :--- | :--- |
| 2016 | 2015 | Change |  |
| $\$ 144,980$ | $\$ 139,039$ | 4 | $\%$ |
| 274,289 | 279,597 | $(2)$ |  |
| 289,795 | 296,271 | $(2)$ |  |
| 252,962 | 260,893 | $(3)$ |  |

GWIM consists of two primary businesses: Merrill Lynch Global Wealth Management (MLGWM) and U.S. Trust, Bank of America Private Wealth Management (U.S. Trust).

MLGWM's advisory business provides a high-touch client experience through a network of financial advisors focused on clients with over $\$ 250,000$ in total investable assets. MLGWM provides tailored solutions to meet our clients' needs through a full set of investment management, brokerage, banking and retirement products.

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U.S. Trust, together with MLGWM's Private Banking \& Investments Group, provides comprehensive wealth management solutions targeted to high net worth and ultra high net worth clients, as well as customized solutions to meet clients' wealth structuring, investment management, trust and banking needs, including specialty asset management services.

## Table of Contents

Client assets managed under advisory and/or discretion of GWIM are AUM and are typically held in diversified portfolios. The majority of client AUM have an investment strategy with a duration of greater than one year and are, therefore, considered long-term AUM. Fees earned on long-term AUM are calculated as a percentage of total AUM. The asset management fees charged to clients per year are dependent on various factors, but are generally driven by the breadth of the client's relationship and generally range from 50 to 150 bps on their total AUM. The net client long-term AUM flows represent the net change in clients' long-term AUM balances over a specified period of time, excluding market appreciation/depreciation and other adjustments.

Client assets under advisory and/or discretion of GWIM in which the investment strategy seeks current income, while maintaining liquidity and capital preservation, are considered liquidity AUM. The duration of these strategies is primarily less than one year. The change in AUM balances from the prior-year periods is primarily the net client flows for liquidity AUM.

Three Months Ended September 30, 2016 Compared to Three Months Ended September 30, 2015
Net income for GWIM increased $\$ 65$ million to $\$ 697$ million driven by a decrease in noninterest expense, partially offset by a decrease in revenue. Net interest income of $\$ 1.4$ billion remained relatively unchanged. Noninterest income, which primarily includes investment and brokerage services income, decreased $\$ 108$ million to $\$ 3.0$ billion driven by lower transactional revenue. Noninterest expense decreased $\$ 213$ million to $\$ 3.3$ billion primarily due to the expiration of certain advisor retention awards and lower operating and support costs, partially offset by higher FDIC expense.

Return on average allocated capital remained unchanged at 21 percent. For more information on capital allocated to the business segments, see Business Segment Operations on page 17.

Nine Months Ended September 30, 2016 Compared to Nine Months Ended September 30, 2015
Net income for GWIM increased $\$ 194$ million to $\$ 2.1$ billion driven by a decrease in noninterest expense, partially offset by a decrease in revenue. Net interest income increased $\$ 229$ million to $\$ 4.3$ billion driven by the impact of growth in deposit and loan balances. Noninterest income, which primarily includes investment and brokerage services income, decreased $\$ 512$ million to $\$ 9.0$ billion driven by the impact of lower market valuations and lower transactional revenue, partially offset by the impact of long-term AUM flows. Noninterest expense decreased $\$ 624$ million to $\$ 9.8$ billion driven by the same factors as described in the three-month discussion above.

Return on average allocated capital remained unchanged at 22 percent.

## Table of Contents

Key Indicators and Metrics
(Dollars in millions, except as noted)
Revenue by Business
Merrill Lynch Global Wealth Management
U.S. Trust

Other ${ }^{(1)}$
Total revenue, net of interest expense (FTE basis)
Client Balances by Business, at period end
Merrill Lynch Global Wealth Management
U.S. Trust

Other ${ }^{(1)}$
Total client balances

| Three Months Ended <br> September <br> 30 <br> 2016 |  |  |  |  |
| :--- | :--- | :--- | :--- | :---: |
|  | 2015 | 2016 | Nine Months Ended <br> September 30 |  |
|  |  |  | 2015 |  |
| $\$ 3,617$ | $\$ 3,683$ | $\$ 10,886$ | $\$ 11,235$ |  |
| 761 | 752 | 2,300 | 2,268 |  |
| 1 | 18 | 87 | 53 |  |
| $\$ 4,379$ | $\$ 4,453$ | $\$ 13,273$ | $\$ 13,556$ |  |

Client Balances by Type, at period end
Long-term assets under management
Liquidity assets under management ${ }^{(1)}$
Assets under management
Brokerage assets
Assets in custody
Deposits
Loans and leases ${ }^{(2)}$
Total client balances
\$2,089,683 \$1,943,798
400,538 375,751

- 78,110
\$2,490,221 \$2,397,659

Assets Under Management Rollforward

Assets under management, beginning balance
Net long-term client flows
Net liquidity client flows
Market valuation/other ${ }^{(1)}$
Total assets under management, ending balance
Associates, at period end ${ }^{(3,4)}$
Number of financial advisors
Total wealth advisors, including financial advisors
Total client-facing professionals, including financial advisors and wealth advisors

Merrill Lynch Global Wealth Management Metric ${ }^{(4)}$
Financial advisor productivity ${ }^{(5)}$ (in thousands)
$\left.\begin{array}{llll}\$ 832,394 & \$ 930,360 & \$ 900,863 & \$ 902,872 \\ 10,182 & 4,448 & 19,638 & 27,695 \\ - & (3,210 & ) & (7,990 \\ 28,450 & (54,605 & ) & (41,320 \\ \$ 871,026 & \$ 876,993 & \$ 871,026 & (54,894 \\ \$ 8876,993\end{array}\right)$

16,731 16,522
18,248 17,967
20,683 20,446
U.S. Trust Metric, at period end ${ }^{(4)}$

Client-facing professionals
2,223 2,182 Includes the results of BofA Global Capital Management, the cash management division of Bank of America, and
${ }^{(1)}$ certain administrative items. Also includes the transfer of approximately $\$ 80$ billion of BofA Global Capital Management's AUM during the three months ended June 30, 2016.
(2) Includes margin receivables which are classified in customer and other receivables on the Consolidated Balance Sheet.
${ }^{(3)}$ Includes financial advisors in the Consumer Banking segment of 2,179 and 2,050 at September 30, 2016 and 2015.
${ }^{(4)}$ Headcount computation is based upon full-time equivalents. Financial advisor productivity is defined as annualized MLGWM total revenue, excluding the allocation of certain
${ }^{(5)}$ ALM activities, divided by the total number of financial advisors (excluding financial advisors in the Consumer Banking segment).

Client balances increased $\$ 92.6$ billion, or four percent, from a year ago to nearly $\$ 2.5$ trillion primarily driven by higher market valuations and net inflows, partially offset by the impact of the transfer of approximately $\$ 80$ billion of BofA Global Capital Management's AUM. The number of wealth advisors increased two percent, due to continued investment in the advisor development programs, competitive recruiting and near historic low levels of advisor attrition.

27

## Table of Contents

Three Months Ended September 30, 2016 Compared to Three Months Ended September 30, 2015
Revenue from MLGWM decreased $\$ 66$ million to $\$ 3.6$ billion driven by a decline in noninterest income, partially offset by an increase in net interest income. Noninterest income decreased driven by lower transactional revenue. Net interest income increased driven by the impact of growth in deposit and loan balances.

Revenue from U.S. Trust increased $\$ 9$ million to $\$ 761$ million driven by an increase in net interest income, partially offset by a decrease in noninterest income.

Nine Months Ended September 30, 2016 Compared to Nine Months Ended September 30, 2015
Revenue from MLGWM decreased $\$ 349$ million to $\$ 10.9$ billion driven by a decline in noninterest income, partially offset by an increase in net interest income. Noninterest income decreased driven by lower market valuations and lower transactional revenue, partially offset by the impact of long-term AUM flows. Net interest income increased driven by the impact of growth in deposit and loan balances.

Revenue from U.S. Trust increased $\$ 32$ million to $\$ 2.3$ billion driven by an increase in net interest income primarily driven by the impact of growth in loan balances, partially offset by a decrease in noninterest income driven by lower market valuations, partially offset by the impact of long-term AUM flows.

## Net Migration Summary

GWIM results are impacted by the net migration of clients and their corresponding deposit, loan and brokerage balances primarily to or from Consumer Banking, as presented in the table below. Migrations result from the movement of clients between business segments to better align with client needs.

Net Migration Summary ${ }^{(1)}$
(Dollars in millions)
Three
Months Nine Months
Ended Ended
September September 30
30
Total deposits, net - to (from) GWIM \$17 \$697 \$(1,040) \$169
Total loans, net - to (from) GWIM (15) (15 ) - (69 )
Total brokerage, net - to (from) GWIM (264) (446) (830 ) (1,703
${ }^{(1)}$ Migration occurs primarily between GWIM and Consumer Banking.

## Table of Contents

Global
Banking

| (Dollars in millions) | Three Months Ended September 30 |  | \% Change | Nine Months Ended September 30 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2016 | 2015 |  | 2016 | 2015 | \% <br> Change |
| Net interest income (FTE basis) | \$2,470 | \$2,315 | 7 \% | \$7,439 | \$6,788 | 10 \% |
| Noninterest income: |  |  |  |  |  |  |
| Service charges | 780 | 746 | 5 | 2,284 | 2,184 | 5 |
| Investment banking fees | 795 | 752 | 6 | 2,230 | 2,381 | (6) |
| All other income | 703 | 523 | 34 | 1,943 | 1,707 | 14 |
| Total noninterest income | 2,278 | 2,021 | 13 | 6,457 | 6,272 | 3 |
| Total revenue, net of interest expense (FTE basis) | 4,748 | 4,336 | 10 | 13,896 | 13,060 | 6 |
| Provision for credit losses | 118 | 181 | (35 ) | 870 | 454 | 92 |
| Noninterest expense | 2,151 | 2,161 | <(1) | 6,449 | 6,396 | 1 |
| Income before income taxes (FTE basis) | 2,479 | 1,994 | 24 | 6,577 | 6,210 | 6 |
| Income tax expense (FTE basis) | 926 | 716 | 29 | 2,435 | 2,286 |  |
| Net income | \$1,553 | \$1,278 | 22 | \$4,142 | \$3,924 | 6 |
| Net interest yield (FTE basis) | 2.83 | \% 2.87 | \% | 2.88 | \% 2.89 | \% |
| Return on average allocated capital | 17 | 14 |  | 15 | 15 |  |
| Efficiency ratio (FTE basis) | 45.30 | 49.86 |  | 46.41 | 48.97 |  |
| Balance Sheet |  |  |  |  |  |  |
|  | Three Months Ended <br> September 30 |  |  | Nine Months Ended September 30 |  |  |
| Average | 2016 | 2015 | \% <br> Change | 2016 | 2015 | \% Change |
| Total loans and leases | \$334,363 | \$308,710 | 8 \% | \$332,474 | \$ 298,923 | 11 \% |
| Total earning assets | 347,462 | 320,307 | 8 | 345,406 | 314,580 | 10 |
| Total assets | 395,423 | 370,246 | 7 | 394,402 | 364,659 | 8 |
| Total deposits | 306,198 | 296,321 | 3 | 300,732 | 290,327 | 4 |
| Allocated capital | 37,000 | 35,000 | 6 | 37,000 | 35,000 | 6 |
| Period end |  |  |  | September 30-cember 3 |  | 31 \% |
|  |  |  |  | 2016 | 2015 | Change |
| Total loans and leases |  |  |  | \$334,120 | \$323,687 | 3 \% |
| Total earning assets |  |  |  | 349,993 | 334,766 | 5 |
| Total assets |  |  |  | 397,795 | 386,132 | 3 |
| Total deposits |  |  |  | 301,061 | 296,162 | 2 |

Global Banking, which includes Global Corporate Banking, Global Commercial Banking, Business Banking and Global Investment Banking, provides a wide range of lending-related products and services, integrated working capital management and treasury solutions to clients, and underwriting and advisory services through our network of offices and client relationship teams. Our lending products and services include commercial loans, leases, commitment facilities, trade finance, real estate lending and asset-based lending. Our treasury solutions business includes treasury management, foreign exchange and short-term investing options. We also provide investment

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banking products to our clients such as debt and equity underwriting and distribution, and merger-related and other advisory services. Underwriting debt and equity issuances, fixed-income and equity research, and certain market-based activities are executed through our global broker-dealer affiliates which are our primary dealers in several countries. Within Global Banking, Global Commercial Banking clients generally include middle-market companies, commercial real estate firms and not-for-profit companies. Global Corporate Banking clients generally include large global corporations, financial institutions and leasing clients. Business Banking clients include mid-sized U.S.-based businesses requiring customized and integrated financial advice and solutions.

## Table of Contents

Three Months Ended September 30, 2016 Compared to Three Months Ended September 30, 2015
Net income for Global Banking increased $\$ 275$ million to $\$ 1.6$ billion primarily driven by higher revenue and lower provision for credit losses.

Revenue increased $\$ 412$ million to $\$ 4.7$ billion due to higher net interest income and noninterest income. Net interest income increased $\$ 155$ million to $\$ 2.5$ billion driven by the impact of growth in loans and leases. Noninterest income increased $\$ 257$ million to $\$ 2.3$ billion primarily due to the impact from loans and related loan hedging activities in the fair value option portfolio, as well as higher investment banking fees and treasury-related revenues.

The provision for credit losses decreased $\$ 63$ million to $\$ 118$ million driven by a slower pace of loan growth. Noninterest expense remained relatively unchanged at $\$ 2.2$ billion as lower operating and support costs were largely offset by higher revenue-related incentive compensation and FDIC expense.

The return on average allocated capital was 17 percent, up from 14 percent, due to higher net income, partially offset by increased capital allocations. For more information on capital allocated to the business segments, see Business Segment Operations on page 17.

Nine Months Ended September 30, 2016 Compared to Nine Months Ended September 30, 2015
Net income for Global Banking of $\$ 4.1$ billion increased $\$ 218$ million as higher revenue more than offset increases in the provision for credit losses and noninterest expense.

Revenue increased $\$ 836$ million to $\$ 13.9$ billion driven by higher net interest income, which increased $\$ 651$ million to $\$ 7.4$ billion driven by the same factors as described in the three-month discussion above. Noninterest income increased $\$ 185$ million to $\$ 6.5$ billion primarily due to the impact from loans and the related loan hedging activities in the fair value option portfolio, as well as higher treasury-related revenues and card income, partially offset by lower investment banking fees.

The provision for credit losses increased $\$ 416$ million to $\$ 870$ million driven by increases in energy-related reserves. For more information on our energy exposure, see Commercial Portfolio Credit Risk Management - Industry Concentrations on page 74. Noninterest expense increased $\$ 53$ million to $\$ 6.4$ billion as investments in client-facing professionals in Commercial and Business Banking, higher severance costs and an increase in FDIC expense were largely offset by lower support costs and incentive compensation.

Return on average allocated capital remained unchanged at 15 percent.

## Table of Contents

Global Corporate, Global Commercial and Business Banking
Global Corporate, Global Commercial and Business Banking each include Business Lending and Global Transaction Services activities. Business Lending includes various lending-related products and services, and related hedging activities, including commercial loans, leases, commitment facilities, trade finance, real estate lending and asset-based lending. Global Transaction Services includes deposits, treasury management, credit card, foreign exchange and short-term investment products. The table below presents a summary of the results, which exclude certain investment banking activities in Global Banking.

Global Corporate, Global Commercial and Business Banking

| (Dollars in millions) | Three Months Ended September 30 |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Global Corporate Banking |  | Global Commercial Banking |  | Business Banking Total |  |  |  |
|  | 2016 | 2015 | 2016 | 2015 | 2016 | 2015 | 2016 | 2015 |
| Revenue |  |  |  |  |  |  |  |  |
| Business Lending | \$1,113 | \$983 | \$ 1,069 | \$978 | \$91 | \$91 | \$2,273 | \$2,052 |
| Global Transaction Services | 741 | 705 | 671 | 668 | 182 | 179 | 1,594 | 1,552 |
| Total revenue, net of interest expense | \$1,854 | \$1,688 | \$1,740 | \$ 1,646 | \$273 | \$270 | \$3,867 | \$3,604 |

Balance Sheet
Average
Total loans and leases
Total deposits
\$153,249 \$ 141,311 \$163,483 \$ 150,000 \$17,621 \$17, 166 \$334,353 \$308,477
$\begin{array}{llllllll}143,604 & 138,019 & 127,161 & 123,840 & 35,433 & 34,468 & 306,198 & 296,327\end{array}$
Nine Months Ended September 30

| 2016 | 2015 | 2016 | 2015 | 2016 | 2015 | 2016 | 2015 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |  |  |  |
| $\$ 3,269$ | $\$ 2,925$ | $\$ 3,129$ | $\$ 2,891$ | $\$ 280$ | $\$ 269$ | $\$ 6,678$ | $\$ 6,085$ |
| 2,171 | 2,063 | 2,036 | 1,955 | 549 | 515 | 4,756 | 4,533 |
| $\$ 5,440$ | $\$ 4,988$ | $\$ 5,165$ | $\$ 4,846$ | $\$ 829$ | $\$ 784$ | $\$ 11,434$ | $\$ 10,618$ |

Balance Sheet
Average
Total loans and leases
Total deposits
Period end
Total loans and leases
Total deposits
\$152,772 \$ 135,732 \$ 162,235 \$ 146,037 \$17,438 \$17,055 \$332,445 \$298,824 $140,373 \quad 136,271 \quad 125,676 \quad 121,083 \quad 34,685 \quad 32,977 \quad 300,734 \quad 290,331$
\$151,825 \$142,954 \$164,563 \$153,310 \$17,716 \$17,298 \$334,104 \$313,562 $140,401 \quad 139,259 \quad 124,995 \quad 123,562 \quad 35,656 \quad 34,827 \quad 301,052 \quad 297,648$

Business Lending revenue increased $\$ 221$ million and $\$ 593$ million for the three and nine months ended September 30, 2016 compared to the same periods in 2015 driven by the impact of growth in loans and leases, as well as the impact from loans and the related loan hedging activities in the fair value option portfolio.

Global Transaction Services revenue increased $\$ 42$ million and $\$ 223$ million for the three and nine months ended September 30, 2016 compared to the same periods in 2015 primarily due to higher net interest income driven by the beneficial impact of an increase in investable assets as a result of higher deposits, and growth in treasury-related
revenues.

Average loans and leases increased eight percent and 11 percent for the three and nine months ended September 30, 2016 compared to the same periods in 2015 driven by growth in the commercial and industrial, and leasing portfolios. Average deposits increased three percent and four percent for the three and nine months ended September 30, 2016 compared to the same periods in 2015 due to continued portfolio growth with new and existing clients.

31

## Table of Contents

Global Investment Banking
Client teams and product specialists underwrite and distribute debt, equity and loan products, and provide advisory services and tailored risk management solutions. The economics of certain investment banking and underwriting activities are shared primarily between Global Banking and Global Markets under an internal revenue-sharing arrangement. To provide a complete discussion of our consolidated investment banking fees, the following table presents total Corporation investment banking fees and the portion attributable to Global Banking.

Investment Banking Fees

|  | Three Months Ended September 30 |  |  |  | Nine Months Ended September 30 |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | $\begin{aligned} & \mathrm{al} \\ & \text { ino } \end{aligned}$ | Total Corporation |  | Global Banking |  | Total <br> Corporation |  |
| (Dollars in millions) | 2016 | 2015 | 2016 | 2015 | 2016 | 2015 | 2016 | 2015 |
| Products |  |  |  |  |  |  |  |  |
| Advisory | \$295 | \$365 | \$328 | \$391 | \$913 | \$999 | \$ 1,007 | \$1,095 |
| Debt issuance | 405 | 325 | 908 | 748 | 1,060 | 1,031 | 2,466 | 2,416 |
| Equity issuance | 95 | 62 | 261 | 188 | 257 | 351 | 681 | 950 |
| Gross investment banking fees | 795 | 752 | 1,497 | 1,327 | 2,230 | 2,381 | 4,154 | 4,461 |
| Self-led deals | (10 | ) (11 | (39 | ) (40 | (36 | ) (50 | ) (135 | ) (161 |
| Total investment banking fees | \$785 | \$741 | \$1,458 | \$ 1,287 | \$2,194 | \$2,331 | \$4,019 | \$4,300 |

Total Corporation investment banking fees of $\$ 1.5$ billion, excluding self-led deals, for the three months ended September 30, 2016 primarily included within Global Banking and Global Markets, increased 13 percent compared to the same period in 2015 driven by higher debt and equity issuance fees, partially offset by lower advisory fees. Total Corporation investment banking fees of $\$ 4.0$ billion, excluding self-led deals, for the nine months ended September 30, 2016 decreased seven percent compared to the same period in 2015 driven by lower equity issuance fees and advisory fees due to a decline in market fee pools.

32

## Table of Contents

Global Markets
(Dollars in millions)

Net interest income (FTE basis)
Noninterest income:
Investment and brokerage services
Investment banking fees
Trading account profits
All other income (loss)
Total noninterest income
Total revenue, net of interest expense (FTE basis)

Provision for credit losses
Noninterest expense
Income before income taxes (FTE basis)
Income tax expense (FTE basis)
Net income
Return on average allocated capital
Efficiency ratio (FTE basis)
Three Months Ended
September 30
20162015

| 2016 | 2015 | \% | Change 2016 | 2015 | \% |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $\$ 1,119$ | $\$ 1,094$ | $2 \quad \%$ | $\$ 3,391$ | $\$ 3,059$ | Change |  |
|  |  |  |  |  |  |  |
| 490 | 574 | $(15)$ | 1,583 | 1,703 | $(7)$ |  |
| 645 | 521 | 24 | 1,742 | 1,869 | $(7)$ |  |
| 1,934 | 1,471 | 31 | 5,401 | 5,312 | 2 |  |
| 171 | 90 | 90 | 501 | $(47$ | $)$ | $\mathrm{n} / \mathrm{m}$ |
| 3,240 | 2,656 | 22 | 9,227 | 8,837 | 4 |  |
| 4,359 | 3,750 | 16 | 12,618 | 11,896 | 6 |  |


| 19 | 42 | $(55)$ | 23 | 69 | $(67)$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
| 2,658 | 2,697 | $(1)$ | 7,690 | 8,606 | $(11)$ |
| 1,682 | 1,011 | 66 | 4,905 | 3,221 | 52 |
| 608 | 211 | 188 | 1,746 | 968 | 80 |
| $\$ 1,074$ | $\$ 800$ | 34 | $\$ 3,159$ | $\$ 2,253$ | 40 |


| 12 | $\%$ | 9 | $\%$ | 11 | $\%$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
| 60.94 | 71.93 |  | 60.94 | 72.34 |  |

Balance Sheet

Average
Trading-related assets:
Trading account securities
Reverse repurchases
Securities borrowed
Derivative assets
Total trading-related assets ${ }^{(1)}$
Total loans and leases
Total earning assets ${ }^{(1)}$
Total assets
Total deposits
Allocated capital

Period end
Total trading-related assets ${ }^{(1)}$
Total loans and leases
Total earning assets ${ }^{(1)}$
Total assets
Total deposits
${ }^{(1)}$ Trading-related assets include derivative assets, which are considered non-earning assets.

September 3December 31 \%

| 2016 | 2015 | Change |
| :--- | :--- | :--- |
| $\$ 417,517$ | $\$ 373,926$ | $12 \quad \%$ |
| 72,144 | 73,208 | $(1 \quad)$ |
| 435,112 | 384,046 | 13 |
| 595,165 | 548,790 | 8 |
| 31,692 | 37,038 | $(14)$ |

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$n / m=$ not meaningful

33

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## Table of Contents

Global Markets offers sales and trading services, including research, to institutional clients across fixed-income, credit, currency, commodity and equity businesses. Global Markets product coverage includes securities and derivative products in both the primary and secondary markets. Global Markets provides market-making, financing, securities clearing, settlement and custody services globally to our institutional investor clients in support of their investing and trading activities. We also work with our commercial and corporate clients to provide risk management products using interest rate, equity, credit, currency and commodity derivatives, foreign exchange, fixed-income and mortgage-related products. As a result of our market-making activities in these products, we may be required to manage risk in a broad range of financial products including government securities, equity and equity-linked securities, high-grade and high-yield corporate debt securities, syndicated loans, mortgage-backed securities (MBS), commodities and asset-backed securities (ABS). The economics of certain investment banking and underwriting activities are shared primarily between Global Markets and Global Banking under an internal revenue-sharing arrangement. Global Banking originates certain deal-related transactions with our corporate and commercial clients that are executed and distributed by Global Markets. For more information on investment banking fees on a consolidated basis, see page 32 .

Three Months Ended September 30, 2016 Compared to Three Months Ended September 30, 2015
Net income for Global Markets increased $\$ 274$ million to $\$ 1.1$ billion. Net DVA losses were $\$ 127$ million compared to gains of $\$ 12$ million. Excluding net DVA, net income increased $\$ 360$ million to $\$ 1.2$ billion primarily driven by higher sales and trading revenue, increased investment banking income and lower noninterest expense. Sales and trading revenue, excluding net DVA, increased $\$ 581$ million primarily driven by stronger performance globally across credit products led by mortgages, and continued strength in rates products. Noninterest expense decreased $\$ 39$ million to $\$ 2.7$ billion primarily due to lower operating and support costs, partially offset by higher revenue-related compensation.

Average earning assets decreased $\$ 14.2$ billion to $\$ 422.6$ billion primarily driven by a decrease in trading inventory and match book financing activity, partially offset by higher loans and other customer financing.

The return on average allocated capital was 12 percent, up from nine percent, reflecting an increase in net income, partially offset by an increase in allocated capital. For more information on capital allocated to the business segments, see Business Segment Operations on page 17.

Nine Months Ended September 30, 2016 Compared to Nine Months Ended September 30, 2015
Net income for Global Markets increased $\$ 906$ million to $\$ 3.2$ billion. Net DVA losses were $\$ 137$ million compared to losses of $\$ 588$ million. Excluding net DVA, net income increased $\$ 626$ million to $\$ 3.2$ billion primarily driven by higher sales and trading revenue and lower noninterest expense, partially offset by lower investment banking fees. Sales and trading revenue, excluding net DVA, increased $\$ 359$ million primarily due to a stronger performance globally across credit products led by mortgages and continued strength in rates products, partially offset by challenging credit market conditions in early 2016 as well as reduced client activity in equities, most notably in Asia, and in derivatives. Noninterest expense decreased $\$ 916$ million to $\$ 7.7$ billion primarily due to lower litigation expense and lower revenue-related expenses.

Average earning assets decreased $\$ 12.8$ billion to $\$ 421.2$ billion primarily driven by a decrease in match book financing activity and a reduction in trading inventory, partially offset by higher loans and other customer financing. Period-end trading-related assets increased $\$ 43.6$ billion from December 31, 2015 primarily driven by higher securities borrowed or purchased under agreements to resell due to increased customer financing activity.

The return on average allocated capital was 11 percent, up from nine percent, reflecting an increase in net income, partially offset by an increase in allocated capital.

## Edgar Filing: BANK OF AMERICA CORP /DE/ - Form 10-Q

## Table of Contents

## Sales and Trading Revenue

Sales and trading revenue includes unrealized and realized gains and losses on trading and other assets, net interest income, and fees primarily from commissions on equity securities. Sales and trading revenue is segregated into fixed-income (government debt obligations, investment and non-investment grade corporate debt obligations, commercial MBS, residential mortgage-backed securities (RMBS), collateralized loan obligations (CLOs), interest rate and credit derivative contracts), currencies (interest rate and foreign exchange contracts), commodities (primarily futures, forwards, swaps and options) and equities (equity-linked derivatives and cash equity activity). The table below and related discussion present sales and trading revenue, substantially all of which is in Global Markets, with the remainder in Global Banking. In addition, the table below and related discussion present sales and trading revenue excluding the impact of net DVA, which is a non-GAAP financial measure. We believe the use of this non-GAAP financial measure provides additional useful information to assess the underlying performance of these businesses and to allow better comparison of period-to-period operating performance.

Sales and Trading Revenue ${ }^{(1,2)}$
(Dollars in millions)
Sales and trading revenue
Fixed-income, currencies and commodities
Equities
Total sales and trading revenue

| Three Months <br> Ended | Nine Months <br> Ended September |  |  |
| :--- | :--- | :--- | :--- |
| September 30 30 |  |  |  |
| $2016 \quad 2015$ | 2016 | 2015 |  |
|  |  |  |  |
| $\$ 2,646$ | $\$ 2,010$ | $\$ 7,507$ | $\$ 6,307$ |
| 954 | 1,148 | 3,072 | 3,462 |
| $\$ 3,600$ | $\$ 3,158$ | $\$ 10,579$ | $\$ 9,769$ |

Sales and trading revenue, excluding net DVA ${ }^{(3)}$
Fixed-income, currencies and commodities
Equities
Total sales and trading revenue, excluding net DVA ${ }^{(3)} \quad \$ 3,727 \$ 3,146 \$ 10,716 \$ 10,357$
Includes FTE adjustments of $\$ 47$ million and $\$ 135$ million for the three and nine months ended September 30,
(1) 2016 compared to $\$ 46$ million and $\$ 141$ million for the same periods in 2015 . For more information on sales and trading revenue, see Note 2 - Derivatives to the Consolidated Financial Statements.
(2) Includes Global Banking sales and trading revenue of $\$ 56$ million and $\$ 336$ million for the three and nine months ended September 30, 2016 compared to $\$ 86$ million and $\$ 295$ million for the same periods in 2015.
Fixed-income, currencies and commodities (FICC) and Equities sales and trading revenue, excluding net DVA, is a non-GAAP financial measure. FICC net DVA losses were $\$ 121$ million and $\$ 140$ million for the three and nine months ended September 30, 2016 compared to net DVA gains of $\$ 18$ million and losses of $\$ 574$ million for the same periods in 2015. Equities net DVA losses were $\$ 6$ million and gains were $\$ 3$ million for the three and nine months ended September 30, 2016 compared to net DVA losses of $\$ 6$ million and $\$ 14$ million for the same periods in 2015.

The explanations for period-over-period changes in sales and trading, FICC and Equities revenue, as set forth below, are the same whether or not net DVA is included.

Three Months Ended September 30, 2016 Compared to Three Months Ended September 30, 2015

FICC revenue, excluding net DVA, increased $\$ 775$ million to $\$ 2.8$ billion, due to stronger performance globally across credit products, particularly in mortgages due to strong asset demand as investors sought yield. The credit market environment improved with spreads tightening and rising high-yield and bank loan prices supported by strong inflows to credit related funds. In addition, we saw continued strength in rates products and client financing due to

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increased customer activity, while currencies and commodities were down reflecting weaker client demand. Equities revenue, excluding net DVA, decreased $\$ 194$ million to $\$ 1.0$ billion due to lower levels of client activity in derivatives compared with a strong year-ago period, which benefited from higher levels of market volatility, and lower client volumes in swaps and cash secondary.

Nine Months Ended September 30, 2016 Compared to Nine Months Ended September 30, 2015
FICC revenue, excluding net DVA, increased $\$ 766$ million as rates products improved on increased customer flow, and mortgages recorded strong results particularly during the three months ended September 30, 2016. This was partially offset by weaker performance in G10 currencies, which benefited from a particularly favorable trading environment in the first half of 2015, as well as commodities, where lower volatility dampened client activity. Equities revenue, excluding net DVA, decreased $\$ 407$ million to $\$ 3.1$ billion primarily driven by lower levels of client activity in Asia which benefited from increased market volumes relating to stock markets rallies in the region in 2015, as well as weaker trading performance in derivatives.

## Table of Contents

All Other

|  | Three Months Ended September 30 |  |  | Nine Months Ended September 30 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| (Dollars in millions) | 2016 | 2015 | $\begin{aligned} & \text { \% } \\ & \text { Change } \end{aligned}$ | 2016 | 2015 | Change |
| Net interest income (FTE basis) | \$156 | \$265 | (41)\% | \$505 | \$ 809 | (38)\% |
| Noninterest income: |  |  |  |  |  |  |
| Card income | 46 | 68 | (32) | 145 | 201 | (28) |
| Mortgage banking income | 291 | 115 | 153 | 577 | 978 | (41) |
| Gains on sales of debt securities | 51 | 436 | (88) | 490 | 875 | (44) |
| All other loss | (135 | ) (185 | ) (27) | (747 | ) 8411 | ) (11 ) |
| Total noninterest income | 253 | 434 | (42 ) | 465 | 1,213 | (62) |
| Total revenue, net of interest expense (FTE basis) | 409 | 699 | (41) | 970 | 2,022 | (52) |
| Provision for credit losses | 8 | 62 | (87 ) | (71 | ) 130 | $\mathrm{n} / \mathrm{m}$ |
| Noninterest expense | 1,044 | 900 | 16 | 4,505 | 4,197 | 7 |
| Loss before income taxes (FTE basis) | (643 | ) (263 | ) 144 | (3,464 | ) $(2,305$ | ) 50 |
| Income tax benefit (FTE basis) | (461 | ) (415 | ) 11 | (1,982 | ) $(1,823$ | ) 9 |
| Net income (loss) | \$(182 | ) \$152 | $\mathrm{n} / \mathrm{m}$ | \$(1,482 | ) \$ (482 | ) $\mathrm{n} / \mathrm{m}$ |

Balance Sheet

|  | Three Months Ended September 30 |  | \% Change | Nine Months Ended September 30 |  | \% Change |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Average | 2016 | 2015 |  | 2016 | 2015 |  |
| Total loans and leases | \$ 105,298 | \$134,948 | (22)\% | \$111,611 | \$ 150,708 | (26)\% |
| Total assets ${ }^{(1)}$ | 246,541 | 306,946 | (20) | 253,981 | 302,777 | (16) |
| Total deposits | 28,628 | 26,125 | 10 | 28,028 | 25,263 | 11 |
| Period end |  |  |  | September | IDecember 31 | \% |
| Period end |  |  |  | 2016 | 2015 | Change |
| Total loans and leases |  |  |  | \$ 102,639 | \$ 122,198 | (16)\% |
| Total assets ${ }^{(1)}$ |  |  |  | 225,312 | 267,667 | (16) |
| Total deposits |  |  |  | 29,150 | 25,334 | 15 |

In segments where the total of liabilities and equity exceeds assets, which are generally deposit-taking segments, we allocate assets from All Other to those segments to match liabilities (i.e., deposits) and allocated shareholders'
${ }^{(1)}$ equity. Such allocated assets were $\$ 500.4$ billion and $\$ 497.8$ billion for the three and nine months ended September 30,2016 compared to $\$ 458.5$ billion and $\$ 459.8$ billion for the same periods in 2015, and $\$ 508.5$ billion and $\$ 489.0$ billion at September 30, 2016 and December 31, 2015.
$\mathrm{n} / \mathrm{m}=$ not meaningful
All Other consists of ALM activities, equity investments, the international consumer card business, non-core mortgage loans and servicing activities, the net impact of periodic revisions to the MSR valuation model for both core and non-core MSRs, liquidating businesses, residual expense allocations and other. ALM activities encompass certain residential mortgages, debt securities, interest rate and foreign currency risk management activities, the impact of certain allocation methodologies and accounting hedge ineffectiveness. The results of certain ALM activities are allocated to our business segments. For more information on our ALM activities, see Note 18 - Business Segment Information to the Consolidated Financial Statements. Equity investments include our merchant services joint venture as well as Global Principal Investments (GPI) which is comprised of a portfolio of equity, real estate and other
alternative investments. For more information on our merchant services joint venture, see Note 10 - Commitments and Contingencies to the Consolidated Financial Statements.

The Corporation classifies consumer real estate loans as core or non-core based on loan and customer characteristics such as origination date, product type, LTV, FICO score and delinquency status. Residential mortgage loans that are held for interest rate or liquidity risk management purposes are presented on the balance sheet of All Other. For more information on our interest rate and liquidity risk management activities, see Liquidity Risk on page 47 and Interest Rate Risk Management for the Banking Book on page 89. During the nine months ended September 30, 2016, residential mortgage loans held for ALM activities decreased $\$ 6.9$ billion to $\$ 36.3$ billion at September 30, 2016 primarily as a result of payoffs and paydowns as well as loan sales. Non-core residential mortgage and home equity loans, which are principally run-off portfolios, including certain loans accounted for under the fair value option and MSRs pertaining to

## Table of Contents

non-core loans serviced for others, are also held in All Other. During the nine months ended September 30, 2016, total non-core loans decreased $\$ 11.8$ billion to $\$ 57.0$ billion at September 30, 2016 due largely to payoffs and paydowns, as well as loan sales.

Three Months Ended September 30, 2016 Compared to Three Months Ended September 30, 2015
Net income for All Other decreased $\$ 334$ million to a net loss of $\$ 182$ million due to lower net interest income, lower gains on sales of consumer real estate loans, lower gains on sales of debt securities and an increase in noninterest expense, partially offset by favorable MSR results, net of the related hedge performance, which includes a net $\$ 282$ million increase in MSR fair value due to a revision of certain MSR valuation assumptions and a decrease in the provision for credit losses. Gains on the sales of loans, including nonperforming and other delinquent loans, net of hedges, were $\$ 36$ million compared to gains of $\$ 358$ million in the prior-year period. For more information on MSR valuation assumptions, see Note 17 - Mortgage Servicing Rights to the Consolidated Financial Statements.

The provision for credit losses decreased $\$ 54$ million to $\$ 8$ million primarily driven by lower loan and lease balances from continued run-off of non-core mortgages. Noninterest expense increased $\$ 144$ million to $\$ 1.0$ billion driven by litigation expense. The income tax benefit was $\$ 461$ million compared to a benefit of $\$ 415$ million.

Included in the three months ended September 30, 2016 was a $\$ 350$ million tax charge related to the change in the U.K. corporate tax rate. In addition, both periods included income tax benefit adjustments to eliminate the FTE treatment of certain tax credits recorded in Global Banking.

Nine Months Ended September 30, 2016 Compared to Nine Months Ended September 30, 2015
The net loss for All Other increased $\$ 1.0$ billion to $\$ 1.5$ billion due to lower net interest income, lower mortgage banking income, lower gains on sales of consumer real estate loans and an increase in noninterest expense, partially offset by an improvement in the provision for credit losses. Gains on the sales of loans, including nonperforming and other delinquent loans, net of hedges, were $\$ 214$ million compared to gains of $\$ 934$ million in the prior-year period.

The provision for credit losses improved $\$ 201$ million to a benefit of $\$ 71$ million primarily driven by the same factors as described in the three-month discussion above.

Noninterest expense increased $\$ 308$ million to $\$ 4.5$ billion driven by the same factors as described in the three-month discussion above. The income tax benefit was $\$ 2.0$ billion compared to a benefit of $\$ 1.8$ billion driven by the change in the pretax loss, partially offset by the $\$ 350$ million tax charge mentioned in the three-month discussion above. In addition, both periods included income tax benefit adjustments to eliminate the FTE treatment in noninterest income of certain tax credits recorded in Global Banking.

## Off-Balance Sheet Arrangements and Contractual Obligations

We have contractual obligations to make future payments on debt and lease agreements. Additionally, in the normal course of business, we enter into contractual arrangements whereby we commit to future purchases of products or services from unaffiliated parties. For more information on obligations and commitments, see Note 10 - Commitments and Contingencies to the Consolidated Financial Statements, Off-Balance Sheet Arrangements and Contractual Obligations in the MD\&A of the Corporation's 2015 Annual Report on Form 10-K, as well as Note 11 - Long-term Debt and Note 12 - Commitments and Contingencies to the Consolidated Financial Statements of the Corporation's 2015 Annual Report on Form 10-K.

Representations and Warranties

We securitize first-lien residential mortgage loans generally in the form of RMBS guaranteed by the government-sponsored enterprises (GSEs), which include Freddie Mac (FHLMC) and Fannie Mae (FNMA), or by the Government National Mortgage Association (GNMA) in the case of Federal Housing Administration (FHA)-insured, U.S. Department of Veterans Affairs-guaranteed and Rural Housing Service-guaranteed mortgage loans, and sell pools of first-lien residential mortgage loans in the form of whole loans. In addition, in prior years, legacy companies and certain subsidiaries sold pools of first-lien residential mortgage loans and home equity loans as private-label securitizations or in the form of whole loans. In connection with these transactions, we or certain of our subsidiaries or legacy companies made various representations and warranties. Breaches of these representations and warranties have resulted in and may continue to result in the requirement to repurchase mortgage loans or to otherwise make whole or provide other remedies to investors, guarantors, insurers or other parties (collectively, repurchases).

We have vigorously contested any request for repurchase where we have concluded that a valid basis for repurchase does not exist and will continue to do so in the future. However, in an effort to resolve legacy mortgage-related issues, we have reached settlements,

37

## Edgar Filing: BANK OF AMERICA CORP /DE/ - Form 10-Q

## Table of Contents

certain of which have been for significant amounts, in lieu of a loan-by-loan review process, including with the GSEs, four monoline insurers and Bank of New York Mellon (BNY Mellon), as trustee for certain securitization trusts.

For more information on accounting for and other information related to representations and warranties, repurchase claims and related exposures, see Note 7 - Representations and Warranties Obligations and Corporate Guarantees to the Consolidated Financial Statements, Off-balance Sheet Arrangements and Contractual Obligations in the MD\&A of the Corporation's 2015 Annual Report on Form 10-K, Note 7 - Representations and Warranties Obligations and Corporate Guarantees to the Consolidated Financial Statements of the Corporation's 2015 Annual Report on Form 10-K and Item 1A. Risk Factors of the Corporation's 2015 Annual Report on Form 10-K.

## Unresolved Repurchase Claims

Unresolved representations and warranties repurchase claims represent the notional amount of repurchase claims made by counterparties, typically the outstanding principal balance or the unpaid principal balance at the time of default. In the case of first-lien mortgages, the claim amount is often significantly greater than the expected loss amount due to the benefit of collateral and, in some cases, mortgage insurance (MI) or mortgage guarantee payments. Claims received from a counterparty remain outstanding until the underlying loan is repurchased, the claim is rescinded by the counterparty, we determine that the applicable statute of limitations has expired, or representations and warranties claims with respect to the applicable trust are settled, and fully and finally released. We do not include duplicate claims in the amounts disclosed.

At September 30, 2016, we had $\$ 18.3$ billion of unresolved repurchase claims, predominantly related to subprime and pay option first-lien loans, and home equity loans, compared to $\$ 18.4$ billion at December 31, 2015. The notional amount of unresolved repurchase claims at both September 30, 2016 and December 31, 2015 included $\$ 3.5$ billion of claims related to loans in specific private-label securitization groups or tranches where we own substantially all of the outstanding securities. At both September 30, 2016 and December 31, 2015, for loans originated from 2004 through 2008, the notional amount of unresolved repurchase claims submitted by private-label securitization trustees, whole-loan investors, including third-party securitization sponsors, and others was $\$ 16.7$ billion. At September 30, 2016 and December 31, 2015, the notional amount of unresolved repurchase claims submitted by the GSEs for loans originated prior to 2009 was $\$ 8$ million and $\$ 14$ million. During the nine months ended September 30, 2016, we continued to have limited loan-level representations and warranties repurchase claims experience with the monoline insurers due to bulk settlements in prior years and ongoing litigation with a single monoline insurer. For more information on unresolved repurchase claims, see Off-Balance Sheet Arrangements and Contractual Obligations Unresolved Repurchase Claims in the MD\&A of the Corporation's 2015 Annual Report on Form 10-K.

## Liability for Representations and Warranties and Corporate Guarantees

The liability for representations and warranties and corporate guarantees is included in accrued expenses and other liabilities on the Consolidated Balance Sheet and the related provision is included in mortgage banking income in the Consolidated Statement of Income. At September 30, 2016 and December 31, 2015, the liability for representations and warranties was $\$ 2.8$ billion and $\$ 11.3$ billion. The reduction in the liability was primarily the result of an $\$ 8.5$ billion cash payment in February 2016 to BNY Mellon as part of the settlement with BNY Mellon. For the three and nine months ended September 30, 2016, the representations and warranties provision was $\$ 99$ million and $\$ 158$ million compared to a provision of $\$ 75$ million and a benefit of $\$ 46$ million for the same periods in 2015.

