UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549

FORM 10-K

Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

For the fiscal year ended December 31, 2018
Commission file number 001-09718

THE PNC FINANCIAL SERVICES GROUP, INC.

(Exact name of registrant as specified in its charter)

Pennsylvania	25-1435979
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

The Tower at PNC Plaza
300 Fifth Avenue
Pittsburgh, Pennsylvania 15222-2401
(Address of principal executive offices, including zip code)

Registrant's telephone number, including area code - **(888) 762-2265**

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock, par value $5.00	New York Stock Exchange
Depositary Shares Each Representing a 1/4,000 Interest in a Share of Fixed-to-Floating Rate Non-Cumulative Perpetual Preferred Stock, Series P	New York Stock Exchange
Depositary Shares Each Representing a 1/4,000 Interest in a Share of 5.375% Non-Cumulative Perpetual Preferred Stock, Series Q	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act:
$1.80 Cumulative Convertible Preferred Stock - Series B, par value $1.00

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes X No __

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

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 X No __

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted 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 such files). Yes X No __

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

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.

Large accelerated filer X	Accelerated filer __
Non-accelerated filer __	Smaller reporting company __
	Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

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

The aggregate market value of the registrant's outstanding voting common stock held by nonaffiliates on June 30, 2018, determined using the per share closing price on that date on the New York Stock Exchange of $135.10, was approximately $62.7 billion. There is no non-voting common equity of the registrant outstanding.

Number of shares of registrant's common stock outstanding at February 8, 2019: 453,612,522

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the definitive Proxy Statement of The PNC Financial Services Group, Inc. to be filed pursuant to Regulation 14A for the 2019 annual meeting of shareholders (Proxy Statement) are incorporated by reference into Part III of this Form 10-K.

THE PNC FINANCIAL SERVICES GROUP, INC.
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PART I

Forward-Looking Statements: From time to time, The PNC Financial Services Group, Inc. has made and may continue to make written or oral forward-looking statements regarding our outlook for earnings, revenues, expenses, capital and liquidity levels and ratios, asset levels, asset quality, financial position and other matters regarding or affecting us and our future business and operations or the impact of legal, regulatory or supervisory matters on our business operations or performance. This Annual Report on Form 10-K (the Report or Form 10-K) also includes forward-looking statements. With respect to all such forward-looking statements, you should review our Risk Factors discussion in Item 1A, our Risk Management, Critical Accounting Estimates and Judgments, and Cautionary Statement Regarding Forward-Looking Information sections included in Item 7, and Note 19 Legal Proceedings in the Notes To Consolidated Financial Statements included in Item 8 of this Report. See page 78 for a glossary of certain terms used in this Report. In this Report, "PNC", "we", "us", "the Company" or "the Corporation" refers to The PNC Financial Services Group, Inc. and its subsidiaries on a consolidated basis (except when referring to PNC as a public company, its common stock or other securities issued by PNC, which just refer to The PNC Financial Services Group, Inc.). References to The PNC Financial Services Group, Inc. or to any of its subsidiaries are specifically made where applicable.

ITEM 1 – BUSINESS

Business Overview

Headquartered in Pittsburgh, Pennsylvania, we are one of the largest diversified financial services companies in the United States. We have businesses engaged in retail banking, including residential mortgage, corporate and institutional banking and asset management, providing many of our products and services nationally. Our retail branch network is located in markets across the Mid-Atlantic, Midwest and Southeast. We also have strategic international offices in four countries outside the U.S. At December 31, 2018, our consolidated total assets, total deposits and total shareholders' equity were $382.3 billion, $267.8 billion and $47.7 billion, respectively.

We were incorporated under the laws of the Commonwealth of Pennsylvania in 1983 with the consolidation of Pittsburgh National Corporation and Provident National Corporation. Since 1983, we have diversified our geographical presence, business mix and product capabilities through internal growth, strategic bank and non-bank acquisitions and equity investments, and the formation of various non-banking subsidiaries.

Subsidiaries

Our corporate legal structure at December 31, 2018 consisted of one domestic subsidiary bank, including its subsidiaries, and 35 active non-bank subsidiaries, in addition to various affordable housing investments. Our bank subsidiary is PNC Bank, National Association (PNC Bank), a national bank headquartered in Pittsburgh, Pennsylvania. For additional information on our subsidiaries, see Exhibit 21 to this Report.

Statistical Disclosure By Bank Holding Companies

The following statistical information is included on the indicated pages of this Report and is incorporated herein by reference:

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Supervision and Regulation

The PNC Financial Services Group, Inc. is a bank holding company (BHC) registered under the Bank Holding Company Act of 1956 (BHC Act) and a financial holding company under the Gramm-Leach-Bliley Act (GLB Act).

We are subject to numerous governmental regulations, some of which are highlighted below. See Note 18 Regulatory Matters in the Notes To Consolidated Financial Statements in Item 8 of this Report for additional information regarding our regulatory matters. Applicable laws and regulations restrict our permissible activities and investments, impose conditions and requirements on the products and services we offer and the manner in which they are offered and sold, and require compliance with protections for loan, deposit, brokerage, fiduciary, investment management and other customers, among other things. They also restrict our ability to repurchase stock or pay dividends, or to receive dividends from our bank subsidiary, and impose capital adequacy and liquidity requirements. The consequences of noncompliance with these, or other applicable laws or regulations, can include substantial monetary and nonmonetary sanctions.

In addition, we are subject to comprehensive supervision and periodic examination by, among other regulatory bodies, the Board of Governors of the Federal Reserve System (Federal Reserve) and the Office of the Comptroller of the Currency (OCC). These examinations consider not only compliance with applicable laws, regulations and supervisory policies of the agency, but also capital levels, asset quality, risk management effectiveness, the ability and performance of management and the board of directors, the effectiveness of internal controls, earnings, liquidity and various other factors.

The results of examination activity by any of our federal bank regulators potentially can result in the imposition of significant limitations on our activities and growth. These regulatory agencies generally have broad discretion to impose restrictions and limitations on the operations of a regulated entity and take enforcement action, including the imposition of substantial monetary penalties and nonmonetary requirements, against a regulated entity where the relevant agency determines, among other things, that the operations of the regulated entity or any of its subsidiaries fail to comply with applicable law or regulations, are conducted in an unsafe or unsound manner, or represent an unfair or deceptive act or practice. This supervisory framework, including the examination reports and supervisory ratings (which are not publicly available) of the agencies, could materially impact the conduct, growth and profitability of our operations.

The Consumer Financial Protection Bureau (CFPB) is responsible for examining PNC Bank and its affiliates (including PNC) for compliance with most federal consumer financial protection laws, including the laws relating to fair lending and prohibiting unfair, deceptive or abusive acts or practices in connection with the offer, sale or provision of consumer financial products or services, and for enforcing such laws with respect to PNC Bank and its affiliates. The results of the CFPB's examinations (which are not publicly available) also can result in restrictions or limitations on the operations of a regulated entity as well as enforcement actions against a regulated entity, including the imposition of substantial monetary penalties and nonmonetary requirements.

We also are subject to regulation by the Securities and Exchange Commission (SEC) by virtue of our status as a public company and by the SEC and the Commodity Futures Trading Commission (CFTC) due to the nature of some of our businesses. Our businesses with operations outside the United States also are subject to regulation by appropriate authorities in the foreign jurisdictions in which they do business.

As a regulated financial services firm, our relationships