Our liability for representations and warranties is necessarily dependent on, and limited by, a number of factors including for private-label securitizations, the implied repurchase experience based on the settlement with BNY Mellon, as well as certain other assumptions and judgmental factors. Where relevant, we also consider more recent experience, such as claim activity, notification of potential indemnification obligations, our experience with various
counterparties, the New York Court of Appeals' ACE Securities Corp. v. DB Structured Products, Inc. (ACE) decision, other recent court decisions related to the statute of limitations, and other facts and circumstances, such as bulk settlements, as we believe appropriate. Accordingly, future provisions associated with obligations under representations and warranties may be materially impacted if future experiences are different from historical experience or our understandings, interpretations or assumptions. For more information on the settlement with BNY Mellon, and the ACE decision and its impact on unresolved repurchase claims, see Note 7 - Representations and Warranties Obligations and Corporate Guarantees to the Consolidated Financial Statements of the Corporation's 2015 Annual Report on Form 10-K.

## Estimated Range of Possible Loss

We currently estimate that the range of possible loss for representations and warranties exposures could be up to $\$ 2$ billion over existing accruals at September 30, 2016. We treat claims that are time-barred as resolved and do not consider such claims in the estimated range of possible loss. The estimated range of possible loss reflects principally exposures related to loans in private-label securitization trusts. It represents a reasonably possible loss, but does not represent a probable loss, and is based on currently available information, significant judgment and a number of assumptions that are subject to change.

## Edgar Filing: BANK OF AMERICA CORP /DE/ - Form 10-Q

## Table of Contents

For more information on the methodology used to estimate the representations and warranties liability, the corresponding estimated range of possible loss and the types of losses not considered in such estimates, see Note 7 Representations and Warranties Obligations and Corporate Guarantees to the Consolidated Financial Statements and Item 1A. Risk Factors of the Corporation's 2015 Annual Report on Form 10-K and, for more information related to the sensitivity of the assumptions used to estimate our liability for representations and warranties, see Complex Accounting Estimates - Representations and Warranties Liability in the MD\&A of the Corporation's 2015 Annual Report on Form 10-K.

## Other Mortgage-related Matters

We continue to be subject to additional mortgage-related litigation and disputes, as well as governmental and regulatory scrutiny and investigations, related to our past and current origination, servicing, transfer of servicing and servicing rights, servicing compliance obligations, foreclosure activities, indemnification obligations, and MI and captive reinsurance practices with mortgage insurers. The ongoing environment of additional regulation, increased regulatory compliance obligations, and enhanced regulatory enforcement, combined with ongoing uncertainty related to the continuing evolution of the regulatory environment, has resulted in increased operational and compliance costs and may limit our ability to continue providing certain products and services. For more information on management's estimate of the aggregate range of possible loss for certain litigation matters and on regulatory investigations, see Note 10 - Commitments and Contingencies to the Consolidated Financial Statements.

## Managing Risk

Risk is inherent in all our business activities. The seven key types of risk faced by the Corporation are strategic, credit, market, liquidity, compliance, operational and reputational risks. Sound risk management enables us to serve our customers and deliver for our shareholders. If not managed well, risks can result in financial loss, regulatory sanctions and penalties, and damage to our reputation, each of which may adversely impact our ability to execute our business strategies. 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 Enterprise Risk Committee (ERC) and the Board.

Our Risk Framework is the foundation for comprehensive management of the 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 Statement is intended to ensure that the Corporation maintains an acceptable risk profile by providing a common framework and a comparable set of measures for senior management and the Board to clearly indicate the level of risk the Corporation is willing to accept. Risk appetite is set at least annually in conjunction with the strategic, capital and financial operating plans to align risk appetite with the Corporation's strategy and financial resources. Our line of business strategies and risk appetite are also similarly aligned.

For more information on our risk management activities, including our Risk Framework, and the key types of risk faced by the Corporation, see the Managing Risk through the Reputational Risk sections in the MD\&A of the Corporation's 2015 Annual Report on Form 10-K.

## Capital Management

The Corporation manages its capital position to ensure capital is more than adequate to support its business activities and to maintain capital, risk and risk appetite commensurate with one another. Additionally, we seek to maintain

## Edgar Filing: BANK OF AMERICA CORP /DE/ - Form 10-Q

safety and soundness at all times, even under adverse scenarios, take advantage of organic growth opportunities, ensure obligations to creditors and counterparties are met, 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.

Effective July 1, 2016, we changed our accounting method for the amortization of premiums and accretion of discounts related to certain debt securities. Under the applicable bank regulatory rules, we are not required to and, accordingly, will not restate previously-filed capital metrics and ratios in connection with the change in accounting method related to certain debt securities. The cumulative impact of this change would have resulted in an insignificant pro forma change of the Corporation's capital metrics and ratios. For additional information, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements.

The Corporation periodically reviews capital allocated to its businesses and allocates capital annually during the strategic and capital planning processes. For additional information, see Business Segment Operations on page 17.

## Edgar Filing: BANK OF AMERICA CORP /DE/ - Form 10-Q

## Table of Contents

## CCAR and Capital Planning

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 CCAR capital plan.

In April 2016, we submitted our 2016 CCAR capital plan and related supervisory stress tests. The 2016 CCAR capital plan included requests (i) to repurchase $\$ 5.0$ billion of common stock over four quarters beginning in the third quarter of 2016, (ii) to repurchase common stock to offset the dilution resulting from certain equity-based compensation awards and (iii) to increase the quarterly common stock dividend from $\$ 0.05$ per share to $\$ 0.075$ per share. On June 29, 2016, following the Federal Reserve's non-objection to our 2016 CCAR capital plan, the Board authorized the common stock repurchase beginning July 1, 2016. The common stock repurchase authorization includes both common stock and warrants.

During the three months ended September 30, 2016, pursuant to the Board's authorization, we repurchased $\$ 1.4$ billion of common stock, which includes common stock to offset equity-based compensation awards. The timing and amount of common stock repurchases will be subject to various factors, including the Corporation's capital position, liquidity, financial performance and alternative uses of capital, stock trading price, and general market conditions, and may be suspended at any time. The common stock repurchases may be effected through open market purchases or privately negotiated transactions, including repurchase plans that satisfy the conditions of Rule 10b5-1 of the Securities Exchange Act of 1934. As a "well-capitalized" BHC, we may notify the Federal Reserve of our intention to make additional capital distributions not to exceed one percent of Tier 1 capital and which were not contemplated in our capital plan, subject to the Federal Reserve's non-objection.

## Regulatory Capital

As a financial services holding company, we are subject to regulatory capital rules issued by U.S. banking regulators. On January 1, 2014, we became subject to Basel 3, which includes certain transition provisions through January 1, 2019. The Corporation and its primary affiliated banking entity, BANA, are Advanced approaches institutions under Basel 3.

Basel 3 updated the composition of capital and established a Common equity tier 1 capital ratio. Common equity tier 1 capital primarily includes common stock, retained earnings and accumulated OCI, net of certain deductions and adjustments primarily related to goodwill, deferred tax assets, intangibles, MSRs and defined benefit pension assets. Basel 3 revised minimum capital ratios and buffer requirements, added a supplementary leverage ratio (SLR), and addressed the adequately capitalized minimum requirements under the Prompt Corrective Action (PCA) framework. Basel 3 also established two methods of calculating risk-weighted assets, the Standardized approach and the Advanced approaches. As an Advanced approaches institution, we are required to report regulatory risk-based capital ratios and risk-weighted assets 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.

On January 1, 2016, we became subject to a capital conservation buffer, a countercyclical capital buffer and a global systemically important bank (G-SIB) surcharge which will be phased in over a three-year period ending January 1, 2019. Once fully phased in, the Corporation's risk-based capital ratio requirements will include a capital conservation buffer greater than 2.5 percent, plus any applicable countercyclical capital buffer and G-SIB surcharge in order to avoid restrictions on capital distributions and discretionary bonus payments. The buffers and surcharge must be composed solely of Common equity tier 1 capital. Under the phase-in provisions, in 2016 we must maintain a capital conservation buffer greater than 0.625 percent plus a G-SIB surcharge of 0.75 percent. The countercyclical capital buffer is currently set at zero. We estimate that our fully phased-in G-SIB surcharge will be 3.0 percent. The G-SIB surcharge may differ from this estimate over time.

For additional information, see Capital Management in the MD\&A of the Corporation's 2015 Annual Report on Form 10-K.

Capital Composition and Ratios
Under the applicable bank regulatory rules, we are not required to and, accordingly, did not restate previously-filed regulatory capital metrics and ratios in connection with the change in accounting method related to certain debt securities. Therefore, the December 31, 2015 amounts in Tables 13 through 16 are as originally reported. The cumulative impact of this change in accounting method would have resulted in an immaterial pro forma decrease in the Corporation's Common equity tier 1 capital of approximately one basis point at December 31, 2015. The September 30, 2016 amounts in those tables reflect the change in accounting method. For additional information, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements.

40

## Table of Contents

Table 13 presents Bank of America Corporation's transition and fully phased-in capital ratios and related information in accordance with Basel 3 Standardized and Advanced approaches as measured at September 30, 2016 and December 31, 2015. Fully phased-in estimates are non-GAAP financial measures that the Corporation considers to be useful measures in evaluating compliance with new regulatory capital requirements that are not yet effective. For reconciliations to GAAP financial measures, see Table 16. As of September 30, 2016 and December 31, 2015, the Corporation meets the definition of "well capitalized" under current regulatory requirements.

Table 13
Bank of America Corporation Regulatory Capital under Basel 3 (1,2)
September 30, 2016
Transition
Fully Phased-in
(Dollars in millions)
Risk-based capital metrics:
Common equity tier 1 capital
Tier 1 capital
Total capital ${ }^{(7)}$
Risk-weighted assets (in billions)
Common equity tier 1 capital ratio
Tier 1 capital ratio
Total capital ratio
StandardizedAdvanced Approach Approaches

Regulatory StandardizedAdvanced Regulatory 4)
\$ 169,925 \$ 169,925 \$ 165,875 \$ 165,875
$\begin{array}{llll}191,435 & 191,435 & 190,734 & 190,734\end{array}$
229,132 219,878 226,108 216,855

| 1,396 | 1,547 | 1,411 | 1,524 |
| :--- | :--- | :--- | :--- |

12.2 \% 11.0 \% 5.875 \% 11.8 \% $10.9 \quad \% \quad 10.0 \quad \%$
$\begin{array}{llllll}13.7 & 12.4 & 7.375 & 13.5 & 12.5 & 11.5\end{array}$
$\begin{array}{llllll}16.4 & 14.2 & 9.375 & 16.0 & 14.2 & 13.5\end{array}$
Leverage-based metrics:
Adjusted quarterly average assets (in
billions) ${ }^{(8)}$
Tier 1 leverage ratio
SLR leverage exposure (in billions)
SLR

| $\$ 2,111$ | $\$ 2,111$ |  | $\$ 2,112$ | $\$ 2,112$ |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
| 9.1 | $\%$ | 9.1 | $\%$ | 4.0 | 9.0 |$\% \% 9.0 \quad \% \quad 4.0$

\$ 2,704
7.1 \% 5.0

December 31, 2015
Risk-based capital metrics:
Common equity tier 1 capital
Tier 1 capital
Total capital ${ }^{(7)}$
Risk-weighted assets (in billions)
Common equity tier 1 capital ratio
Tier 1 capital ratio
Total capital ratio

| $\$ 163,026$ | $\$ 163,026$ |  |  | $\$ 154,084$ | $\$ 154,084$ |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 180,778 | 180,778 |  |  | 175,814 | 175,814 |  |  |  |
| 220,676 | 210,912 |  |  | 211,167 | 201,403 |  |  |  |
| 1,403 | 1,602 |  | 1,427 | 1,575 |  |  |  |  |
| 11.6 | $\%$ | 10.2 | $\%$ | 4.5 | $\%$ | 10.8 | $\%$ | 9.8 |
| 12.9 | 11.3 | 6.0 |  | 12.3 | 11.2 | 10.0 | $\%$ |  |
| 15.7 | 13.2 | 8.0 | 14.8 | 12.8 | 13.5 |  |  |  |
|  |  |  |  |  |  |  |  | 13.5 |
|  |  |  |  |  |  |  |  |  |

Leverage-based metrics:
Adjusted quarterly average assets (in
billions) ${ }^{(8)}$
Tier 1 leverage ratio
SLR leverage exposure (in billions)
\$2,103 \$2,103
$\begin{array}{lllllll}8.6 & \% & 8.6 & \% & 4.0 & 8.4 & \% \\ 8.4 & & 4.0\end{array}$

## SLR

(1)

As an Advanced approaches institution, we are required to report regulatory capital risk-weighted assets and ratios under both the Standardized and Advanced approaches. The approach that yields the lower ratio is to be used to assess capital adequacy, and was the Advanced approaches at September 30, 2016 and December 31, 2015. Under the applicable bank regulatory rules, we are not required to and, accordingly, did not restate previously-filed
${ }^{(2)}$ regulatory capital metrics and ratios in connection with the change in accounting method related to certain debt securities. As such, the December 31, 2015 amounts in the Table are as originally reported.
(3) The September 30, 2016 amount includes a transition capital conservation buffer of 0.625 percent and a transition G-SIB surcharge of 0.75 percent. The 2016 countercyclical capital buffer is zero.
(4) To be "well capitalized" under the current U.S. banking regulatory agency definitions, we must maintain a higher Total capital ratio of 10 percent. Basel 3 fully phased-in Advanced approaches estimates assume approval by U.S. banking regulators of our internal
${ }^{(5)}$ analytical models, including approval of the internal models methodology (IMM). As of September 30, 2016, we did not have regulatory approval for the IMM model.
Fully phased-in regulatory capital minimums assume a capital conservation buffer of 2.5 percent and estimated G-SIB surcharge of 3.0 percent. The estimated fully phased-in countercyclical capital buffer is zero. We will be subject to fully phased-in regulatory minimums on January 1, 2019. The fully phased-in SLR minimum assumes a leverage buffer of 2.0 percent and is applicable on January 1, 2018.
${ }_{(7)}$ 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.
${ }^{(8)}$ Reflects adjusted average total assets for the three months ended September 30, 2016 and December 31, 2015.

## Table of Contents

Common equity tier 1 capital under Basel 3 Advanced - Transition was $\$ 169.9$ billion at September 30, 2016, an increase of $\$ 6.9$ billion compared to December 31,2015 driven by earnings and an increase in accumulated OCI, partially offset by dividends, common stock repurchases and the impact of certain transition provisions under the Basel 3 rules. During the nine months ended September 30, 2016, Total capital increased $\$ 9.0$ billion primarily driven by the same factors that drove the increase in Common equity tier 1 capital as well as issuances of preferred stock and subordinated debt.

Risk-weighted assets decreased $\$ 55$ billion during the nine months ended September 30, 2016 to $\$ 1,547$ billion primarily due to lower market risk, and lower exposures and improved credit quality on legacy retail products.

Table 14 presents the capital composition as measured under Basel 3 - Transition at September 30, 2016 and December 31, 2015.

Table 14
Capital Composition under Basel 3 - Transitior ${ }^{1,2,3)}$
(Dollars in millions)
Total common shareholders' equity
Goodwill
Deferred tax assets arising from net operating loss and tax credit carryforwards
Unamortized net periodic benefit costs recorded in accumulated OCI, net-of-tax
Net unrealized (gains) losses on debt and equity securities and net (gains) losses on derivatives recorded in accumulated OCI, net-of-tax
Intangibles, other than mortgage servicing rights and goodwill
DVA related to liabilities and derivatives
Other
September 30 December 31
(Dollars in millions)

Common equity tier 1 capital
Qualifying preferred stock, net of issuance cost
Deferred tax assets arising from net operating loss and tax credit carryforwards
Trust preferred securities
Defined benefit pension fund assets
DVA related to liabilities and derivatives under transition
Other
Total Tier 1 capital
Long-term debt qualifying as Tier 2 capital
Eligible credit reserves included in Tier 2 capital
Nonqualifying capital instruments subject to phase out from Tier 2 capital
Other
Total Basel 3 capital

| 2016 | 2015 |
| :--- | :--- |
| $\$ 244,863$ | $\$ 233,932$ |

$(69,192)(69,215)$
$(4,715)(3,434)$
$1,171 \quad 1,774$
(560 ) 1,220
(1,279 ) (1,039 )
252204
(615 ) (416 )
169,925 163,026
$\left.\begin{array}{ll}25,220 & 22,273 \\ (3,143 & (5,151\end{array}\right)$
$\left.\begin{array}{ll}(3,143 & (5,151 \\ - & 1,430 \\ (375 & ) \\ (568\end{array}\right)$
(375 ) (568 )
168307
(360) (539)

191,435 180,778
22,985 22,579
3,205 3,116
$2,271 \quad 4,448$
(18 ) (9 )

As an Advanced approaches institution, we are required to report regulatory capital risk-weighted assets and ratios
${ }^{(1)}$ under both the Standardized and Advanced approaches. The approach that yields the lower ratio is to be used to assess capital adequacy, and was the Advanced approaches at September 30, 2016 and December 31, 2015. Deductions from and adjustments to regulatory capital subject to transition provisions under Basel 3 are generally recognized in 20 percent annual increments, and will be fully recognized as of January 1, 2018. Any assets that are a direct deduction from the computation of capital are excluded from risk-weighted assets and adjusted average total assets.
(3) Under the applicable bank regulatory rules, we are not required to and, accordingly, did not restate previously-filed regulatory capital metrics and ratios in connection with the change in accounting method related to certain debt securities. Therefore, the December 31, 2015 amounts in the Table are as originally reported. The cumulative
impact of this change in accounting method would have resulted in an immaterial pro forma decrease in the Corporation's Common equity tier 1 capital of approximately one basis point at December 31, 2015. The September 30, 2016 amounts in the Table reflect the change in accounting method. For additional information, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements.

## Table of Contents

Table 15 presents the components of our risk-weighted assets as measured under Basel 3 - Transition at September 30, 2016 and December 31, 2015.

Table 15
Risk-weighted assets under Basel 3 -
Transition ${ }^{(1)}$
(Dollars in billions)
Credit risk
Market risk
Operational risk
Risks related to CVA n/a 73
Risks related to CVA n/a n/a 73
Total risk-weighted assets \$1,396 \$ 1,547 \$ 1,403 \$ 1,602
(1) See Table 13, footnote 2.
$\mathrm{n} / \mathrm{a}=$ not applicable
Table 16 presents a reconciliation of regulatory capital in accordance with Basel 3 Standardized - Transition to the Basel 3 Standardized approach fully phased-in estimates and Basel 3 Advanced approaches fully phased-in estimates at September 30, 2016 and December 31, 2015.

Table 16
Regulatory Capital Reconciliations between Basel 3 Transition to Fully Phased-in (1, 2)
(Dollars in millions)
Common equity tier 1 capital (transition)
September 30 December 31
20162015
Deferred tax assets arising from net operating loss and tax credit carryforwards phased in during transition
Accumulated OCI phased in during transition
\$ 169,925
\$ 163,026

Intangibles phased in during transition
Defined benefit pension fund assets phased in during transition
DVA related to liabilities and derivatives phased in during transition
Other adjustments and deductions phased in during transition
Common equity tier 1 capital (fully phased-in)
Additional Tier 1 capital (transition)
Deferred tax assets arising from net operating loss and tax credit carryforwards phased out during transition
Trust preferred securities phased out during transition
$(3,143)(5,151)$

Defined benefit pension fund assets phased out during transition
DVA related to liabilities and derivatives phased out during transition
Other transition adjustments to additional Tier 1 capital
Additional Tier 1 capital (fully phased-in)
Tier 1 capital (fully phased-in)
Tier 2 capital (transition)
Nonqualifying capital instruments phased out during transition
Other adjustments to Tier 2 capital
Tier 2 capital (fully phased-in)
188
(1,917 )
(853 ) (1,559 )
(375 ) (568 )
168
307
(35 ) (54
165,875 154,084
21,510 17,752
3,143 5,151

Basel 3 Standardized approach Total capital (fully phased-in)
375
(168 ) (307 )

Change in Tier 2 qualifying allowance for credit losses
(1) (4)

24,859 21,730
190,734 175,814
28,443 30,134
(2,271 ) $(4,448)$
9,202 9,667
35,374 35,353
226,108 211,167
$(9,253)(9,764)$

Basel 3 Advanced approaches Total capital (fully phased-in) $\quad \$ 216,855 \quad \$ 201,403$
Risk-weighted assets - As reported to Basel 3 (fully phased-in)
Basel 3 Standardized approach risk-weighted assets as reported
Changes in risk-weighted assets from reported to fully phased-in
\$ 1,395,541 \$ 1,403,293
Basel 3 Standardized approach risk-weighted assets (fully phased-in)
15,587 24,089
\$ 1,411,128 \$1,427,382

Basel 3 Advanced approaches risk-weighted assets as reported
\$ 1,547,221 \$ 1,602,373
Changes in risk-weighted assets from reported to fully phased-in (23,502 ) (27,690 )
Basel 3 Advanced approaches risk-weighted assets (fully phased-in) ${ }^{(3)}$
\$ 1,523,719 \$ 1,574,683
As an Advanced approaches institution, we are required to report regulatory capital risk-weighted assets and ratios
${ }^{(1)}$ under both the Standardized and Advanced approaches. The approach that yields the lower ratio is to be used to assess capital adequacy, and was the Advanced approaches at September 30, 2016 and December 31, 2015.
${ }^{(2)}$ See Table 13, footnote 2.
Basel 3 fully phased-in Advanced approaches estimates assume approval by U.S. banking regulators of our internal
${ }^{(3)}$ analytical models, including approval of the IMM. As of September 30, 2016, we did not have regulatory approval for the IMM model.

## Table of Contents

Bank of America, N.A. Regulatory Capital
Table 17 presents transition regulatory capital information for BANA in accordance with Basel 3 Standardized and Advanced approaches as measured at September 30, 2016 and December 31, 2015. As of September 30, 2016, BANA meets the definition of "well capitalized" under the PCA framework.

Table 17
Bank of America, N.A. Regulatory Capital under Basel 3
September 30, 2016
Standardized Approach Advanced Approaches Minimum Minimum
(Dollars in millions) Ratio Amount Required Ratio Amount Required
(1)
(1)

Common equity tier 1 capital $13.1 \%$ \$152,976 6.5 \% $14.5 \%$ \$152,976 6.5 \%
Tier 1 capital
$\begin{array}{llllll}13.1 & 152,976 & 8.0 & 14.5 & 152,976 & 8.0\end{array}$
Total capital
$\begin{array}{lllllll}14.3 & 167,037 & 10.0 & 15.1 & 158,345 & 10.0\end{array}$
Tier 1 leverage
$\begin{array}{llllll}9.6 & 152,976 & 5.0 & 9.6 & 152,976 & 5.0\end{array}$
December 31, 2015
Common equity tier 1 capital $12.2 \% ~ \$ 144,869 \quad 6.5 \quad \% \quad 13.1 \% ~ \$ 144,869 \quad 6.5 \quad \%$
$\begin{array}{llllllll}\text { Tier } 1 \text { capital } & 12.2 & 144,869 & 8.0 & 13.1 & 144,869 & 8.0\end{array}$
$\begin{array}{lllllll}\text { Total capital } & 13.5 & 159,871 & 10.0 & 13.6 & 150,624 & 10.0\end{array}$
$\begin{array}{lllllll}\text { Tier } 1 \text { leverage } & 9.2 & 144,869 & 5.0 & 9.2 & 144,869 & 5.0\end{array}$
${ }^{(1)}$ Percent required to meet guidelines to be considered "well capitalized" under the PCA framework.
Regulatory Developments

## Minimum Total Loss-Absorbing Capacity

On October 30, 2015, the Federal Reserve issued a notice of proposed rulemaking (NPR) to establish external total loss-absorbing capacity (TLAC) requirements to improve the resolvability and resiliency of large, interconnected BHCs. Under the proposal, U.S. G-SIBs would be required to maintain a minimum external TLAC of the greater of: (1) 16 percent of risk-weighted assets in 2019, increasing to 18 percent of risk-weighted assets in 2022 (plus additional TLAC equal to enough Common equity tier 1 capital as a percentage of risk-weighted assets to cover the capital conservation buffer, any applicable countercyclical capital buffer plus the applicable method 1 G-SIB surcharge), or (2) 9.5 percent of the denominator of the SLR. In addition, U.S. G-SIBs must meet a minimum long-term debt requirement equal to the greater of: 6.0 percent of risk-weighted assets plus the applicable method 2 G-SIB surcharge, or 4.5 percent of the denominator of the SLR.

Revisions to Approaches for Measuring Risk-weighted Assets
The Basel Committee has several open proposals to revise key methodologies for measuring risk-weighted assets. The proposals include a standardized approach for credit risk, standardized approach for operational risk, revisions to the credit valuation adjustment (CVA) risk framework and constraints on the use of internal models. The Basel Committee has also finalized a revised standardized model for counterparty credit risk, revisions to the securitization framework and its fundamental review of the trading book, which updates both modeled and standardized approaches for market risk measurement. These revisions are to be coupled with a proposed capital floor framework to limit the extent to which banks can reduce risk-weighted asset levels through the use of internal models, both at the input parameter and aggregate risk-weighted asset level. The Basel Committee expects to finalize the outstanding proposals
by early 2017. Once the proposals are finalized, U.S. banking regulators may update the U.S. Basel 3 rules to incorporate the Basel Committee revisions.

## Single-Counterparty Credit Limits

On March 4, 2016, the Federal Reserve issued an NPR to establish Single-Counterparty Credit Limits (SCCL) for large U.S. BHCs. The SCCL rule is designed to complement and serve as a backstop to risk-based capital requirements to ensure that the maximum possible loss that a bank could incur due to a single counterparty's default would not endanger the bank's survival. Under the proposal, U.S. BHCs must calculate SCCL by dividing the net aggregate credit exposure to a given counterparty by a bank's eligible Tier 1 capital base, ensuring that exposure to G-SIBs and other nonbank systemically important financial institutions does not breach 15 percent and exposures to other counterparties do not breach 25 percent.

## Table of Contents

Broker-dealer Regulatory Capital and Securities Regulation
The Corporation's principal U.S. broker-dealer subsidiaries are Merrill Lynch, Pierce, Fenner \& Smith, Incorporated (MLPF\&S) and Merrill Lynch Professional Clearing Corp (MLPCC). MLPCC is a fully-guaranteed subsidiary of MLPF\&S and provides clearing and settlement services. Both entities are subject to the net capital requirements of SEC Rule 15c3-1. Both entities are also registered as futures commission merchants and are subject to the Commodity Futures Trading Commission Regulation 1.17.

MLPF\&S has elected to compute the minimum capital requirement in accordance with the Alternative Net Capital Requirement as permitted by SEC Rule 15c3-1. At September 30, 2016, MLPF\&S's regulatory net capital as defined by Rule $15 \mathrm{c} 3-1$ was $\$ 12.2$ billion and exceeded the minimum requirement of $\$ 1.6$ billion by $\$ 10.6$ billion. MLPCC's net capital of $\$ 3.1$ billion exceeded the minimum requirement of $\$ 451$ million by $\$ 2.7$ billion.

In accordance with the Alternative Net Capital Requirements, MLPF\&S is required to maintain tentative net capital in excess of $\$ 1.0$ billion, net capital in excess of $\$ 500$ million and notify the Securities and Exchange Commission in the event its tentative net capital is less than $\$ 5.0$ billion. At September 30, 2016, MLPF\&S had tentative net capital and net capital in excess of the minimum and notification requirements.

Merrill Lynch International (MLI), a U.K. investment firm, is regulated by the Prudential Regulation Authority and the Financial Conduct Authority, and is subject to certain regulatory capital requirements. At September 30, 2016, MLI's capital resources were $\$ 34.9$ billion which exceeded the minimum requirement of $\$ 15.6$ billion.

## Table of Contents

Common and Preferred Stock Dividends
Table 18 is a summary of our cash dividend declarations on preferred stock during the third quarter of 2016 and through November 1, 2016. During the third quarter of 2016, we declared $\$ 503$ million of cash dividends on preferred stock. For more information on preferred stock and a summary of our declared quarterly cash dividends on common stock, see Note 11 - Shareholders' Equity to the Consolidated Financial Statements.

Table 18
Preferred Stock Cash Dividend Summary
Outstanding


|  |  | Edgar Filing: B | K OF AMERI | CORP /DE/ - | 10-Q |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | October 10, 2016 | $\begin{aligned} & \text { November 15, } \\ & 2016 \end{aligned}$ | September 9, 2016 <br> December 9, 2016 | 6.625 | 0.4140625 |
| Series X ${ }^{(3,4)}$ | \$ 2,000 | July 7, 2016 | August 15, 2016 | $\begin{aligned} & \text { September 6, } \\ & 2016 \end{aligned}$ | Fixed-to-floating | \$31.25 |
| Series Y ${ }^{(2)}$ | \$ 1,100 | $\begin{aligned} & \text { September 16, } \\ & 2016 \end{aligned}$ | October 1, 2016 | October 27, 2016 | 6.50 | \% \$0.40625 |
| Series $\mathrm{Z}^{(3,4)}$ | \$ 1,400 | $\begin{aligned} & \text { September 16, } \\ & 2016 \end{aligned}$ | October 1, 2016 | October 24, 2016 | Fixed-to-floating | \$32.50 |
| ${ }_{4)}^{\text {Series } \mathrm{AA}^{(3,}}$ | \$ 1,900 | July 7, 2016 | $\begin{aligned} & \text { September 1, } \\ & 2016 \end{aligned}$ | $\begin{aligned} & \text { September 19, } \\ & 2016 \end{aligned}$ | Fixed-to-floating | \$30.50 |
| Series CC ${ }^{(2)}$ | \$ 1,100 | $\begin{aligned} & \text { September 16, } \\ & 2016 \end{aligned}$ | October 1, 2016 | October 31, 2016 | 6.20 | \% \$0.3875 |
| ${ }_{4)}^{\text {Series DD }} \text { (3, }$ | \$ 1,000 | July 7, 2016 | August 15, 2016 | $\begin{aligned} & \text { September 12, } \\ & 2016 \end{aligned}$ | Fixed-to-floating | \$31.50 |
| Series EE ${ }^{(2)}$ | \$ 900 | $\begin{aligned} & \text { September 16, } \\ & 2016 \end{aligned}$ | October 1, 2016 | October 25, 2016 | 6.00 | \% \$0.375 |
| Series $1{ }^{(5)}$ | \$ 98 | July 7, 2016 | August 15, 2016 | August 30, 2016 | Floating | \$0.18750 |
|  |  | October 10, 2016 | $\begin{aligned} & \text { November 15, } \\ & 2016 \end{aligned}$ | November 28, 2016 | Floating | 0.18750 |
| Series $2{ }^{(5)}$ | \$ 299 | July 7, 2016 | August 15, 2016 | August 30, 2016 | Floating | \$0.19167 |
|  |  | October 10, 2016 | $\begin{aligned} & \text { November 15, } \\ & 2016 \end{aligned}$ | $\begin{aligned} & \text { November 28, } \\ & 2016 \end{aligned}$ | Floating | 0.19167 |
| Series $3{ }^{(5)}$ | \$ 653 | July 7, 2016 | August 15, 2016 | August 29, 2016 | 6.375 | \% \$0.3984375 |
|  |  | October 10, 2016 | $\begin{aligned} & \text { November 15, } \\ & 2016 \end{aligned}$ | $\begin{aligned} & \text { November 28, } \\ & 2016 \end{aligned}$ | 6.375 | 0.3984375 |
| Series $4{ }^{(5)}$ | \$ 210 | July 7, 2016 | August 15, 2016 | August 30, 2016 | Floating | \$0.25556 |
|  |  | October 10, 2016 | $\begin{aligned} & \text { November 15, } \\ & 2016 \end{aligned}$ | $\begin{aligned} & \text { November 28, } \\ & 2016 \end{aligned}$ | Floating | 0.25556 |
| Series $5{ }^{(5)}$ | \$ 422 | July 7, 2016 | August 1, 2016 | August 22, 2016 | Floating | \$0.25556 |
|  |  | October 10, 2016 | $\begin{aligned} & \text { November 1, } \\ & 2016 \end{aligned}$ | $\begin{aligned} & \text { November 21, } \\ & 2016 \end{aligned}$ | Floating | 0.25556 |

(1) Dividends are cumulative.
(2) Dividends per depositary share, each representing a $1 / 1,000^{\text {th }}$ interest in a share of preferred stock.
${ }^{(3)}$ Initially pays dividends semi-annually.
${ }^{(4)}$ Dividends per depositary share, each representing a $1 / 25^{\text {th }}$ interest in a share of preferred stock.
${ }^{(5)}$ Dividends per depositary share, each representing a $1 / 1,200^{\text {th }}$ interest in a share of preferred stock.

# Edgar Filing: BANK OF AMERICA CORP /DE/ - Form 10-Q 

## Table of Contents

Liquidity Risk

## Funding and Liquidity Risk Management

Liquidity risk is the potential inability to meet expected or unexpected cash flow and collateral needs while continuing to support our businesses and customers with the appropriate funding sources under a range of economic conditions. Our primary liquidity risk management objective is to meet all contractual and contingent financial obligations at all times, including during periods of stress. To achieve that objective, we analyze and monitor our liquidity risk under expected and stressed conditions, maintain liquidity and access to diverse funding sources, including our stable deposit base, and seek to align liquidity-related incentives and risks.

We define liquidity as readily available assets, limited to cash and high-quality, liquid, unencumbered securities that we can use to meet our contractual and contingent financial obligations as those obligations arise. We manage our liquidity position through line of business and asset-liability management activities, as well as through our legal entity funding strategy, on both a forward and current (including intraday) basis under both expected and stressed conditions. We believe that a centralized approach to funding and liquidity management within Corporate Treasury enhances our ability to monitor liquidity requirements, maximizes access to funding sources, minimizes borrowing costs and facilitates timely responses to liquidity events. For more information regarding global funding and liquidity risk management, see Liquidity Risk - Funding and Liquidity Risk Management in the MD\&A of the Corporation's 2015 Annual Report on Form 10-K.

## Global Liquidity Sources and Other Unencumbered Assets

We maintain liquidity available to Bank of America Corporation, including the parent company and selected subsidiaries, in the form of cash and high-quality, liquid, unencumbered securities. Our liquidity buffer, referred to as Global Liquidity Sources (GLS), formerly GELS, is comprised of assets that are readily available to the parent company and selected subsidiaries, including holding company, bank and broker-dealer subsidiaries, even during stressed market conditions. Our cash is primarily on deposit with the Federal Reserve and, to a lesser extent, central banks outside of the U.S. We limit the composition of high-quality, liquid, unencumbered securities to U.S. government securities, U.S. agency securities, U.S. agency MBS and a select group of non-U.S. government and supranational securities. We believe we can quickly obtain cash for these securities, even in stressed conditions, through repurchase agreements or outright sales. We hold our GLS in legal entities that allow us to meet the liquidity requirements of our global businesses, and we consider the impact of potential regulatory, tax, legal and other restrictions that could limit the transferability of funds among entities.

Pursuant to the Federal Reserve and FDIC request disclosed in our Current Report on Form 8-K dated April 13, 2016, we provided our resolution plan submission on September 30, 2016. In connection with our resolution planning activities, in the third quarter, we entered into intercompany arrangements with certain key subsidiaries under which we have transferred certain of our parent company assets (and have agreed to transfer certain additional parent company assets) to NB Holdings, Inc., a wholly-owned holding company subsidiary (NB Holdings). The parent company is expected to continue to have access to the same flow of dividends, interest, and other amounts of cash necessary to service its debt, pay dividends, and perform other obligations as it would have had if it had not entered into these arrangements and transferred any assets.

In consideration for the transfer of assets, NB Holdings issued a subordinated note to the parent company in a principal amount equal to the value of the transferred assets; the aggregate principal amount of the note will increase by the amount of any future asset transfers. The note will pay quarterly interest in excess of any interest payable on any intercompany loans transferred to NB Holdings. NB Holdings also provided the parent company with a committed line of credit that allows the parent company to draw funds necessary to service near-term cash needs.

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These arrangements support our preferred single point of entry resolution strategy, under which only the parent company would be resolved under the U.S Bankruptcy Code. These arrangements include provisions to terminate the line of credit, forgive the subordinated note and require the parent company to transfer its remaining financial assets to NB Holdings if our projected liquidity resources deteriorate so severely that resolution of the parent company becomes imminent.

Our GLS are substantially the same in composition to what qualifies as High Quality Liquid Assets (HQLA) under the final U.S. Liquidity Coverage Ratio (LCR) rules. For more information on the final LCR rules, see Liquidity Risk Basel 3 Liquidity Standards on page 49.

47

## Table of Contents

Our GLS were $\$ 522$ billion and $\$ 504$ billion at September 30, 2016 and December 31, 2015 and were as shown in Table 19.

Table 19
Global Liquidity Sources
(Dollars in billions)
Total Global Liquidity Sources
\$ 522
\$ 504

## Edgar Filing: BANK OF AMERICA CORP /DE/ - Form 10-Q

## Table of Contents

Time-to-required Funding and Liquidity Stress Analysis
We use a variety of metrics to determine the appropriate amounts of liquidity to maintain at the parent company and our subsidiaries. One metric we use to evaluate the appropriate level of liquidity at the parent company and NB Holdings is "time-to-required funding (TTF)." This debt coverage measure indicates the number of months the parent company can continue to meet its unsecured contractual obligations as they come due using only the parent company and NB Holdings' liquidity sources without issuing any new debt or accessing any additional liquidity sources. We define unsecured contractual obligations for purposes of this metric as maturities of senior or subordinated debt issued or guaranteed by Bank of America Corporation. These include certain unsecured debt instruments, primarily structured liabilities, which we may be required to settle for cash prior to maturity. Prior to the third quarter of 2016, the TTF metric incorporated only the liquidity of the parent company. During the third quarter of 2016, the TTF metric was expanded to include the liquidity of NB Holdings, following changes in the Corporation's liquidity management practices, initiated in connection with the Corporation's resolution planning activities, that include maintaining at NB Holdings certain liquidity previously held solely at the parent company. Our time-to-required funding was 38 months at September 30, 2016.

We also utilize liquidity stress analysis to assist us in determining the appropriate amounts of liquidity to maintain at the parent company and our subsidiaries. The liquidity stress testing process is an integral part of analyzing our potential contractual and contingent cash outflows. We evaluate the liquidity requirements under a range of scenarios with varying levels of severity and time horizons. The scenarios we consider and utilize incorporate market-wide and Corporation-specific events, including potential credit rating downgrades for the parent company and our subsidiaries, and more severe events including potential resolution scenarios. The scenarios are based on historical experience of the Corporation, experience of distressed and failed financial firms, regulatory guidance, and both expected and unexpected future events.

The types of potential contractual and contingent cash outflows we consider in our scenarios may include, but are not limited to, upcoming contractual maturities of unsecured debt and reductions in new debt issuance; diminished access to secured financing markets; potential deposit withdrawals; increased draws on loan commitments, liquidity facilities and letters of credit; additional collateral that counterparties could call if our credit ratings were downgraded; collateral and margin requirements arising from market value changes; and potential liquidity required to maintain businesses and finance customer activities. Changes in certain market factors including, but not limited to, credit rating downgrades, could negatively impact potential contractual and contingent outflows and the related financial instruments, and in some cases these impacts could be material to our financial results.

We consider all sources of funds that we could access during each stress scenario and focus particularly on matching available sources with corresponding liquidity requirements by legal entity. We also use the stress modeling results to manage our asset-liability profile and establish limits and guidelines on certain funding sources and businesses.

## Basel 3 Liquidity Standards

There are two liquidity risk-related standards that are considered part of the Basel 3 liquidity standards: the LCR and the Net Stable Funding Ratio (NSFR).

The LCR is calculated as the amount of a financial institution's unencumbered HQLA relative to the estimated net cash outflows the institution could encounter over a 30-day period of significant liquidity stress, expressed as a percentage. An initial minimum LCR of 80 percent was required as of January 2015, increased to 90 percent as of January 2016 and will increase to 100 percent in January 2017. These minimum requirements are applicable to the Corporation on a consolidated basis and to our insured depository institutions. As of September 30, 2016, we estimate that the consolidated Corporation was above the 2017 LCR requirements. The Corporation's LCR may fluctuate from
period to period due to normal business flows from customer activity.
In 2014, the Basel Committee issued a final standard for the NSFR, the standard that is intended to reduce funding risk over a longer time horizon. The NSFR is designed to ensure an appropriate amount of stable funding, generally capital and liabilities maturing beyond one year, given the mix of assets and off-balance sheet items. In April 2016, U.S. banking regulators issued a proposal for an NSFR requirement applicable to U.S. financial institutions. The U.S. NSFR would apply to the Corporation on a consolidated basis and to our insured depository institutions beginning on January 1, 2018. We expect to meet the NSFR requirement within the regulatory timeline.

## Diversified Funding Sources

We fund our assets primarily with a mix of deposits and secured and unsecured liabilities through a centralized, globally coordinated funding approach. We diversify our funding globally across products, programs, markets, currencies and investor groups.

The primary benefits of our centralized funding approach include greater control, reduced funding costs, wider name recognition by investors and greater flexibility to meet the variable funding requirements of subsidiaries. Where regulations, time zone differences or other business considerations make parent company funding impractical, certain other subsidiaries may issue their own debt.

## Table of Contents

We fund a substantial portion of our lending activities through our deposits, which were $\$ 1.23$ trillion and $\$ 1.20$ trillion at September 30, 2016 and December 31, 2015. Deposits are primarily generated by our Consumer Banking, GWIM and Global Banking segments. These deposits are diversified by clients, product type and geography, and the majority of our U.S. deposits are insured by the FDIC. We consider a substantial portion of our deposits to be a stable, low-cost and consistent source of funding. We believe this deposit funding is generally less sensitive to interest rate changes, market volatility or changes in our credit ratings than wholesale funding sources. Our lending activities may also be financed through secured borrowings, including credit card securitizations and securitizations with GSEs, the FHA and private-label investors, as well as FHLB loans.

Our trading activities in other regulated entities are primarily funded on a secured basis through securities lending and repurchase agreements and these amounts will vary based on customer activity and market conditions. We believe funding these activities in the secured financing markets is more cost-efficient and less sensitive to changes in our credit ratings than unsecured financing. Repurchase agreements are generally short-term and often overnight. Disruptions in secured financing markets for financial institutions have occurred in prior market cycles which resulted in adverse changes in terms or significant reductions in the availability of such financing. We manage the liquidity risks arising from secured funding by sourcing funding globally from a diverse group of counterparties, providing a range of securities collateral and pursuing longer durations, when appropriate. For more information on secured financing agreements, see Note 9 - Federal Funds Sold or Purchased, Securities Financing Agreements and Short-term Borrowings to the Consolidated Financial Statements.

We issue long-term unsecured debt in a variety of maturities and currencies to achieve cost-efficient funding and to maintain an appropriate maturity profile. While the cost and availability of unsecured funding may be negatively impacted by general market conditions or by matters specific to the financial services industry or the Corporation, we seek to mitigate refinancing risk by actively managing the amount of our borrowings that we anticipate will mature within any month or quarter.

During the three and nine months ended September 30, 2016, we issued $\$ 8.9$ billion and $\$ 24.8$ billion of long-term debt, consisting of $\$ 7.2$ billion and $\$ 18.7$ billion for Bank of America Corporation, $\$ 35$ million and $\$ 966$ million for Bank of America, N.A. and $\$ 1.7$ billion and $\$ 5.1$ billion of other debt.

Table 21 presents the carrying value of aggregate annual contractual maturities of long-term debt as of September 30, 2016. During the nine months ended September 30, 2016, we had total long-term debt maturities and purchases of $\$ 41.3$ billion consisting of $\$ 25.6$ billion for Bank of America Corporation, $\$ 9.1$ billion for Bank of America, N.A. and $\$ 6.6$ billion of other debt.

Table 21
Long-term Debt By Maturity

|  | Remaind of |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| (Dollars in millions) | 2016 | 2017 | 2018 | 2019 | 2020 | Thereafter | Total |
| Bank of America Corporation |  |  |  |  |  |  |  |
| Senior notes | \$ 3,042 | \$18,336 | \$20,007 | \$18,290 | \$11,594 | \$ 52,751 | \$124,020 |
| Senior structured notes | 802 | 3,941 | 2,950 | 1,422 | 980 | 8,200 | 18,295 |
| Subordinated notes | 352 | 5,024 | 2,770 | 1,498 | - | 21,078 | 30,722 |
| Junior subordinated notes | - | - | - | - | - | 3,830 | 3,830 |
| Total Bank of America Corporation | 4,196 | 27,301 | 25,727 | 21,210 | 12,574 | 85,859 | 176,867 |
| Bank of America, N.A. |  |  |  |  |  |  |  |
| Senior notes | 2,499 | 3,649 | 5,790 | - | - | 21 | 11,959 |
| Subordinated notes | - | 3,359 | - | 1 | - | 1,831 | 5,191 |

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| Advances from Federal Home Loan Banks | - | 9 | 9 | 14 | 12 | 120 | 164 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Securitizations and other Bank VIEs ${ }^{(1)}$ | 11 | 3,477 | 2,300 | 3,199 | - | 134 | 9,121 |
| Other | - | 2,718 | 107 | 111 | 14 | 133 | 3,083 |
| Total Bank of America, N.A. | 2,510 | 13,212 | 8,206 | 3,325 | 26 | 2,239 | 29,518 |
| Other debt |  |  |  |  |  |  |  |
| Structured liabilities | 920 | 3,834 | 1,212 | 1,418 | 1,059 | 8,168 | 16,611 |
| Nonbank VIEs ${ }^{(1)}$ | 451 | 244 | 29 | 16 | - | 1,348 | 2,088 |
| Other | - | 1 | - | - | - | 51 | 52 |
| Total other debt | 1,371 | 4,079 | 1,241 | 1,434 | 1,059 | 9,567 | 18,751 |
| Total long-term debt | $\$ 8,077$ | $\$ 44,592$ | $\$ 35,174$ | $\$ 25,969$ | $\$ 13,659 \$ 97,665$ | $\$ 225,136$ |  |

${ }_{(1)}$ Represents the total long-term debt included in the liabilities of consolidated variable interest entities (VIEs) on the Consolidated Balance Sheet.

50

## Table of Contents

Table 22 presents our long-term debt by major currency at September 30, 2016 and December 31, 2015.
Table 22
Long-term Debt By Major Currency

| (Dollars in millions) | September 30 <br> 2016 | December 31 <br> 2015 |
| :--- | :--- | :--- |
| U.S. Dollar | $\$ 175,874$ | $\$ 190,381$ |
| Euro | 30,839 | 29,797 |
| British Pound | 7,504 | 7,080 |
| Japanese Yen | 4,468 | 3,099 |
| Australian Dollar | 3,083 | 2,534 |
| Canadian Dollar | 1,095 | 1,428 |
| Other | 2,273 | 2,445 |
| Total long-term debt $\$ 225,136$ | $\$ 236,764$ |  |

Total long-term debt decreased $\$ 11.6$ billion, or five percent, during the nine months ended September 30, 2016 primarily due to maturities outpacing issuances. We may, from time to time, purchase outstanding debt instruments in various transactions, depending on prevailing market conditions, liquidity and other factors. In addition, our other regulated entities may make markets in our debt instruments to provide liquidity for investors. For more information on long-term debt funding, see Note 11 - Long-term Debt to the Consolidated Financial Statements of the Corporation's 2015 Annual Report on Form 10-K and for more information regarding funding and liquidity risk management, see Liquidity Risk - Time-to-required Funding and Stress Modeling in the MD\&A of the Corporation's 2015 Annual Report on Form 10-K.

We use derivative transactions to manage the duration, interest rate and currency risks of our borrowings, considering the characteristics of the assets they are funding. For further details on our ALM activities, see Interest Rate Risk Management for the Banking Book on page 89.

We may also issue unsecured debt in the form of structured notes for client purposes. During the three and nine months ended September 30, 2016, we issued $\$ 1.7$ billion and $\$ 5.2$ billion of structured notes, a majority of which were issued by Bank of America Corporation. Structured notes are debt obligations that pay investors returns linked to other debt or equity securities, indices, currencies or commodities. We typically hedge the returns we are obligated to pay on these liabilities with derivatives and/or investments in the underlying instruments, so that from a funding perspective, the cost is similar to our other unsecured long-term debt. We could be required to settle certain structured note obligations for cash or other securities prior to maturity under certain circumstances, which we consider for liquidity planning purposes. We believe, however, that a portion of such borrowings will remain outstanding beyond the earliest put or redemption date.

Substantially all of our senior and subordinated debt obligations contain no provisions that could trigger a requirement for an early repayment, require additional collateral support, result in changes to terms, accelerate maturity or create additional financial obligations upon an adverse change in our credit ratings, financial ratios, earnings, cash flows or stock price.

## Contingency Planning

We maintain contingency funding plans that outline our potential responses to liquidity stress events at various levels of severity. These policies and plans are based on stress scenarios and include potential funding strategies and communication and notification procedures that we would implement in the event we experienced stressed liquidity conditions. We periodically review and test the contingency funding plans to validate efficacy and assess readiness.

Our U.S. bank subsidiaries can access contingency funding through the Federal Reserve Discount Window. Certain non-U.S. subsidiaries have access to central bank facilities in the jurisdictions in which they operate. While we do not rely on these sources in our liquidity modeling, we maintain the policies, procedures and governance processes that would enable us to access these sources if necessary.

51

## Table of Contents

## Credit Ratings

Credit ratings and outlooks are opinions expressed by rating agencies on our creditworthiness and that of our obligations or securities, including long-term debt, short-term borrowings, preferred stock and other securities, including asset securitizations. Table 23 presents the Corporation's current long-term/short-term senior debt ratings and outlooks expressed by the rating agencies. These ratings have not changed from those disclosed in the Corporation's 2015 Annual Report on Form 10-K. For more information on credit ratings, see Liquidity Risk - Credit Ratings in the MD\&A of the Corporation's 2015 Annual Report on Form 10-K.

Table 23
Senior Debt Ratings
Moody's Investors Service Standard \& Poor's
Long-term Short-term Outlook Long-term Short-term ${ }^{(1)}$ Outlook
Bank
of $_{\text {Baal }}$

America $\quad$ P-2 $\quad$ Stable | BBB+ | A-2 | Stable | A | F1 |
| :--- | :--- | :--- | :--- | :--- |

Corporation
Bank

| ${ }^{\text {of }}$ A1 |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| P-1 | A | Stable | A | A-1 | CreditWatch Positive A+ | F1 | Stable |

N.A.

Merrill
Lynch,
Pierce,
Fexiker
\&
Smith,
Incorporated
Merrill
LyNRh NR NR A A-1 CreditWatch Positive A F1 Positive
International
${ }^{(1)}$ Standard \& Poor's Ratings Services short-term ratings are not on CreditWatch.
NR = not rated
For information on the additional collateral and termination payments that could be required in connection with certain OTC derivative contracts and other trading agreements as a result of such a credit rating downgrade, see Note 2 - Derivatives to the Consolidated Financial Statements herein and Item 1A. Risk Factors of the Corporation's 2015 Annual Report on Form 10-K.

Credit Risk Management
For more information on our credit risk management activities, see Consumer Portfolio Credit Risk Management below, Commercial Portfolio Credit Risk Management on page 67, Non-U.S. Portfolio on page 78, Provision for Credit Losses on page 79, Allowance for Credit Losses on page 80, and Note 4 - Outstanding Loans and Leases and Note 5 - Allowance for Credit Losses to the Consolidated Financial Statements.

Consumer Portfolio Credit Risk Management

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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, and determination of the allowance for loan and lease losses and allocated capital for credit risk.

## Table of Contents

## Consumer Credit Portfolio

Improvement in the U.S. unemployment rate and home prices continued during the three and nine months ended September 30, 2016 resulting in improved credit quality and lower credit losses across most major consumer portfolios compared to the same periods in 2015. The 30 and 90 days or more past due balances declined across nearly all consumer loan portfolios during the nine months ended September 30, 2016 as a result of improved delinquency trends.

Improved credit quality, continued loan balance run-off and sales across the consumer portfolio drove a $\$ 1.0$ billion decrease in the consumer allowance for loan and lease losses during the nine months ended September 30, 2016 to $\$ 6.4$ billion at September 30, 2016. For additional information, see Allowance for Credit Losses on page 80.

For more information on our accounting policies regarding delinquencies, nonperforming status, charge-offs and troubled debt restructurings (TDRs) for the consumer portfolio, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements of the Corporation's 2015 Annual Report on Form 10-K

Table 24 presents our outstanding consumer loans and leases, and the PCI loan portfolio. In addition to being included in the "Outstandings" columns in Table 24, PCI loans are also shown separately in the "Purchased Credit-impaired Loan Portfolio" columns. The impact of the PCI loan portfolio on certain credit statistics is reported where appropriate. For more information on PCI loans, see Consumer Portfolio Credit Risk Management - Purchased Credit-impaired Loan Portfolio on page 62 and Note 4 - Outstanding Loans and Leases to the Consolidated Financial Statements.

Table 24
Consumer Loans and Leases

|  | Outstandings |  | Purchased Cr | air | Loan P |
| :---: | :---: | :---: | :---: | :---: | :---: |
| (Dollars in | September 30 | December 31 | September 30 |  | mber 31 |
| millions) | 2016 | 2015 | 2016 |  |  |
| Residential mortgage (1) | \$ 187,968 | \$ 187,911 | \$ 10,614 | \$ | 12,066 |
| Home equity | 68,997 | 75,948 | 3,854 |  |  |
| U.S. credit card | 88,789 | 89,602 | $\mathrm{n} / \mathrm{a}$ | n/ |  |
| Non-U.S. credit card | 9,258 | 9,975 | n/a |  |  |
| Direct/Indirect consumer ${ }^{(2)}$ | 93,294 | 88,795 | n/a | n/ |  |
| Other consumer <br> (3) | 2,389 | 2,067 | n/a | n / |  |
| Consumer loans excluding loans accounted for under the fair value option | 450,695 | 454,298 | 14,468 |  |  |
| Loans accounted for under the fair value option ${ }^{(4)}$ | 1,768 | 1,871 | n/a | n / |  |
| Total consumer loans and leases (1) | \$ 452,463 | \$ 456,169 | \$ 14,468 | \$ | 16,685 |

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Outstandings include pay option loans of $\$ 1.9$ billion and $\$ 2.3$ billion at September 30, 2016 and December 31, 2015. We no longer originate pay option loans.
Outstandings include auto and specialty lending loans of $\$ 47.8$ billion and $\$ 42.6$ billion, unsecured consumer

## (2)

 lending loans of $\$ 630$ million and $\$ 886$ million, U.S. securities-based lending loans of $\$ 40.1$ billion and $\$ 39.8$ billion, non-U.S. consumer loans of $\$ 3.1$ billion and $\$ 3.9$ billion, student loans of $\$ 514$ million and $\$ 564$ million and other consumer loans of $\$ 1.1$ billion and $\$ 1.0$ billion at September 30, 2016 and December 31, 2015. Outstandings include consumer finance loans of $\$ 489$ million and $\$ 564$ million, consumer leases of $\$ 1.7$ billion${ }^{(3)}$ and $\$ 1.4$ billion and consumer overdrafts of $\$ 151$ million and $\$ 146$ million at September 30, 2016 and December 31, 2015.
Consumer loans accounted for under the fair value option include residential mortgage loans of $\$ 1.4$ billion and
(4) $\$ 1.6$ billion and home equity loans of $\$ 340$ million and $\$ 250$ million at September 30, 2016 and December 31, 2015. For more information on the fair value option, see Note 15 - Fair Value Option to the Consolidated Financial Statements.
$\mathrm{n} / \mathrm{a}=$ not applicable
53

## Table of Contents

Table 25 presents consumer nonperforming loans and accruing consumer loans past due 90 days or more. Nonperforming loans do not include past due consumer credit card loans, other unsecured loans and in general, consumer loans not secured by real estate (loans discharged in Chapter 7 bankruptcy are included) as these loans are typically charged off no later than the end of the month in which the loan becomes 180 days past due. Real estate-secured past due consumer loans that are insured by the FHA or individually insured under long-term standby agreements with FNMA and FHLMC (collectively, the fully-insured loan portfolio) are reported as accruing as opposed to nonperforming since the principal repayment is insured. Fully-insured loans included in accruing past due 90 days or more are primarily from our repurchases of delinquent FHA loans pursuant to our servicing agreements with GNMA. Additionally, nonperforming loans and accruing balances past due 90 days or more do not include the PCI loan portfolio or loans accounted for under the fair value option even though the customer may be contractually past due.

Table 25
Consumer Credit Quality
(Dollars in millions)
Residential mortgage ${ }^{(1)}$
Home equity
U.S. credit card

Non-U.S. credit card
Direct/Indirect consumer
Other consumer
Total (2)
Consumer loans and leases as a percentage of outstanding consumer loans and leases (2)
Consumer loans and leases as a percentage of outstanding loans and leases, excluding PCI and fully-insured loan portfolios ${ }^{(2)}$

| Nonperforming |  |  | Accruing Past Due 90 Days or More |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Septemb | berDecembe |  | 1 Septem | b | rlbe | ecemb |
| 2016 | 2015 |  | 2016 |  |  | 015 |
| \$3,341 | \$ 4,803 |  | \$5,117 |  |  | 7,150 |
| 2,982 | 3,337 |  | - |  | - |  |
| n/a | n/a |  | 702 |  | 789 | 89 |
| n/a | n/a |  | 65 |  | 76 |  |
| 26 | 24 |  | 29 |  | 39 |  |
| 1 | 1 |  | 3 |  | 3 |  |
| \$6,350 | \$ 8,165 |  | \$5,916 |  |  | 8,057 |
| 1.41 \% | \% 1.80 | \% | 1.31 | \% | 1.7 | 77 |
| 1.56 | 2.04 |  | 0.20 |  |  | 23 |

Residential mortgage loans accruing past due 90 days or more are fully-insured loans. At September 30, 2016 and
(1) December 31, 2015, residential mortgage included $\$ 3.3$ billion and $\$ 4.3$ billion of loans on which interest has been curtailed by the FHA, and therefore are no longer accruing interest, although principal is still insured, and $\$ 1.8$ billion and $\$ 2.9$ billion of loans on which interest was still accruing.
Balances exclude consumer loans accounted for under the fair value option. At September 30, 2016 and
(2) December 31, 2015, $\$ 222$ million and $\$ 293$ million of loans accounted for under the fair value option were past due 90 days or more and not accruing interest.
$\mathrm{n} / \mathrm{a}=$ not applicable
Table 26 presents net charge-offs and related ratios for consumer loans and leases.
Table 26
Consumer Net Charge-offs and Related Ratios

| Net Charge-offs ${ }^{(1)}$ |  | Net Charge-off Ratios ${ }^{(1,2)}$ |  |
| :---: | :---: | :---: | :---: |
| Three |  |  |  |
| Months | Nine Months | Three Months | Nine Months |
| Ended | Ended | Ended | Ended |
| September | September 30 | September 30 | September 30 |
| 30 |  |  |  |
| 20162015 | 20162015 | 20162015 | 20162015 |

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| Residential mortgage | $\$ 4$ | $\$ 26$ | $\$ 129$ | $\$ 400$ | $0.01 \%$ | 0.05 | $\%$ | $0.09 \%$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Home equity | 97 | 120 | 335 | 443 | 0.55 | 0.60 | 0.61 | 0.72 |
| U.S. credit card | 543 | 546 | 1,703 | 1,751 | 2.45 | 2.46 | 2.60 | 2.66 |
| Non-U.S. credit card | 43 | 47 | 134 | 142 | 1.83 | 1.83 | 1.84 | 1.88 |
| Direct/Indirect consumer 34 | 25 | 91 | 83 | 0.14 | 0.12 | 0.13 | 0.13 |  |
| Other consumer | 57 | 57 | 152 | 139 | 9.74 | 11.21 | 9.09 | 9.72 |
| Total | $\$ 778$ | $\$ 821$ | $\$ 2,544$ | $\$ 2,958$ | 0.69 | 0.71 | 0.76 | 0.84 |

${ }_{(1)}$ Net charge-offs exclude write-offs in the PCI loan portfolio. For more information on PCI write-offs, see Consumer Portfolio Credit Risk Management - Purchased Credit-impaired Loan Portfolio on page 62.
(2) Net charge-off ratios are calculated as annualized net charge-offs divided by average outstanding loans and leases excluding loans accounted for under the fair value option.

## Table of Contents

Net charge-off ratios, excluding the PCI and fully-insured loan portfolios, were 0.01 percent and 0.12 percent for residential mortgage, 0.58 percent and 0.65 percent for home equity, and 0.77 percent and 0.85 percent for the total consumer portfolio for the three and nine months ended September 30, 2016, respectively. Net charge-off ratios, excluding the PCI and fully-insured loan portfolios, were 0.08 percent and 0.39 percent for residential mortgage, 0.64 percent and 0.77 percent for home equity, and 0.82 percent and one percent for the total consumer portfolio for the three and nine months ended September 30, 2015, respectively. These are the only product classifications that include PCI and fully-insured loans.

Net charge-offs, as shown in Tables 26 and 27, exclude write-offs in the PCI loan portfolio of $\$ 33$ million and $\$ 109$ million in residential mortgage for the three and nine months ended September 30, 2016 compared to $\$ 128$ million and $\$ 580$ million for the same periods in 2015. Net charge-offs, as shown in Tables 26 and 27, exclude write-offs in the PCI loan portfolio of $\$ 50$ million and $\$ 161$ million in home equity for the three and nine months ended September 30,2016 compared to $\$ 20$ million and $\$ 146$ million for the same periods in 2015. Net charge-off ratios including the PCI write-offs were 0.08 percent and 0.17 percent for residential mortgage for the three and nine months ended September 30, 2016 compared to 0.32 percent and 0.64 percent for the same periods in 2015. Net charge-off ratios including the PCI write-offs were 0.83 percent and 0.91 percent for home equity for the three and nine months ended September 30, 2016 compared to 0.70 percent and 0.96 percent for the same periods in 2015. For more information on PCI write-offs, see Consumer Portfolio Credit Risk Management - Purchased Credit-impaired Loan Portfolio on page 62.

Table 27 presents outstandings, nonperforming balances, net charge-offs, allowance for loan and lease losses and provision for loan and lease losses for the core and non-core portfolio within the consumer real estate portfolio.

We categorize consumer real estate loans as core and non-core on the basis of loan and customer characteristics such as origination date, product type, LTV, FICO score and delinquency status consistent with our current consumer and mortgage servicing strategy. Generally, loans that were originated after January 1, 2010, qualified under government-sponsored enterprise underwriting guidelines, or otherwise met our underwriting guidelines in place in 2015 are characterized as core loans. Loans held in legacy private-label securitizations, government-insured loans originated prior to 2010, loan products no longer originated, and loans originated prior to 2010 and classified as nonperforming or modified in a TDR prior to 2016 are generally characterized as non-core loans, and are principally run-off portfolios. Core loans as reported within Table 27 include loans held in the Consumer Banking and GWIM segments, as well as loans held for ALM activities in All Other. For more information on core and non-core loans, see Note 4 - Outstanding Loans and Leases to the Consolidated Financial Statements.

As shown in Table 27, outstanding core consumer real estate loans increased $\$ 4.7$ billion during the nine months ended September 30, 2016 driven by an increase of $\$ 8.7$ billion in residential mortgage, partially offset by a $\$ 4.0$ billion decrease in home equity. The increase in residential mortgage was primarily driven by increased originations in Consumer Banking and GWIM. The decrease in home equity was driven by paydowns outpacing new originations and draws on existing lines.

## Table of Contents

Table 27
Consumer Real Estate Portfolio ${ }^{(1)}$

|  | Outstandings |  | Nonperforming |  | Net Charge-offs ${ }^{(2)}$ |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Three |  |  |  |
|  | SeptemberBEcember 31 |  |  |  | Months |  | Nine Months Ended |  |
|  |  |  | Septemb®e3ember 31 |  |  |  |  |
|  | 2016 | 2015 |  |  | 2016 | 2015 | Septen | $\text { ember } 30$ | ${ }_{0}$ Septe | mber 30 |
| (Dollars in millions) |  |  |  |  | 2016 | 2015 | 2016 | 2015 |
| Core portfolio |  |  |  |  |  |  |  |  |
| Residential mortgage | \$150,491 | \$ 141,795 | \$1,394 | \$ 1,825 | \$(12) | ) \$11 | \$(23 | ) $\$ 77$ |
| Home equity | 50,924 | 54,917 | 956 | 974 | 35 | 37 | 81 | 117 |
| Total core portfolio | 201,415 | 196,712 | 2,350 | 2,799 | 23 | 48 | 58 | 194 |
| Non-core portfolio |  |  |  |  |  |  |  |  |
| Residential mortgage | 37,477 | 46,116 | 1,947 | 2,978 | 16 | 15 | 152 | 323 |
| Home equity | 18,073 | 21,031 | 2,026 | 2,363 | 62 | 83 | 254 | 326 |
| Total non-core portfolio | 55,550 | 67,147 | 3,973 | 5,341 | 78 | 98 | 406 | 649 |
| Consumer real estate portfolio |  |  |  |  |  |  |  |  |
| Residential mortgage | 187,968 | 187,911 | 3,341 | 4,803 | 4 | 26 | 129 | 400 |
| Home equity | 68,997 | 75,948 | 2,982 | 3,337 | 97 | 120 | 335 | 443 |
| Total consumer real estate portfolio | \$256,965 | \$ 263,859 | \$6,323 | \$ 8,140 | \$101 | \$146 | \$464 | \$843 |
|  |  |  | Allowance for Loan and Lease Losses |  | Provision for Loan and Lease Losses |  |  |  |
|  |  |  |  |  | Three |  | Nine Months |  |
|  |  |  | Septemb®e3ember 31 |  | Months |  | Ended |  |
|  |  |  | 2016 | 2015 | Septe | ember 30 | September 30 |  |
|  |  |  |  |  | 2016 | 2015 | 2016 | 2015 |
| Core portfolio |  |  |  |  |  |  |  |  |
| Residential mortgage |  |  | \$261 | \$ 319 | \$(33) | ) \$(15) | ) \$(86 | ) \$(19) |
| Home equity |  |  | 593 | 664 | 2 | (44 ) | ) 10 | (40 |
| Total core portfolio |  |  | 854 | 983 |  | ) (59 | ) (76 | ) (59 |
| Non-core portfolio |  |  |  |  |  |  |  |  |
| Residential mortgage |  |  | 827 | 1,181 |  | ) (73 ) | ) (88 | ) (146) |
| Home equity |  |  | 1,308 | 1,750 | 29 | 120 | (27 | ) 273 |
| Total non-core portfolio |  |  | 2,135 | 2,931 | (5 ) | ) 47 | (115 | ) 127 |
| Consumer real estate portfolio |  |  |  |  |  |  |  |  |
| Residential mortgage |  |  | 1,088 | 1,500 | (67 ) | ) (88 ) | ) (174 | ) (165) |
| Home equity |  |  | 1,901 | 2,414 | 31 | 76 | (17 | ) 233 |
| Total consumer real estate portfolio |  |  | \$ 2,989 | \$ 3,914 | \$(36) | ) \$(12) | \$(19 | 1) $\$ 68$ |

Outstandings and nonperforming loans exclude loans accounted for under the fair value option. Consumer loans
(1) accounted for under the fair value option include residential mortgage loans of $\$ 1.4$ billion and $\$ 1.6$ billion and home equity loans of $\$ 340$ million and $\$ 250$ million at September 30, 2016 and December 31, 2015. For more information on the fair value option, see Note 15 - Fair Value Option to the Consolidated Financial Statements.
${ }_{(2)}$ Net charge-offs exclude write-offs in the PCI loan portfolio. For more information on PCI write-offs, see Consumer Portfolio Credit Risk Management - Purchased Credit-impaired Loan Portfolio on page 62.

We believe that the presentation of information adjusted to exclude the impact of the PCI loan portfolio, the fully-insured loan portfolio and loans accounted for under the fair value option is more representative of the ongoing
operations and credit quality of the business. As a result, in the following discussions of the residential mortgage and home equity portfolios, we provide information that excludes the impact of the PCI loan portfolio, the fully-insured loan portfolio and loans accounted for under the fair value option in certain credit quality statistics. We separately disclose information on the PCI loan portfolio on page 62.

## Table of Contents

Residential Mortgage
The residential mortgage portfolio makes up the largest percentage of our consumer loan portfolio at 42 percent of consumer loans and leases at September 30, 2016. Approximately 40 percent of the residential mortgage portfolio is in All Other and is comprised of originated loans, purchased loans used in our overall ALM activities, delinquent FHA loans repurchased pursuant to our servicing agreements with GNMA as well as loans repurchased related to our representations and warranties. Approximately 33 percent of the residential mortgage portfolio is in GWIM and represents residential mortgages originated for the home purchase and refinancing needs of our wealth management clients and the remaining portion of the portfolio is primarily in Consumer Banking.

Outstanding balances in the residential mortgage portfolio, excluding loans accounted for under the fair value option, remained relatively unchanged at $\$ 188.0$ billion for the nine months ended September 30, 2016 compared to December 31, 2015 as retention of new originations was offset by loan sales of $\$ 5.4$ billion and runoff. Loan sales primarily included $\$ 3.1$ billion of loans in consolidated agency residential mortgage securitization vehicles and $\$ 1.6$ billion of nonperforming and other delinquent loans.

At September 30, 2016 and December 31, 2015, the residential mortgage portfolio included $\$ 30.1$ billion and $\$ 37.1$ billion of outstanding fully-insured loans. On this portion of the residential mortgage portfolio, we are protected against principal loss as a result of either FHA insurance or long-term standby agreements that provide for the transfer of credit risk to FNMA and FHLMC. At September 30, 2016 and December 31, 2015, $\$ 24.1$ billion and $\$ 33.4$ billion had FHA insurance with the remainder protected by long-term standby agreements. At September 30, 2016 and December 31, 2015, $\$ 8.0$ billion and $\$ 11.2$ billion of the FHA-insured loan population were repurchases of delinquent FHA loans pursuant to our servicing agreements with GNMA.

Table 28 presents certain residential mortgage key credit statistics on both a reported basis excluding loans accounted for under the fair value option, and excluding the PCI loan portfolio, our fully-insured loan portfolio and loans accounted for under the fair value option. Additionally, in the "Reported Basis" columns in the table below, accruing balances past due and nonperforming loans do not include the PCI loan portfolio, in accordance with our accounting policies, even though the customer may be contractually past due. As such, the following discussion presents the residential mortgage portfolio excluding the PCI loan portfolio, the fully-insured loan portfolio and loans accounted for under the fair value option. For more information on the PCI loan portfolio, see page 62.

Table 28
Residential Mortgage - Key Credit Statistics
$\left.\begin{array}{llllll} & \text { Reported Basis }{ }^{(1)} & \begin{array}{l}\text { Excluding Purchased } \\ \text { Credit-impaired and }\end{array} \\ \text { Fully-insured Loans }\end{array}\right]$

Refreshed FICO score below 620
2006 and 2007 vintages ${ }^{(2)}$

Reported Basis
$\begin{array}{ll}\text { Three Months } & \text { Nine Months } \\ \text { Ended } & \text { Ended } \\ \text { September 30 } & \text { September } 30\end{array}$
Net charge-off ratio ${ }^{(3)} 0.01 \% \quad 0.05 \% \quad 0.09 \% \quad 0.26 \% ~ 0.01$ \% 0.08
${ }_{(1)}$ Outstandings, accruing past due, nonperforming loans and percentages of portfolio exclude loans accounted for under the fair value option.
These vintages of loans account for $\$ 1.0$ billion, or 31 percent, and $\$ 1.6$ billion, or 34 percent of nonperforming residential mortgage loans at September 30, 2016 and December 31, 2015. For the three and nine months ended
(2) September 30, 2016, these vintages accounted for $\$ 6$ million of recoveries and $\$ 10$ million, or eight percent of total residential mortgage net charge-offs. For the three and nine months ended September 30, 2015, these vintages accounted for $\$ 4$ million of recoveries, and $\$ 114$ million, or 29 percent of total residential mortgage net charge-offs.
(3) Net charge-off ratios are calculated as annualized net charge-offs divided by average outstanding loans excluding loans accounted for under the fair value option.

57

## Table of Contents

Nonperforming residential mortgage loans decreased $\$ 1.5$ billion during the nine months ended September 30, 2016 as outflows, including sales of $\$ 1.2$ billion, outpaced new inflows. Of the nonperforming residential mortgage loans at September 30, 2016, $\$ 1.1$ billion, or 32 percent, were current on contractual payments.

Net charge-offs decreased $\$ 22$ million to $\$ 4$ million and decreased $\$ 271$ million to $\$ 129$ million for the three and nine months ended September 30, 2016 compared to the same periods in 2015. These decreases in net charge-offs were primarily driven by charge-offs related to the consumer relief portion of the settlement with the DoJ of $\$ 49$ million and $\$ 379$ million in the prior-year periods. Net charge-offs also included recoveries of $\$ 7$ million and charge-offs of $\$ 35$ million related to nonperforming loan sales during the three and nine months ended September 30, 2016 compared to recoveries of $\$ 57$ million and $\$ 119$ million for the same periods in 2015. Additionally, net charge-offs declined driven by favorable portfolio trends and decreased write-downs on loans greater than 180 days past due, which were written down to the estimated fair value of the collateral, less costs to sell, due in part to improvement in home prices and the U.S. economy.

Loans with a refreshed LTV greater than 100 percent represented three percent and four percent of the residential mortgage loan portfolio at September 30, 2016 and December 31, 2015. Of the loans with a refreshed LTV greater than 100 percent, 98 percent were performing at both September 30, 2016 and December 31, 2015. Loans with a refreshed LTV greater than 100 percent reflect loans where the outstanding carrying value of the loan is greater than the most recent valuation of the property securing the loan. The majority of these loans have a refreshed LTV greater than 100 percent primarily due to home price deterioration since 2006, partially offset by subsequent appreciation.

Of the $\$ 147.3$ billion in total residential mortgage loans outstanding at September 30, 2016, as shown in Table 29, 38 percent were originated as interest-only loans. The outstanding balance of interest-only residential mortgage loans that have entered the amortization period was $\$ 11.1$ billion, or 20 percent, at September 30, 2016. Residential mortgage loans that have entered the amortization period generally have experienced a higher rate of early stage delinquencies and nonperforming status compared to the residential mortgage portfolio as a whole. At September 30, 2016, \$219 million, or two percent of outstanding interest-only residential mortgages that had entered the amortization period were accruing past due 30 days or more compared to $\$ 1.5$ billion, or one percent for the entire residential mortgage portfolio. In addition, at September 30, 2016, $\$ 535$ million, or five percent of outstanding interest-only residential mortgage loans that had entered the amortization period were nonperforming, of which $\$ 268$ million were contractually current, compared to $\$ 3.3$ billion, or two percent for the entire residential mortgage portfolio, of which $\$ 1.1$ billion were contractually current. Loans that have yet to enter the amortization period in our interest-only residential mortgage portfolio are primarily well-collateralized loans to our wealth management clients and have an interest-only period of three to ten years. More than 80 percent of these loans that have yet to enter the amortization period will not be required to make a fully-amortizing payment until 2019 or later.

## Table of Contents

Table 29 presents outstandings, nonperforming loans and net charge-offs by certain state concentrations for the residential mortgage portfolio. The Los Angeles-Long Beach-Santa Ana Metropolitan Statistical Area (MSA) within California represented 15 percent and 14 percent of outstandings at September 30, 2016 and December 31, 2015. For the three and nine months ended September 30, 2016, loans within this MSA contributed net recoveries of $\$ 5$ million and $\$ 6$ million within the residential mortgage portfolio compared to net recoveries of $\$ 6$ million and $\$ 10$ million for the same periods in 2015. In the New York area, the New York-Northern New Jersey-Long Island MSA made up 12 percent and 11 percent of outstandings at September 30, 2016 and December 31, 2015. For the three and nine months ended September 30, 2016, loans within this MSA contributed net charge-offs of $\$ 4$ million and $\$ 31$ million within the residential mortgage portfolio compared to net charge-offs of $\$ 13$ million and $\$ 86$ million for the same periods in 2015.

Table 29
Residential Mortgage State Concentrations
(Dollars in millions)
California
New York ${ }^{(3)}$
Florida ${ }^{(3)}$
Texas
Massachusetts
Other U.S./Non-U.S.
Residential mortgage loans ${ }^{(4)}$
Fully-insured loan portfolio
Purchased credit-impaired residential
mortgage loan portfolio ${ }^{(5)}$
Total residential mortgage loan portfolio $\$ 187,968 \$ 187,911$
(1) Outstandings and nonperforming loans exclude loans accounted for under the fair value option.
Net charge-offs exclude $\$ 33$ million and $\$ 109$ million of write-offs in the residential mortgage PCI loan portfolio
(2) for the three and nine months ended September 30, 2016 compared to $\$ 128$ million and $\$ 580$ million for the same periods in 2015. For more information on PCI write-offs, see Consumer Portfolio Credit Risk Management Purchased Credit-impaired Loan Portfolio on page 62.
${ }^{(3)}$ In these states, foreclosure requires a court order following a legal proceeding (judicial states).
(4) Amounts exclude the PCI residential mortgage and fully-insured loan portfolios.
(5) At September 30, 2016 and December 31, 2015, 48 percent and 47 percent of PCI residential mortgage loans were in California. There were no other significant single state concentrations.

## Home Equity

At September 30, 2016, the home equity portfolio made up 15 percent of the consumer portfolio and is comprised of home equity lines of credit (HELOCs), home equity loans and reverse mortgages.

At September 30, 2016, our HELOC portfolio had an outstanding balance of $\$ 60.4$ billion, or 87 percent of the total home equity portfolio compared to $\$ 66.1$ billion, or 87 percent, at December 31,2015 . HELOCs generally have an
initial draw period of 10 years and the borrowers typically are only required to pay the interest due on the loans on a monthly basis. After the initial draw period ends, the loans generally convert to 15 -year amortizing loans.

At September 30, 2016, our home equity loan portfolio had an outstanding balance of $\$ 6.6$ billion, or 10 percent of the total home equity portfolio compared to $\$ 7.9$ billion, or 10 percent, at December 31, 2015. Home equity loans are almost all fixed-rate loans with amortizing payment terms of 10 to 30 years and of the $\$ 6.6$ billion at September 30, 2016, 55 percent have 25- to 30-year terms. At both September 30, 2016 and December 31, 2015, our reverse mortgage portfolio had an outstanding balance, excluding loans accounted for under the fair value option, of \$2.0 billion, or three percent of the total home equity portfolio. We no longer originate reverse mortgages.

## Table of Contents

At September 30, 2016, approximately 67 percent of the home equity portfolio was included in Consumer Banking, 26 percent was included in All Other and the remainder of the portfolio was primarily in GWIM. Outstanding balances in the home equity portfolio, excluding loans accounted for under the fair value option, decreased $\$ 7.0$ billion during the nine months ended September 30, 2016 primarily due to paydowns and charge-offs outpacing new originations and draws on existing lines. Of the total home equity portfolio at September 30, 2016 and December 31, 2015, $\$ 19.9$ billion and $\$ 20.3$ billion, or 29 percent and 27 percent, were in first-lien positions ( 30 percent and 28 percent excluding the PCI home equity portfolio). At September 30, 2016, outstanding balances in the home equity portfolio that were in a second-lien or more junior-lien position and where we also held the first-lien loan totaled $\$ 11.4$ billion, or 18 percent of our total home equity portfolio excluding the PCI loan portfolio.

Unused HELOCs totaled $\$ 47.7$ billion at September 30, 2016 compared to $\$ 50.3$ billion at December 31, 2015. The decrease was primarily due to accounts reaching the end of their draw period, which automatically eliminates open line exposure, as well as customers choosing to close accounts. Both of these more than offset customer paydowns of principal balances and the impact of new production. The HELOC utilization rate was 56 percent at September 30, 2016 compared to 57 percent at December 31, 2015.

Table 30 presents certain home equity portfolio key credit statistics on both a reported basis excluding loans accounted for under the fair value option, and excluding the PCI loan portfolio and loans accounted for under the fair value option. Additionally, in the "Reported Basis" columns in the table below, accruing balances past due 30 days or more and nonperforming loans do not include the PCI loan portfolio, in accordance with our accounting policies, even though the customer may be contractually past due. As such, the following discussion presents the home equity portfolio excluding the PCI loan portfolio and loans accounted for under the fair value option. For more information on the PCI loan portfolio, see page 62 .

Table 30
Home Equity - Key Credit Statistics
(Dollars in millions)
Outstandings
Accruing past due 30 days or more ${ }^{(2)}$
Nonperforming loans ${ }^{(2)}$
Percent of portfolio
Refreshed CLTV greater than 90 but less than or equal to 100
Refreshed CLTV greater than 100
Refreshed FICO score below 620
2006 and 2007 vintages ${ }^{(3)}$


Reported Basis
Three Months Nine Months
Ended Ended
September 30 September 30
$\begin{array}{llllllll}2016 & 2015 & 2016 & 2015 & 2016 & 2015 & 2016 & 2015\end{array}$
Net charge-off ratio ${ }^{(4)} 0.55 \% ~ 0.60 \% ~ 0.61 \% ~ 0.72 \% ~ 0.58 \quad \% \quad 0.64 \quad \% \quad 0.65 \quad \% \quad 0.77 \quad \%$

Accruing past due 30 days or more includes $\$ 74$ million and $\$ 89$ million and nonperforming loans include $\$ 350$ million and $\$ 396$ million of loans where we serviced the underlying first-lien at September 30, 2016 and December 31, 2015.
These vintages of loans have higher refreshed combined LTV ratios and accounted for 48 percent and 45 percent of
(3) nonperforming home equity loans at September 30, 2016 and December 31, 2015, and 57 percent and 47 percent of net charge-offs for the three and nine months ended September 30, 2016 and 52 percent and 56 percent for the three and nine months ended September 30, 2015.
(4) Net charge-off ratios are calculated as annualized net charge-offs divided by average outstanding loans excluding loans accounted for under the fair value option.

Nonperforming outstanding balances in the home equity portfolio decreased $\$ 355$ million during the nine months ended September 30, 2016 as outflows, including sales of $\$ 163$ million, outpaced new inflows. Of the nonperforming home equity portfolio at September 30, 2016, $\$ 1.5$ billion, or 49 percent, were current on contractual payments. Nonperforming loans that are contractually current primarily consist of collateral-dependent TDRs, including those that have been discharged in Chapter 7 bankruptcy, junior-lien loans where the underlying first-lien is 90 days or more past due, as well as loans that have not yet demonstrated a sustained period of payment performance following a TDR. In addition, $\$ 950$ million, or 32 percent of nonperforming home equity loans were 180 days or more past due and had been written down to the estimated fair value of the collateral, less costs to sell. Accruing loans that were 30 days or more past due decreased $\$ 48$ million during the nine months ended September 30, 2016.

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## Table of Contents

In some cases, the junior-lien home equity outstanding balance that we hold is performing, but the underlying first-lien is not. For outstanding balances in the home equity portfolio on which we service the first-lien loan, we are able to track whether the first-lien loan is in default. For loans where the first-lien is serviced by a third party, we utilize credit bureau data to estimate the delinquency status of the first-lien. Given that the credit bureau database we use does not include a property address for the mortgages, we are unable to identify with certainty whether a reported delinquent first-lien mortgage pertains to the same property for which we hold a junior-lien loan. For certain loans, we utilize a third-party vendor to combine credit bureau and public record data to better link a junior-lien loan with the underlying first-lien mortgage. At September 30, 2016, we estimate that $\$ 991$ million of current and $\$ 144$ million of 30 to 89 days past due junior-lien loans were behind a delinquent first-lien loan. We service the first-lien loans on $\$ 168$ million of these combined amounts, with the remaining $\$ 967$ million serviced by third parties. Of the $\$ 1.1$ billion of current to 89 days past due junior-lien loans, based on available credit bureau data and our own internal servicing data, we estimate that approximately $\$ 432$ million had first-lien loans that were 90 days or more past due.

Net charge-offs decreased $\$ 23$ million to $\$ 97$ million and decreased $\$ 108$ million to $\$ 335$ million for the three and nine months ended September 30, 2016 compared to the same periods in 2015. These decreases in net charge-offs were partly attributable to charge-offs of $\$ 4$ million and $\$ 70$ million related to the consumer relief portion of the settlement with the DoJ in the prior-year periods. Additionally, net charge-offs declined driven by favorable portfolio trends due in part to improvement in home prices and the U.S. economy.

Outstanding balances with a refreshed combined loan-to-value (CLTV) greater than 100 percent comprised eight percent and 11 percent of the home equity portfolio at September 30, 2016 and December 31, 2015. Outstanding balances in the home equity portfolio with a refreshed CLTV greater than 100 percent reflect loans where our loan and available line of credit combined with any outstanding senior liens against the property are equal to or greater than the most recent valuation of the property securing the loan. Depending on the value of the property, there may be collateral in excess of the first-lien that is available to reduce the severity of loss on the second-lien. Of those outstanding balances with a refreshed CLTV greater than 100 percent, 96 percent of the customers were current on their home equity loan and 92 percent of second-lien loans with a refreshed CLTV greater than 100 percent were current on both their second-lien and underlying first-lien loans at September 30, 2016.

Of the $\$ 65.1$ billion in total home equity portfolio outstandings at September 30, 2016, as shown in Table 31, 56 percent require interest-only payments. The outstanding balance of HELOCs that have entered the amortization period was $\$ 13.6$ billion at September 30, 2016. The HELOCs that have entered the amortization period have experienced a higher percentage of early stage delinquencies and nonperforming status when compared to the HELOC portfolio as a whole. At September 30, 2016, $\$ 277$ million, or two percent of outstanding HELOCs that had entered the amortization period were accruing past due 30 days or more. In addition, at September 30, 2016, $\$ 1.7$ billion, or 12 percent of outstanding HELOCs that had entered the amortization period were nonperforming, of which $\$ 802$ million were contractually current. Loans in our HELOC portfolio generally have an initial draw period of 10 years and 28 percent of these loans will enter the amortization period in the remainder of 2016 and 2017 and will be required to make fully-amortizing payments. We communicate to contractually current customers more than a year prior to the end of their draw period to inform them of the potential change to the payment structure before entering the amortization period, and provide payment options to customers prior to the end of the draw period.

Although we do not actively track how many of our home equity customers pay only the minimum amount due on their home equity loans and lines, we can infer some of this information through a review of our HELOC portfolio that we service and that is still in its revolving period (i.e., customers may draw on and repay their line of credit, but are generally only required to pay interest on a monthly basis). During the three months ended September 30, 2016, approximately 45 percent of these customers with an outstanding balance did not pay any principal on their HELOCs.

## Table of Contents

Table 31 presents outstandings, nonperforming balances and net charge-offs by certain state concentrations for the home equity portfolio. In the New York area, the New York-Northern New Jersey-Long Island MSA made up 13 percent of the outstanding home equity portfolio at both September 30, 2016 and December 31, 2015. For the three and nine months ended September 30, 2016, loans within this MSA contributed 15 percent and 16 percent of net charge-offs within the home equity portfolio compared to 11 percent and 13 percent of net charge-offs for the same periods in 2015. The Los Angeles-Long Beach-Santa Ana MSA within California made up 11 percent and 12 percent of the outstanding home equity portfolio at September 30, 2016 and December 31, 2015. For both the three and nine months ended September 30, 2016, loans within this MSA contributed zero percent of net charge-offs within the home equity portfolio compared to zero percent and two percent of net charge-offs for the same periods in 2015.

Table 31
Home Equity State Concentrations


Purchased Credit-impaired Loan Portfolio
Loans acquired with evidence of credit quality deterioration since origination and for which it is probable at purchase that we will be unable to collect all contractually required payments are accounted for under the accounting guidance for PCI loans, which addresses accounting for differences between contractual and expected cash flows to be collected from the purchaser's initial investment in loans if those differences are attributable, at least in part, to credit quality. For more information on PCI loans, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements of the Corporation's 2015 Annual Report on Form 10-K.

## Table of Contents

Table 32 presents the unpaid principal balance, carrying value, related valuation allowance and the net carrying value as a percentage of the unpaid principal balance for the PCI loan portfolio.

Table 32
Purchased Credit-impaired Loan Portfolio
(Dollars in millions)

|  |  |  | Allowance |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
|  | $\$ 10,832$ | $\$ 10,614$ | $\$ 191$ | $\$ 10,423$ | $96.22 \%$ |
| Residential mortgage | Bala |  |  |  |  |
| Home equity | 3,930 | 3,854 | 262 | 3,592 | 91.40 |
| Total purchased credit-impaired loan portfolio | $\$ 14,762$ | $\$ 14,468$ | $\$ 453$ | $\$ 14,015$ | 94.94 |


| Residential mortgage | $\$ 12,350$ | $\$ 12,066$ | $\$$ | 338 | $\$ 11,728$ |
| :--- | :--- | :--- | :--- | :--- | :--- |

The total PCI unpaid principal balance decreased $\$ 2.2$ billion, or 13 percent, during the nine months ended September 30, 2016 primarily driven by payoffs, sales, paydowns and write-offs. During the nine months ended September 30, 2016, we sold PCI loans with a carrying value of $\$ 435$ million compared to sales of $\$ 1.2$ billion for the same period in 2015.

Of the unpaid principal balance of $\$ 14.8$ billion at September 30, 2016, $\$ 13.0$ billion, or 88 percent, was current based on the contractual terms, $\$ 959$ million, or six percent, was in early stage delinquency, and $\$ 587$ million was 180 days or more past due, including $\$ 509$ million of first-lien mortgages and $\$ 78$ million of home equity loans.

During the nine months ended September 30, 2016, we recorded a provision benefit of $\$ 81$ million for the PCI loan portfolio which included a benefit of $\$ 43$ million for home equity and $\$ 38$ million for residential mortgage. This compared to a total provision benefit of $\$ 68$ million and $\$ 40$ million for the three and nine months ended September 30, 2015. The provision benefit for the nine months ended September 30, 2016 was primarily driven by lower default estimates on second-lien loans and continued home price improvement.

The PCI valuation allowance declined $\$ 351$ million during the nine months ended September 30, 2016 due to write-offs in the PCI loan portfolio of $\$ 109$ million in residential mortgage and $\$ 161$ million in home equity, combined with a provision benefit of $\$ 81$ million.

## Purchased Credit-impaired Residential Mortgage Loan Portfolio

The PCI residential mortgage loan portfolio represented 73 percent of the total PCI loan portfolio at September 30, 2016. Those loans to borrowers with a refreshed FICO score below 620 represented 28 percent of the PCI residential mortgage loan portfolio at September 30, 2016. Loans with a refreshed LTV greater than 90 percent, after consideration of purchase accounting adjustments and the related valuation allowance, represented 25 percent of the PCI residential mortgage loan portfolio and 28 percent based on the unpaid principal balance at September 30, 2016.

Pay option adjustable-rate mortgages, which are included in the PCI residential mortgage portfolio, have interest rates that adjust monthly and minimum required payments that adjust annually. During an initial five- or ten-year period,

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minimum required payments may increase by no more than 7.5 percent. If payments are insufficient to pay all of the monthly interest charges, unpaid interest is added to the loan balance (i.e., negative amortization) until the loan balance increases to a specified limit at which time a new monthly payment amount adequate to repay the loan over its remaining contractual life is established.

At September 30, 2016, the unpaid principal balance of pay option loans was $\$ 2.0$ billion, with a carrying value of $\$ 1.9$ billion. This includes $\$ 1.7$ billion of loans that were credit-impaired upon acquisition and $\$ 223$ million of loans that are 90 days or more past due. The total unpaid principal balance of pay option loans with accumulated negative amortization was $\$ 341$ million, including $\$ 18$ million of negative amortization. We believe the majority of borrowers that are now making scheduled payments are able to do so primarily because the low rate environment has caused the fully indexed rates to be affordable to more borrowers. We continue to evaluate our exposure to payment resets on the acquired negative-amortizing loans and have taken into consideration several assumptions including prepayment and default rates.

63

## Table of Contents

Purchased Credit-impaired Home Equity Loan Portfolio
The PCI home equity portfolio represented 27 percent of the total PCI loan portfolio at September 30, 2016. Those loans with a refreshed FICO score below 620 represented 15 percent of the PCI home equity portfolio at September 30, 2016. Loans with a refreshed CLTV greater than 90 percent, after consideration of purchase accounting adjustments and the related valuation allowance, represented 52 percent of the PCI home equity portfolio and 55 percent based on the unpaid principal balance at September 30, 2016.

## U.S. Credit Card

At September 30, 2016, 97 percent of the U.S. credit card portfolio was managed in Consumer Banking with the remainder in GWIM. Outstandings in the U.S. credit card portfolio decreased $\$ 813$ million during the nine months ended September 30, 2016 due to a seasonal decline in retail transaction volume. Net charge-offs decreased $\$ 3$ million to $\$ 543$ million and $\$ 48$ million to $\$ 1.7$ billion during the three and nine months ended September 30, 2016 compared to the same periods in 2015 due to improvements in delinquencies and bankruptcies as a result of an improved economic environment and the impact of higher credit quality originations. During the nine months ended September 30,2016 , U.S. credit card loans 30 days or more past due and still accruing interest decreased $\$ 116$ million to $\$ 1.5$ billion, and loans 90 days or more past due and still accruing interest decreased $\$ 87$ million to $\$ 702$ million at September 30, 2016 as a result of the factors mentioned above that contributed to lower net charge-offs.

Unused lines of credit for U.S. credit card totaled $\$ 323.9$ billion and $\$ 312.5$ billion at September 30, 2016 and December 31, 2015. The $\$ 11.4$ billion increase was driven by account growth and lines of credit increases.

Table 33 presents certain state concentrations for the U.S. credit card portfolio.
Table 33
U.S. Credit Card State Concentrations

|  | Outstand | ngs | Accrui 90 Day | ng Past Due s or More | Net | harge |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | Thre |  |  |  |
|  |  |  |  |  | Mont |  | Nine M | Oonths |
|  | Septemb | dracember 31 | Septem | Dercamber 31 | Ended |  | Ended |  |
|  | 2016 | 2015 | 2016 | 2015 | Septe | mber | Septem | ber 30 |
|  |  |  |  |  | 30 |  |  |  |
| (Dollars in millions) |  |  |  |  | 2016 | 2015 | 2016 | 2015 |
| California | \$ 13,651 | \$ 13,658 | \$ 106 | \$ 115 | \$86 | \$85 | \$269 | \$269 |
| Florida | 7,467 | 7,420 | 74 | 81 | 60 | 58 | 184 | 186 |
| Texas | 6,737 | 6,620 | 56 | 58 | 40 | 37 | 122 | 117 |
| New York | 5,507 | 5,547 | 52 | 57 | 39 | 38 | 120 | 121 |
| Washington | 3,944 | 3,907 | 18 | 19 | 13 | 13 | 42 | 45 |
| Other U.S. | 51,483 | 52,450 | 396 | 459 | 305 | 315 | 966 | 1,013 |
| Total U.S. credit card portfolio | \$88,789 | \$ 89,602 | \$ 702 | \$ 789 | \$543 | \$546 | \$ 1,703 | \$ 1,751 |

## Non-U.S. Credit Card

Outstandings in the non-U.S. credit card portfolio, which are recorded in All Other, decreased $\$ 717$ million during the nine months ended September 30, 2016 primarily driven by weakening of the British Pound against the U.S. Dollar. For the three and nine months ended September 30, 2016, net charge-offs decreased $\$ 4$ million to $\$ 43$ million and $\$ 8$ million to $\$ 134$ million compared to the same periods in 2015. During the nine months ended September 30, 2016,
non-U.S. credit card loans 30 days or more past due and still accruing interest decreased $\$ 21$ million to $\$ 125$ million, and loans 90 days or more past due and still accruing interest decreased $\$ 11$ million to $\$ 65$ million at September 30, 2016.

Unused lines of credit for non-U.S. credit card totaled $\$ 25.5$ billion and $\$ 27.9$ billion at September 30, 2016 and December 31, 2015. The $\$ 2.4$ billion decrease was driven by weakening of the British Pound against the U.S. Dollar, partially offset by account growth and increases in lines of credit.

## Table of Contents

Direct/Indirect Consumer
At September 30, 2016, approximately 52 percent of the direct/indirect portfolio was included in Consumer Banking (consumer auto and specialty lending - automotive, marine, aircraft, recreational vehicle loans, and consumer personal loans), 47 percent was included in GWIM (principally securities-based lending loans) and the remainder was primarily student loans in All Other.

Outstandings in the direct/indirect portfolio increased $\$ 4.5$ billion during the nine months ended September 30, 2016 primarily in the consumer auto loan portfolio, partially offset by lower outstandings in the securities-based lending and the unsecured consumer lending portfolios.

Table 34 presents certain state concentrations for the direct/indirect consumer loan portfolio.
Table 34
Direct/Indirect State Concentrations


## Other Consumer

At September 30, 2016, approximately 73 percent of the $\$ 2.4$ billion other consumer portfolio was consumer auto leases included in Consumer Banking. The remainder is primarily associated with certain consumer finance businesses that we previously exited.

Nonperforming Consumer Loans, Leases and Foreclosed Properties Activity
Table 35 presents nonperforming consumer loans, leases and foreclosed properties activity for the three and nine months ended September 30, 2016 and 2015. For more information on nonperforming loans, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements of the Corporation's 2015 Annual Report on Form 10-K. During the nine months ended September 30, 2016, nonperforming consumer loans declined $\$ 1.8$ billion to $\$ 6.4$ billion primarily driven by loan sales of $\$ 1.3$ billion. Excluding these sales, nonperforming loans declined as outflows outpaced new inflows.

The outstanding balance of a real estate-secured loan that is in excess of the estimated property value less costs to sell is charged off no later than the end of the month in which the loan becomes 180 days past due unless repayment of the loan is fully insured. At September 30, 2016, $\$ 2.8$ billion, or 42 percent of nonperforming consumer real estate loans

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and foreclosed properties had been written down to their estimated property value less costs to sell, including $\$ 2.4$ billion of nonperforming loans 180 days or more past due and $\$ 372$ million of foreclosed properties. In addition, at September 30, 2016, $\$ 2.5$ billion, or 38 percent of nonperforming consumer loans were modified and are now current after successful trial periods, or are current loans classified as nonperforming loans in accordance with applicable policies.

Foreclosed properties decreased $\$ 72$ million during the nine months ended September 30, 2016 as liquidations outpaced additions. PCI loans are excluded from nonperforming loans as these loans were written down to fair value at the acquisition date; however, once the underlying real estate is acquired by the Corporation upon foreclosure of the delinquent PCI loan, it is included in foreclosed properties. PCI-related foreclosed properties decreased $\$ 72$ million during the nine months ended September 30, 2016. Not included in foreclosed properties at September 30, 2016 was $\$ 1.3$ billion of real estate that was acquired upon foreclosure of certain delinquent government-guaranteed loans (principally FHA-insured loans). We exclude these amounts from our nonperforming loans and foreclosed properties activity as we expect we will be reimbursed once the property is conveyed to the guarantor for principal and, up to certain limits, costs incurred during the foreclosure process and interest incurred during the holding period.

## Table of Contents

Nonperforming loans also include certain loans that have been modified in TDRs where economic concessions have been granted to borrowers experiencing financial difficulties. These concessions typically result from the Corporation's loss mitigation activities and could include reductions in the interest rate, payment extensions, forgiveness of principal, forbearance or other actions. Certain TDRs are classified as nonperforming at the time of restructuring and may only be returned to performing status after considering the borrower's sustained repayment performance for a reasonable period, generally six months. Nonperforming TDRs, excluding those modified loans in the PCI loan portfolio, are included in Table 35.

Table 35
Nonperforming Consumer Loans, Leases and Foreclosed Properties Activity ${ }^{(1)}$
(Dollars in millions)
Nonperforming loans and leases, beginning of period
Additions to nonperforming loans and leases:
New nonperforming loans and leases
Reductions to nonperforming loans and leases:
Paydowns and payoffs
Sales
Returns to performing status (2)
Charge-offs
Transfers to foreclosed properties (3)
Total net reductions to nonperforming loans and leases
Total nonperforming loans and leases, September $30{ }^{(4)}$
Foreclosed properties, beginning of period
Additions to foreclosed properties:
New foreclosed properties (3)
Reductions to foreclosed properties:
Sales
Write-downs
Total net reductions to foreclosed properties
Total foreclosed properties, September $30{ }^{(5)}$
Nonperforming consumer loans, leases and foreclosed properties, September 30
Nonperforming consumer loans and leases as a percentage of outstanding consumer loans and leases (6)

## Nonperforming consumer loans, leases and foreclosed properties as a

 percentage of outstanding consumer loans, leases and foreclosed properties (6)Balances do not include nonperforming LHFS of $\$ 12$ million and $\$ 8$ million and nonaccruing TDRs removed from
(1) the PCI loan portfolio prior to January 1, 2010 of $\$ 27$ million and $\$ 49$ million at September 30, 2016 and 2015 as well as loans accruing past due 90 days or more as presented in Table 25 and Note 4 - Outstanding Loans and Leases to the Consolidated Financial Statements. Consumer loans may be returned to performing status when all principal and interest is current and full repayment
(2) of the remaining contractual principal and interest is expected, or when the loan otherwise becomes well-secured and is in the process of collection.
(3) New foreclosed properties represents transfers of nonperforming loans to foreclosed properties net of charge-offs taken during the first 90 days after transfer of a loan to foreclosed properties. New foreclosed properties also includes properties obtained upon foreclosure of delinquent PCI loans, properties repurchased due to

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representations and warranties exposure and properties acquired with newly consolidated subsidiaries.
${ }^{(4)}$ At September 30, 2016, 38 percent of nonperforming loans were 180 days or more past due.
${ }_{(5)}$ Foreclosed property balances do not include properties insured by certain government-guaranteed loans, principally FHA-insured loans, of $\$ 1.3$ billion at both September 30, 2016 and 2015.
${ }^{(6)}$ Outstanding consumer loans and leases exclude loans accounted for under the fair value option.
Our policy is to record any losses in the value of foreclosed properties as a reduction in the allowance for loan and lease losses during the first 90 days after transfer of a loan to foreclosed properties. Thereafter, further losses in value as well as gains and losses on sale are recorded in noninterest expense. New foreclosed properties included in Table 35 are net of $\$ 18$ million and $\$ 60$ million of charge-offs and write-offs of PCI loans for the three and nine months ended September 30, 2016 compared to $\$ 51$ million and $\$ 127$ million for the same periods in 2015, recorded during the first 90 days after transfer.

## Table of Contents

We classify junior-lien home equity loans as nonperforming when the first-lien loan becomes 90 days past due even if the junior-lien loan is performing. At September 30, 2016 and December 31, 2015, $\$ 432$ million and $\$ 484$ million of such junior-lien home equity loans were included in nonperforming loans and leases.

Table 36 presents TDRs for the consumer real estate portfolio. Performing TDR balances are excluded from nonperforming loans and leases in Table 35.

Table 36
Consumer Real Estate Troubled Debt Restructurings
September 30, 2016 December 31, 2015
(Dollars in millions)
Total Nonperformingerforming Total Nonperformingerforming
Residential mortgage ${ }^{(1,2)}$
Home equity ${ }^{(3)}$
Total consumer real estate troubled debt restructurings
\$13,704 \$ 2,199 \$ 11,505 \$18,372 \$ 3,284 \$ 15,088
$\begin{array}{llllll}2,803 & 1,606 & 1,197 & 2,686 & 1,649 & 1,037\end{array}$
\$16,507 \$ 3,805 \$ 12,702 \$21,058 \$ 4,933 \$ 16,125
Residential mortgage TDRs deemed collateral dependent totaled $\$ 3.7$ billion and $\$ 4.9$ billion, and included $\$ 1.7$
(1) billion and $\$ 2.7$ billion of loans classified as nonperforming and $\$ 2.0$ billion and $\$ 2.2$ billion of loans classified as performing at September 30, 2016 and December 31, 2015.
${ }^{2}$ Residential mortgage performing TDRs included $\$ 5.9$ billion and $\$ 8.7$ billion of loans that were fully-insured at
${ }^{(2)}$ September 30, 2016 and December 31, 2015.
Home equity TDRs deemed collateral dependent totaled $\$ 1.7$ billion and $\$ 1.6$ billion, and included $\$ 1.3$ billion of
${ }^{(3)}$ loans classified as nonperforming at both September 30, 2016 and December 31, 2015. Loans classified as performing totaled $\$ 303$ million and $\$ 290$ million at September 30, 2016 and December 31, 2015.

In addition to modifying consumer real estate loans, we work with customers who are experiencing financial difficulty by modifying credit card and other consumer loans. Credit card and other consumer loan modifications generally involve a reduction in the customer's interest rate on the account and placing the customer on a fixed payment plan not exceeding 60 months, all of which are considered TDRs (the renegotiated TDR portfolio). In addition, the accounts of non-U.S. credit card customers who do not qualify for a fixed payment plan may have their interest rates reduced, as required by certain local jurisdictions. These modifications, which are also TDRs, tend to experience higher payment default rates given that the borrowers may lack the ability to repay even with the interest rate reduction. In all cases, the customer's available line of credit is canceled.

Modifications of credit card and other consumer loans are primarily made through internal renegotiation programs utilizing direct customer contact, but may also utilize external renegotiation programs. The renegotiated TDR portfolio is excluded in large part from Table 35 as substantially all of the loans remain on accrual status until either charged off or paid in full. At September 30, 2016 and December 31, 2015, our renegotiated TDR portfolio was $\$ 637$ million and $\$ 779$ million, of which $\$ 520$ million and $\$ 635$ million were current or less than 30 days past due under the modified terms. The decline in the renegotiated TDR portfolio was primarily driven by paydowns and charge-offs as well as lower program enrollments. For more information on the renegotiated TDR portfolio, see Note 4 - Outstanding Loans and Leases to the Consolidated Financial Statements.

## Commercial Portfolio Credit Risk Management

Commercial credit risk is evaluated and managed with the goal that concentrations of credit exposure do not result in undesirable levels of risk. We review, measure and manage concentrations of credit exposure by industry, product, geography, customer relationship and loan size. We also review, measure and manage commercial real estate loans by geographic location and property type. In addition, within our non-U.S. portfolio, we evaluate exposures by region and by country. Tables 41, 44 and 49 summarize our concentrations. We also utilize syndications of exposure to third

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parties, loan sales, hedging and other risk mitigation techniques to manage the size and risk profile of the commercial credit portfolio. For more information on our industry concentrations, including our utilized exposure to the energy sector which was four percent of total commercial utilized exposure at both September 30, 2016 and December 31, 2015, see Commercial Portfolio Credit Risk Management - Industry Concentrations on page 74 and Table 44.

For more information on our accounting policies regarding delinquencies, nonperforming status and net charge-offs for the commercial portfolio, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements of the Corporation's 2015 Annual Report on Form 10-K.

## Table of Contents

## Commercial Credit Portfolio

During the nine months ended September 30, 2016, other than in the higher risk energy sub-sectors, credit quality among large corporate borrowers was strong. While we experienced some deterioration in the energy sector in the three months ended March 31, 2016, oil prices have stabilized which contributed to a modest improvement in energy-related exposure. Credit quality of commercial real estate borrowers continued to be strong with conservative loan-to-value ratios, stable market rents in most sectors and vacancy rates remaining low.

Outstanding commercial loans and leases increased $\$ 11.7$ billion during the nine months ended September 30, 2016, primarily in U.S. commercial. Nonperforming commercial loans and leases increased $\$ 845$ million during the nine months ended September 30, 2016. Nonperforming commercial loans and leases as a percentage of outstanding loans and leases, excluding loans accounted for under the fair value option, increased during the nine months ended September 30, 2016 to 0.45 percent from 0.28 percent at December 31, 2015. Reservable criticized balances increased $\$ 1.0$ billion to $\$ 16.9$ billion during the nine months ended September 30, 2016 as a result of net downgrades outpacing paydowns, primarily in the energy sector. The increase in nonperforming loans was primarily due to energy and metals and mining exposure. The allowance for loan and lease losses for the commercial portfolio increased \$464 million to $\$ 5.3$ billion at September 30, 2016 compared to December 31, 2015. For additional information, see Allowance for Credit Losses on page 80.

Table 37 presents our commercial loans and leases portfolio, and related credit quality information at September 30, 2016 and December 31, 2015.

Table 37
Commercial Loans and Leases
(Dollars in millions)
U.S. commercial

Commercial real estate ${ }^{(1)}$
Commercial lease financing
Non-U.S. commercial
U.S. small business commercial (2)

Commercial loans excluding loans accounted for under the fair value option
Loans accounted for under the fair value option ${ }^{(3)}$
Total commercial loans and leases

| Outstandings |  | Nonperforming |  | Accruing Past <br> Due 90 <br> Days or More |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |
| SeptemberD30cember 31Septemb®e3ember 31 SeptemDec38hber 31 |  |  |  |  |  |
| 2016 | 2015 | 2016 | 2015 | 2016 | 2015 |
| \$267,019 | \$ 252,771 | \$1,439 | \$ 867 | \$ 40 | \$ 113 |
| 57,303 | 57,199 | 60 | 93 | - | 3 |
| 21,309 | 21,352 | 35 | 12 | 28 | 15 |
| 87,497 | 91,549 | 400 | 158 | 3 | 1 |
| 433,128 | 422,871 | 1,934 | 1,130 | 71 | 132 |
| 13,077 | 12,876 | 65 | 82 | 63 | 61 |
| 446,205 | 435,747 | 1,999 | 1,212 | 134 | 193 |
| 6,340 | 5,067 | 71 | 13 | - | - |
| \$452,545 | \$ 440,814 | \$2,070 | \$ 1,225 | \$ 134 | \$ 193 |

(1) Includes U.S. commercial real estate loans of $\$ 53.9$ billion and $\$ 53.6$ billion and non-U.S. commercial real estate loans of $\$ 3.4$ billion and $\$ 3.5$ billion at September 30, 2016 and December 31, 2015.
${ }^{(2)}$ Includes card-related products. Commercial loans accounted for under the fair value option include U.S. commercial loans of $\$ 2.6$ billion and $\$ 2.3$ billion and non-U.S. commercial loans of $\$ 3.7$ billion and $\$ 2.8$ billion at September 30, 2016 and December 31, 2015. For more information on the fair value option, see Note 15 - Fair Value Option to the Consolidated Financial Statements.

## Table of Contents

Table 38 presents net charge-offs and related ratios for our commercial loans and leases for the three and nine months ended September 30, 2016 and 2015. The increase in net charge-offs of $\$ 161$ million for the nine months ended September 30, 2016 compared to the same period in 2015 was primarily due to higher energy sector related losses.

Table 38
Commercial Net Charge-offs and Related Ratios

|  | Net Charge-offs |  |  |  | Net Charge-off Ratios ${ }^{(1)}$ |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Three <br> Month <br> Ended <br> Septer | hs d mber 30 | Nine Ended Septen | Months d mber 30 | Three Months Ended September 30 |  | Nine Months <br> Ended <br> September 30 |  |  |
| (Dollars in millions) | 2016 | 2015 | 2016 | 2015 | 2016 | 2015 |  | 2016 | 2015 |
| U.S. commercial | \$ 62 | \$52 | \$ 155 | \$58 | 0.10 \% | 0.09 | \% | 0.08 \% | \% 0.03 \% |
| Commercial real estate | (23 ) | ) (10 | ) (31 ) | ) (9 ) | (0.16) | (0.08 |  | (0.07) | (0.02) |
| Commercial lease financing | 6 | 3 | 19 | 8 | 0.11 | 0.07 |  | 0.12 | 0.06 |
| Non-U.S. commercial | 10 | 9 | 97 | 9 | 0.04 | 0.04 |  | 0.14 | 0.01 |
|  | 55 | 54 | 240 | 66 | 0.05 | 0.05 |  | 0.08 | 0.02 |
| U.S. small business commercial | 55 | 57 | 157 | 170 | 1.67 | 1.72 |  | 1.62 | 1.73 |
| Total commercial | \$ 110 | \$ 111 | \$397 | \$236 | 0.10 | 0.11 |  | 0.12 | 0.08 |

(1) Net charge-off ratios are calculated as annualized net charge-offs divided by average outstanding loans and leases excluding loans accounted for under the fair value option.

Table 39 presents commercial credit exposure by type for utilized, unfunded and total binding committed credit exposure. Commercial utilized credit exposure includes standby letters of credit (SBLCs) and financial guarantees, bankers' acceptances and commercial letters of credit for which we are legally bound to advance funds under prescribed conditions, during a specified time period. Although funds have not yet been advanced, these exposure types are considered utilized for credit risk management purposes.

Total commercial utilized credit exposure increased $\$ 13.3$ billion during the nine months ended September 30, 2016 primarily driven by growth in loans and leases. The utilization rate for loans and leases, SBLCs and financial guarantees, commercial letters of credit and bankers' acceptances, in the aggregate, was 57 percent and 56 percent at September 30, 2016 and December 31, 2015.

Table 39
Commercial Credit Exposure by Type
(Dollars in millions)
Loans and leases (5)
Derivative assets (6)
Standby letters of credit and financial guarantees
Debt securities and other investments
Loans held-for-sale
Commercial letters of credit
Bankers' acceptances
Other
Total

| Commercial Utilized ${ }^{(1)}$ |  | Commercial Unfunded$(2,3,4)$ |  | Total Commercial Committed |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Septembe | Ocember 31 | Septemb | 3ecember 31 | Septembe | December 31 |
| 2016 | 2015 | 2016 | 2015 | 2016 | 2015 |
| \$458,416 | \$ 446,832 | \$366,792 | \$ 376,478 | \$825,208 | \$ 823,310 |
| 47,896 | 49,990 | - | - | 47,896 | 49,990 |
| 33,973 | 33,236 | 617 | 690 | 34,590 | 33,926 |
| 22,856 | 21,709 | 6,293 | 4,173 | 29,149 | 25,882 |
| 7,429 | 5,456 | 278 | 1,203 | 7,707 | 6,659 |
| 1,702 | 1,725 | 127 | 390 | 1,829 | 2,115 |
| 169 | 298 | - | - | 169 | 298 |
| 374 | 317 | - | - | 374 | 317 |
| \$572,815 | \$ 559,563 | \$374,107 | \$ 382,934 | \$946,922 | \$ 942,497 |

Total commercial utilized exposure includes loans of $\$ 6.3$ billion and $\$ 5.1$ billion and issued letters of credit with a
${ }^{(1)}$ notional amount of $\$ 279$ million and $\$ 290$ million accounted for under the fair value option at September 30, 2016 and December 31, 2015.
(2) Total commercial unfunded exposure includes loan commitments accounted for under the fair value option with a notional amount of $\$ 7.4$ billion and $\$ 10.6$ billion at September 30, 2016 and December 31, 2015.
${ }^{(3)}$ Excludes unused business card lines which are not legally binding. Includes the notional amount of unfunded legally binding lending commitments net of amounts distributed (e.g.,
${ }^{(4)}$ syndicated or participated) to other financial institutions. The distributed amounts were $\$ 12.4$ billion and $\$ 14.3$ billion at September 30, 2016 and December 31, 2015.
(5) Includes credit risk exposure associated with assets under operating lease arrangements of $\$ 5.9$ billion and $\$ 6.0$ billion at September 30, 2016 and December 31, 2015. Derivative assets are carried at fair value, reflect the effects of legally enforceable master netting agreements and
(6) have been reduced by cash collateral of $\$ 46.5$ billion and $\$ 41.9$ billion at September 30, 2016 and December 31, 2015. Not reflected in utilized and committed exposure is additional non-cash derivative collateral held of $\$ 25.3$ billion and $\$ 23.3$ billion which consists primarily of other marketable securities.

## Table of Contents

Table 40 presents commercial utilized reservable criticized exposure by loan type. Criticized exposure corresponds to the Special Mention, Substandard and Doubtful asset categories as defined by regulatory authorities. Total commercial utilized reservable criticized exposure increased $\$ 1.0$ billion, or seven percent, during the nine months ended September 30, 2016 driven by downgrades primarily related to our energy exposure outpacing paydowns and upgrades. Approximately 75 percent and 78 percent of commercial utilized reservable criticized exposure was secured at September 30, 2016 and December 31, 2015.

Table 40
Commercial Utilized Reservable Criticized Exposure
(Dollars in millions)
U.S. commercial

Commercial real estate
Commercial lease financing
Non-U.S. commercial
U.S. small business commercial

Total commercial utilized reservable criticized exposure $\$ 16,938 \quad 3.52 \quad \$ 15,8963.38$
Total commercial utilized reservable criticized exposure includes loans and leases of $\$ 15.5$ billion and $\$ 14.5$
${ }^{(1)}$ billion and commercial letters of credit of $\$ 1.5$ billion and $\$ 1.4$ billion at September 30, 2016 and December 31, 2015.
(2) Percentages are calculated as commercial utilized reservable criticized exposure divided by total commercial utilized reservable exposure for each exposure category.

## U.S. Commercial

At September 30, 2016, 71 percent of the U.S. commercial loan portfolio, excluding small business, was managed in Global Banking, 17 percent in Global Markets, 10 percent in GWIM (generally business-purpose loans for high net worth clients) and the remainder primarily in Consumer Banking. U.S. commercial loans, excluding loans accounted for under the fair value option, increased $\$ 14.2$ billion, or six percent, during the nine months ended September 30, 2016 due to growth across all of the commercial businesses. Energy exposure largely drove increases in reservable criticized balances of $\$ 1.1$ billion, or 11 percent, and nonperforming loans and leases of $\$ 572$ million, or 66 percent, during the nine months ended September 30, 2016, as well as increases in net charge-offs of $\$ 10$ million and $\$ 97$ million for the three and nine months ended September 30, 2016 compared to the same periods in 2015.

## Commercial Real Estate

Commercial real estate primarily includes commercial loans and leases secured by non-owner-occupied real estate and is dependent on the sale or lease of the real estate as the primary source of repayment. The portfolio remains diversified across property types and geographic regions. California represented the largest state concentration at 24 percent and 21 percent of the commercial real estate loans and leases portfolio at September 30, 2016 and December 31, 2015. The commercial real estate portfolio is predominantly managed in Global Banking and consists of loans made primarily to public and private developers, and commercial real estate firms. Outstanding loans remained relatively unchanged with new originations slightly outpacing paydowns during the nine months ended September 30, 2016.

For the three and nine months ended September 30, 2016, we continued to see low default rates and solid credit quality in both the residential and non-residential portfolios. We use a number of proactive risk mitigation initiatives to reduce adversely rated exposure in the commercial real estate portfolio including transfers of deteriorating exposures to management by independent special asset officers and the pursuit of loan restructurings or asset sales to achieve the best results for our customers and the Corporation.

Nonperforming commercial real estate loans and foreclosed properties decreased $\$ 32$ million, or 30 percent, and reservable criticized balances decreased $\$ 211$ million, or 41 percent, during the nine months ended September 30, 2016. The decrease in reservable criticized balances was primarily due to loan resolutions and strong commercial real estate fundamentals in most sectors. Net recoveries were $\$ 23$ million and $\$ 31$ million for the three and nine months ended September 30, 2016 compared to net recoveries of $\$ 10$ million and $\$ 9$ million for the same periods in 2015.

## Table of Contents

Table 41 presents outstanding commercial real estate loans by geographic region, based on the geographic location of the collateral, and by property type.

Table 41
Outstanding Commercial Real Estate Loans
(Dollars in millions)
September 30 December 31
By Geographic Region
California
Northeast
Southwest
Southeast
Midwest
Florida
Illinois
Northwest
Midsouth
Non-U.S.
Other ${ }^{(1)}$
20162015

Tot outand
By Property Type
Non-residential

| Office | $\$ 16,173$ | $\$ 15,246$ |
| :--- | :--- | :--- |
| Multi-family rental | 9,064 | 8,956 |
| Shopping centers/retail | 8,645 | 8,594 |
| Hotels/motels | 5,461 | 5,415 |
| Industrial/warehouse | 4,922 | 5,501 |
| Multi-use | 2,920 | 3,003 |
| Unsecured | 1,731 | 2,056 |
| Land and land development | 380 | 539 |
| Other | 5,907 | 5,791 |
| Total non-residential | 55,203 | 55,101 |
| Residential | 2,100 | 2,098 |
| Total outstanding commercial real estate loans $\$ 57,303$ | $\$ 57,199$ |  |

(1) Includes unsecured loans to real estate investment trusts and national home builders whose portfolios of properties span multiple geographic regions and properties in the states of Colorado, Utah, Hawaii, Wyoming and Montana.

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## Table of Contents

At September 30, 2016, total committed non-residential exposure was $\$ 77.3$ billion compared to $\$ 81.0$ billion at December 31, 2015, of which $\$ 55.2$ billion and $\$ 55.1$ billion were funded loans. Non-residential nonperforming loans and foreclosed properties decreased $\$ 24$ million, or 26 percent, to $\$ 70$ million at September 30, 2016 compared to December 31, 2015 due to decreases across most property types. The non-residential nonperforming loans and foreclosed properties represented 0.13 percent and 0.17 percent of total non-residential loans and foreclosed properties at September 30, 2016 and December 31, 2015. Non-residential utilized reservable criticized exposure decreased $\$ 203$ million, or 40 percent, to $\$ 299$ million at September 30, 2016 compared to $\$ 502$ million at December 31, 2015, which represented 0.53 percent and 0.89 percent of non-residential utilized reservable exposure. For the non-residential portfolio, net recoveries increased $\$ 13$ million to $\$ 23$ million and increased $\$ 20$ million to $\$ 30$ million for the three and nine months ended September 30, 2016 compared to the same periods in 2015.

At September 30, 2016, total committed residential exposure was $\$ 4.0$ billion compared to $\$ 4.1$ billion at December 31, 2015, of which $\$ 2.1$ billion were funded secured loans for both periods. The residential nonperforming loans and foreclosed properties and residential utilized reservable criticized exposure decreased $\$ 8$ million, or 57 percent, to $\$ 6$ million and $\$ 8$ million, or 73 percent, to $\$ 3$ million for the nine months ended September 30, 2016. The nonperforming loans, leases and foreclosed properties and the utilized reservable criticized ratios for the residential portfolio were 0.30 percent and 0.15 percent at September 30, 2016 compared to 0.66 percent and 0.52 percent at December 31, 2015.

At September 30, 2016 and December 31, 2015, the commercial real estate loan portfolio included $\$ 6.6$ billion and $\$ 7.6$ billion of funded construction and land development loans that were originated to fund the construction and/or rehabilitation of commercial properties. Reservable criticized construction and land development loans totaled $\$ 100$ million and $\$ 108$ million, and nonperforming construction and land development loans and foreclosed properties totaled $\$ 25$ million and $\$ 44$ million at September 30, 2016 and December 31, 2015. During a property's construction phase, interest income is typically paid from interest reserves that are established at the inception of the loan. As construction is completed and the property is put into service, these interest reserves are depleted and interest payments from operating cash flows begin. We do not recognize interest income on nonperforming loans regardless of the existence of an interest reserve.

## Non-U.S. Commercial

At September 30, 2016, 78 percent of the non-U.S. commercial loan portfolio was managed in Global Banking and 22 percent in Global Markets. Outstanding loans, excluding loans accounted for under the fair value option, decreased $\$ 4.1$ billion during the nine months ended September 30, 2016 primarily due to increased payoffs. Net charge-offs increased $\$ 88$ million for the nine months ended September 30, 2016 compared to the same period in 2015. The increase was primarily due to higher energy sector related losses in the first half of 2016. For more information on the non-U.S. commercial portfolio, see Non-U.S. Portfolio on page 78.

## U.S. Small Business Commercial

The U.S. small business commercial loan portfolio is comprised of small business card loans and small business loans managed in Consumer Banking. Credit card-related products were 48 percent and 45 percent of the U.S. small business commercial portfolio at September 30, 2016 and December 31, 2015. Net charge-offs decreased $\$ 2$ million to $\$ 55$ million and $\$ 13$ million to $\$ 157$ million for the three and nine months ended September 30, 2016 compared to the same periods in 2015, primarily driven by portfolio improvement. Of the U.S. small business commercial net charge-offs, 79 percent and 85 percent were credit card-related products for the three and nine months ended September 30, 2016 compared to 78 percent and 82 percent for the same periods in 2015.

## Table of Contents

Nonperforming Commercial Loans, Leases and Foreclosed Properties Activity
Table 42 presents the nonperforming commercial loans, leases and foreclosed properties activity during the three and nine months ended September 30, 2016 and 2015. Nonperforming loans do not include loans accounted for under the fair value option. During the three and nine months ended September 30, 2016, nonperforming commercial loans and leases increased $\$ 340$ million and $\$ 787$ million to $\$ 2.0$ billion primarily due to energy and metals and mining exposure. Approximately 80 percent of commercial nonperforming loans, leases and foreclosed properties were secured and approximately 76 percent were contractually current. Commercial nonperforming loans were carried at approximately 88 percent of their unpaid principal balance before consideration of the allowance for loan and lease losses as the carrying value of these loans has been reduced to the estimated property value less costs to sell.

Table 42
Nonperforming Commercial Loans, Leases and Foreclosed Properties Activity ${ }^{(1,2)}$
(Dollars in millions)
Nonperforming loans and leases, beginning of period
Additions to nonperforming loans and leases:
New nonperforming loans and leases
Advances
Reductions to nonperforming loans and leases:
Paydowns (267 ) (145 ) (598 ) (358)
Sales
Returns to performing status ${ }^{(3)}$
Charge-offs
Transfers to foreclosed properties (4)
Transfers to loans held-for-sale
Total net additions/(reductions) to nonperforming loans and leases
Total nonperforming loans and leases, September 30
Foreclosed properties, beginning of period
Additions to foreclosed properties:
New foreclosed properties (4)
Reductions to foreclosed properties:
Sales $\quad\left(\begin{array}{lll}(207\end{array}\right)(21)(214)$
Write-downs
Total net additions/(reductions) to foreclosed properties
Total foreclosed properties, September 30
Nonperforming commercial loans, leases and foreclosed properties, September 30
Nonperforming commercial loans and leases as a percentage of outstanding commercial loans and leases (5)
Nonperforming commercial loans, leases and foreclosed properties as a
percentage of outstanding commercial loans, leases and foreclosed properties (5) $0.45 \quad 0.27$
(1) Balances do not include nonperforming LHFS of \$262 million and \$266 million at September 30, 2016 and 2015.
(2) Includes U.S. small business commercial activity. Small business card loans are excluded as they are not classified as nonperforming.
(3) Commercial loans and leases may be returned to performing status when all principal and interest is current and full repayment of the remaining contractual principal and interest is expected, or when the loan otherwise becomes
well-secured and is in the process of collection. TDRs are generally classified as performing after a sustained period of demonstrated payment performance.
(4) New foreclosed properties represents transfers of nonperforming loans to foreclosed properties net of charge-offs recorded during the first 90 days after transfer of a loan to foreclosed properties.
${ }^{(5)}$ Outstanding commercial loans exclude loans accounted for under the fair value option.

## Table of Contents

Table 43 presents our commercial TDRs by product type and performing status. U.S. small business commercial TDRs are comprised of renegotiated small business card loans and small business loans. The renegotiated small business card loans are not classified as nonperforming as they are charged off no later than the end of the month in which the loan becomes 180 days past due. For more information on TDRs, see Note 4 - Outstanding Loans and Leases to the Consolidated Financial Statements.

Table 43
Commercial Troubled Debt Restructurings

September 30, 2016
December 31, 2015
(Dollars in millions)
U.S. commercial

Commercial real estate
Commercial lease financing
Non-U.S. commercial
U.S. small business commercial

Total commercial troubled debt restructurings

| Total | Non-performing Performing Total |  | Non-performing Performing |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $\$ 1,947$ | $\$ 724$ | $\$ 1,223$ | $\$ 1,225$ | $\$$ | 394 |
| 102 | 27 | 75 | 118 | 27 | $\$ 831$ |
| 4 | 2 | 2 | - | - | 91 |
| 268 | 58 | 210 | 363 | 136 | - |
| 2,321 | 811 | 1,510 | 1,706 | 557 | 227 |
| 17 | 3 | 14 | 29 | 10 | 1,149 |
| $\$ 2,338$ | $\$ 814$ | $\$ 1,524$ | $\$ 1,735$ | $\$$ | 567 |
|  |  |  |  |  |  |
|  |  |  |  |  | 1,168 |

## Industry Concentrations

Table 44 presents commercial committed and utilized credit exposure by industry and the total net credit default protection purchased to cover the funded and unfunded portions of certain credit exposures. Our commercial credit exposure is diversified across a broad range of industries. Total commercial committed credit exposure increased \$4.4 billion, during the nine months ended September 30, 2016 to $\$ 946.9$ billion. Increases in commercial committed exposure were concentrated in pharmaceuticals and biotechnology, healthcare equipment and services, and commercial services and supplies, partially offset by lower exposure to banking, diversified financials and energy.

Industry limits are used internally to manage industry concentrations and are based on committed exposures and capital usage that are allocated on an industry-by-industry basis. A risk management framework is in place to set and approve industry limits as well as to provide ongoing monitoring. The Management Risk Committee oversees industry limit governance.

Diversified financials, our largest industry concentration with committed exposure of $\$ 122.8$ billion, decreased $\$ 5.6$ billion, or four percent, during the nine months ended September 30, 2016. The decrease was primarily due to a reduction in bridge financing exposure and other commitments.

Real estate, our second largest industry concentration with committed exposure of $\$ 84.1$ billion, decreased $\$ 3.6$ billion, or four percent, during the nine months ended September 30, 2016. Real estate construction and land development exposure represented 12 percent and 14 percent of the total real estate industry committed exposure at September 30, 2016 and December 31, 2015. For more information on the commercial real estate and related portfolios, see Commercial Portfolio Credit Risk Management - Commercial Real Estate on page 70.

The decline in oil prices has impacted and may continue to impact the financial performance of energy producers as well as energy equipment and service providers within the energy sector. Our energy-related committed exposure decreased $\$ 5.1$ billion to $\$ 38.7$ billion during the nine months ended September 30, 2016. Within the higher risk sub-sectors of exploration and production and oil field services, total committed exposure declined $\$ 2.7$ billion to $\$ 15.4$ billion, or 40 percent of total committed energy exposure, during the nine months ended September 30, 2016. Total utilized exposure to these sub-sectors declined approximately $\$ 1.4$ billion to $\$ 6.9$ billion during the nine months

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ended September 30, 2016. Of the total utilized exposure to the higher risk sub-sectors, 56 percent was criticized at September 30, 2016. Energy sector net charge-offs increased $\$ 211$ million to $\$ 226$ million for the nine months ended September 30, 2016 compared to the same period in 2015 and energy sector reservable criticized exposure increased $\$ 1.3$ billion to $\$ 5.9$ billion during the nine months ended September 30, 2016 due to sustained low oil prices. The energy allowance for credit losses increased to $\$ 1.0$ billion during the nine months ended September 30, 2016 primarily due to increased allowance coverage for the higher risk sub-sectors.

## Table of Contents

Table 44
Commercial Credit Exposure by Industry ${ }^{(1)}$
(Dollars in millions)
Diversified financials
Real estate (3)
Healthcare equipment and services
Retailing
Capital goods
Government and public education
Banking
Materials
Consumer services
Food, beverage and tobacco
Energy
Commercial services and supplies
Utilities
Transportation
Media
Pharmaceuticals and biotechnology
Individuals and trusts
Technology hardware and equipment
Software and services
Automobiles and components
Insurance, including monolines
Telecommunication services
Consumer durables and apparel
Food and staples retailing
Religious and social organizations
Other
Total commercial credit exposure by industry

| cia |  | Total Commercial |  |
| :---: | :---: | :---: | :---: |
| Utilized |  | Committed ${ }^{(2)}$ |  |
| Septemberßecember 31 |  | Septembe | 30ecember 31 |
| 2016 | 2015 | 2016 | 2015 |
| \$76,639 | \$ 79,496 | \$ 122,795 | \$ 128,436 |
| 61,522 | 61,759 | 84,057 | 87,650 |
| 37,553 | 35,134 | 65,780 | 57,901 |
| 40,633 | 37,675 | 63,782 | 63,975 |
| 34,364 | 30,790 | 63,478 | 58,583 |
| 45,244 | 44,835 | 54,600 | 53,133 |
| 39,533 | 45,952 | 46,644 | 53,825 |
| 23,135 | 24,012 | 44,508 | 46,013 |
| 26,778 | 24,084 | 41,982 | 37,058 |
| 19,771 | 18,316 | 39,181 | 43,164 |
| 19,741 | 21,257 | 38,746 | 43,811 |
| 23,830 | 19,552 | 38,202 | 32,045 |
| 12,408 | 11,396 | 28,154 | 27,849 |
| 20,428 | 19,369 | 27,760 | 27,371 |
| 13,171 | 12,833 | 25,587 | 24,194 |
| 6,037 | 6,302 | 25,162 | 16,472 |
| 16,775 | 17,992 | 22,341 | 23,176 |
| 8,564 | 6,337 | 19,965 | 24,734 |
| 8,193 | 6,617 | 18,344 | 18,362 |
| 5,252 | 4,804 | 12,897 | 11,329 |
| 6,041 | 5,095 | 12,250 | 10,728 |
| 5,952 | 4,717 | 11,372 | 10,645 |
| 5,804 | 6,053 | 10,965 | 11,165 |
| 4,899 | 4,351 | 8,848 | 9,439 |
| 4,662 | 4,526 | 6,429 | 5,929 |
| 5,886 | 6,309 | 13,093 | 15,510 |
| \$572,815 | \$ 559,563 | \$946,922 | \$ 942,497 |
|  |  | \$(4,586 ) | \$ (6,677 ) |

Net credit default protection purchased on total commitments ${ }^{(4)}$
${ }^{(1)}$ Includes U.S. small business commercial exposure. Includes the notional amount of unfunded legally binding lending commitments net of amounts distributed (e.g.,
(2) syndicated or participated) to other financial institutions of $\$ 12.4$ billion and $\$ 14.3$ billion at September 30, 2016 and December 31, 2015.
Industries are viewed from a variety of perspectives to best isolate the perceived risks. For purposes of this table,
(3) the real estate industry is defined based on the borrowers' or counterparties' primary business activity using operating cash flows and primary source of repayment as key factors.
(4) Represents net notional credit protection purchased. For additional information, see Commercial Portfolio Credit Risk Management - Risk Mitigation on page 76.

## Table of Contents

## Risk Mitigation

We purchase credit protection to cover the funded portion as well as the unfunded portion of certain credit exposures. To lower the cost of obtaining our desired credit protection levels, we may add credit exposure within an industry, borrower or counterparty group by selling protection.

At September 30, 2016 and December 31, 2015, net notional credit default protection purchased in our credit derivatives portfolio to hedge our funded and unfunded exposures for which we elected the fair value option, as well as certain other credit exposures, was $\$ 4.6$ billion and $\$ 6.7$ billion. We recorded net losses of $\$ 80$ million and $\$ 408$ million for the three and nine months ended September 30, 2016 compared to net gains of $\$ 191$ million and $\$ 78$ million for the same periods in 2015 on these positions. The gains and losses on these instruments were offset by gains and losses on the related exposures. The Value-at-Risk (VaR) results for these exposures are included in the fair value option portfolio information in Table 52. For additional information, see Trading Risk Management on page 84.

Tables 45 and 46 present the maturity profiles and the credit exposure debt ratings of the net credit default protection portfolio at September 30, 2016 and December 31, 2015.

Table 45
Net Credit Default Protection by Maturity

|  | September 30 |  |  |  | December 31 |
| :--- | :--- | :--- | :--- | :--- | :--- |
|  | 2016 |  | 2015 |  |  |
|  | 53 | $\%$ | 39 | $\%$ |  |
| Less than or equal to one year | 44 |  | 59 |  |  |
| Greater than one year and less than or equal to five years | 3 |  | 2 |  |  |
| Greater than five years | 3 |  | 100 | $\%$ | 100 |$)$

Table 46
Net Credit Default Protection by Credit Exposure Debt Rating

| (Dollars in millions) | $\begin{aligned} & \text { September 30, } \\ & 2016 \end{aligned}$ |  | $\begin{aligned} & \text { December 31, } \\ & 2015 \end{aligned}$ |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Net | Percent | Net | Percent |
| Ratings ${ }^{(1,2)}$ | Notional (3) | 1 of Total | Notional <br> (3) | 1 of Total |
| A | \$(393 ) | ) 8.6 \% | \$(752 | ) $11.3 \%$ |
| BBB | (2,401 ) | ) 52.4 | (3,030 | ) 45.4 |
| BB | (1,105 ) | ) 24.1 | (2,090 ) | ) 31.3 |
| B | (632 ) | ) 13.8 | (634 ) | ) 9.5 |
| CCC and below | (24) | ) 0.5 | (139 | ) 2.1 |
| NR ${ }^{4}$ | (31 ) | ) 0.6 | (32 | ) 0.4 |

Total net credit default protection $\$(4,586) 100.0 \% \$(6,677) 100.0 \%$
${ }^{(1)}$ Ratings are refreshed on a quarterly basis.
${ }^{(2)}$ Ratings of BBB- or higher are considered to meet the definition of investment grade.
${ }^{(3)}$ Represents net credit default protection purchased.
${ }^{(4)}$ NR is comprised of index positions held and any names that have not been rated.
In addition to our net notional credit default protection purchased to cover the funded and unfunded portion of certain credit exposures, credit derivatives are used for market-making activities for clients and establishing positions intended to profit from directional or relative value changes. We execute the majority of our credit derivative trades in the OTC market with large, multinational financial institutions, including broker-dealers and, to a lesser degree, with a

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variety of other investors. Because these transactions are executed in the OTC market, we are subject to settlement risk. We are also subject to credit risk in the event that these counterparties fail to perform under the terms of these contracts. In most cases, credit derivative transactions are executed on a daily margin basis. Therefore, events such as a credit downgrade, depending on the ultimate rating level, or a breach of credit covenants would typically require an increase in the amount of collateral required by the counterparty, where applicable, and/or allow us to take additional protective measures such as early termination of all trades.

76

## Table of Contents

Table 47 presents the total contract/notional amount of credit derivatives outstanding and includes both purchased and written credit derivatives. The credit risk amounts are measured as net asset exposure by counterparty, taking into consideration all contracts with the counterparty. For more information on our written credit derivatives, see Note 2 Derivatives to the Consolidated Financial Statements.

The credit risk amounts discussed above and presented in Table 47 take into consideration the effects of legally enforceable master netting agreements while amounts disclosed in Note 2 - Derivatives to the Consolidated Financial Statements are shown on a gross basis. Credit risk reflects the potential benefit from offsetting exposure to non-credit derivative products with the same counterparties that may be netted upon the occurrence of certain events, thereby reducing our overall exposure.

Table 47
Credit Derivatives
(Dollars in millions)
Purchased credit derivatives:
Credit default swaps

| September 30, | December 31, |  |
| :--- | :--- | :--- |
| 2016 | 2015 |  |
| Contract/ Credit | Contract/ Credit |  |
| Notional | Risk | Notional Risk |

$\begin{array}{lllll}\text { Total return swaps/other } & 31,502 & 391 & 26,427 & 1,596\end{array}$
Total purchased credit derivatives $\$ 843,307 \$ 3,196 \$ 954,727 \$ 5,273$
Written credit derivatives:
Credit default swaps $\quad \$ 803,211 \mathrm{n} / \mathrm{a} \quad \$ 924,143 \mathrm{n} / \mathrm{a}$
Total return swaps/other $\quad 43,228 \quad \mathrm{n} / \mathrm{a} \quad 39,658 \quad \mathrm{n} / \mathrm{a}$
Total written credit derivatives $\$ 846,439 \mathrm{n} / \mathrm{a} \quad \$ 963,801 \mathrm{n} / \mathrm{a}$
$\mathrm{n} / \mathrm{a}=$ not applicable

## Counterparty Credit Risk Valuation Adjustments

We record counterparty credit risk valuation adjustments on certain derivative assets, including our credit default protection purchased, in order to properly reflect the credit risk of the counterparty, as presented in Table 48. We calculate CVA 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. For additional information, see Note 2 - Derivatives to the Consolidated Financial Statements.

We enter into risk management activities to offset market driven exposures. We often hedge the counterparty spread risk in CVA with credit default swaps (CDS). We hedge other market risks in CVA primarily with currency and interest rate swaps. In certain instances, the net-of-hedge amounts in the table below move in the same direction as the gross amount or may move in the opposite direction. This is a consequence of the complex interaction of the risks being hedged resulting in limitations in the ability to perfectly hedge all of the market exposures at all times.

Table 48
Credit Valuation Gains and Losses
Gains (Losses) Three Months Ended September $30 \quad$ Nine Months Ended September 30
201620152016
(Dollars in millions) Gross Hedge Net Gross Hedge Net GrosHedge Net GrosHedge Net
Credit valuation $\quad \$ 280 \$(214) \$ 66$ (138) \$ 205 \$67 $\$ 45$ \$ 106 $\$ 151 \$ 85 \$ 89 \quad \$ 174$

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## Table of Contents

Non-U.S. Portfolio
Our non-U.S. credit and trading portfolios are subject to country risk. We define country risk as the risk of loss from unfavorable economic and political conditions, currency fluctuations, social instability and changes in government policies. A risk management framework is in place to measure, monitor and manage non-U.S. risk and exposures. In addition to the direct risk of doing business in a country, we also are exposed to indirect country risks (e.g., related to the collateral received on secured financing transactions or related to client clearing activities). These indirect exposures are managed in the normal course of business through credit, market and operational risk governance, rather than through country risk governance.

Table 49 presents our 20 largest non-U.S. country exposures at September 30, 2016. These exposures accounted for 87 percent and 86 percent of our total non-U.S. exposure at September 30, 2016 and December 31, 2015. Net country exposure for these 20 countries increased $\$ 18.3$ billion from December 31, 2015 primarily driven by increases in Germany, and to a lesser extent Canada and France. On a product basis, the increase was driven by an increase in funded loans and loan equivalents in Germany and Canada, higher unfunded commitments in Germany, and an increase in securities in France and Canada.

Non-U.S. exposure is presented on an internal risk management basis and includes sovereign and non-sovereign credit exposure, securities and other investments issued by or domiciled in countries other than the U.S. The risk assignments by country can be adjusted for external guarantees and certain collateral types. Exposures that are subject to external guarantees are reported under the country of the guarantor. Exposures with tangible collateral are reflected in the country where the collateral is held. For securities received, other than cross-border resale agreements, outstandings are assigned to the domicile of the issuer of the securities.

Funded loans and loan equivalents include loans, leases, and other extensions of credit and funds, including letters of credit and due from placements, which have not been reduced by collateral, hedges or credit default protection. Funded loans and loan equivalents are reported net of charge-offs but prior to any allowance for loan and lease losses. Unfunded commitments are the undrawn portion of legally binding commitments related to loans and loan equivalents.

Net counterparty exposure includes the fair value of derivatives, including the counterparty risk associated with CDS, and secured financing transactions. Derivatives exposures are presented net of collateral, which is predominantly cash, pledged under legally enforceable master netting agreements. Secured financing transaction exposures are presented net of eligible cash or securities pledged as collateral.

Securities and other investments are carried at fair value and long securities exposures are netted against short exposures with the same underlying issuer to, but not below, zero (i.e., negative issuer exposures are reported as zero). Other investments include our GPI portfolio and strategic investments.

Net country exposure represents country exposure less hedges and credit default protection purchased, net of credit default protection sold. We hedge certain of our country exposures with credit default protection primarily in the form of single-name, as well as indexed and tranched CDS. The exposures associated with these hedges represent the amount that would be realized upon the isolated default of an individual issuer in the relevant country assuming a zero recovery rate for that individual issuer, and are calculated based on the CDS notional amount adjusted for any fair value receivable or payable. Changes in the assumption of an isolated default can produce different results in a particular tranche.

## Table of Contents

Table 49
Top 20 Non-U.S. Countries Exposure


Weakening of commodity prices, signs of slowing growth in China, a recession in Brazil and recent political events in Turkey are driving risk aversion in emerging markets. At September 30, 2016, net exposure to China was $\$ 11.5$ billion, concentrated in large state-owned companies, subsidiaries of multinational corporations and commercial banks. At September 30, 2016, net exposure to Brazil was $\$ 14.3$ billion, concentrated in sovereign securities, oil and gas companies and commercial banks. At September 30, 2016, net exposure to Turkey was $\$ 3.0$ billion, concentrated in commercial banks.

The U.K. Referendum to leave the EU has led to political and economic uncertainty that may continue over the next several years. At September 30, 2016, net exposure to the U.K. was $\$ 52.4$ billion, concentrated in multinational corporations and sovereign clients. For additional information, see Executive Summary - Third Quarter 2016 Economic and Business Environment on page 4.

## Provision for Credit Losses

The provision for credit losses increased $\$ 44$ million to $\$ 850$ million, and $\$ 472$ million to $\$ 2.8$ billion for the three and nine months ended September 30, 2016 compared to the same periods in 2015. The provision for credit losses was $\$ 38$ million and $\$ 118$ million lower than net charge-offs for the three and nine months ended September 30, 2016, resulting in a reduction in the allowance for credit losses. This compared to a reduction of $\$ 126$ million and $\$ 843$ million in the allowance for credit losses for the three and nine months ended September 30, 2015.

The provision for credit losses for the consumer portfolio increased $\$ 163$ million to $\$ 705$ million, and $\$ 126$ million to $\$ 1.8$ billion for the three and nine months ended September 30, 2016 compared to the same periods in 2015 due to a slower pace of credit quality improvement. Included in the provision is expense of $\$ 8$ million and a benefit of $\$ 81$ million related to the PCI loan portfolio for the three and nine months ended September 30, 2016 compared to a benefit of $\$ 68$ million and $\$ 40$ million for the same periods in 2015.

79

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## Table of Contents

The provision for credit losses for the commercial portfolio, including unfunded lending commitments, decreased $\$ 119$ million to $\$ 145$ million, and increased $\$ 346$ million to $\$ 983$ million for the three and nine months ended September 30, 2016 compared to the same periods in 2015. The three-month decrease was driven by a slower pace of loan growth and the nine-month increase was primarily driven by an increase in energy sector reserves for the higher risk energy sub-sectors. Although energy prices have shown improvement during the last six months, they have not fully recovered to the pre-energy crisis levels.

## Allowance for Credit Losses

## Allowance for Loan and Lease Losses

The allowance for loan and lease losses is comprised of two components. The first component covers nonperforming commercial loans and TDRs. The second component covers loans and leases on which there are incurred losses that are not yet individually identifiable, as well as incurred losses that may not be represented in the loss forecast models. We evaluate the adequacy of the allowance for loan and lease losses based on the total of these two components. The allowance for loan and lease losses excludes LHFS and loans accounted for under the fair value option as the fair value reflects a credit risk component. For more information on the allowance for loan and lease losses, see Allowance for Credit Losses in the MD\&A of the Corporation's 2015 Annual Report on Form 10-K.

During the three and nine months ended September 30, 2016, the factors that impacted the allowance for loan and lease losses included overall improvements in the credit quality of the portfolios driven by continuing improvements in the U.S. economy and labor markets, continuing proactive credit risk management initiatives and the impact of recent higher credit quality originations. Additionally, the resolution of uncertainties through current recognition of net charge-offs has impacted the amount of reserve needed in certain portfolios. Evidencing the improvements in the U.S. economy and labor markets are modest growth in consumer spending, improvements in unemployment levels, increases in home prices and a decrease in the absolute level of national consumer bankruptcy filings. In addition to these improvements, in the consumer portfolio, loan sales, returns to performing status, paydowns and charge-offs continued to outpace new nonaccrual loans. During the nine months ended September 30, 2016, the allowance for loan and lease losses in the commercial portfolio reflected increased coverage for the energy sector due to sustained low oil prices which impacted the financial performance of energy clients and contributed to an increase in reservable criticized balances.

The allowance for loan and lease losses for the consumer portfolio, as presented in Table 51, was $\$ 6.4$ billion at September 30, 2016, a decrease of $\$ 1.0$ billion from December 31, 2015. The decrease was primarily in the home equity, residential mortgage and credit card portfolios. Reductions in the residential mortgage and home equity portfolios were due to improved home prices, lower delinquencies and a decrease in consumer loan balances, as well as write-offs in our PCI loan portfolio.

The decrease in the allowance related to the U.S. credit card and unsecured consumer lending portfolios was primarily due to improvement in delinquencies and more generally in unemployment levels. For example, in the U.S. credit card portfolio, accruing loans 30 days or more past due decreased to $\$ 1.5$ billion at September 30, 2016 from $\$ 1.6$ billion (to 1.64 percent from 1.76 percent of outstanding U.S. credit card loans) at December 31, 2015, and accruing loans 90 days or more past due decreased to $\$ 702$ million at September 30, 2016 from $\$ 789$ million (to 0.79 percent from 0.88 percent of outstanding U.S. credit card loans) at December 31, 2015. See Tables 25, 26 and 33 for additional details on key credit statistics for the credit card and other unsecured consumer lending portfolios.

The allowance for loan and lease losses for the commercial portfolio, as presented in Table 51, was $\$ 5.3$ billion at September 30, 2016, an increase of $\$ 464$ million from December 31, 2015 driven by increased allowance coverage for the higher risk energy sub-sectors as a result of sustained low oil prices. Commercial utilized reservable criticized

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exposure increased to $\$ 16.9$ billion at September 30, 2016 from $\$ 15.9$ billion (to 3.52 percent from 3.38 percent of total commercial utilized reservable exposure) at December 31, 2015, largely due to downgrades in the energy portfolio. Nonperforming commercial loans increased to $\$ 2.0$ billion at September 30, 2016 from $\$ 1.2$ billion (to 0.45 percent from 0.28 percent of outstanding commercial loans excluding loans accounted for under the fair value option) at December 31, 2015 with the increase primarily in the energy and metals and mining sectors. Commercial loans and leases outstanding increased to $\$ 452.5$ billion at September 30, 2016 from $\$ 440.8$ billion at December 31, 2015. See Tables 37,38 and 40 for additional details on key commercial credit statistics.

The allowance for loan and lease losses as a percentage of total loans and leases outstanding was 1.30 percent at September 30, 2016 compared to 1.37 percent at December 31, 2015. The decrease in the ratio was primarily due to improved credit quality in the consumer portfolios driven by improved economic conditions and write-offs in the PCI loan portfolio. The September 30, 2016 and December 31, 2015 ratios above include the PCI loan portfolio. Excluding the PCI loan portfolio, the allowance for loan and lease losses as a percentage of total loans and leases outstanding was 1.27 percent and 1.31 percent at September 30, 2016 and December 31, 2015.

## Table of Contents

Table 50 presents a rollforward of the allowance for credit losses, which includes the allowance for loan and lease losses and the reserve for unfunded lending commitments, for the three and nine months ended September 30, 2016 and 2015.

Table 50
Allowance for Credit Losses
(Dollars in millions)
Allowance for loan and lease losses, beginning of period
Loans and leases charged off
Residential mortgage
Home equity
U.S. credit card

Non-U.S. credit card
Direct/Indirect consumer
Other consumer
Total consumer charge-offs
U.S. commercial ${ }^{(1)}$

Commercial real estate
Commercial lease financing
Non-U.S. commercial
Total commercial charge-offs
Total loans and leases charged off
Recoveries of loans and leases previously charged off
Residential mortgage 6
Home equity 83
U.S. credit card

Non-U.S. credit card
Direct/Indirect consumer
Other consumer
Total consumer recoveries
U.S. commercial (2)

Commercial real estate
Commercial lease financing
Non-U.S. commercial
Total commercial recoveries
Total recoveries of loans and leases previously charged off
Net charge-offs
Write-offs of PCI loans
Provision for loan and lease losses
Other ${ }^{(3)}$
Allowance for loan and lease losses, September 30
Reserve for unfunded lending commitments, beginning of period
Provision for unfunded lending commitments
Other ${ }^{(3)}$
Reserve for unfunded lending commitments, September 30
Allowance for credit losses, September 30

| $\left.\begin{array}{llll}\text { Three Months } & & \text { Nine Months } \\ \text { Ended September } & \text { Ended September } \\ 30 & & 30 & \\ 2016 & 2015 & 2016 & 2015 \\ \\ \$ 11,837 & \$ 13,068 & \$ 12,234 & \$ 14,419 \\ & & & \\ (66 & )(146 & )(339 & )(716\end{array}\right)$ |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- |
| $(180$ | $)(199$ | $)(589$ | $)(714$ | $)$ |
| $(648$ | $)(652$ | $)(2,021$ | $)(2,072$ | $)$ |
| $(59$ | $)(67$ | $)(183$ | $)(210$ | $)$ |
| $(98$ | $)(91$ | $)(287$ | $)(289$ | $)$ |
| $(63$ | $)(63$ | $)(173$ | $)(162$ | $)$ |
| $(1,114$ | $)(1,218$ | $)(3,592$ | $)(4,163$ | $)$ |
| $(141$ | $)(136$ | $)(423$ | $)(358$ | $)$ |
| $(1$ | $)(3$ | $)(9$ | $)(21$ | $)$ |
| $(9$ | $)(7$ | $)(26$ | $)(17$ | $)$ |
| $(12$ | $)(11$ | $)(101$ | $)(14$ | $)$ |
| $(163$ | $)(157$ | $)(559$ | $)(410$ | $)$ |
| $(1,277$ | $)(1,375$ | $)(4,151$ | $)(4,573$ | $)$ |


| 62 | 120 | 210 | 316 |
| :--- | :--- | :--- | :--- |
| 83 | 79 | 254 | 271 |
| 105 | 106 | 318 | 321 |
| 16 | 20 | 49 | 68 |
| 64 | 66 | 196 | 206 |
| 6 | 6 | 21 | 23 |
| 336 | 397 | 1,048 | 1,205 |
| 24 | 27 | 111 | 130 |
| 24 | 13 | 40 | 30 |
| 3 | 4 | 7 | 9 |
| 2 | 2 | 4 | 5 |
| 53 | 46 | 162 | 174 |
| 389 | 443 | 1,210 | 1,379 |
| $(888$ | $)(932$ | $)(2,941$ | $)(3,194$ |
| $(83$ | $)(148$ | $)(270$ | $)$ |
| 834 | 733 | 2,802 | 2,218 |
| $(8$ | $)(64$ | $)(133$ | $)$ |
| 11,692 | 12,657 | 11,692 | 12,657 |
| 750 | 588 | 646 | 528 |
| 16 | 73 | 21 | 133 |
| 1 | - | 100 | - |
| 767 | 661 | 767 | 661 |
| $\$ 12,459$ | $\$ 13,318$ | $\$ 12,459$ | $\$ 13,318$ |

(1) Includes U.S. small business commercial charge-offs of $\$ 66$ million and $\$ 189$ million for the three and nine months ended September 30, 2016 compared to $\$ 67$ million and $\$ 217$ million for the same periods in 2015.
(2) Includes U.S. small business commercial recoveries of $\$ 11$ million and $\$ 32$ million for the three and nine months ended September 30, 2016 compared to $\$ 10$ million and $\$ 47$ million for the same periods in 2015.
${ }_{(3)}$ Primarily represents the net impact of portfolio sales, consolidations and deconsolidations, foreign currency translation adjustments and certain other reclassifications.

## Table of Contents

Table 50
Allowance for Credit Losses (continued)
(Dollars in millions)
Loan and allowance ratios:
Loans and leases outstanding at September $30{ }^{(4)}$
Allowance for loan and lease losses as a percentage of total loans
and leases outstanding at September $30{ }^{(4)}$
Consumer allowance for loan and lease losses as a percentage of total consumer loans and leases outstanding at September $30{ }^{(5)}$ Commercial allowance for loan and lease losses as a percentage of total commercial loans and leases outstanding at September 30 (6) Average loans and leases outstanding (4)
Annualized net charge-offs as a percentage of average loans and leases outstanding $(4,7)$
Annualized net charge-offs and PCI write-offs as a percentage of average loans and leases outstanding (4)
Allowance for loan and lease losses as a percentage of total nonperforming loans and leases at September $30(4,8)$
Ratio of the allowance for loan and lease losses at September 30 to annualized net charge-offs (7)
Ratio of the allowance for loan and lease losses at September 30 to annualized net charge-offs and PCI write-offs
Amounts included in allowance for loan and lease losses for loans and leases that are excluded from nonperforming loans and leases at September $30{ }^{(9)}$
Allowance for loan and lease losses as a percentage of total nonperforming loans and leases, excluding the allowance for loan and lease losses for loans and leases that are excluded from nonperforming loans and leases at September $30(4,9)$
Loan and allowance ratios excluding PCI loans and the related valuation allowance: (10)
Allowance for loan and lease losses as a percentage of total loans and leases outstanding at September $30{ }^{(4)}$
Consumer allowance for loan and lease losses as a percentage of total consumer loans and leases outstanding at September $30^{(5)}$ Annualized net charge-offs as a percentage of average loans and leases outstanding (4)
Allowance for loan and lease losses as a percentage of total nonperforming loans and leases at September $30(4,8)$
Ratio of the allowance for loan and lease losses at September 30 to annualized net charge-offs

| Three Months Ended <br> September 30 <br> 2016 2015 | Nine Months Ended <br> September 30 <br> 2016 |  |  |
| :--- | :--- | :--- | :--- |
|  |  |  | 2015 |


| $1.30 \quad \%$ | $1.45 \quad \%$ | $1.30 \quad \%$ | $1.45 \quad \%$ |
| :--- | :--- | :--- | :--- | :--- | :--- |


| 1.42 | 1.75 | 1.42 | 1.75 |
| :--- | :--- | :--- | :--- |

$1.19 \quad 1.12 \quad 1.19 \quad 12$
$\$ 892,207 \quad \$ 869,997 \quad \$ 889,498 \quad \$ 865,623$

| 0.40 | $\%$ | $0.43 \quad \%$ | $0.44 \quad \%$ | $0.49 \quad \%$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |


| 0.43 | 0.49 | 0.48 | 0.61 |
| :--- | :--- | :--- | :--- |

$140 \quad 129 \quad 140 \quad 129$

| 3.31 | 3.42 | 2.98 | 2.96 |
| :--- | :--- | :--- | :--- |


| 3.03 | 2.95 | 2.73 | 2.41 |
| :--- | :--- | :--- | :--- |

$\$ 4,06$
$\$ 4,682 \quad \$ 4,068$
$\$ 4,682$

Outstanding loan and lease balances and ratios do not include loans accounted for under the fair value option
(4) of $\$ 8.1$ billion and $\$ 7.2$ billion at September 30, 2016 and 2015. Average loans accounted for under the fair value option were $\$ 8.4$ billion and $\$ 8.3$ billion for the three and nine months ended September 30, 2016 compared to $\$ 7.4$ billion and $\$ 8.0$ billion for the same periods in 2015.
(5) Excludes consumer loans accounted for under the fair value option of $\$ 1.8$ billion and $\$ 1.9$ billion at September 30, 2016 and 2015.
(6) Excludes commercial loans accounted for under the fair value option of $\$ 6.3$ billion and $\$ 5.2$ billion at September 30, 2016 and 2015.
Net charge-offs exclude $\$ 83$ million and $\$ 270$ million of write-offs in the PCI loan portfolio for the three and nine
(7) months ended September 30, 2016 compared to $\$ 148$ million and $\$ 726$ million for the same periods in 2015. For more information on PCI write-offs, see Consumer Portfolio Credit Risk Management - Purchased Credit-impaired Loan Portfolio on page 62.
(8)

For more information on our definition of nonperforming loans, see pages 65 and 73 .
(9) Primarily includes amounts allocated to U.S. credit card and unsecured consumer lending portfolios in Consumer Banking, PCI loans and the non-U.S. credit card portfolio in All Other.
(10) For more information on the PCI loan portfolio and the valuation allowance for PCI loans, see Note 4 Outstanding Loans and Leases and Note 5 - Allowance for Credit Losses to the Consolidated Financial Statements.

## Table of Contents

For reporting purposes, we allocate the allowance for credit losses across products. Table 51 presents our allocation by product type.

Table 51
Allocation of the Allowance for Credit Losses by Product Type

September 30, 2016
(Dollars in millions)

December 31, 2015
Percent of
Percent Loans and
Amount of Leases Total Outstanding (1)

Allowance for loan and lease losses

| Residential mortgage | $\$ 1,088$ | 9.31 | $\%$ | 0.58 | $\%$ | $\$ 1,500$ | 12.26 | $\%$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | Allowance for credit losses

## \$ 12,459

Ratios are calculated as allowance for loan and lease losses as a percentage of loans and leases outstanding excluding loans accounted for under the fair value option. Consumer loans accounted for under the fair value
(1) option included residential mortgage loans of $\$ 1.4$ billion and $\$ 1.6$ billion and home equity loans of $\$ 340$ million and $\$ 250$ million at September 30, 2016 and December 31, 2015. Commercial loans accounted for under the fair value option included U.S. commercial loans of $\$ 2.6$ billion and $\$ 2.3$ billion and non-U.S. commercial loans of $\$ 3.7$ billion and $\$ 2.8$ billion at September 30, 2016 and December 31, 2015.
(2) Includes allowance for loan and lease losses for U.S. small business commercial loans of $\$ 444$ million and $\$ 507$ million at September 30, 2016 and December 31, 2015.
(3) Includes allowance for loan and lease losses for impaired commercial loans of $\$ 258$ million and $\$ 217$ million at September 30, 2016 and December 31, 2015.
(4) Includes $\$ 453$ million and $\$ 804$ million of valuation allowance presented with the allowance for loan and lease losses related to PCI loans at September 30, 2016 and December 31, 2015.

Reserve for Unfunded Lending Commitments
In addition to the allowance for loan and lease losses, we also estimate probable losses related to unfunded lending commitments such as letters of credit, financial guarantees, unfunded bankers' acceptances and binding loan commitments, excluding commitments accounted for under the fair value option. For more information on the reserve for unfunded lending commitments, see Allowance for Credit Losses in the MD\&A of the Corporation's 2015 Annual Report on Form 10-K.

The reserve for unfunded lending commitments was $\$ 767$ million at September 30, 2016, an increase of $\$ 121$ million from December 31, 2015. The increase was primarily attributable to reserve builds related to continued pressure in the energy sector.

83

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## Table of Contents

Market Risk Management
For information on our market risk management process, see Market Risk Management in the MD\&A of the Corporation's 2015 Annual Report on Form 10-K.

## Trading Risk Management

To evaluate risk in our trading activities, we focus on the actual and potential volatility of revenues generated by individual positions as well as portfolios of positions. Various techniques and procedures are utilized to enable the most complete understanding of these risks. Quantitative measures of market risk are evaluated on a daily basis from a single position to the portfolio of the Corporation. These measures include sensitivities of positions to various market risk factors, such as the potential impact on revenue from a one basis point change in interest rates, and statistical measures utilizing both actual and hypothetical market moves, such as VaR and stress testing. Periods of extreme market stress influence the reliability of these techniques to varying degrees. Qualitative evaluations of market risk utilize the suite of quantitative risk measures while understanding each of their respective limitations. Additionally, risk managers independently evaluate the risk of the portfolios under the current market environment and potential future environments.

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.

Within any VaR model, there are significant and numerous assumptions that will differ from company to company. The accuracy of a VaR model depends on the availability and quality of historical data for each of the risk factors in the portfolio. A VaR model may require additional modeling assumptions for new products that do not have the necessary historical market data or for less liquid positions for which accurate daily prices are not consistently available. For positions with insufficient historical data for the VaR calculation, the process for establishing an appropriate proxy is based on fundamental and statistical analysis of the new product or less liquid position. This analysis identifies reasonable alternatives that replicate both the expected volatility and correlation to other market risk factors that the missing data would be expected to experience.

VaR may not be indicative of realized revenue volatility as changes in market conditions or in the composition of the portfolio can have a material impact on the results. In particular, the historical data used for the VaR calculation might indicate higher or lower levels of portfolio diversification than will be experienced. In order for the VaR model to reflect current market conditions, we update the historical data underlying our VaR model on a weekly basis, or more frequently during periods of market stress, and regularly review the assumptions underlying the model. A relatively minor portion of risks related to our trading positions is not included in VaR. These risks are reviewed as part of our Internal Capital Adequacy Assessment Process (ICAAP). For more information regarding ICAAP, see Capital Management in the MD\&A of the Corporation's 2015 Annual Report on Form 10-K.

Global Risk Management continually reviews, evaluates and enhances our VaR model so that it reflects the material risks in our trading portfolio. Changes to the VaR model are reviewed and approved prior to implementation and any material changes are reported to management through the appropriate management committees.

Trading limits on quantitative risk measures, including VaR, are independently set by Global Markets Risk Management and reviewed on a regular basis to ensure they remain relevant and within our overall risk appetite for market risks. Trading limits are reviewed in the context of market liquidity, volatility and strategic business priorities. Trading limits are set at both a granular level to ensure extensive coverage of risks as well as at aggregated portfolios to account for correlations among risk factors. All trading limits are approved at least annually. Approved trading limits are stored and tracked in a centralized limits management system. Trading limit excesses are communicated to management for review. Certain quantitative market risk measures and corresponding limits have been identified as critical in the Corporation's Risk Appetite Statement. These risk appetite limits are reported on a daily basis and are approved at least annually by the ERC and the Board.

In periods of market stress, Global Markets senior leadership communicates daily to discuss losses, key risk positions and any limit excesses. As a result of this process, the businesses may selectively reduce risk.

## Table of Contents

Table 52 presents the total market-based trading portfolio VaR which is the combination of the covered positions trading portfolio and the impact from less liquid trading exposures. 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 we choose to exclude with prior regulatory approval. In addition, Table 52 presents our fair value option portfolio, which includes the funded and unfunded exposures for which we elect the fair value option and their corresponding hedges. The fair value option portfolio combined with the total market-based trading portfolio VaR represents the Corporation's total market-based portfolio VaR. Additionally, market risk VaR for trading activities as presented in Table 52 differs from VaR used for regulatory capital calculations due to the holding period being used. The holding period for VaR used for regulatory capital calculations is 10 days, while for the market risk VaR presented below, it is one day. Both measures utilize the same process and methodology.

The total market-based portfolio VaR results in Table 52 include market risk from all business segments to which the Corporation is exposed, excluding CVA and DVA. The majority of this portfolio is within the Global Markets segment.

Table 52 presents period-end, average, high and low daily trading VaR for the three months ended September 30, 2016, June 30, 2016 and September 30, 2015, as well as average daily trading VaR for the nine months ended September 30, 2016 and 2015, using a 99 percent confidence level.

Table 52
Market Risk VaR for Trading Activities
(Dollars in millions)
Foreign exchange
Interest rate
Credit
Equity
Commodity
Portfolio diversification
Total covered positions trading portfolio
Impact from less liquid exposures
Total market-based trading portfolio
Fair value option loans
Fair value option hedges
Fair value option portfolio
diversification
Total fair value option portfolio
Portfolio diversification
Total market-based portfolio

Three Months Ended
September 30, 2016 June 30, 2016


| $\$ 7$ | $\$ 8$ | $\$ 11$ | $\$ 6$ | $\$ 7$ | $\$ 9$ | $\$ 11$ | $\$ 7$ | $\$ 12$ | $\$ 10$ | $\$ 19$ | $\$ 7$ | $\$ 9$ | $\$ 9$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 15 | 20 | 25 | 15 | 22 | 20 | 28 | 15 | 31 | 23 | 31 | 17 | 21 | 26 |
| 31 | 29 | 37 | 25 | 28 | 31 | 34 | 27 | 33 | 31 | 38 | 28 | 30 | 36 |
| 16 | 17 | 24 | 11 | 21 | 20 | 30 | 12 | 19 | 16 | 33 | 9 | 19 | 14 |
| 8 | 7 | 10 | 5 | 8 | 6 | 8 | 4 | 5 | 5 | 7 | 4 | 6 | 6 |

(45) (47 ) - $\quad(42)(46)-\quad-(42)(44)-\quad-(47)(45)$

| 32 | 34 | 46 | 28 | 44 | 40 | 49 | 30 | 58 | 41 | 58 | 30 | 38 | 46 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 12 | 6 | - | - | 4 | 6 | - | - | - | 10 | - | - | 5 | 10 |
| 44 | 40 | 50 | 31 | 48 | 46 | 58 | 35 | 58 | 51 | 63 | 39 | 43 | 56 |
| 16 | 18 | 23 | 16 | 21 | 25 | 29 | 21 | 23 | 22 | 26 | 18 | 26 | 25 |
| 7 | 8 | 11 | 6 | 11 | 12 | 15 | 10 | 16 | 13 | 17 | 10 | 13 | 13 |

(12) (15 ) — — (20) (23 ) — (28) (22 ) — (24) (24 )
$\begin{array}{llllllllllllll}11 & 11 & 16 & 9 & 12 & 14 & 17 & 12 & 11 & 13 & 15 & 10 & 15 & 14\end{array}$
(3 ) (4 ) - - (3 ) (6 ) - - (4 ) (4 ) - - (8 ) (6 )
\$52 \$ $47 \quad \$ 61 \$ 36 \$ 57 \$ 54 \quad \$ 70 \$ 44 \$ 65 \$ 60 \quad \$ 74 \$ 45 \$ 50 \$ 64$

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The high and low for each portfolio may have occurred on different trading days than the high and low for the ${ }^{(1)}$ components. Therefore the impact from less liquid exposures and the amount of portfolio diversification, which is the difference between the total portfolio and the sum of the individual components, are not relevant.

The average total market-based trading portfolio VaR decreased for the three months ended September 30, 2016 compared to the same period in 2015 primarily due to reduced exposure to the credit and interest rate markets.

85

## Table of Contents

The graph below presents the daily total market-based trading portfolio VaR for the previous five quarters, corresponding to the data in Table 52.

Additional VaR statistics produced within the Corporation's single VaR model are provided in Table 53 at the same level of detail as in Table 52. Evaluating VaR with additional statistics allows for an increased understanding of the risks in the portfolio as the historical market data used in the VaR calculation does not necessarily follow a predefined statistical distribution. Table 53 presents average trading VaR statistics for 99 percent and 95 percent confidence levels for the three months ended September 30, 2016, June 30, 2016 and September 30, 2015.

Table 53
Average Market Risk VaR for Trading Activities - 99 Percent and 95 Percent VaR Statistics

| (Dollars in millions) | percepercent | percepercent |  | ntpercent |
| :---: | :---: | :---: | :---: | :---: |
| Foreign exchange | \$8 \$ 4 | \$9 \$ 5 | \$ 10 | \$ 6 |
| Interest rate | 2013 | $20 \quad 12$ | 23 | 14 |
| Credit | 2918 | 3119 | 31 | 18 |
| Equity | $17 \quad 10$ | 2013 | 16 | 9 |
| Commodity | 74 | 63 | 5 | 3 |
| Portfolio diversification | (47) (30 | $(46)(31)$ | (44 | ) $(28$ |
| Total covered positions trading portfolio | 3419 | 4021 | 41 | 22 |
| Impact from less liquid exposures | 63 | 63 | 10 | 2 |
| Total market-based trading portfolio | $40 \quad 22$ | $46 \quad 24$ | 51 | 24 |
| Fair value option loans | 1810 | $25 \quad 14$ | 22 | 13 |
| Fair value option hedges | 86 | 128 | 13 | 8 |
| Fair value option portfolio diversification | $(15)(9$ | $(23)(14)$ | (22 | ) (14 |
| Total fair value option portfolio | 117 | 148 | 13 | 7 |
| Portfolio diversification | (4) (3 | (6 ) (5 ) | (4 | ) (3 |
| Total market-based portfolio | \$47 \$ 26 | \$54 \$ 27 | \$ 60 | \$ 28 |

86

## Table of Contents

## 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 and to ensure that the VaR methodology accurately represents those losses. As our primary VaR statistic used for backtesting is based on a 99 percent confidence level and a one-day holding period, we expect one trading loss in excess of VaR every 100 days, or between two to three trading losses in excess of VaR over the course of a year. The number of backtesting excesses observed can differ from the statistically expected number of excesses if the current level of market volatility is materially different than the level of market volatility that existed during the three years of historical data used in the VaR calculation.

The trading revenue used for backtesting is defined by regulatory agencies in order to most closely align with the VaR component of the regulatory capital calculation. This revenue differs from total trading-related revenue in that it excludes revenue from trading activities that either do not generate market risk or the market risk cannot be included in VaR. Some examples of the types of revenue excluded for backtesting are fees, commissions, reserves, net interest income and intraday trading revenues.

We conduct daily backtesting on our portfolios, ranging from the total market-based portfolio to individual trading areas. Additionally, we conduct daily backtesting on the VaR results used for regulatory capital calculations as well as the VaR results for key legal entities, regions and risk factors. These results are reported to senior market risk management. Senior management regularly reviews and evaluates the results of these tests.

During the three and nine months ended September 30, 2016, there were no days in which there was a backtesting excess for our total market-based portfolio VaR, utilizing a one-day holding period. The backtesting results for our total market-based portfolio VaR differ from the backtesting results used for regulatory capital calculations.

## Total Trading-related Revenue

Total trading-related revenue, excluding brokerage fees, and CVA, DVA and funding valuation adjustment (FVA) gains (losses), represent the total amount earned from trading positions, including market-based net interest income, which are taken in a diverse range of financial instruments and markets. Trading account assets and liabilities are reported at fair value. For more information on fair value, see Note 14 - Fair Value Measurements to the Consolidated Financial Statements. Trading-related revenue can be volatile and is largely driven by general market conditions and customer demand. Also, trading-related revenue is dependent on the volume and type of transactions, the level of risk assumed, and the volatility of price and rate movements at any given time within the ever-changing market environment. Significant daily revenue by business is monitored and the primary drivers of these are reviewed.

## Table of Contents

The histogram below is a graphic depiction of trading volatility and illustrates the daily level of trading-related revenue for the three months ended September 30, 2016 compared to the three months ended June 30, 2016 and March 31, 2016. During the three months ended September 30, 2016, positive trading-related revenue was recorded for 100 percent of the trading days, of which 91 percent were daily trading gains of over $\$ 25$ million. This compares to the three months ended June 30, 2016, where positive trading-related revenue was recorded for 100 percent of the trading days, of which 95 percent were daily trading gains of over $\$ 25$ million. During the three months ended March 31, 2016, positive trading-related revenue was recorded for 98 percent of the trading days, of which 75 percent were daily trading gains of over $\$ 25$ million and the largest loss was $\$ 14$ million.

## 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.

A set of scenarios, categorized as either historical or hypothetical, are computed daily for the overall trading portfolio and individual businesses. These scenarios include shocks to underlying market risk factors that may be well beyond the shocks found in the historical data used to calculate VaR. Historical scenarios simulate the impact of the market moves that occurred during a period of extended historical market stress. Generally, a multi-week period representing the most severe point during a crisis is selected for each historical scenario. Hypothetical scenarios provide estimated portfolio impacts from potential future market stress events. Scenarios are reviewed and updated in response to changing positions and new economic or political information. In addition, new or ad hoc scenarios are developed to address specific potential market events or particular vulnerabilities in the portfolio. The stress tests are reviewed on a regular basis and the results are presented to senior management.

Stress testing for the trading portfolio is integrated with enterprise-wide stress testing and incorporated into the limits framework. The macroeconomic scenarios used for enterprise-wide stress testing purposes differ from the typical trading portfolio scenarios in that they have a longer time horizon and the results are forecasted over multiple periods for use in consolidated capital and liquidity planning. For additional information, see Managing Risk on page 39.

## Table of Contents

Interest Rate Risk Management for the Banking Book
The following discussion presents net interest income for banking book activities.
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.

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.

Table 54 presents the spot and 12-month forward rates used in our baseline forecasts at September 30, 2016 and December 31, 2015.

Table 54
Forward Rates

|  | $\begin{array}{l}\text { September 30, } 2016 \\ \\ \text { Federal Three-month }\end{array}$ | December 31, 2015 |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  | Funds | LIBOR |  | Swap | Federal Three-month | Funds | LIBOR |$]$| Swap |
| :--- |
|  |
| Spot rates |

Table 55 shows the pretax dollar impact to forecasted net interest income over the next 12 months from September 30, 2016 and December 31, 2015, resulting from instantaneous parallel and non-parallel shocks to the market-based forward curve. Periodically we evaluate the scenarios presented to ensure that they are meaningful in the context of the current rate environment.

In the nine months ended September 30, 2016, the asset sensitivity of our balance sheet increased, primarily driven by lower long-end rates and an increase in projected deposit growth. We continue to be asset sensitive to a parallel move in interest rates with the majority of that benefit coming from the short end of the yield curve. Additionally, higher interest rates impact the fair value of debt securities and, accordingly, for debt securities classified as AFS, may adversely affect accumulated OCI and thus capital levels under the Basel 3 capital rules. Under instantaneous upward parallel shifts, the near-term adverse impact to Basel 3 capital is reduced over time by offsetting positive impacts to net interest income. For more information on the transition provisions of Basel 3, see Capital Management Regulatory Capital on page 40.

## Table of Contents

Table 55
Estimated Banking Book Net Interest Income Sensitivity ${ }^{(1)}$

| (Dollars in millions) | Short <br> Rate | Long <br> Rate | September 30 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | December 31

Effective July 1, 2016, we changed our accounting method for the amortization of premiums and accretion of
(1) discounts related to certain debt securities. December 31, 2015 amounts have been updated to reflect this change. For additional information, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements.

The sensitivity analysis in Table 55 assumes that we take no action in response to these rate shocks and does not assume any change in other macroeconomic variables normally correlated with changes in interest rates. As part of our ALM activities, we use securities, certain residential mortgages, and interest rate and foreign exchange derivatives in managing interest rate sensitivity.

The behavior of our deposit portfolio in the baseline forecast and in alternate interest rate scenarios is a key assumption in our projected estimates of net interest income. The sensitivity analysis in Table 55 assumes no change in deposit portfolio size or mix from the baseline forecast in alternate rate environments. In higher rate scenarios, any customer activity resulting in the replacement of low-cost or noninterest-bearing deposits with higher-yielding deposits or market-based funding would reduce the Corporation's benefit in those scenarios.

## Interest Rate and Foreign Exchange Derivative Contracts

Interest rate and foreign exchange derivative contracts are utilized in our ALM activities and serve as an efficient tool to manage our interest rate and foreign exchange risk. We use derivatives to hedge the variability in cash flows or changes in fair value on our balance sheet due to interest rate and foreign exchange components. For more information on our hedging activities, see Note 2 - Derivatives to the Consolidated Financial Statements.

Our interest rate contracts are generally non-leveraged generic interest rate and foreign exchange basis swaps, options, futures and forwards. In addition, we use foreign exchange contracts, including cross-currency interest rate swaps, foreign currency futures contracts, foreign currency forward contracts and options to mitigate the foreign exchange risk associated with foreign currency-denominated assets and liabilities.

Changes to the composition of our derivatives portfolio during the nine months ended September 30, 2016 reflect actions taken for interest rate and foreign exchange rate risk management. The decisions to reposition our derivatives portfolio are based on the current assessment of economic and financial conditions including the interest rate and foreign currency environments, balance sheet composition and trends, and the relative mix of our cash and derivative positions.

## Table of Contents

Table 56 presents derivatives utilized in our ALM activities including those designated as accounting and economic hedging instruments and shows the notional amount, fair value, weighted-average receive-fixed and pay-fixed rates, expected maturity and average estimated durations of our open ALM derivatives at September 30, 2016 and December 31, 2015. These amounts do not include derivative hedges on our MSRs.

Table 56
Asset and Liability Management Interest Rate and Foreign Exchange Contracts
September 30, 2016
Expected Maturity
(Dollars in millions,
average estimated

| duration in years) |
| :--- |


| Receive-fixed |
| :--- |
| Rederest rate swaps |


| interest |
| :--- |
| (1) |

Notional amount
Weighted-average
fixed-rate
Pay-fixed interest rate swaps ${ }^{(1)}$ (215)

Total \begin{tabular}{lllll}
Remainder 2017 \& 2018 \& 2019 \& 2020 \& Thereafter Average <br>
of 2016

 

Estimated <br>
Duration
\end{tabular}

Notional amount
Weighted-average
fixed-rate
Same-currency basis swaps ${ }^{(2)}$
Notional amount
Foreign exchange
basis swaps $(1,3,4)$ $(3,621)$

Notional amount (41 )
$\$ 109,029 \quad \$ 3,516 \quad \$ 21,453 \quad \$ 21,850 \quad \$ 9,783 \quad \$ 7,015 \quad \$ 45,412$
$3.00 \quad \% \quad 2.48 \quad \% \quad 3.64 \quad \% \quad 3.20 \quad \% \quad 2.37 \quad \% \quad 2.13 \quad \% \quad 2.92 \quad \%$
5.44

Option products ${ }^{(5)} 2$
Notional amount ${ }^{(6)}$
Foreign exchange 2,362
contracts $(1,4,7)$
Notional amount (6)
Futures and forward 3 rate contracts
Notional amount ${ }^{(6)}$
903903
Net ALM contracts \$7,372

December 31, 2015
Expected Maturity
(Dollars in millions,

| average estimated |
| :--- |
| duration in years) |


| Receive-fixed |
| :--- |
| interest rate swaps |
| (1) |$\$ 6,291$

Notional amount $\quad \$ 114,354 \quad \$ 15,339 \quad \$ 21,453 \quad \$ 21,850 \quad \$ 9,783 \quad \$ 7,015 \quad \$ 38,914$ $3.12 \quad \% \quad 3.12 \quad \% \quad 3.64 \quad \% \quad 3.20 \quad \% \quad 2.37 \quad \% \quad 2.13 \quad \% \quad 3.16 \quad \%$

Weighted-average
fixed-rate
Pay-fixed interest
rate swaps ${ }^{(1)}$ (81 )
Notional amount
Weighted-average
fixed-rate
Same-currency
basis swaps ${ }^{(2)}$
Notional amount
Foreign exchange
basis swaps ${ }^{(1,3,4)}$
Notional amount
Option products (5) 57
Notional amount ${ }^{(6)}$
Foreign exchange $\quad 2,345$
contracts $(1,4,7)$
Notional amount ${ }^{(6)} \quad(25,405)(36,504) ~ 5,380 \quad(2,228) ~ 2,123 \quad 52 \quad 5,772$
Futures and forward
rate contracts
Notional amount (6) 200
Net ALM contracts \$4,569
Does not include basis adjustments on either fixed-rate debt issued by the Corporation or AFS debt securities,
${ }^{(1)}$ which are hedged using derivatives designated as fair value hedging instruments, that substantially offset the fair values of these derivatives.
At September 30, 2016 and December 31, 2015, the notional amount of same-currency basis swaps included $\$ 68.3$
${ }^{(2)}$ billion and $\$ 75.2$ billion in both foreign currency and U.S. Dollar-denominated basis swaps in which both sides of the swap are in the same currency.
Foreign exchange basis swaps consisted of cross-currency variable interest rate swaps used separately or in conjunction with receive-fixed interest rate swaps.
(4)

Does not include foreign currency translation adjustments on certain non-U.S. debt issued by the Corporation, that substantially offset the fair values of these derivatives.
The notional amount of option products of $\$(134)$ million at September 30, 2016 was comprised of $\$(149)$ million
(5) in foreign exchange options and $\$ 15$ million in purchased caps/floors. Option products of $\$ 752$ million at December 31, 2015 were comprised of $\$ 737$ million in foreign exchange options and $\$ 15$ million in purchased caps/floors.
${ }^{(6)}$ Reflects the net of long and short positions. Amounts shown as negative reflect a net short position.
The notional amount of foreign exchange contracts of $\$(22.9)$ billion at September 30, 2016 was comprised of $\$ 23.6$ billion in foreign currency-denominated and cross-currency receive-fixed swaps, $\$(41.5)$ billion in net foreign currency forward rate contracts, $\$(6.3)$ billion in foreign currency-denominated pay-fixed swaps and $\$ 1.3$
${ }^{(7)}$ billion in net foreign currency futures contracts. Foreign exchange contracts of $\$(25.4)$ billion at December 31, 2015 were comprised of $\$ 21.3$ billion in foreign currency-denominated and cross-currency receive-fixed swaps, $\$(40.3)$ billion in net foreign currency forward rate contracts, $\$(7.6)$ billion in foreign currency-denominated pay-fixed swaps and $\$ 1.2$ billion in foreign currency futures contracts.

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## Table of Contents

We use interest rate derivative instruments to hedge the variability in the cash flows of our assets and liabilities and other forecasted transactions (collectively referred to as cash flow hedges). The net losses on both open and terminated cash flow hedge derivative instruments recorded in accumulated OCI were $\$ 1.3$ billion and $\$ 1.7$ billion, on a pretax basis, at September 30, 2016 and December 31, 2015. These net losses are expected to be reclassified into earnings in the same period as the hedged cash flows affect earnings and will decrease income or increase expense on the respective hedged cash flows. Assuming no change in open cash flow derivative hedge positions and no changes in prices or interest rates beyond what is implied in forward yield curves at September 30, 2016, the pretax net losses are expected to be reclassified into earnings as follows: $\$ 392$ million, or 31 percent within the next year, 34 percent in years two through five, and 22 percent in years six through ten, with the remaining 13 percent thereafter. For more information on derivatives designated as cash flow hedges, see Note 2 - Derivatives to the Consolidated Financial Statements.

We hedge our net investment in non-U.S. operations determined to have functional currencies other than the U.S. Dollar using forward foreign exchange contracts that typically settle in less than 180 days, cross-currency basis swaps and foreign exchange options. We recorded net after-tax losses on derivatives in accumulated OCI associated with net investment hedges which were offset by gains on our net investments in consolidated non-U.S. entities at September 30, 2016.

## Mortgage Banking Risk Management

We originate, fund and service mortgage loans, which subject us to credit, liquidity and interest rate risks, among others. We determine whether loans will be held-for-investment or held-for-sale at the time of commitment and manage credit and liquidity risks by selling or securitizing a portion of the loans we originate.

Interest rate risk and market risk can be substantial in the mortgage business. Fluctuations in interest rates drive consumer demand for new mortgages and the level of refinancing activity which, in turn, affects total origination and servicing income. Hedging the various sources of interest rate risk in mortgage banking is a complex process that requires complex modeling and ongoing monitoring. Typically, an increase in mortgage interest rates will lead to a decrease in mortgage originations and related fees. IRLCs and the related residential first-mortgage LHFS are subject to interest rate risk between the date of the IRLC and the date the loans are sold to the secondary market, as an increase in mortgage interest rates will typically lead to a decrease in the value of these instruments.

MSRs are nonfinancial assets created when the underlying mortgage loan is sold to investors and we retain the right to service the loan. Typically, an increase in mortgage rates will lead to an increase in the value of the MSRs driven by lower prepayment expectations. This increase in value from increases in mortgage rates is opposite of, and therefore offsets, the risk described for IRLCs and LHFS. Because the interest rate risks of these two hedged items offset, we combine them into one overall hedged item with one combined economic hedge portfolio.

Interest rate and certain market risks of IRLCs and residential mortgage LHFS are economically hedged in combination with MSRs. To hedge these combined assets, we use certain derivatives such as interest rate options, interest rate swaps, forward sale commitments, eurodollar and U.S. Treasury futures, and mortgage TBAs, as well as other securities including agency MBS, principal-only and interest-only MBS and U.S. Treasury securities. For the three and nine months ended September 30, 2016, we recorded gains in mortgage banking income of $\$ 136$ million and $\$ 318$ million related to the change in fair value of the derivative contracts and other securities used to hedge the market risks of the MSRs, IRLCs and LHFS, net of gains and losses due to changes in fair value of these hedged items, compared to gains of $\$ 86$ million and $\$ 309$ million for the same periods in 2015. For more information on MSRs, see Note 17 - Mortgage Servicing Rights to the Consolidated Financial Statements and for more information on mortgage banking income, see Consumer Banking on page 18.

## Complex Accounting Estimates

Our significant accounting principles, as described in Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements of the Corporation's 2015 Annual Report on Form 10-K, are essential in understanding the MD\&A. Many of our significant accounting principles require complex judgments to estimate the values of assets and liabilities. We have procedures and processes in place to facilitate making these judgments.

92

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## Table of Contents

Fair Value of Financial Instruments
We classify the fair values of financial instruments based on the fair value hierarchy established under applicable accounting guidance which requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. Applicable accounting guidance establishes three levels of inputs used to measure fair value. For additional information, see Note 14 - Fair Value Measurements and Note 15 - Fair Value Option to the Consolidated Financial Statements, and Complex Accounting Estimates in the MD\&A of the Corporation's 2015 Annual Report on Form 10-K.

Financial assets and liabilities, and MSRs where values are based on valuation techniques that require inputs that are both unobservable and are significant to the overall fair value measurement are classified as Level 3 under the fair value hierarchy established in applicable accounting guidance. Level 3 financial assets and liabilities include certain loans, MBS, ABS, collateralized debt obligations, CLOs, structured liabilities and highly structured, complex or long-dated derivative contracts and MSRs. The fair value of these Level 3 financial assets and liabilities and MSRs is determined using pricing models, discounted cash flow methodologies or similar techniques for which the determination of fair value requires significant management judgment or estimation. Total recurring Level 3 assets were $\$ 15.9$ billion, or 0.72 percent of total assets, and total recurring Level 3 liabilities were $\$ 8.2$ billion, or 0.42 percent of total liabilities, at September 30, 2016 compared to $\$ 18.1$ billion or 0.84 percent and $\$ 7.5$ billion or 0.40 percent at December 31, 2015.

Level 3 financial instruments may be hedged with derivatives classified as Level 1 or 2; therefore, gains or losses associated with Level 3 financial instruments may be offset by gains or losses associated with financial instruments classified in other levels of the fair value hierarchy. The Level 3 gains and losses recorded in earnings did not have a significant impact on our liquidity or capital. We conduct a review of our fair value hierarchy classifications on a quarterly basis. Transfers into or out of Level 3 are made if the significant inputs used in the financial models measuring the fair values of the assets and liabilities became unobservable or observable, respectively, in the current marketplace. These transfers are considered to be effective as of the beginning of the quarter in which they occur. For more information on the significant transfers into and out of Level 3 during the three and nine months ended September 30, 2016, see Note 14 - Fair Value Measurements to the Consolidated Financial Statements.

For more information, see Complex Accounting Estimates in the MD\&A of the Corporation's 2015 Annual Report on Form 10-K.

## Item 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

See Market Risk Management on page 84 in the MD\&A and the sections referenced therein for Quantitative and Qualitative Disclosures about Market Risk.

## Item 4. CONTROLS AND PROCEDURES

Disclosure Controls and Procedures

As of the end of the period covered by this report, the Corporation's management, including the Chief Executive Officer and Chief Financial Officer, conducted an evaluation of the effectiveness and design of the Corporation's disclosure controls and procedures (as that term is defined in Rule 13a-15(e) of the Securities Exchange Act of 1934). Based upon that evaluation, the Corporation's Chief Executive Officer and Chief Financial Officer concluded that the Corporation's disclosure controls and procedures were effective, as of the end of the period covered by this report, in recording, processing, summarizing and reporting information required to be disclosed by the Corporation in reports that it files or submits under the Exchange Act, within the time periods specified in the Securities and Exchange

Commission's rules and forms.
Changes in Internal Control Over Financial Reporting
There have been no changes in the Corporation's internal control over financial reporting (as defined in Rule 13a-15(f) of the Exchange Act) during the three months ended September 30, 2016, that have materially affected, or are reasonably likely to materially affect, the Corporation's internal control over financial reporting.

93

## Table of Contents

## Part I. FINANCIAL INFORMATION

Item 1. FINANCIAL STATEMENTS
Bank of America Corporation and Subsidiaries
Consolidated Statement of Income
(Dollars in millions, except per share information)
Three Months Ended September 30

Interest income
Loans and leases
2016201520162015

Debt securities
\$8,358 \$ 7,965 \$24,837 \$ 23,912
Federal funds sold and securities borrowed or purchased under agreements to resell
Trading account assets
2,144 2,268
$6,922 \quad 6,726$

Other interest income
Total interest income

| 267 | 275 | 803 | 774 |
| :--- | :--- | :--- | :--- |

Interest expense

| Deposits | 266 | 214 | 736 | 650 |
| :--- | :--- | :--- | :--- | :--- |
| Short-term borrowings | 569 | 597 | 1,808 | 1,868 |
| Trading account liabilities | 244 | 342 | 778 | 1,071 |
| Long-term debt | 1,330 | 1,343 | 4,066 | 4,063 |
| Total interest expense | 2,409 | 2,496 | 7,388 | 7,652 |
| Net interest income | 10,201 | 9,900 | 30,804 | 29,272 |

Noninterest income

| Card income | 1,455 | 1,510 | 4,349 | 4,381 |
| :--- | :--- | :--- | :--- | :--- |
| Service charges | 1,952 | 1,898 | 5,660 | 5,519 |
| Investment and brokerage services | 3,160 | 3,336 | 9,543 | 10,101 |
| Investment banking income | 1,458 | 1,287 | 4,019 | 4,300 |
| Trading account profits | 2,141 | 1,616 | 5,821 | 5,510 |
| Mortgage banking income | 589 | 407 | 1,334 | 2,102 |
| Gains on sales of debt securities | 51 | 437 | 490 | 886 |
| Other income | 628 | 601 | 1,691 | 1,312 |
| Total noninterest income | 11,434 | 11,092 | 32,907 | 34,111 |
| Total revenue, net of interest expense | 21,635 | 20,992 | 63,711 | 63,383 |
|  |  |  |  |  |
| Provision for credit losses | 850 | 806 | 2,823 | 2,351 |

Noninterest expense

| Personnel | 7,704 | 7,829 | 24,278 | 25,333 |
| :--- | :--- | :--- | :--- | :--- |
| Occupancy | 1,005 | 1,028 | 3,069 | 3,082 |
| Equipment | 443 | 499 | 1,357 | 1,511 |
| Marketing | 410 | 445 | 1,243 | 1,330 |
| Professional fees | 536 | 673 | 1,433 | 1,588 |
| Amortization of intangibles | 181 | 207 | 554 | 632 |
| Data processing | 685 | 731 | 2,240 | 2,298 |
| Telecommunications | 189 | 210 | 551 | 583 |
| Other general operating | 2,328 | 2,317 | 7,065 | 7,367 |

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Total noninterest expense
$\begin{array}{llll}13,481 & 13,939 & 41,790 & 43,724\end{array}$
Income before income taxes
Income tax expense
Net income
Preferred stock dividends
Net income applicable to common shareholders
$\begin{array}{lllll}7,304 & 6,247 & 19,098 & 17,308\end{array}$
2,349 1,628 5,888 $\quad 4,756$
\$4,955 \$ 4,619 \$13,210 \$ 12,552
$503 \quad 441 \quad 1,321 \quad 1,153$
\$4,452 \$ 4,178 \$ 11,889 \$ 11,399
Per common share information
Earnings
Diluted earnings
Dividends paid
Average common shares issued and outstanding (in thousands)
Average diluted common shares issued and outstanding (in thousands)
\$0.43 \$ $0.40 \quad \$ 1.15 \quad \$ 1.09$

See accompanying Notes to Consolidated Financial Statements.

| 0.41 | 0.38 | 1.10 | 1.03 |
| :--- | :--- | :--- | :--- |

$\begin{array}{llll}0.075 & 0.05 & 0.175 & 0.15\end{array}$
10,250,1244444,291 10,312,8780,483,466
11,000,4Пß $197,20311,046,80 П 1,234,125$

94

## Table of Contents

Bank of America Corporation and Subsidiaries
Consolidated Statement of Comprehensive Income


See accompanying Notes to Consolidated Financial Statements.

95

## Table of Contents

Bank of America Corporation and Subsidiaries
Consolidated Balance Sheet

| (Dollars in millions) | $\text { September } 30$ $2016$ | $\begin{aligned} & 0 \text { December } 31 \\ & 2015 \end{aligned}$ |
| :---: | :---: | :---: |
| Assets |  |  |
| Cash and due from banks | \$ 26,701 | \$31,265 |
| Interest-bearing deposits with the Federal Reserve, non-U.S. central banks and other banks | 116,733 | 128,088 |
| Cash and cash equivalents | 143,434 | 159,353 |
| Time deposits placed and other short-term investments | 8,506 | 7,744 |
| Federal funds sold and securities borrowed or purchased under agreements to resell (includes $\$ 51,638$ and $\$ 55,143$ measured at fair value) | 218,810 | 192,482 |
| Trading account assets (includes \$103,042 and \$107,776 pledged as collateral) | 187,849 | 176,527 |
| Derivative assets | 47,896 | 49,990 |
| Debt securities: |  |  |
| Carried at fair value (includes \$29,903 and \$29,810 pledged as collateral) | 322,505 | 322,380 |
| Held-to-maturity, at cost (fair value - \$113,965 and \$84,046; \$8,316 and \$9,074 pledged as collateral) | 112,409 | 84,508 |
| Total debt securities | 434,914 | 406,888 |
| Loans and leases (includes \$8,108 and \$6,938 measured at fair value and \$32,008 and \$37,767 pledged as collateral) | 905,008 | 896,983 |
| Allowance for loan and lease losses | (11,692 ) | ) $(12,234$ |
| Loans and leases, net of allowance | 893,316 | 884,749 |
| Premises and equipment, net | 9,133 | 9,485 |
| Mortgage servicing rights (includes \$2,477 and \$3,087 measured at fair value) | 2,477 | 3,087 |
| Goodwill | 69,744 | 69,761 |
| Intangible assets | 3,168 | 3,768 |
| Loans held-for-sale (includes \$4,652 and \$4,818 measured at fair value) | 10,586 | 7,453 |
| Customer and other receivables | 54,116 | 58,312 |
| Other assets (includes \$13,891 and \$14,320 measured at fair value) | 111,365 | 114,688 |
| Total assets | \$2,195,314 | \$2,144,287 |

Assets of consolidated variable interest entities included in total assets above (isolated to settle the liabilities of the variable interest entities)
Trading account assets $\quad \$ 5,699 \quad \$ 6,344$
$\begin{array}{ll}\text { Loans and leases } & 57,826 \\ 72,946\end{array}$
Allowance for loan and lease losses $\quad(1,085 \quad(1,320)$
Loans and leases, net of allowance $\quad$ 71,626
Loans held-for-sale 20928
All other assets 1,467 1,530
$\begin{array}{ll}\text { Total assets of consolidated variable interest entities } & \$ 64,116 \quad \$ 79,784\end{array}$
See accompanying Notes to Consolidated Financial Statements.
96

## Table of Contents

Bank of America Corporation and Subsidiaries
Consolidated Balance Sheet (continued)
(Dollars in millions)
September 30 December 31
Liabilities
Deposits in U.S. offices:
Noninterest-bearing
\$431,418 \$422,237
Interest-bearing (includes $\$ 913$ and $\$ 1,116$ measured at fair value)
728,498 703,761
Deposits in non-U.S. offices:
$\begin{array}{lll}\text { Noninterest-bearing } & 11,596 & 9,916\end{array}$
$\begin{array}{ll}\text { Interest-bearing } 61,383 & 61,345\end{array}$
Total deposits
Federal funds purchased and securities loaned or sold under agreements to repurchase
(includes $\$ 31,868$ and $\$ 24,574$ measured at fair value)
Trading account liabilities
1,232,895
1,197,259

Derivative liabilities
178,195 174,291

Short-term borrowings (includes $\$ 1,055$ and $\$ 1,325$ measured at fair value)
Accrued expenses and other liabilities (includes $\$ 15,813$ and $\$ 13,899$ measured at fair value and $\$ 767$ and $\$ 646$ of reserve for unfunded lending commitments)
Long-term debt (includes $\$ 32,619$ and $\$ 30,097$ measured at fair value)
Total liabilities
76,998 66,963

Commitments and contingencies (Note 6 - Securitizations and Other Variable Interest Entities, Note 7 - Representations and Warranties Obligations and Corporate
Guarantees and Note 10 - Commitments and Contingencies)
Shareholders' equity
Preferred stock, $\$ 0.01$ par value; authorized $-100,000,000$ shares; issued and outstanding ${ }_{\overline{2} 5,220} \quad 22,273$
Common stock and additional paid-in capital, $\$ 0.01$ par value; authorized -
$12,800,000,000$ shares; issued and outstanding - 10,123,845,121 and 10,380,265,063 148,261 $\quad 151,042$
shares
Retained earnings
$\left.\begin{array}{lll}\text { Accumulated other comprehensive income (loss) } & (1,701 & (5,358 \\ 256,176\end{array}\right)$
Total shareholders' equity
Total liabilities and shareholders' equity
\$2,195,314 \$2,144,287
Liabilities of consolidated variable interest entities included in total liabilities above
Short-term borrowings
\$ 546
\$681
Long-term debt (includes $\$ 10,531$ and $\$ 11,304$ of non-recourse debt)
11,209
14,073
All other liabilities (includes $\$ 35$ and $\$ 20$ of non-recourse liabilities)
38
21
Total liabilities of consolidated variable interest entities
\$ 11,793 \$14,775
See accompanying Notes to Consolidated Financial Statements.
97

## Table of Contents

Bank of America Corporation and Subsidiaries
Consolidated Statement of Changes in Shareholders' Equity


See accompanying Notes to Consolidated Financial Statements.

## Table of Contents

Bank of America Corporation and Subsidiaries
Consolidated Statement of Cash Flows

|  | Nine Months Ended |  |
| :--- | :--- | :--- |
|  | September $^{30}$ |  |
| (Dollars in millions) | 2016 | 2015 |
| Operating activities |  |  |
| Net income | $\$ 13,210$ | $\$ 12,552$ |
| Adjustments to reconcile net income to net cash provided by (used in) operating activities: |  |  |
| Provision for credit losses | 2,823 | 2,351 |
| Gains on sales of debt securities | $(490$ | $)(886$ |
| Realized debit valuation adjustments on structured liabilities | 18 | 545 |
| Depreciation and amortization of premises and equipment | 1,138 | 1,174 |
| Amortization of intangibles | 554 | 632 |
| Net amortization of premium/discount on debt securities | 2,203 | 1,438 |
| Deferred income taxes | 5,072 | 2,590 |
| Stock-based compensation | 1,087 | 17 |
| Loans held-for-sale: |  |  |
| Originations and purchases | $(24,154$ | $)(29,731$ |$)$

Retirement of long-term debt
Proceeds from issuance of preferred stock
Common stock repurchased
Cash dividends paid
Excess tax benefits on share-based payments
Other financing activities, net
Net cash provided by financing activities
Effect of exchange rate changes on cash and cash equivalents
Net increase (decrease) in cash and cash equivalents
Cash and cash equivalents at January 1
Cash and cash equivalents at September 30
See accompanying Notes to Consolidated Financial Statements.
(41,458) (34,583 )
2,947 2,964
(3,782 ) (1,575 )
(3,031 ) (2,724 )
1116
(14 ) (30 )
17,825 42,404
2,594 (523 )
(15,919 ) 31,837
159,353 138,589
\$143,434 \$170,426

99

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## Table of Contents

Bank of America Corporation and Subsidiaries
Notes to Consolidated Financial Statements

## NOTE 1 - Summary of Significant Accounting Principles

Bank of America Corporation, a bank holding company and a financial holding company, provides a diverse range of financial services and products throughout the U.S. and in certain international markets. The term "the Corporation" as used herein 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.

## 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 differ from those estimates and assumptions.

The Corporation's Annual Report on Form 10-K for the year ended December 31, 2015 as supplemented by a Current Report on Form 8-K filed on August 1, 2016 to reflect reclassified business segment information is referred to herein as the 2015 Annual Report on Form 10-K.

These unaudited Consolidated Financial Statements should be read in conjunction with the audited Consolidated Financial Statements of the Corporation's 2015 Annual Report on Form 10-K.

The nature of the Corporation's business is such that the results of any interim period are not necessarily indicative of results for a full year. In the opinion of management, all adjustments, which consist of normal recurring adjustments necessary for a fair statement of the interim period results have been made. The Corporation evaluates subsequent events through the date of filing with the Securities and Exchange Commission (SEC). Certain prior-period amounts have been reclassified to conform to current period presentation.

## Change in Accounting Method

Effective July 1, 2016, the Corporation changed its accounting method under the Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) 310-20, Nonrefundable fees and other costs, from the prepayment method (also referred to as the retrospective method) to the contractual method.

Under the prepayment method, the Corporation's amortization of premiums and accretion of discounts related to certain debt securities was based on estimated principal prepayment assumptions on individual debt securities each reporting period. Prepayment experience, which is largely driven by interest rates, is continually evaluated to determine the estimated lives of the securities. When a change is made to the estimated lives of the securities, the

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related premium or discount is adjusted with a corresponding charge or benefit to interest income as if the current estimated lives had been applied since the acquisition of the securities. Accordingly, the application of the prepayment method results in a cumulative catch-up adjustment in each period, recorded in interest income.

Under the contractual method, premiums and discounts on debt securities are amortized and accreted at a constant effective yield, and no assumption is made concerning prepayments. The cumulative catch-up adjustment that occurs under the prepayment method is therefore not required under the contractual method. Instead, as principal prepayments occur, the contractual method requires the acceleration of a portion of the unamortized premium or discount be recorded in interest income such that the effective yield of the debt security remains constant throughout the life of the debt security.

100

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## Table of Contents

The Corporation believes that the contractual method is the preferable method of accounting because it is consistent with the accounting method used by peer institutions in terms of net interest income, an important element in the statement of income. Additionally, the contractual method better aligns with the Corporation's asset and liability (ALM) strategy which acts to mitigate the risk that market conditions may adversely impact the value of the Corporation's assets and liabilities, and its financial results.

Adoption of the contractual method of accounting is a voluntary change required to be adopted retrospectively. Therefore all prior periods presented herein have been restated to conform to the current period presentation. The following Notes have been impacted by the change in accounting method: Note 3 - Securities, Note 12 - Accumulated Other Comprehensive Income (Loss), Note 13 - Earnings Per Common Share and Note 18 - Business Segment Information.

The following is the impact of the change in accounting method on the three and six months ended June 30, 2016, and the 2015 periods presented in the consolidated financial statements herein. The impact is expressed as an increase / (decrease) as compared to amounts originally reported. For the three and six months ended June 30, 2016: net interest income - $\$ 905$ million and $\$ 2.2$ billion, gains on sales of debt securities - $\$(18)$ million and $\$(54)$ million, and net income - $\$ 551$ million, or $\$ 0.05$ per diluted share, and $\$ 1.3$ billion, or $\$ 0.13$ per diluted share, respectively. For the three and nine months ended September 30, 2015: net interest income - $\$ 429$ million and $\$(71)$ million, gains on sales of debt securities - $\$ 52$ million and $\$ 65$ million, and net income - $\$ 298$ million, or $\$ 0.03$ per diluted share, and $\$ 0$, or $\$ 0.00$ per diluted share, respectively. The change in accounting method decreased retained earnings $\$ 293$ million at January 1, 2015. Since the change in accounting method was effective July 1, 2016 and the financial results under the prepayment method as compared to the contractual method would not affect future management decisions, the Corporation did not undertake the operational effort and cost to maintain separate systems of record for the prepayment method to enable a calculation of the impact of the change subsequent to the effective date. As a result, the impact of the change in accounting method for the three and nine months ended September 30, 2016 is not disclosed.

## New Accounting Pronouncements

In August 2016, the FASB issued new accounting guidance that addresses classification of certain cash receipts and cash payments in the statement of cash flows. The new guidance is effective on January 1, 2018, on a retrospective basis, with early adoption permitted. This new accounting guidance will result in some changes in classification in the Consolidated Statement of Cash Flows, which the Corporation does not expect will be significant, and will not have any impact on its consolidated financial position or results of operations.

In June 2016, the FASB issued new accounting guidance that will require the earlier recognition of credit losses on loans and other financial instruments based on an expected loss model, replacing the incurred loss model that is currently in use. Under the new guidance, an entity will measure all expected credit losses for financial instruments held at the reporting date based on historical experience, current conditions and reasonable and supportable forecasts. The expected loss model will apply to loans and leases, unfunded lending commitments, held-to-maturity (HTM) debt securities and other debt instruments measured at amortized cost. The impairment model for available-for-sale (AFS) debt securities will require the recognition of credit losses through a valuation allowance when fair value is less than amortized cost, regardless of whether the impairment is considered to be other-than-temporary. The new guidance is effective on January 1, 2020, with early adoption permitted on January 1, 2019. The Corporation is in the process of evaluating the impact of the provisions of this new accounting guidance, which at the date of adoption will increase the allowance for credit losses with a resulting negative adjustment to retained earnings.

In March 2016, the FASB issued new accounting guidance that simplifies certain aspects of the accounting for share-based payment transactions, including income tax consequences, classification of awards as either equity or
liabilities, and classification on the statement of cash flows. The new guidance is effective on January 1, 2017, with early adoption permitted. The Corporation does not expect the provisions of this new accounting guidance to have a material impact on its consolidated financial position or results of operations.

## Table of Contents

In February 2016, the FASB issued new accounting guidance that requires substantially all leases to be recorded as assets and liabilities on the balance sheet. This new accounting guidance is effective on January 1, 2019, with early adoption permitted. Upon adoption, the Corporation will record a right of use asset and a lease payment obligation associated with arrangements previously accounted for as operating leases. The Corporation is in the process of evaluating the impact of the provisions of this new accounting guidance on its consolidated financial position, but does not expect the new accounting guidance to have a material impact on its consolidated financial position or results of operations.

In January 2016, the FASB issued new accounting guidance on recognition and measurement of financial instruments. The new guidance makes targeted changes to existing GAAP including, among other provisions, requiring certain equity investments to be measured at fair value with changes in fair value reported in earnings and requiring changes in instrument-specific credit risk (i.e., debit valuation adjustments (DVA)) for financial liabilities recorded at fair value under the fair value option to be reported in OCI. The accounting for DVA related to other financial liabilities, for example, derivatives, does not change. The new guidance is effective on January 1, 2018, with early adoption permitted for the provisions related to DVA. In 2015, the Corporation early adopted, retrospective to January 1, 2015, the provisions of this new accounting guidance related to DVA on financial liabilities accounted for under the fair value option. The Corporation does not expect the provisions of this new accounting guidance other than those related to DVA, as described above, to have a material impact on its consolidated financial position or results of operations.

In May 2014, the FASB issued new accounting guidance to clarify the principles for recognizing revenue from contracts with customers. This new accounting guidance, which does not apply to financial instruments, is effective on January 1, 2018. The Corporation does not expect the provisions of this new accounting guidance to have a material impact on its consolidated financial position or results of operations.

102

## Table of Contents

NOTE 2 - Derivatives

## Derivative Balances

Derivatives are entered into on behalf of customers, for trading, or to support risk management activities. Derivatives used in risk management activities include derivatives that may or may not be designated in qualifying hedge accounting relationships. Derivatives that are not designated in qualifying hedge accounting relationships are referred to as other risk management derivatives. For more information on the Corporation's derivatives and hedging activities, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements of the Corporation's 2015 Annual Report on Form 10-K. The following tables present derivative instruments included on the Consolidated Balance Sheet in derivative assets and liabilities at September 30, 2016 and December 31, 2015. Balances are presented on a gross basis, prior to the application of counterparty and cash collateral netting. Total derivative assets and liabilities are adjusted on an aggregate basis to take into consideration the effects of legally enforceable master netting agreements and have been reduced by the cash collateral received or paid.
(Dollars in billions)

Interest rate contracts
Swaps
Futures and forwards
Written options
Purchased options
Foreign exchange contracts Swaps
Spot, futures and forwards
Written options
Purchased options
Equity contracts
Swaps
Futures and forwards
Written options
Purchased options
Commodity contracts
Swaps
Futures and forwards
Written options
Purchased options
Credit derivatives
Purchased credit derivatives:
Credit default swaps
Total return swaps/other
Written credit derivatives:
Credit default swaps

September 30, 2016
Gross Derivative Assets Gross Derivative Liabilities
Trading
Contract/ Notional
(1)
and $\quad$ Qualifying
Other Accounting Total
Risk $\quad$ Hedges
Management
Derivatives
\$17,341.7 \$548.5 \$ 10.0
$\begin{array}{lllll}6,196.4 & 1.3 & - & 1.3 & 1.3\end{array}$

| $1,287.7$ | - | - | - | 73.4 | - | 73.4 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |

$\begin{array}{lll}1,949.9 & 41.4 & 1.2\end{array}$
4,191.7 $41.1 \quad 1.5$
$376.2 \quad-\quad-$
$355.0 \quad 7.6$ -
$194.4 \quad 3.1$ -
$\begin{array}{lll}79.7 & 1.6 & - \\ 463.2 & - & -\end{array}$
$417.9 \quad 24.9$ -
$48.9 \quad 2.8$ -
$50.5 \quad 3.5$ -
36.0 - -
35.7 2.5 -
$811.8 \quad 9.1$ -
$31.5 \quad 0.2-$
803.213 .4 -

Trading
and
Other Qualifying
Risk Accounting Total
Management
Derivatives

| Total return swaps/other | 43.2 | 1.2 |  | 1.2 | 0.4 |  |  | 0.4 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Gross derivative assets/liabilities |  | \$775.7 \$ | 12.7 | \$788.4 | \$778.1 | \$ | 4.5 | \$782.6 |
| Less: Legally enforceable master netting agreements |  |  |  | (694.0) |  |  |  | (694.0 ) |
| Less: Cash collateral received/paid |  |  |  | (46.5 |  |  |  | (45.1 ) |
| Total derivative assets/liabilities |  |  |  | \$47.9 |  |  |  | \$43.5 |

${ }^{(1)}$ Represents the total contract/notional amount of derivative assets and liabilities outstanding.

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## Table of Contents

(Dollars in billions)

Interest rate contracts
Swaps
Futures and forwards
Written options
Purchased options
Foreign exchange contracts Swaps
Spot, futures and forwards
Written options
Purchased options
Equity contracts
Swaps
Futures and forwards
Written options
Purchased options
Commodity contracts
Swaps
Futures and forwards
Written options
Purchased options
Credit derivatives
Purchased credit derivatives:

| Credit default swaps | 928.3 | 14.4 | - |  | 14.4 | 14.8 | - |  | 14.8 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Total return swaps/other | 26.4 | 0.2 | - |  | 0.2 | 1.9 |  |  | 1.9 |
| Written credit derivatives: |  |  |  |  |  |  |  |  |  |
| Credit default swaps | 924.1 | 15.3 | - |  | 15.3 | 13.1 | - |  | 13.1 |
| Total return swaps/other | 39.7 | 2.3 | - |  | 2.3 | 0.4 |  |  | 0.4 |
| Gross derivative assets/liabilities |  | \$679.1 | \$ | 9.5 | \$688.6 | \$676.8 | \$ | 4.3 | \$681.1 |
| Less: Legally enforceable master netting agreements (2) |  |  |  |  | (596.7 ) |  |  |  | (596.7 ) |
| Less: Cash collateral received/paidTotal derivative assets/liabilities |  |  |  |  | (41.9 ) |  |  |  | (45.9 |
|  |  |  |  |  | \$50.0 |  |  |  | \$38.5 |

${ }^{(1)}$ Represents the total contract/notional amount of derivative assets and liabilities outstanding.
(2) The notional amount for certain derivatives has been reduced to reflect the impact of legally closed positions, which had no impact on the net fair value.

Offsetting of Derivatives
The Corporation enters into International Swaps and Derivatives Association, Inc. (ISDA) master netting agreements or similar agreements with substantially all of the Corporation's derivative counterparties. Where legally enforceable, these master netting agreements give the Corporation, in the event of default by the counterparty, the right to liquidate
securities held as collateral and to offset receivables and payables with the same counterparty. For purposes of the Consolidated Balance Sheet, the Corporation offsets derivative assets and liabilities and cash collateral held with the same counterparty where it has such a legally enforceable master netting agreement.

The Offsetting of Derivatives table presents derivative instruments included in derivative assets and liabilities on the Consolidated Balance Sheet at September 30, 2016 and December 31, 2015 by primary risk (e.g., interest rate risk) and the platform, where applicable, on which these derivatives are transacted. Exchange-traded derivatives include listed options transacted on an exchange. Over-the-counter (OTC) derivatives include bilateral transactions between the Corporation and a particular counterparty. OTC-cleared derivatives include bilateral transactions between the Corporation and a counterparty where the transaction is cleared through a clearinghouse. Balances are presented on a gross basis, prior to the application of counterparty and cash collateral netting. Total gross derivative assets and liabilities

## Table of Contents

are adjusted on an aggregate basis to take into consideration the effects of legally enforceable master netting agreements which includes reducing the balance for counterparty netting and cash collateral received or paid.

Other gross derivative assets and liabilities in the table represent derivatives entered into under master netting agreements where uncertainty exists as to the enforceability of these agreements under bankruptcy laws in some countries or industries and, accordingly, receivables and payables with counterparties in these countries or industries are reported on a gross basis.

Also included in the table is financial instruments collateral related to legally enforceable master netting agreements that represents securities collateral received or pledged and cash and securities collateral held and posted at third-party custodians. These amounts are not offset on the Consolidated Balance Sheet but are shown as a reduction to total derivative assets and liabilities in the table to derive net derivative assets and liabilities.

For more information on offsetting of securities financing agreements, see Note 9 - Federal Funds Sold or Purchased, Securities Financing Agreements and Short-term Borrowings.

Offsetting of Derivatives
(Dollars in billions)
Interest rate contracts
Over-the-counter
Over-the-counter cleared
Foreign exchange contracts
Over-the-counter
Over-the-counter cleared
Equity contracts
Over-the-counter
Exchange-traded ${ }^{(1)}$
Commodity contracts
Over-the-counter
Exchange-traded ${ }^{(1)}$
Over-the-counter cleared
Credit derivatives
Over-the-counter
Over-the-counter cleared
Total gross derivative assets/liabilities, before netting
Over-the-counter
Exchange-traded ${ }^{(1)}$
Over-the-counter cleared
Less: Legally enforceable master netting agreements and cash collateral received/paid
Over-the-counter
Exchange-traded ${ }^{(1)}$
Over-the-counter cleared
Derivative assets/liabilities, after netting
Other gross derivative assets/liabilities
Total derivative assets/liabilities

September 30, $\quad$ December 31, 2015
2016 2016
DerivativDerivative DerivativĐerivative Assets Liabilities Assets Liabilities

| $\$ 370.8$ | $\$ 359.1$ | $\$ 309.3$ | $\$ 297.2$ |
| :--- | :--- | :--- | :--- |
| 258.5 | 259.8 | 197.0 | 201.7 |
|  |  |  |  |
| 89.5 | 94.0 | 103.2 | 107.5 |
| 0.4 | 0.3 | 0.1 | 0.1 |
|  |  |  |  |
| 15.1 | 13.5 | 16.6 | 14.0 |
| 11.6 | 14.3 | 10.0 | 9.2 |
|  |  |  |  |
| 4.1 | 5.4 | 7.3 | 8.9 |
| 1.3 | 1.4 | 1.8 | 1.8 |
| - | - | 0.1 | 0.1 |
|  |  |  |  |
| 17.3 | 17.0 | 24.6 | 22.9 |
| 5.9 | 5.8 | 6.5 | 6.4 |
|  |  |  |  |
| 496.8 | 489.0 | 461.0 | 450.5 |
| 12.9 | 15.7 | 11.8 | 11.0 |
| 264.8 | 265.9 | 203.7 | 208.3 |

(466.4) (463.6 ) (426.6) (425.7 )
(9.7 ) (9.7 ) (8.7 ) (8.7 )
(264.4) (265.8 ) (203.3) (208.2 )
$\begin{array}{llll}34.0 & 31.5 & 37.9 & 27.2\end{array}$
$\begin{array}{llll}13.9 & 12.0 & 12.1 & 11.3\end{array}$
$\begin{array}{llll}47.9 & 43.5 & 50.0 & 38.5\end{array}$

Less: Financial instruments collateral ${ }^{(2)}$
Total net derivative assets/liabilities
${ }_{(1)}$ The notional amount for certain derivatives has been reduced to reflect the impact of legally closed positions, which had no impact on the net fair value.
(2) These amounts are limited to the derivative asset/liability balance and, accordingly, do not include excess collateral received/pledged.

105

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## Table of Contents

## ALM and Risk Management Derivatives

The Corporation's ALM and risk management activities include the use of derivatives to mitigate risk to the Corporation including derivatives designated in qualifying hedge accounting relationships and derivatives used in other risk management activities. Interest rate, foreign exchange, equity, commodity and credit contracts are utilized in the Corporation's ALM and risk management activities.

The Corporation maintains an overall interest rate risk management strategy that incorporates the use of interest rate contracts, which are generally non-leveraged generic interest rate and basis swaps, options, futures and forwards, to minimize significant fluctuations in earnings caused by interest rate volatility. The Corporation's goal is to manage interest rate sensitivity and volatility so that movements in interest rates do not significantly adversely affect earnings or capital. As a result of interest rate fluctuations, hedged fixed-rate assets and liabilities appreciate or depreciate in fair value. Gains or losses on the derivative instruments that are linked to the hedged fixed-rate assets and liabilities are expected to substantially offset this unrealized appreciation or depreciation.

Market risk, including interest rate risk, can be substantial in the mortgage business. Market risk is the risk that values of mortgage assets or revenues will be adversely affected by changes in market conditions such as interest rate movements. To mitigate the interest rate risk in mortgage banking production income, the Corporation utilizes forward loan sale commitments and other derivative instruments, including purchased options, and certain debt securities. The Corporation also utilizes derivatives such as interest rate options, interest rate swaps, forward settlement contracts and eurodollar futures to hedge certain market risks of mortgage servicing rights (MSRs). For more information on MSRs, see Note 17 - Mortgage Servicing Rights.

The Corporation uses foreign exchange contracts to manage the foreign exchange risk associated with certain foreign currency-denominated assets and liabilities, as well as the Corporation's investments in non-U.S. subsidiaries. Foreign exchange contracts, which include spot and forward contracts, represent agreements to exchange the currency of one country for the currency of another country at an agreed-upon price on an agreed-upon settlement date. Exposure to loss on these contracts will increase or decrease over their respective lives as currency exchange and interest rates fluctuate.

The Corporation enters into derivative commodity contracts such as futures, swaps, options and forwards as well as non-derivative commodity contracts to provide price risk management services to customers or to manage price risk associated with its physical and financial commodity positions. The non-derivative commodity contracts and physical inventories of commodities expose the Corporation to earnings volatility. Fair value accounting hedges provide a method to mitigate a portion of this earnings volatility.

The Corporation purchases credit derivatives to manage credit risk related to certain funded and unfunded credit exposures. Credit derivatives include credit default swaps (CDS), total return swaps and swaptions. These derivatives are recorded on the Consolidated Balance Sheet at fair value with changes in fair value recorded in other income.

## Table of Contents

Derivatives Designated as Accounting Hedges
The Corporation uses various types of interest rate, commodity and foreign exchange derivative contracts to protect against changes in the fair value of its assets and liabilities due to fluctuations in interest rates, commodity prices and exchange rates (fair value hedges). The Corporation also uses these types of contracts and equity derivatives to protect against changes in the cash flows of its assets and liabilities, and other forecasted transactions (cash flow hedges). The Corporation hedges its net investment in consolidated non-U.S. operations determined to have functional currencies other than the U.S. Dollar using forward exchange contracts and cross-currency basis swaps, and by issuing foreign currency-denominated debt (net investment hedges).

## Fair Value Hedges

The table below summarizes information related to fair value hedges for the three and nine months ended September 30, 2016 and 2015, including hedges of interest rate risk on long-term debt that were acquired as part of a business combination and redesignated at that time. At redesignation, the fair value of the derivatives was positive. As the derivatives mature, the fair value will approach zero. As a result, ineffectiveness will occur and the fair value changes in the derivatives and the long-term debt being hedged may be directionally the same in certain scenarios. Based on a regression analysis, the derivatives continue to be highly effective at offsetting changes in the fair value of the long-term debt attributable to interest rate risk.

Derivatives Designated as Fair Value Hedges
Gains (Losses)

| (Dollars in millions) | Derivati | Hedged Ivem | Hedge Ineffectiv |  | Derivati | Hedged ive | Hedge Ineffectiveness |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Interest rate risk on long-term debt ${ }^{(1)}$ | \$(758) | ) $\$ 580$ | \$ (178 | ) | \$3,166 | \$ $(3,654)$ | ) (488 | ) |
| Interest rate and foreign currency risk on long-term debt ${ }^{(1)}$ | 16 | (10 | ) 6 |  | 360 | (369 ) | ) (9 | ) |
| Interest rate risk on available-for-sale securities ${ }^{(2)}$ | 235 | (250 | ) (15 | ) | (131 | 80 | (51 | ) |
| Price risk on commodity inventory ${ }^{(3)}$ | 6 | (6 | ) - |  | - | - | - |  |
| Total | \$(501 ) | ) \$314 | \$ (187 | ) | \$3,395 | \$ $(3,943)$ | \$ (548 | ) |
|  | 2015 |  |  |  | 2015 |  |  |  |
| Interest rate risk on long-term debt ${ }^{(1)}$ | \$1,921 | \$(2,111) | \$ (190 | ) | \$724 | \$ $(1,362)$ | \$ (638 | ) |
| Interest rate and foreign currency risk on long-term debt ${ }^{(1)}$ | (138 ) | ) 125 | (13 | ) | $(1,394)$ | 1,311 | (83 | ) |
| Interest rate risk on available-for-sale securities ${ }^{(2)}$ | (6) | ) (1 | ) (7 | ) | 39 | (49 ) | ) 10 | ) |
| Price risk on commodity inventory ${ }^{(3)}$ | 2 | (2 | ) - |  | 15 | (11 ) | ) 4 |  |
| Total | \$1,779 | \$(1,989) | \$ (210 | ) | \$(616 ) | \$(111 | ) \$ 727 | ) |

${ }^{(1)}$ Amounts are recorded in interest expense on long-term debt and in other income.
${ }^{(2)}$ Amounts are recorded in interest income on debt securities.
${ }^{(3)}$ Amounts relating to commodity inventory are recorded in trading account profits.

## Table of Contents

## Cash Flow and Net Investment Hedges

The table below summarizes certain information related to cash flow hedges and net investment hedges for the three and nine months ended September 30, 2016 and 2015. Of the $\$ 800$ million after-tax net loss ( $\$ 1.3$ billion on a pretax basis) on derivatives in accumulated OCI at September 30, 2016, $\$ 245$ million after-tax ( $\$ 392$ million on a pretax basis) is expected to be reclassified into earnings in the next 12 months. These net losses reclassified into earnings are expected to primarily reduce net interest income related to the respective hedged items. Amounts related to price risk on restricted stock awards reclassified from accumulated OCI are recorded in personnel expense. For terminated cash flow hedges, the time period over which substantially all of the forecasted transactions are hedged is approximately seven years, with a maximum length of time for certain forecasted transactions of 20 years.

Derivatives Designated as Cash Flow and Net Investment Hedges

${ }_{\text {(1) }}$ Amounts related to cash flow hedges represent hedge ineffectiveness and amounts related to net investment hedges represent amounts excluded from effectiveness testing.
(2) The hedge gain (loss) recognized in accumulated OCI is primarily related to the change in the Corporation's stock price for the period.

## Table of Contents

## Other Risk Management Derivatives

Other risk management derivatives are used by the Corporation to reduce certain risk exposures. These derivatives are not qualifying accounting hedges because either they did not qualify for or were not designated as accounting hedges. The table below presents gains (losses) on these derivatives for the three and nine months ended September 30, 2016 and 2015. These gains (losses) are largely offset by the income or expense that is recorded on the hedged item.

Other Risk Management Derivatives

| Gains (Losses) | Three |  |
| :---: | :---: | :---: |
|  | Months | Nine Months |
|  | Ended | Ended |
|  | September $30$ | September 30 |
| (Dollars in millions) | 20162015 | 20162015 |
| Interest rate risk on mortgage banking income ${ }^{(1)}$ | \$57 \$474 | \$882 \$380 |
| Credit risk on loans ${ }^{(2)}$ | $(7) 24$ | (103) (34 ) |
| Interest rate and foreign currency risk on ALM activities ${ }^{(3)}$ | (262) (527) | $(1,970)(202)$ |
| Price risk on restricted stock awards ${ }^{(4)}$ | 199 (229) | (569) (473 ) |
| Other | - 22 | 4015 |

Net gains (losses) on these derivatives are recorded in mortgage banking income as they are used to mitigate the interest rate risk related to MSRs, interest rate lock commitments (IRLCs) and mortgage loans held-for-sale (LHFS), all of which are measured at fair value with changes in fair value recorded in ${ }^{(1)}$ mortgage banking income. The net gains on IRLCs related to the origination of mortgage loans that are held-for-sale, which are not included in the table but are considered derivative instruments, were $\$ 185$ million and $\$ 514$ million for the three and nine months ended September 30, 2016 compared to $\$ 184$ million and $\$ 611$ million for the same periods in 2015.
(2) Primarily related to derivatives that are economic hedges of credit risk on loans. Net gains (losses) on these derivatives are recorded in other income.
(3) Primarily related to hedges of debt securities carried at fair value and hedges of foreign currency-denominated debt. Gains (losses) on these derivatives and the related hedged items are recorded in other income.
${ }^{(4)}$ Gains (losses) on these derivatives are recorded in personnel expense.
Transfers of Financial Assets with Risk Retained through Derivatives
The Corporation enters into certain transactions involving the transfer of financial assets that are accounted for as sales where substantially all of the economic exposure to the transferred financial assets is retained through derivatives (e.g., interest rate and/or credit), but the Corporation does not retain control over the assets transferred. Through September 30, 2016 and December 31, 2015, the Corporation transferred $\$ 6.9$ billion and $\$ 7.9$ billion of primarily non-U.S. government-guaranteed mortgage-backed securities (MBS) to a third-party trust and received gross cash proceeds of $\$ 6.9$ billion and $\$ 7.9$ billion at the transfer dates. At September 30, 2016 and December 31, 2015 , the fair value of these securities was $\$ 6.7$ billion and $\$ 7.2$ billion. Derivative assets of $\$ 28$ million and $\$ 24$ million and liabilities of $\$ 30$ million and $\$ 29$ million were recorded at September 30, 2016 and December 31, 2015, and are included in credit derivatives in the derivative instruments table on page 103.

## Sales and Trading Revenue

The Corporation enters into trading derivatives to facilitate client transactions and to manage risk exposures arising from trading account assets and liabilities. It is the Corporation's policy to include these derivative instruments in its trading activities which include derivatives and non-derivative cash instruments. The resulting risk from these

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derivatives is managed on a portfolio basis as part of the Corporation's Global Markets business segment. The related sales and trading revenue generated within Global Markets is recorded in various income statement line items including trading account profits and net interest income as well as other revenue categories.

Sales and trading revenue includes changes in the fair value and realized gains and losses on the sales of trading and other assets, net interest income, and fees primarily from commissions on equity securities. Revenue is generated by the difference in the client price for an instrument and the price at which the trading desk can execute the trade in the dealer market. For equity securities, commissions related to purchases and sales are recorded in the "Other" column in the Sales and Trading Revenue table. Changes in the fair value of these securities are included in trading account profits. For debt securities, revenue, with the exception of interest associated with the debt securities, is typically included in trading account profits. Unlike commissions for equity securities, the initial revenue related to broker-dealer services for debt securities is typically included in the pricing of the instrument rather than being charged through separate fee arrangements. Therefore, this revenue is recorded in trading account profits as part of the initial mark to fair value. For derivatives, the majority of revenue is included in trading account profits. In transactions where the Corporation acts as agent, which include exchange-traded futures and options, fees are recorded in other income.

## Table of Contents

The table below, which includes both derivatives and non-derivative cash instruments, identifies the amounts in the respective income statement line items attributable to the Corporation's sales and trading revenue in Global Markets, categorized by primary risk, for the three and nine months ended September 30, 2016 and 2015. The difference between total trading account profits in the table below and in the Consolidated Statement of Income represents trading activities in business segments other than Global Markets. This table includes debit valuation and funding valuation adjustment (DVA/FVA) gains (losses). Global Markets results in Note 18 - Business Segment Information are presented on a fully taxable-equivalent (FTE) basis. The table below is not presented on an FTE basis.

Sales and Trading Revenue


Represents amounts in investment and brokerage services and other income that are recorded in Global Markets ${ }_{(1)}$ and included in the definition of sales and trading revenue. Includes investment and brokerage services revenue of $\$ 485$ million and $\$ 1.6$ billion for the three and nine months ended September 30, 2016 and $\$ 568$ million and $\$ 1.7$ billion for the same periods in 2015.

## Credit Derivatives

The Corporation enters into credit derivatives primarily to facilitate client transactions and to manage credit risk exposures. Credit derivatives derive value based on an underlying third-party referenced obligation or a portfolio of referenced obligations and generally require the Corporation, as the seller of credit protection, to make payments to a buyer upon the occurrence of a pre-defined credit event. Such credit events generally include bankruptcy of the referenced credit entity and failure to pay under the obligation, as well as acceleration of indebtedness and payment repudiation or moratorium. For credit derivatives based on a portfolio of referenced credits or credit indices, the Corporation may not be required to make payment until a specified amount of loss has occurred and/or may only be required to make payment up to a specified amount.

Credit derivative instruments where the Corporation is the seller of credit protection and their expiration are summarized in the table below. These instruments are classified as investment and non-investment grade based on the credit quality of the underlying referenced obligation. The Corporation considers ratings of BBB- or higher as investment grade. Non-investment grade includes non-rated credit derivative instruments. The Corporation discloses
internal categorizations of investment grade and non-investment grade consistent with how risk is managed for these instruments.

110

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## Table of Contents

Credit Derivative Instruments
September 30, 2016

| (Dollars in millions) | Carrying Value |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Less than One Year | One to Three | Three to Five | Over Five | Total |
|  |  | Years | Years | Years |  |
| Credit default swaps: |  |  |  |  |  |
| Investment grade | \$22 | \$59 | \$526 | \$918 | \$ 1,525 |
| Non-investment grade | 461 | 1,241 | 1,175 | 3,797 | 6,674 |
| Total | 483 | 1,300 | 1,701 | 4,715 | 8,199 |
| Total return swaps/other: |  |  |  |  |  |
| Investment grade | 13 | - | - | - | 13 |
| Non-investment grade | 305 | 27 | 2 | 3 | 337 |
| Total | 318 | 27 | 2 | 3 | 350 |
| Total credit derivatives | \$801 | \$1,327 | \$1,703 | \$4,718 | \$8,549 |
| Credit-related notes: |  |  |  |  |  |
| Investment grade | \$1 | \$57 | \$589 | \$ 1,486 | \$2,133 |
| Non-investment grade | 55 | 58 | 85 | 1,204 | 1,402 |
| Total credit-related notes | \$56 | \$115 | \$674 | \$2,690 | \$3,535 |
|  | Maximum | Payout | otional |  |  |

Credit default swaps:
Investment grade $\quad \$ 156,227 \$ 210,797 \$ 142,483 \$ 33,151 \$ 542,658$
$\begin{array}{llllll}\text { Non-investment grade } & 86,898 & 97,759 & 53,549 & 22,347 & 260,553\end{array}$
$\begin{array}{llllll}\text { Total } & 243,125 & 308,556 & 196,032 & 55,498 & 803,211\end{array}$
Total return swaps/other:
Investment grade 12,623 - $\quad$ - $\quad$ - 12,623
$\begin{array}{llllll}\text { Non-investment grade } & 24,299 & 5,485 & 591 & 230 & 30,605\end{array}$
$\begin{array}{llllll}\text { Total } & 36,922 & 5,485 & 591 & 230 & 43,228\end{array}$
Total credit derivatives $\$ 280,047 \$ 314,041 \$ 196,623 \$ 55,728 \$ 846,439$

December 31, 2015
Carrying Value
Credit default swaps:

| Investment grade | $\$ 84$ | $\$ 481$ | $\$ 2,203$ | $\$ 680$ | $\$ 3,448$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Non-investment grade | 672 | 3,035 | 2,386 | 3,583 | 9,676 |
| Total | 756 | 3,516 | 4,589 | 4,263 | 13,124 |

Total return swaps/other:

| Investment grade | 5 | - | - | - | 5 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Non-investment grade | 171 | 236 | 8 | 2 | 417 |
| Total | 176 | 236 | 8 | 2 | 422 |
| Total credit derivatives | $\$ 932$ | $\$ 3,752$ | $\$ 4,597$ | $\$ 4,265$ | $\$ 13,546$ |
| Credit-related notes: |  |  |  |  |  |
| Investment grade | $\$ 267$ | $\$ 57$ | $\$ 444$ | $\$ 2,203$ | $\$ 2,971$ |
| Non-investment grade <br> Total credit-related notes $\mathbf{6 1}$ | 118 | 117 | 1,264 | 1,560 |  |
|  | $\$ 175$ | $\$ 561$ | $\$ 3,467$ | $\$ 4,531$ |  |

Maximum Payout/Notional
Credit default swaps:
Investment grade
\$149,177 \$280,658 \$178,990 \$26,352 \$635,177
$\begin{array}{llllll}\text { Non-investment grade } & 81,596 & 135,850 & 53,299 & 18,221 & 288,966\end{array}$

Total $\quad 230,773 ~ 416,508 ~ 232,289 ~ 44,573 ~ 924,143$
Total return swaps/other:
Investment grade $9,758 \quad-\quad$ - $\quad$ - 9,758
$\begin{array}{llllll}\text { Non-investment grade } & 20,917 & 6,989 & 1,371 & 623 & 29,900\end{array}$
$\begin{array}{llllll}\text { Total } & 30,675 & 6,989 & 1,371 & 623 & 39,658\end{array}$
Total credit derivatives $\quad \$ 261,448 \$ 423,497 \$ 233,660 \$ 45,196 \$ 963,801$
The notional amount represents the maximum amount payable by the Corporation for most credit derivatives. However, the Corporation does not monitor its exposure to credit derivatives based solely on the notional amount because this measure does not take into consideration the probability of occurrence. As such, the notional amount is not a reliable indicator of the Corporation's exposure to these contracts. Instead, a risk framework is used to define risk tolerances and establish limits to help ensure that certain credit risk-related losses occur within acceptable, predefined limits.

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## Table of Contents

The Corporation manages its market risk exposure to credit derivatives by entering into a variety of offsetting derivative contracts and security positions. For example, in certain instances, the Corporation may purchase credit protection with identical underlying referenced names to offset its exposure. The carrying value and notional amount of written credit derivatives for which the Corporation held purchased credit derivatives with identical underlying referenced names and terms were $\$ 4.9$ billion and $\$ 623.0$ billion at September 30, 2016, and $\$ 8.2$ billion and $\$ 706.0$ billion at December 31, 2015.

Credit-related notes in the table on page 111 include investments in securities issued by collateralized debt obligation (CDO), collateralized loan obligation (CLO) and credit-linked note vehicles. These instruments are primarily classified as trading securities. The carrying value of these instruments equals the Corporation's maximum exposure to loss. The Corporation is not obligated to make any payments to the entities under the terms of the securities owned.

## Credit-related Contingent Features and Collateral

The Corporation executes the majority of its derivative contracts in the OTC market with large, international financial institutions, including broker-dealers and, to a lesser degree, with a variety of non-financial companies. A significant majority of the derivative transactions are executed on a daily margin basis. Therefore, events such as a credit rating downgrade (depending on the ultimate rating level) or a breach of credit covenants would typically require an increase in the amount of collateral required of the counterparty, where applicable, and/or allow the Corporation to take additional protective measures such as early termination of all trades. Further, as previously discussed on page 103, the Corporation enters into legally enforceable master netting agreements which reduce risk by permitting the closeout and netting of transactions with the same counterparty upon the occurrence of certain events.

A majority of the Corporation's derivative contracts contain credit risk-related contingent features, primarily in the form of ISDA master netting agreements and credit support documentation that enhance the creditworthiness of these instruments compared to other obligations of the respective counterparty with whom the Corporation has transacted. These contingent features may be for the benefit of the Corporation as well as its counterparties with respect to changes in the Corporation's creditworthiness and the mark-to-market exposure under the derivative transactions. At September 30, 2016 and December 31, 2015, the Corporation held cash and securities collateral of $\$ 86.1$ billion and $\$ 78.9$ billion, and posted cash and securities collateral of $\$ 70.6$ billion and $\$ 62.7$ billion in the normal course of business under derivative agreements. This excludes cross-product margining agreements where clients are permitted to margin on a net basis for both derivative and secured financing arrangements.

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.

At September 30, 2016, the amount of collateral, calculated based on the terms of the contracts, that the Corporation and certain subsidiaries could be required to post to counterparties but had not yet posted to counterparties was approximately $\$ 2.5$ billion, including $\$ 1.6$ billion for Bank of America, N.A. (BANA).

Some counterparties are currently able to unilaterally terminate certain contracts, or the Corporation or certain subsidiaries may be required to take other action such as find a suitable replacement or obtain a guarantee. At September 30, 2016, the current liability recorded for these derivative contracts was $\$ 44$ million.

The table below presents the amount of additional collateral that would have been contractually required by derivative contracts and other trading agreements at September 30, 2016 if the rating agencies had downgraded their long-term senior debt ratings for the Corporation or certain subsidiaries by one incremental notch and by an additional second
incremental notch.
Additional Collateral Required to Be Posted Upon Downgrade
September 30,
2016
One Second
(Dollars in millions) incremientamental notch notch
Bank of America Corporation \$792 \$ 2,506
Bank of America, N.A. and subsidiaries ${ }^{(1)} 611 \quad 2,045$
${ }^{(1)}$ Included in Bank of America Corporation collateral requirements in this table.

112

## Table of Contents

The table below presents the derivative liabilities that would be subject to unilateral termination by counterparties and the amounts of collateral that would have been contractually required at September 30, 2016 if the long-term senior debt ratings for the Corporation or certain subsidiaries had been lower by one incremental notch and by an additional second incremental notch.

Derivative Liabilities Subject to
Unilateral Termination Upon Downgrade September 30, 2016
One Second
(Dollars in millions) incrementaremental notch notch
Derivative liabilities $\$ 1,014$ \$ 3,935
Collateral posted 703 3,649
Valuation Adjustments on Derivatives
The table below presents credit valuation adjustment (CVA), DVA and FVA gains (losses) on derivatives, which are recorded in trading account profits, on a gross and net of hedge basis for the three and nine months ended September 30, 2016 and 2015. For more information on the valuation adjustments on derivatives, see Note 2 - Derivatives to the Consolidated Financial Statements of the Corporation's 2015 Annual Report on Form 10-K

Valuation Adjustments on Derivatives
Gains (Losses)

Dollars in millions)
Derivative assets (CVA) ${ }^{(1)}$

| Three Months Ended |  | Nine Months Ended |  |  |
| :--- | :--- | :--- | :--- | :--- |
| September 30 |  | September 30 |  |  |
| 2016 | 2015 |  | 2016 | 2015 |
| Gross Net | Gross Net | GrosNet | GrosNet |  |
| $\$ 280$ | $\$ 66$ | $\$(138) \$ 67$ | $\$ 45 \$ 151$ | $\$ 85 \$ 174$ |
| 42 | 51 | $(48$ | $)(48)$ | 9 |
| $(125)$ | $(103)$ | 132 | 66 | $106(60$ |$) 141716$

$\begin{array}{lllllll}\text { Derivative assets/liabilities (FVA) } & (125)(103) & 132 & 66 & 106(60 & ) & 14116\end{array}$
At September 30, 2016 and December 31, 2015, cumulative CVA reduced the derivative assets balance by $\$ 1.3$
(1) billion and $\$ 1.4$ billion, cumulative FVA reduced the net derivative assets balance by $\$ 472$ million and $\$ 481$ million, and cumulative DVA reduced the derivative liabilities balance by $\$ 856$ million and $\$ 750$ million, respectively.

113

## Table of Contents

NOTE 3 - Securities
The table below presents the amortized cost, gross unrealized gains and losses, and fair value of AFS debt securities, other debt securities carried at fair value, HTM debt securities and AFS marketable equity securities at September 30, 2016 and December 31, 2015. For information on the Corporation's change in accounting method for amortization of premiums and accretion of discounts on certain debt securities, see Note 1 - Summary of Significant Accounting Principles.

## Debt Securities and Available-for-Sale Marketable Equity Securities

(Dollars in millions)
Available-for-sale debt securities
Mortgage-backed securities:
Agency
Agency-collateralized mortgage obligations
Commercial
Non-agency residential ${ }^{(1)}$
Total mortgage-backed securities
U.S. Treasury and agency securities

Non-U.S. securities
Other taxable securities, substantially all asset-backed securities
Total taxable securities
Tax-exempt securities
Total available-for-sale debt securities
Other debt securities carried at fair value
Total debt securities carried at fair value
Held-to-maturity debt securities, substantially all U.S. agency
mortgage-backed securities
Total debt securities ${ }^{(2)}$
Available-for-sale marketable equity securities ${ }^{(3)}$
September 30, 2016

|  | Gross | Gross | Fair |
| :--- | :--- | :--- | :--- |
| Amortized | Unrealized | Unrealized | Value |
| Cost | Gains | Losses |  |


| \$196,808 | \$ 4,266 | \$ (23 | \$201,051 |
| :---: | :---: | :---: | :---: |
| 8,862 | 243 | (24 | ) 9,081 |
| 12,555 | 383 | (2 | ) 12,936 |
| 1,476 | 180 | (38 | ) 1,618 |
| 219,701 | 5,072 | (87 | ) 224,686 |
| 44,925 | 363 | (4 | ) 45,284 |
| 5,995 | 19 | (4 | ) 6,010 |
| 9,375 | 73 | (32 | ) 9,416 |
| 279,996 | 5,527 | (127 | ) 285,396 |
| 15,917 | 97 | (30 | ) 15,984 |
| 295,913 | 5,624 | (157 | ) 301,380 |
| 21,222 | 114 | (211 | ) 21,125 |
| 317,135 | 5,738 | (368 | ) 322,505 |
| 112,409 | 1,647 | (91 | ) 113,965 |
| \$429,544 | \$ 7,385 | \$ (459 | ) $\$ 436,470$ |
| \$325 | \$ 57 | \$ (28 | ) \$354 |

December 31, 2015
Available-for-sale debt securities
Mortgage-backed securities:
Agency
Agency-collateralized mortgage obligations
Commercial
Non-agency residential ${ }^{(1)}$
Total mortgage-backed securities
U.S. Treasury and agency securities

Non-U.S. securities
Other taxable securities, substantially all asset-backed securities
Total taxable securities
Tax-exempt securities
Total available-for-sale debt securities
Other debt securities carried at fair value
Total debt securities carried at fair value

| $\$ 229,356$ |  |  |  |
| :--- | :--- | :--- | :--- |
| $\$ 1,061$ | $\$(1,470)$ | $\$ 228,947$ |  |
| 10,892 | 148 | $(55$ | $)$ |
| 7,200 | 30 | $(65$ | $)$ |
| 7,165 |  |  |  |
| 3,031 | 219 | $(71$ | $)$ |
| 250,479 | 1,458 | $(1,661$ | $)$ |
| 250,276 |  |  |  |
| 25,075 | 211 | $(9$ | $)$ |
| 5,743 | 27 | $(3$ | $) 5,276$ |
| 10,475 | 54 | $(84$ | $) 10,445$ |
| 291,772 | 1,750 | $(1,757$ | $) 291,765$ |
| 13,978 | 63 | $(33$ | $) 14,008$ |
| 305,750 | 1,813 | $(1,790$ | $) 305,773$ |
| 16,678 | 103 | $(174$ | $)$ |
| 322,428 | 1,916 | $(1,964$ | $)$ |
| 322,380 |  |  |  |

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Held-to-maturity debt securities, substantially all U.S. agency mortgage-backed securities Total debt securities ${ }^{(2)}$
Available-for-sale marketable equity securities ${ }^{(3)}$

| 84,508 | 330 | $(792$ | $) 84,046$ |
| :--- | :--- | :--- | :--- |
| $\$ 406,936$ | $\$ 2,246$ | $\$(2,756$ | $)$ |
| $\$ 406,426$ |  |  |  |
| $\$ 326$ | $\$ 99$ | $\$-$ | $\$ 425$ |

${ }_{\text {(1) }}$ At September 30, 2016 and December 31, 2015, the underlying collateral type included approximately 57 percent and 71 percent prime, 25 percent and 15 percent Alt-A, and 18 percent and 14 percent subprime.
The Corporation had debt securities from Fannie Mae (FNMA) and Freddie Mac (FHLMC) that each exceeded 10 percent of shareholders' equity, with an amortized cost of $\$ 154.7$ billion and $\$ 51.1$ billion, and a fair value of
(2) $\$ 158.0$ billion and $\$ 52.4$ billion at September 30, 2016. Debt securities from FNMA and FHLMC that exceeded 10 percent of shareholders' equity had an amortized cost of $\$ 145.8$ billion and $\$ 53.3$ billion, and a fair value of $\$ 145.5$ billion and $\$ 53.2$ billion at December 31, 2015.
${ }^{(3)}$ Classified in other assets on the Consolidated Balance Sheet.

## Table of Contents

At September 30, 2016, the accumulated net unrealized gain on AFS debt securities included in accumulated OCI was $\$ 3.4$ billion, net of the related income tax expense of $\$ 2.1$ billion. At September 30, 2016 and December 31, 2015, the Corporation had nonperforming AFS debt securities of $\$ 125$ million and $\$ 188$ million.

The table below presents the components of other debt securities carried at fair value where the changes in fair value are reported in other income. In the three and nine months ended September 30, 2016, the Corporation recorded unrealized mark-to-market net gains of $\$ 47$ million and net losses of $\$ 25$ million, and realized net losses of $\$ 28$ million and $\$ 65$ million, compared to unrealized mark-to-market net gains of $\$ 212$ million and $\$ 57$ million, and realized net losses of $\$ 147$ million and $\$ 168$ million, for the same periods in 2015. These amounts exclude hedge results.

Other Debt Securities Carried at Fair Value
(Dollars in millions)
Mortgage-backed securities:
Agency-collateralized mortgage obligations \$6 \$7
Non-agency residential 3,193 3,490
$\begin{array}{lll}\text { Total mortgage-backed securities } & 3,199 & 3,497\end{array}$
Non-U.S. securities ${ }^{(1)} \quad 17,680 \quad 12,843$
Other taxable securities, substantially all asset-backed securities 246
Total \$ 21,125 \$ 16,607
${ }^{(1)}$ These securities are primarily used to satisfy certain international regulatory liquidity requirements.
The gross realized gains and losses on sales of AFS debt securities for the three and nine months ended September 30, 2016 and 2015 are presented in the table below.

Gains and Losses on Sales of AFS Debt Securities

|  | Three |  |
| :--- | :--- | :--- | :--- |
|  | Months | Nine Months |
|  | Ended | Ended |
|  | September | September 30 |

## Table of Contents

The table below presents the fair value and the associated gross unrealized losses on AFS debt securities and whether these securities have had gross unrealized losses for less than 12 months or for 12 months or longer at September 30, 2016 and December 31, 2015.

Temporarily Impaired and Other-than-temporarily Impaired AFS Debt Securities


December 31, 2015
Temporarily impaired AFS debt securities
Mortgage-backed securities:
Agency $\quad \$ 115,502 \$(1,082) \$ 13,083 \$(388) \$ 128,585 \$(1,470)$
Agency-collateralized mortgage obligations $\quad 2,536(19)$ ) 1,212 (36 ) 3,748 (55)
Commercial
Non-agency residential
Total mortgage-backed securities
U.S. Treasury and agency securities
4,587 (65 ) - $\quad-\quad 4,587 \quad$ (65 )

Non-U.S. securities
Other taxable securities, substantially all asset-backed securities
Total taxable securities $\quad 129,286(1,243) 16,211 \quad(481 \quad) 145,497(1,724)$
Tax-exempt securities
Total temporarily impaired AFS debt securities

| 4,400 | $(12$ | $)$ | 1,877 | $(21$ | $)$ | 6,277 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 133,686 | $(1,255$ | $)$ | 18,088 | $(502$ | $)$ | 151,774 |
| $(1,757$ | $)$ |  |  |  |  |  |

Other-than-temporarily impaired AFS debt securities (1)

Non-agency residential mortgage-backed securities $\begin{array}{ccccccc} & 481 & (19 & ) \\ 98 & (14 & ) & 579 & (33)\end{array}$

Total temporarily impaired and other-than-temporarily impaired AFS debt securities

$$
\$ 134,167 \$(1,274) \$ 18,186 \$(516) \$ 152,353 \$(1,790)
$$

${ }^{1)}$ Includes other-than-temporarily impaired AFS debt securities on which an other-than-temporary impairment ${ }^{(1)}$ (OTTI) loss, primarily related to changes in interest rates, remains in accumulated OCI.

The Corporation recorded OTTI losses on AFS debt securities for the three and nine months ended September 30, 2016 and 2015 as presented in the Net Credit-related Impairment Losses Recognized in Earnings table. Substantially all OTTI losses in the three and nine months ended September 30, 2016 and 2015 consisted of credit losses on non-agency residential mortgage-backed securities (RMBS) and were recorded in other income in the Consolidated Statement of Income. A debt security is impaired when its fair value is less than its amortized cost. If the Corporation intends or will more-likely-than-not be required to sell a debt security prior to recovery, the entire impairment loss is recorded in the Consolidated Statement of Income. For AFS debt securities the Corporation does not intend or will

116

## Table of Contents

not more-likely-than-not be required to sell, an analysis is performed to determine if any of the impairment is due to credit or whether it is due to other factors (e.g., interest rate). Credit losses are considered unrecoverable and, accordingly, are recorded in the Consolidated Statement of Income with the remaining unrealized losses recorded in OCI. In certain instances, the credit loss on a debt security may exceed the total impairment, in which case, the excess of the credit loss over the total impairment is recorded as an unrealized gain in OCI.

Net Credit-related Impairment Losses Recognized in Earnings

|  | Three | Nine |
| :--- | :--- | :--- |
|  | Months | Months |
|  | Ended | Ended |
|  | September | September |
|  | 30 | 30 |
| (Dollars in millions) | 2016 | 2015 |
| Total OTTI losses | 2016 | 2015 |
| Less: non-credit portion of total OTTI losses recognized in OCI | 4 | 3 |

The table below presents a rollforward of the credit losses recognized in earnings for the three and nine months ended September 30, 2016 and 2015 on AFS debt securities that the Corporation does not have the intent to sell or will not more-likely-than-not be required to sell.

Rollforward of OTTI Credit Losses Recognized


The Corporation estimates the portion of a loss on a security that is attributable to credit using a discounted cash flow model and estimates the expected cash flows of the underlying collateral using internal credit, interest rate and prepayment risk models that incorporate management's best estimate of current key assumptions such as default rates, loss severity and prepayment rates. Assumptions used for the underlying loans that support the MBS can vary widely from loan to loan and are influenced by such factors as loan interest rate, geographic location of the borrower, borrower characteristics and collateral type. Based on these assumptions, the Corporation then determines how the underlying collateral cash flows will be distributed to each MBS issued from the applicable special purpose entity. Expected principal and interest cash flows on an impaired AFS debt security are discounted using the effective yield of each individual impaired AFS debt security.

Significant assumptions used in estimating the expected cash flows for measuring credit losses on non-agency RMBS were as follows at September 30, 2016.

Significant Assumptions

|  | Range ${ }^{(1)}$ |
| :---: | :---: |
|  | 10th 90th |
| average | Percenfidecentile <br> (2) (2) |

Annual prepayment speed 14.2 \% $4.9 \% \quad 28.0$ \%
Loss severity
Life default rate
20.1
20.6
$8.7 \quad 36.8$
${ }^{(1)}$ Represents the range of inputs/assumptions based upon the underlying collateral.
${ }^{(2)}$ The value of a variable below which the indicated percentile of observations will fall.

## Table of Contents

Annual constant prepayment speed and loss severity rates are projected considering collateral characteristics such as loan-to-value (LTV), creditworthiness of borrowers as measured using Fair Isaac Corporation (FICO) scores, and geographic concentrations. The weighted-average severity by collateral type was 17.3 percent for prime, 18.8 percent for Alt-A and 30.6 percent for subprime at September 30, 2016. Additionally, default rates are projected by considering collateral characteristics including, but not limited to, LTV, FICO score and geographic concentration. Weighted-average life default rates by collateral type were 14.2 percent for prime, 21.8 percent for Alt-A and 21.5 percent for subprime at September 30, 2016.

The remaining contractual maturity distribution and yields of the Corporation's debt securities carried at fair value and HTM debt securities at September 30, 2016 are summarized in the table below. Actual duration and yields may differ as prepayments on the loans underlying the mortgage or other asset-backed securities are passed through to the Corporation.

Maturities of Debt Securities Carried at Fair Value and Held-to-maturity Debt Securities
September 30, 2016

|  | Due after One | Due after Five |  |  |
| :--- | :--- | :--- | :--- | :--- |
| Due in One | Year | Due after |  | Total |
| Year or Less | through Five | Years through | Ten Years | Ten Years | Amount $\underset{(1)}{\text { Yield }}$ Amount ${ }_{(1)}^{\text {Yield }} \quad$ Amount $\underset{(1)}{\text { Yield }}$ Amount $\underset{(1)}{\text { Yield }}$ Amount $\underset{(1)}{\text { Yield }}$

Amortized cost of debt securities carried at fair value
Mortgage-backed securities:

| Agency | $\$ 2$ | $5.24 \%$ | $\$ 79$ | $2.99 \%$ | $\$ 405$ | $2.58 \%$ | $\$ 196,3223.26 \%$ | $\$ 196,8083.25 \%$ |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Agency-collateralized mortgage | - | - | - | - | - | - | 8,867 | 3.19 | 8,867 | 3.19 |
| obligations | - |  | - |  |  |  |  |  |  |  |
| Commercial |  |  |  |  |  |  |  |  |  |  |

Debt securities carried at fair value
Mortgage-backed securities:

| Agency | $\$ 2$ | $\$ 54$ | $\$ 414$ | $\$ 200,581$ | $\$ 201,051$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Agency-collateralized mortgage <br> obligations | - | - | - | 9,087 | 9,087 |
| Commercial | 48 | 506 | 11,257 | 1,125 | 12,936 |

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| Non-agency residential | - | - | - | 4,811 | 4,811 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Total mortgage-backed securities | 50 | 560 | 11,671 | 215,604 | 227,885 |
| U.S. Treasury and agency | 535 | 30,565 | 13,947 | 237 | 45,284 |
| securities | 22,113 | 1,040 | 264 | 273 | 23,690 |
| Non-U.S. securities |  |  |  |  |  |
| Other taxable securities, <br> substantially all asset-backed | 1,816 | 3,982 | 2,496 | 1,368 | 9,662 |
| securities | 24,514 | 36,147 | 28,378 | 217,482 | 306,521 |
| Total taxable securities <br> Tax-exempt securities | 1,570 | 6,033 | 6,473 | 1,908 | 15,984 |
| Total debt securities carried at fair <br> value | $\$ 26,084$ | $\$ 42,180$ | $\$ 34,851$ | $\$ 219,390$ | $\$ 322,505$ |
| Fair value of HTM debt securities <br> (2) | $\$-$ | $\$ 16$ | $\$ 921$ | $\$ 113,028$ | $\$ 113,965$ |

The average yield is computed based on a constant effective interest rate over the contractual life of each security.
${ }^{(1)}$ The average yield considers the contractual coupon and the amortization of premiums and accretion of discounts, excluding the effect of related hedging derivatives.
${ }^{(2)}$ Substantially all U.S. agency MBS.

118

## Table of Contents

NOTE 4 - Outstanding Loans and Leases
The following tables present total outstanding loans and leases and an aging analysis for the Consumer Real Estate, Credit Card and Other Consumer, and Commercial portfolio segments, by class of financing receivables, at September 30, 2016 and December 31, 2015.

September 30, 2016

| (Dollars in millions) | 30-59 <br> Days <br> Past Due <br> (1) | 60-89 <br> Days <br> e Past Due <br> (1) | 90 Days <br> or <br> More <br> Past Du <br> (2) | Total Past <br> Due 30 <br> Days or <br> More | Total <br> Current or <br> Less Than <br> 30 Days <br> Past Due ${ }^{(3)}$ | Purchase Credit impaired $(3){ }^{(4)}$ | Loans d Accounte for Under the Fair Value Option | Total Outstandings |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Consumer real estate |  |  |  |  |  |  |  |  |
| Core portfolio |  |  |  |  |  |  |  |  |
| Residential mortgage | \$1,100 | \$337 | \$ 1,244 | \$2,681 | \$ 147,810 |  |  | \$ 150,491 |
| Home equity | 222 | 107 | 464 | 793 | 50,131 |  |  | 50,924 |
| Non-core portfolio |  |  |  |  |  |  |  |  |
| Residential mortgage ${ }^{(5)}$ | 1,402 | 717 | 5,803 | 7,922 | 18,941 | \$ 10,614 |  | 37,477 |
| Home equity | 291 | 137 | 865 | 1,293 | 12,926 | 3,854 |  | 18,073 |
| Credit card and other consumer |  |  |  |  |  |  |  |  |
| U.S. credit card | 443 | 314 | 702 | 1,459 | 87,330 |  |  | 88,789 |
| Non-U.S. credit card | 32 | 28 | 65 | 125 | 9,133 |  |  | 9,258 |
| Direct/Indirect consumer ${ }^{(6)}$ | 223 | 62 | 29 | 314 | 92,980 |  |  | 93,294 |
| Other consumer ${ }^{(7)}$ | 25 | 6 | 4 | 35 | 2,354 |  |  | 2,389 |
| Total consumer | 3,738 | 1,708 | 9,176 | 14,622 | 421,605 | 14,468 |  | 450,695 |
| Consumer loans accounted for under the fair value option ${ }^{(8)}$ |  |  |  |  |  |  | \$ 1,768 | 1,768 |
| Total consumer loans and leases | 3,738 | 1,708 | 9,176 | 14,622 | 421,605 | 14,468 | 1,768 | 452,463 |
| Commercial |  |  |  |  |  |  |  |  |
| U.S. commercial | 260 | 142 | 310 | 712 | 266,307 |  |  | 267,019 |
| Commercial real estate ${ }^{(9)}$ | 19 | 19 | 38 | 76 | 57,227 |  |  | 57,303 |
| Commercial lease financing | 63 | 39 | 32 | 134 | 21,175 |  |  | 21,309 |
| Non-U.S. commercial | 1 | 18 | 3 | 22 | 87,475 |  |  | 87,497 |
| U.S. small business commercial | 51 | 41 | 79 | 171 | 12,906 |  |  | 13,077 |
| Total commercial | 394 | 259 | 462 | 1,115 | 445,090 |  |  | 446,205 |
| Commercial loans accounted <br> for under the fair value option <br> (8) 6,340 6,340 |  |  |  |  |  |  |  |  |
| Total commercial loans and leases | 394 | 259 | 462 | 1,115 | 445,090 |  | 6,340 | 452,545 |
| Total loans and leases (10) | \$4,132 | \$1,967 | \$9,638 | \$15,737 | \$866,695 | \$ 14,468 | \$ 8,108 | \$ 905,008 |
| Percentage of outstandings | 0.46 \% | \% 0.22 | \% 1.06 \% | \%1.74 \% | \%95.76 | \% 1.60 | \%0.90 \% | \% 100.00 \% |
| Consumer real estate loans $30-59$ days past due includes fully-insured loans of $\$ 1.1$ billion and nonperforming <br> ${ }^{(1)}$ loans of $\$ 306$ million. Consumer real estate loans $60-89$ days past due includes fully-insured loans of $\$ 603$ million and nonperforming loans of $\$ 233$ million. |  |  |  |  |  |  |  |  |

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${ }^{(2)}$ Consumer real estate includes fully-insured loans of $\$ 5.1$ billion.
(3) Consumer real estate includes $\$ 2.5$ billion and direct/indirect consumer includes $\$ 25$ million of nonperforming loans.
${ }^{(4)}$ Purchased credit-impaired (PCI) loan amounts are shown gross of the valuation allowance.
${ }^{(5)}$ Total outstandings includes pay option loans of $\$ 1.9$ billion. The Corporation no longer originates this product. Total outstandings includes auto and specialty lending loans of $\$ 47.8$ billion, unsecured consumer lending loans of
${ }^{(6)} \$ 630$ million, U.S. securities-based lending loans of $\$ 40.1$ billion, non-U.S. consumer loans of $\$ 3.1$ billion, student loans of $\$ 514$ million and other consumer loans of $\$ 1.1$ billion.
(7) Total outstandings includes consumer finance loans of $\$ 489$ million, consumer leases of $\$ 1.7$ billion and consumer overdrafts of $\$ 151$ million.
Consumer loans accounted for under the fair value option were residential mortgage loans of $\$ 1.4$ billion and home
${ }_{(8)}$ equity loans of $\$ 340$ million. Commercial loans accounted for under the fair value option were U.S. commercial loans of $\$ 2.6$ billion and non-U.S. commercial loans of $\$ 3.7$ billion. For additional information, see Note 14 - Fair Value Measurements and Note 15 - Fair Value Option.
(9) Total outstandings includes U.S. commercial real estate loans of $\$ 53.9$ billion and non-U.S. commercial real estate loans of $\$ 3.4$ billion.
The Corporation pledged $\$ 146.1$ billion of loans to secure potential borrowing capacity with the Federal Reserve
${ }^{(10)}$ Bank and Federal Home Loan Banks. This amount is not included in the parenthetical disclosure of loans and leases pledged as collateral on the Consolidated Balance Sheet as there were no related outstanding borrowings.

119

## Table of Contents

December 31, 2015

| (Dollars in millions) | 30-59 <br> Days <br> Past Due <br> (1) | 60-89 <br> Days <br> Past Due <br> (1) | 90 Days or More Past Due (2) | Total Past <br> Due 30 <br> Days or <br> More | Total Current or Less Than 30 Days Past Due ${ }^{(3)}$ | Loans  <br> Purchased Accounted  <br> Credit - for Under Total <br> impaired the Fair Outstandings <br> (4) Value <br>  Option |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

Consumer real estate
Core portfolio
Residential mortgage
Home equity
Non-core portfolio
Residential mortgage ${ }^{(5)}$

| $\$ 1,214$ | $\$ 368$ | $\$ 1,414$ | $\$ 2,996$ | $\$ 138,799$ |  | $\$ 141,795$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 200 | 93 | 579 | 872 | 54,045 |  | 54,917 |
|  |  |  |  |  |  |  |
| 2,045 | 1,167 | 8,439 | 11,651 | 22,399 | $\$ 12,066$ | 46,116 |
| 335 | 174 | 1,170 | 1,679 | 14,733 | 4,619 | 21,031 |

Credit card and other consumer

| U.S. credit card | 454 | 332 | 789 | 1,575 | 88,027 |  |  | 89,602 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Non-U.S. credit card | 39 | 31 | 76 | 146 | 9,829 |  |  | 9,975 |
| Direct/Indirect consumer ${ }^{(6)}$ | 227 | 62 | 42 | 331 | 88,464 |  |  | 88,795 |
| Other consumer ${ }^{(7)}$ | 18 | 3 | 4 | 25 | 2,042 |  |  | 2,067 |
| Total consumer | 4,532 | 2,230 | 12,513 | 19,275 | 418,338 | 16,685 |  | 454,298 |
| Consumer loans accounted fo under the fair value option ${ }^{(8)}$ |  |  |  |  |  |  | \$ 1,871 | 1,871 |
| Total consumer loans and | 4,532 | 2,230 | 12,513 | 19,275 | 418,338 | 16,685 | 1,871 | 456,169 |

leases
Commercial

| U.S. commercial | 444 | 148 | 332 | 924 | 251,847 | 252,771 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Commercial real estate $^{(9)}$ | 36 | 11 | 82 | 129 | 57,070 | 57,199 |
| Commercial lease financing | 150 | 29 | 20 | 199 | 21,153 | 21,352 |
| Non-U.S. commercial | 6 | 1 | 1 | 8 | 91,541 | 91,549 |
| U.S. small business | 83 | 41 | 72 | 196 | 12,680 | 12,876 |
| commercial | 719 | 230 | 507 | 1,456 | 434,291 | 435,747 |

Commercial loans accounted
for under the fair value option
(8)

Total commercial loans and leases
Total loans and leases ${ }^{(10)}$
Percentage of outstandings $0.59 \quad \% 0.27 \quad \% 1.45 \quad \% 2.31 \quad \% 95.06 \quad \% 1.86 \quad \% 0.77 \quad \% 100.00 \quad \%$ Consumer real estate loans 30-59 days past due includes fully-insured loans of $\$ 1.7$ billion and nonperforming
${ }^{(1)}$ loans of $\$ 379$ million. Consumer real estate loans 60-89 days past due includes fully-insured loans of $\$ 1.0$ billion and nonperforming loans of $\$ 297$ million.
${ }^{(2)}$ Consumer real estate includes fully-insured loans of $\$ 7.2$ billion.
(3) Consumer real estate includes $\$ 3.0$ billion and direct/indirect consumer includes $\$ 21$ million of nonperforming loans.
${ }^{(4)} \mathrm{PCI}$ loan amounts are shown gross of the valuation allowance.
${ }^{(5)}$ Total outstandings includes pay option loans of $\$ 2.3$ billion. The Corporation no longer originates this product. (6)

Total outstandings includes auto and specialty lending loans of $\$ 42.6$ billion, unsecured consumer lending loans of $\$ 886$ million, U.S. securities-based lending loans of $\$ 39.8$ billion, non-U.S. consumer loans of $\$ 3.9$ billion, student loans of $\$ 564$ million and other consumer loans of $\$ 1.0$ billion.

## (7) $T$

 overdrafts of $\$ 146$ million.Consumer loans accounted for under the fair value option were residential mortgage loans of $\$ 1.6$ billion and home

## (8)

 equity loans of $\$ 250$ million. Commercial loans accounted for under the fair value option were U.S. commercial loans of $\$ 2.3$ billion and non-U.S. commercial loans of $\$ 2.8$ billion. For additional information, see Note 14 - Fair Value Measurements and Note 15 - Fair Value Option.(9) Total outstandings includes U.S. commercial real estate loans of $\$ 53.6$ billion and non-U.S. commercial real estate loans of $\$ 3.5$ billion.

The Corporation pledged $\$ 149.4$ billion of loans to secure potential borrowing capacity with the Federal (10) Reserve Bank and Federal Home Loan Banks. This amount is not included in the parenthetical disclosure of loans and leases pledged as collateral on the Consolidated Balance Sheet as there were no related outstanding borrowings.

The Corporation categorizes consumer real estate loans as core and non-core on the basis of loan and customer characteristics such as origination date, product type, LTV, FICO score and delinquency status consistent with its current consumer and mortgage servicing strategy. Generally, loans that were originated after January 1, 2010, qualified under government-sponsored enterprise underwriting guidelines, or otherwise met the Corporation's underwriting guidelines in place in 2015 are characterized as core loans. Loans held in legacy private-label securitizations, government-insured loans originated prior to 2010, loan products no longer originated, and loans originated prior to 2010 and classified as nonperforming or modified in a troubled debt restructuring (TDR) prior to 2016 are generally characterized as non-core loans, and are principally run-off portfolios. Core loans as reported within this Note include loans held in the Consumer Banking and Global Wealth \& Investment Management (GWIM) segments, as well as loans held for ALM activities in All Other.

## Table of Contents

The Corporation has entered into long-term credit protection agreements with FNMA and FHLMC on loans totaling $\$ 6.0$ billion and $\$ 3.7$ billion at September 30, 2016 and December 31, 2015, providing full credit protection on residential mortgage loans that become severely delinquent. All of these loans are individually insured and therefore the Corporation does not record an allowance for credit losses related to these loans.

## Nonperforming Loans and Leases

The Corporation classifies junior-lien home equity loans as nonperforming when the first-lien loan becomes 90 days past due even if the junior-lien loan is performing. At September 30, 2016 and December 31, 2015, $\$ 432$ million and $\$ 484$ million of such junior-lien home equity loans were included in nonperforming loans.

The Corporation classifies consumer real estate loans that have been discharged in Chapter 7 bankruptcy and not reaffirmed by the borrower as TDRs, irrespective of payment history or delinquency status, even if the repayment terms for the loan have not been otherwise modified. The Corporation continues to have a lien on the underlying collateral. At September 30, 2016, nonperforming loans discharged in Chapter 7 bankruptcy with no change in repayment terms were $\$ 616$ million of which $\$ 370$ million were current on their contractual payments, while $\$ 212$ million were 90 days or more past due. Of the contractually current nonperforming loans, approximately 81 percent were discharged in Chapter 7 bankruptcy more than 12 months ago, and approximately 68 percent were discharged 24 months or more ago. As subsequent cash payments are received on these nonperforming loans that are contractually current, the interest component of the payments is generally recorded as interest income on a cash basis and the principal component is recorded as a reduction in the carrying value of the loan.

During the three and nine months ended September 30, 2016, the Corporation sold nonperforming and other delinquent consumer real estate loans with a carrying value of $\$ 360$ million and $\$ 1.8$ billion, including $\$ 111$ million and $\$ 435$ million of PCI loans, compared to $\$ 742$ million and $\$ 2.7$ billion, including $\$ 220$ million and $\$ 1.2$ billion of PCI loans, for the same periods in 2015. The Corporation recorded net recoveries of $\$ 6$ million and net charge-offs of $\$ 39$ million related to these sales for the three and nine months ended September 30, 2016 compared to net recoveries of $\$ 58$ million and $\$ 125$ million for the same periods in 2015. Gains related to these sales of $\$ 19$ million and $\$ 63$ million were recorded in other income in the Consolidated Statement of Income for the three and nine months ended September 30, 2016 compared to gains of $\$ 67$ million and $\$ 142$ million for the same periods in 2015.

## Table of Contents

The table below presents the Corporation's nonperforming loans and leases including nonperforming TDRs, and loans accruing past due 90 days or more at September 30, 2016 and December 31, 2015. Nonperforming LHFS are excluded from nonperforming loans and leases as they are recorded at either fair value or the lower of cost or fair value. For more information on the criteria for classification as nonperforming, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements of the Corporation's 2015 Annual Report on Form 10-K.

Credit Quality
(Dollars in millions)

| Nonperforming | Accruing Past Due |
| :--- | :--- |
| Loans and Leases | 90 Days or More |

Septembəeðember 31 SeptemHəeるember 31
$20162015 \quad 20162015$
Consumer real estate
Core portfolio
Residential mortgage ${ }^{(1)}$
Home equity
Non-core portfolio
Residential mortgage ${ }^{(1)}$
Home equity
Credit card and other consumer
U.S. credit card

Non-U.S. credit card
Direct/Indirect consumer
Other consumer
Total consumer
\$1,394 \$ 1,825 \$452 \$ 382
956974
$\begin{array}{lllll}1,947 & 2,978 & 4,665 & 6,768\end{array}$

Commercial

| U.S. commercial | 1,439 | 867 | 40 | 113 |
| :--- | :--- | :--- | :--- | :--- |

$\begin{array}{lllll}\text { Commercial real estate } & 60 & 93 & - & 3\end{array}$
$\begin{array}{lllll}\text { Commercial lease financing } & 35 & 12 & 28 & 15\end{array}$
$\begin{array}{lllll}\text { Non-U.S. commercial } & 400 & 158 & 3 & 1\end{array}$
U.S. small business commercial $65 \quad 82 \quad 63 \quad 61$

| Total commercial | 1,999 | 1,212 | 134 | 193 |
| :--- | :--- | :--- | :--- | :--- |

Total loans and leases \$8,349 \$ 9,377 \$6,050 \$ 8,250
Residential mortgage loans in the core and non-core portfolios accruing past due 90 days or more are fully-insured loans. At September 30, 2016 and December 31, 2015, residential mortgage includes $\$ 3.3$ billion and $\$ 4.3$ billion
${ }^{(1)}$ of loans on which interest has been curtailed by the Federal Housing Administration (FHA), and therefore are no longer accruing interest, although principal is still insured, and $\$ 1.8$ billion and $\$ 2.9$ billion of loans on which interest is still accruing.
$\mathrm{n} / \mathrm{a}=$ not applicable

## Credit Quality Indicators

The Corporation monitors credit quality within its Consumer Real Estate, Credit Card and Other Consumer, and Commercial portfolio segments based on primary credit quality indicators. For more information on the portfolio segments, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements of the Corporation's 2015 Annual Report on Form 10-K. Within the Consumer Real Estate portfolio segment, the primary credit quality indicators are refreshed 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 quarterly. Home equity loans are evaluated using combined loan-to-value (CLTV) 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

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the property securing the loan, refreshed quarterly. 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. Within the Commercial portfolio segment, loans are evaluated using the internal classifications of pass rated or reservable criticized as the primary credit quality indicators. The term reservable criticized refers to those commercial loans that are internally classified or listed by the Corporation as Special Mention, Substandard or Doubtful, which are asset quality categories defined by regulatory authorities. These assets have an elevated level of risk and may have a high probability of default or total loss. Pass rated refers to all loans not considered reservable criticized. In addition to these primary credit quality indicators, the Corporation uses other credit quality indicators for certain types of loans.

122

## Table of Contents

The following tables present certain credit quality indicators for the Corporation's Consumer Real Estate, Credit Card and Other Consumer, and Commercial portfolio segments, by class of financing receivables, at September 30, 2016 and December 31, 2015.

Consumer Real Estate - Credit Quality Indicator\$ ${ }^{1)}$
(Dollars in millions)

Refreshed LTV (4)
Less than or equal to 90 percent
Greater than 90 percent but less than or equal to
100 percent
Greater than 100 percent
Fully-insured loans ${ }^{(5)}$
Total consumer real estate
Refreshed FICO score
Less than 620
Greater than or equal to 620 and less than 680
Greater than or equal to 680 and less than 740
Greater than or equal to 740
Fully-insured loans ${ }^{(5)}$
Total consumer real estate

| September 30, 2016 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Core <br> Portfolio Non-core <br> Residential Residential <br> Residentia Mortgage <br> Mortgage $_{(2)}$ <br> (2) | Residential Mortgage PCI ${ }^{(3)}$ | Core <br> Portfolio <br> Home <br> Equity (2) | Non-core <br> Home <br> Equity <br> (2) | Home <br> Equity PCI |
| \$ 122,783 \$ 14,696 | \$ 7,972 | \$ 48,256 | \$8,363 | \$ 1,860 |
| 3,808 1,638 | 1,106 | 1,283 | 1,864 | 686 |
| 2,034 2,335 | 1,536 | 1,385 | 3,992 | 1,308 |
| 21,866 8,194 | - | - | - | - |
| \$ 150,491 \$ 26,863 | \$ 10,614 | \$ 50,924 | \$ 14,219 | \$3,854 |
| \$2,679 \$ 3,442 | \$ 2,948 | \$ 1,279 | \$ 2,875 | \$587 |
| 5,250 2,956 | 2,337 | 2,933 | 3,280 | 683 |
| 22,095 4,789 | 3,015 | 10,537 | 3,265 | 1,133 |
| 98,601 7,482 | 2,314 | 36,175 | 4,799 | 1,451 |
| 21,866 8,194 | - | - | - |  |
| \$ 150,491 \$ 26,863 | \$ 10,614 | \$ 50,924 | \$ 14,219 | \$3,854 |

(1) Excludes $\$ 1.8$ billion of loans accounted for under the fair value option.
(2) Excludes PCI loans.
(3) Includes $\$ 1.7$ billion of pay option loans. The Corporation no longer originates this product.
(4) Refreshed LTV percentages for PCI loans are calculated using the carrying value net of the related valuation allowance.
${ }^{(5)}$ Credit quality indicators are not reported for fully-insured loans as principal repayment is insured.

Credit Card and Other Consumer - Credit Quality Indicators
September 30, 2016
(Dollars in millions)

Refreshed FICO score
Less than 620
Greater than or equal to 620 and less than 680
Greater than or equal to 680 and less than 740
Greater than or equal to $740 \quad 38,701-33,139 \quad 1,428$
Other internal credit metrics $(2,3,4)$
Total credit card and other consumer

| U.S. | Non-U.S. | Direct/Indirect | Other |
| :--- | :--- | :--- | :--- |
| Credit | Credit | Consumer |  |
| Card | Card |  | (1) |

(1) At September 30, 2016, 20 percent of the other consumer portfolio is associated with portfolios from certain
consumer finance businesses that the Corporation previously exited.
(2) Other internal credit metrics may include delinquency status, geography or other factors.
(3) Direct/indirect consumer includes $\$ 43.3$ billion of securities-based lending which is overcollateralized and
therefore has minimal credit risk and $\$ 516$ million of loans the Corporation no longer originates, primarily student

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loans.
Non-U.S. credit card represents the U.K. credit card portfolio which is evaluated using internal credit metrics, including delinquency status. At September 30, 2016, 98 percent of this portfolio was current or less than 30 days past due, one percent was 30-89 days past due and one percent was 90 days or more past due.

Commercial - Credit Quality Indicators (1)
September 30, 2016

| (Dollars in millions) | U.S. <br> Commerc | Commercial i作eal Estate | Commercial <br> Lease <br> Financing | Non-U.S. <br> Commercial | U.S. Small <br> Business <br> Commercial <br> (2) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Risk ratings |  |  |  |  |  |
| Pass rated | \$257,169 | \$ 57,003 | \$ 20,531 | \$ 83,765 | \$ 464 |
| Reservable criticized | 9,850 | 300 | 778 | 3,732 | 74 |
| Refreshed FICO score ${ }^{(3)}$ |  |  |  |  |  |
| Less than 620 |  |  |  |  | 195 |
| Greater than or equal to 620 and less than 680 |  |  |  |  | 578 |
| Greater than or equal to 680 and less than 740 |  |  |  |  | 1,743 |
| Greater than or equal to 740 |  |  |  |  | 3,349 |
| Other internal credit metrics ${ }^{(3,4)}$ |  |  |  |  | 6,674 |
| Total commercial | \$267,019 | \$ 57,303 | \$ 21,309 | \$ 87,497 | \$ 13,077 |

${ }^{(1)}$ Excludes $\$ 6.3$ billion of loans accounted for under the fair value option.
U.S. small business commercial includes $\$ 731$ million of criticized business card and small business loans which
${ }_{(2)}$ are evaluated using refreshed FICO scores or internal credit metrics, including delinquency status, rather than risk ratings. At September 30, 2016, 99 percent of the balances where internal credit metrics are used was current or less than 30 days past due.
(3) Refreshed FICO score and other internal credit metrics are applicable only to the U.S. small business commercial portfolio.
${ }^{(4)}$ Other internal credit metrics may include delinquency status, application scores, geography or other factors.
123

## Table of Contents

Consumer Real Estate - Credit Quality Indicators ${ }^{(1)}$
(Dollars in millions)
December 31, 2015
Core


## Refreshed LTV ${ }^{(4)}$

Less than or equal to 90 percent
Greater than 90 percent but less than or equal to
100 percent
Greater than 100 percent
Fully-insured loans ${ }^{(5)}$
Total consumer real estate
Refreshed FICO score
Less than 620
Greater than or equal to 620 and less than 680
Greater than or equal to 680 and less than 740
Greater than or equal to 740
Fully-insured loans ${ }^{(5)}$
Total consumer real estate
${ }^{(1)}$ Excludes $\$ 1.9$ billion of loans accounted for under the fair value option.
${ }^{(2)}$ Excludes PCI loans.
${ }^{(3)}$ Includes $\$ 2.0$ billion of pay option loans. The Corporation no longer originates this product.
(4) Refreshed LTV percentages for PCI loans are calculated using the carrying value net of the related valuation allowance.
${ }^{(5)}$ Credit quality indicators are not reported for fully-insured loans as principal repayment is insured.
Credit Card and Other Consumer - Credit Quality Indicators
December 31, 2015
(Dollars in millions)

| U.S. | Non-U.S. |  | Direct/Indirect |
| :--- | :--- | :--- | :--- |
| Other  <br> Credit Consumer |  |  |  |
| Card | Card | Consumer | (1) |

Refreshed FICO score
Less than 620
Greater than or equal to 620 and less than 680
Greater than or equal to 680 and less than 740
Greater than or equal to 740
Other internal credit metrics $(2,3,4)$
Total credit card and other consumer

| $\$ 4,196$ | $\$-$ | $\$ 1,244$ | $\$ 217$ |
| :--- | :--- | :--- | :--- |
| 11,857 | - | 1,698 | 214 |
| 34,270 | - | 10,955 | 337 |
| 39,279 | - | 29,581 | 1,149 |
| - | 9,975 | 45,317 | 150 |
| $\$ 89,602$ | $\$ 9,975$ | $\$ 88,795$ | $\$ 2,067$ |

${ }_{(1)}$ At December 31, 2015, 27 percent of the other consumer portfolio is associated with portfolios from certain consumer finance businesses that the Corporation previously exited.
${ }^{(2)}$ Other internal credit metrics may include delinquency status, geography or other factors. Direct/indirect consumer includes $\$ 43.7$ billion of securities-based lending which is overcollateralized and
${ }^{(3)}$ therefore has minimal credit risk and $\$ 567$ million of loans the Corporation no longer originates, primarily student loans.
Non-U.S. credit card represents the U.K. credit card portfolio which is evaluated using internal credit metrics,
${ }^{(4)}$ including delinquency status. At December 31, 2015, 98 percent of this portfolio was current or less than 30 days past due, one percent was $30-89$ days past due and one percent was 90 days or more past due.

Commercial - Credit Quality Indicators ${ }^{1)}$
December 31, 2015

| (Dollars in millions) | U.S. <br> Commerc | Commercial Real Estate | Commercial <br> Lease <br> Financing | Non-U.S. <br> Commercia | U.S. Small <br> Business <br> Commercial <br> (2) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Risk ratings |  |  |  |  |  |
| Pass rated | \$243,922 | \$ 56,688 | \$ 20,644 | \$ 87,905 | \$ 571 |
| Reservable criticized | 8,849 | 511 | 708 | 3,644 | 96 |
| Refreshed FICO score ${ }^{(3)}$ |  |  |  |  |  |
| Less than 620 |  |  |  |  | 184 |
| Greater than or equal to 620 and less than 680 |  |  |  |  | 543 |
| Greater than or equal to 680 and less than 740 |  |  |  |  | 1,627 |
| Greater than or equal to 740 |  |  |  |  | 3,027 |
| Other internal credit metrics ${ }^{(3,4)}$ |  |  |  |  | 6,828 |
| Total commercial | \$252,771 | \$ 57,199 | \$ 21,352 | \$ 91,549 | \$ 12,876 |

${ }^{(1)}$ Excludes $\$ 5.1$ billion of loans accounted for under the fair value option.
U.S. small business commercial includes $\$ 670$ million of criticized business card and small business loans which
${ }_{(2)}$ are evaluated using refreshed FICO scores or internal credit metrics, including delinquency status, rather than risk ratings. At December 31, 2015, 98 percent of the balances where internal credit metrics are used was current or less than 30 days past due.
(3) Refreshed FICO score and other internal credit metrics are applicable only to the U.S. small business commercial portfolio.
${ }^{(4)}$ Other internal credit metrics may include delinquency status, application scores, geography or other factors.

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## Table of Contents

Impaired Loans and Troubled Debt Restructurings
A loan is considered impaired when, based on current information, it is probable that the Corporation will be unable to collect all amounts due from the borrower in accordance with the contractual terms of the loan. Impaired loans include nonperforming commercial loans and all consumer and commercial TDRs. Impaired loans exclude nonperforming consumer loans and nonperforming commercial leases unless they are classified as TDRs. Loans accounted for under the fair value option are also excluded. PCI loans are excluded and reported separately on page 137. For additional information, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements of the Corporation's 2015 Annual Report on Form 10-K.

## Consumer Real Estate

Impaired consumer real estate loans within the Consumer Real Estate portfolio segment consist entirely of TDRs. Excluding PCI loans, most modifications of consumer real estate loans meet the definition of TDRs when a binding offer is extended to a borrower. Modifications of consumer real estate loans are done in accordance with the government's Making Home Affordable Program (modifications under government programs) or the Corporation's proprietary programs (modifications under proprietary programs). These modifications are considered to be TDRs if concessions have been granted to borrowers experiencing financial difficulties. Concessions may include reductions in interest rates, capitalization of past due amounts, principal and/or interest forbearance, payment extensions, principal and/or interest forgiveness, or combinations thereof.

Prior to permanently modifying a loan, the Corporation may enter into trial modifications with certain borrowers under both government and proprietary programs. Trial modifications generally represent a three- to four-month period during which the borrower makes monthly payments under the anticipated modified payment terms. Upon successful completion of the trial period, the Corporation and the borrower enter into a permanent modification. Binding trial modifications are classified as TDRs when the trial offer is made and continue to be classified as TDRs regardless of whether the borrower enters into a permanent modification.

Consumer real estate loans that have been discharged in Chapter 7 bankruptcy with no change in repayment terms and not reaffirmed by the borrower of $\$ 1.5$ billion were included in TDRs at September 30, 2016, of which $\$ 616$ million were classified as nonperforming and $\$ 603$ million were loans fully-insured by the FHA. For more information on loans discharged in Chapter 7 bankruptcy, see Nonperforming Loans and Leases in this Note.

A consumer real estate loan, excluding PCI loans which are reported separately, is not classified as impaired unless it is a TDR. Once such a loan has been designated as a TDR, it is then individually assessed for impairment. Consumer real estate TDRs are measured primarily based on the net present value of the estimated cash flows discounted at the loan's original effective interest rate, as discussed in the following paragraph. If the carrying value of a TDR exceeds this amount, a specific allowance is recorded as a component of the allowance for loan and lease losses. Alternatively, consumer real estate TDRs that are considered to be dependent solely on the collateral for repayment (e.g., due to the lack of income verification) are measured based on the estimated fair value of the collateral and a charge-off is recorded if the carrying value exceeds the fair value of the collateral. Consumer real estate loans that reached 180 days past due prior to modification had been charged off to their net realizable value, less costs to sell, before they were modified as TDRs in accordance with established policy. Therefore, modifications of consumer real estate loans that are 180 or more days past due as TDRs do not have an impact on the allowance for loan and lease losses nor are additional charge-offs required at the time of modification. Subsequent declines in the fair value of the collateral after a loan has reached 180 days past due are recorded as charge-offs. Fully-insured loans are protected against principal loss, and therefore, the Corporation does not record an allowance for loan and lease losses on the outstanding principal balance, even after they have been modified in a TDR.

## Table of Contents

The net present value of the estimated cash flows used to measure impairment is based on model-driven estimates of projected payments, prepayments, defaults and loss-given-default (LGD). Using statistical modeling methodologies, the Corporation estimates the probability that a loan will default prior to maturity based on the attributes of each loan. The factors that are most relevant to the probability of default are the refreshed LTV, or in the case of a subordinated lien, refreshed CLTV, borrower credit score, months since origination (i.e., vintage) and geography. Each of these factors is further broken down by present collection status (whether the loan is current, delinquent, in default or in bankruptcy). Severity (or LGD) is estimated based on the refreshed LTV for first mortgages or CLTV for subordinated liens. The estimates are based on the Corporation's historical experience as adjusted to reflect an assessment of environmental factors that may not be reflected in the historical data, such as changes in real estate values, local and national economies, underwriting standards and the regulatory environment. The probability of default models also incorporate recent experience with modification programs including redefaults subsequent to modification, a loan's default history prior to modification and the change in borrower payments post-modification.

At September 30, 2016 and December 31, 2015, remaining commitments to lend additional funds to debtors whose terms have been modified in a consumer real estate TDR were immaterial. Consumer real estate foreclosed properties totaled $\$ 372$ million and $\$ 444$ million at September 30, 2016 and December 31, 2015. The carrying value of consumer real estate loans, including fully-insured and PCI loans, for which formal foreclosure proceedings were in process as of September 30, 2016 was $\$ 4.9$ billion. During the three and nine months ended September 30, 2016, the Corporation reclassified $\$ 326$ million and $\$ 1.1$ billion of consumer real estate loans to foreclosed properties or, for properties acquired upon foreclosure of certain government-guaranteed loans (principally FHA-insured loans), to other assets. This compared to reclassifications of $\$ 499$ million and $\$ 1.6$ billion for the same periods in 2015. The reclassifications represent non-cash investing activities and, accordingly, are not reflected on the Consolidated Statement of Cash Flows.

The table below provides the unpaid principal balance, carrying value and related allowance at September 30, 2016 and December 31, 2015, and the average carrying value and interest income recognized for the three and nine months ended September 30, 2016 and 2015 for impaired loans in the Corporation's Consumer Real Estate portfolio segment. Certain impaired consumer real estate loans do not have a related allowance as the current valuation of these impaired loans exceeded the carrying value, which is net of previously recorded charge-offs.

Impaired Loans - Consumer Real Estate

| September 30, 2016 |  |  | December 31, 2015 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { Unpaid Carrying } \\ & \text { Principal } \\ & \text { Balance Value } \end{aligned}$ |  | Related Allowan | Unpaid <br> Principal <br> Balance | Carrying Related |  |
|  |  |  |  |  |  |
|  |  | Value |  | Allowance |
| \$ 11,948 | \$ 9,369 |  | \$- | \$14,888 | \$ 11,901 | \$ - |
| 3,734 | 1,959 | - | 3,545 | 1,775 | - |
| \$4,452 | \$ 4,335 | \$242 | \$6,624 | \$6,471 | \$ 399 |
| 940 | 844 | 142 | 1,047 | 911 | 235 |
| \$ 16,400 | \$ 13,704 | \$242 | \$21,512 | \$18,372 | \$ 399 |
| 4,674 | 2,803 | 142 | 4,592 | 2,686 | 235 |

With no recorded allowance
Residential mortgage
Home equity
With an allowance recorded
Residential mortgage
Home equity
Total
Residential mortgage
Home equity
Three Months Ended September 30

| 2016 | 2015 |
| :--- | :--- |
| Average Interest | Average Interest |
| Carrying Income | Carrying Income |

Nine Months Ended September 30

2016
2015
Average Interest Average Interest Carrying Income Carrying Income

Value Recognized Value Recognized Value Recognizddalue Recognized
(1)
(1)
(1)
(1)

With no recorded allowance

| Residential mortgage | \$9,673 | \$ | 83 | \$13,202 | \$ 97 | \$ 10,523 | \$277 | \$ 14,332 | \$ 310 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Home equity | 1,964 | 37 |  | 1,835 | 23 | 1,883 | 67 | 1,777 | 68 |
| With an allowance recorded |  |  |  |  |  |  |  |  |  |
| Residential mortgage | \$4,676 |  | 36 | \$7,398 | \$ 61 | \$5,371 | \$133 | \$7,563 | \$ 186 |
| Home equity | 822 | 7 |  | 809 | 6 | 863 | 18 | 756 | 18 |
| Total |  |  |  |  |  |  |  |  |  |
| Residential mortgage | \$ 14,349 |  | 119 | \$20,600 | \$ 158 | \$15,894 | \$410 | \$21,895 | \$ 496 |
| Home equity | 2,786 | 44 |  | 2,644 | 29 | 2,746 | 85 | 2,533 | 86 | Interest income recognized includes interest accrued and collected on the outstanding balances of accruing

${ }^{(1)}$ impaired loans as well as interest cash collections on nonaccruing impaired loans for which the principal is considered collectible.

126

## Table of Contents

The table below presents the September 30, 2016 and 2015 unpaid principal balance, carrying value, and average preand post-modification interest rates on consumer real estate loans that were modified in TDRs during the three and nine months ended September 30, 2016 and 2015, and net charge-offs recorded during the period in which the modification occurred. The following Consumer Real Estate portfolio segment tables include loans that were initially classified as TDRs during the period and also loans that had previously been classified as TDRs and were modified again during the period.

Consumer Real Estate - TDRs Entered into During the Three Months Ended September 30, 2016 and 2015 (1)

Three
Months
September 30, 2016
Ended
September
30, 2016
Net


Three Months
September 30, 2015

| Residential mortgage | $\$ 1,163$ | $\$ 1,030$ | 4.91 | $\%$ | 4.71 | $\%$ | $\$ 28$ |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Home equity | 302 | 243 | 3.41 |  | 3.34 |  | 25 |  |
| Total | $\$ 1,465 \$ 1,273$ | 4.60 |  | 4.42 |  | $\$ 5$ |  |  |

Consumer Real Estate - TDRs Entered into During the Nine Months Ended September 30, 2016 and 2015 (1)


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During the three and nine months ended September 30, 2016, the Corporation forgave principal of $\$ 1$ million and
${ }^{(1)} \$ 12$ million related to residential mortgage loans in connection with TDRs compared to $\$ 48$ million and $\$ 371$ million for the same periods in 2015.
(2) The post-modification interest rate reflects the interest rate applicable only to permanently completed modifications, which exclude loans that are in a trial modification period.
(3) Net charge-offs include amounts recorded on loans modified during the period that are no longer held by the Corporation at September 30, 2016 and 2015 due to sales and other dispositions.

127

## Table of Contents

The table below presents the September 30, 2016 and 2015 carrying value for consumer real estate loans that were modified in a TDR during the three and nine months ended September 30, 2016 and 2015 by type of modification.

Consumer Real Estate - Modification Programs

| (Dollars in millions) | TDRs Entered into During the Three Months Ended September 30, 2016 |  |  |
| :---: | :---: | :---: | :---: |
|  |  | nfitdme gequit | Total Carrying Value |
| Modifications under government programs |  |  |  |
| Contractual interest rate reduction | \$ 12 | \$ 6 | \$ 18 |
| Principal and/or interest forbearance |  | 2 | 2 |
| Other modifications ${ }^{(1)}$ | 3 | - | 3 |
| Total modifications under government programs | 15 | 8 | 23 |
| Modifications under proprietary programs |  |  |  |
| Contractual interest rate reduction | 19 | 1 | 20 |
| Capitalization of past due amounts | 4 | - | 4 |
| Principal and/or interest forbearance | 2 | - | 2 |
| Other modifications ${ }^{(1)}$ | 1 | 44 | 45 |
| Total modifications under proprietary programs | 26 | 45 | 71 |
| Trial modifications | 343 | 147 | 490 |
| Loans discharged in Chapter 7 bankruptcy ${ }^{(2)}$ | 61 | 23 | 84 |
| Total modifications | \$445 | \$ 223 | \$ 668 |
|  |  | Entered the Months ber 30 | into <br> Ended <br> 2015 |
| Modifications under government programs |  |  |  |
| Contractual interest rate reduction | \$67 | \$ 2 | \$ 69 |
| Principal and/or interest forbearance | - | 1 | 1 |
| Other modifications ${ }^{(1)}$ | 7 | - | 7 |
| Total modifications under government programs | 74 | 3 | 77 |
| Modifications under proprietary programs |  |  |  |
| Contractual interest rate reduction | 46 | - | 46 |
| Capitalization of past due amounts | 16 | - | 16 |
| Principal and/or interest forbearance | 4 | 1 | 5 |
| Other modifications ${ }^{(1)}$ | 5 | 1 | 6 |
| Total modifications under proprietary programs | 71 | 2 | 73 |
| Trial modifications | 793 | 210 | 1,003 |
| Loans discharged in Chapter 7 bankruptcy ${ }^{(2)}$ | 92 | 28 | 120 |
| Total modifications | \$ 1,030 | \$ 243 | \$ 1,273 |

${ }^{(1)}$ Includes other modifications such as term or payment extensions and repayment plans.
${ }^{(2)}$ Includes loans discharged in Chapter 7 bankruptcy with no change in repayment terms that are classified as TDRs.

## Table of Contents

Consumer Real Estate - Modification Programs


## Table of Contents

The table below presents the carrying value of consumer real estate loans that entered into payment default during the three and nine months ended September 30, 2016 and 2015 that were modified in a TDR during the 12 months preceding payment default. A payment default for consumer real estate TDRs is recognized when a borrower has missed three monthly payments (not necessarily consecutively) since modification. Payment defaults on a trial modification where the borrower has not yet met the terms of the agreement are included in the table below if the borrower is 90 days or more past due three months after the offer to modify is made.

Consumer Real Estate - TDRs Entering Payment Default That Were Modified During the Preceding 12 Months

|  | Three Months Ended September 30, 2016 |  |  |
| :---: | :---: | :---: | :---: |
| (Dollars in millions) | Res <br> Mor | ntlathe agequity | Total <br> Carrying <br> Value |
| Modifications under government programs | \$50 | \$ 1 | \$ 51 |
| Modifications under proprietary programs | 29 | 11 | 40 |
| Loans discharged in Chapter 7 bankruptcy ${ }^{(1)}$ | 36 | 6 | 42 |
| Trial modifications | 138 | 23 | 161 |
| Total modifications | \$253 | \$ 41 | \$ 294 |

Modifications under proprietary programs $\quad 97 \quad 1 \quad 98$
Loans discharged in Chapter 7 bankruptcy (1) $57 \quad 20 \quad 77$
Trial modifications ${ }^{(2)} \quad 327 \quad 49376$
Total modifications $\quad \$ 598 \quad \$ 72 \quad \$ 670$

|  | Nine Months Ended September 30, 2016 |  |  |
| :---: | :---: | :---: | :---: |
| Modifications under government programs | \$228 | \$ 2 | \$ 230 |
| Modifications under proprietary programs | 107 | 38 | 145 |
| Loans discharged in Chapter 7 bankruptcy (1) | 107 | 17 | 124 |
| Trial modifications | 559 | 89 | 648 |
| Total modifications | \$ 1,001 | \$ 146 | \$ 1,147 |
|  | Nine Months Ended September 30, 2015 |  |  |
| Modifications under government programs | \$323 | \$ 4 | \$ 327 |
| Modifications under proprietary programs | 175 | 19 | 194 |
| Loans discharged in Chapter 7 bankruptcy ${ }^{(1)}$ | 189 | 40 | 229 |
| Trial modifications (2) | 2,563 | 100 | 2,663 |
| Total modifications | \$3,250 | \$ 163 | \$ 3,413 |

${ }^{(1)}$ Includes loans discharged in Chapter 7 bankruptcy with no change in repayment terms that are classified as TDRs. Includes $\$ 59$ million and $\$ 1.6$ billion for the three and nine months ended September 30, 2015 of trial modification
(2) offers made in connection with the August 2014 U.S. Department of Justice settlement to which the customer did not respond.

Credit Card and Other Consumer

Impaired loans within the Credit Card and Other Consumer portfolio segment consist entirely of loans that have been modified in TDRs (the renegotiated credit card and other consumer TDR portfolio, collectively referred to as the renegotiated TDR portfolio). The Corporation seeks to assist customers that are experiencing financial difficulty by modifying loans while ensuring compliance with federal, local and international laws and guidelines. Credit card and other consumer loan modifications generally involve reducing the interest rate on the account and placing the customer on a fixed payment plan not exceeding 60 months, all of which are considered TDRs. In addition, the accounts of non-U.S. credit card customers who do not qualify for a fixed payment plan may have their interest rates reduced, as required by certain local jurisdictions. These modifications, which are also TDRs, tend to experience higher payment default rates given that the borrowers may lack the ability to repay even with the interest rate reduction. In substantially all cases, the customer's available line of credit is canceled. The Corporation makes loan modifications directly with borrowers for debt held only by the Corporation (internal programs). Additionally, the Corporation makes loan modifications for borrowers working with third-party renegotiation agencies that provide solutions to customers' entire unsecured debt structures (external programs). The Corporation classifies other secured consumer loans that have been discharged in Chapter 7 bankruptcy as TDRs which are written down to collateral value and placed on

130

## Table of Contents

nonaccrual status no later than the time of discharge. For more information on the regulatory guidance on loans discharged in Chapter 7 bankruptcy, see Nonperforming Loans and Leases in this Note.

All credit card and substantially all other consumer loans that have been modified in TDRs remain on accrual status until the loan is either paid in full or charged off, which occurs no later than the end of the month in which the loan becomes 180 days past due or generally at 120 days past due for a loan that has been placed on a fixed payment plan.

The allowance for impaired credit card and substantially all other consumer loans is based on the present value of projected cash flows, which incorporates the Corporation's historical payment default and loss experience on modified loans, discounted using the portfolio's average contractual interest rate, excluding promotionally priced loans, in effect prior to restructuring. Credit card and other consumer loans are included in homogeneous pools which are collectively evaluated for impairment. For these portfolios, loss forecast models are utilized that consider a variety of factors including, but not limited to, historical loss experience, delinquency status, economic trends and credit scores.

The table below provides the unpaid principal balance, carrying value and related allowance at September 30, 2016 and December 31, 2015, and the average carrying value and interest income recognized for the three and nine months ended September 30, 2016 and 2015 on the Corporation's renegotiated TDR portfolio in the Credit Card and Other Consumer portfolio segment.

Impaired Loans - Credit Card and Other Consumer - Renegotiated TDRs
September 30, 2016 December 31, 2015

With no recorded allowance Direct/Indirect consumer With an allowance recorded U.S. credit card

Non-U.S. credit card
Direct/Indirect consumer
Total
U.S. credit card

Non-U.S. credit card
Direct/Indirect consumer

| $\$ 47$ | $\$ 20$ |
| :--- | :--- | :--- | :--- | :--- |

\$500 \$ $507 \quad \$ 123 \$ 598 \$ 611 \$ 176$

| 91 | 104 | 62 | 109 | 126 | 70 |
| :--- | :--- | :--- | :--- | :--- | :--- |

$\begin{array}{llllll}5 & 6 & 1 & 17 & 21 & 4\end{array}$
\$500 \$ $507 \quad \$ 123 \$ 598 \$ 611 \$ 176$
$\begin{array}{llllll}91 & 104 & 62 & 109 & 126 & 70\end{array}$
$\begin{array}{llllll}52 & 26 & 1 & 67 & 42 & 4\end{array}$

|  |  | Nine |
| :---: | :---: | :---: |
| September 30 |  | Septem |
| 2016 | 2015 | 2016 |
| Interest | Average ${ }_{\text {Interest }}$ | Average |
| Carrying | Carrying ${ }^{\text {g }}$ me ${ }^{\text {a }}$ | Carrying |
|  | Value (2) | Value |

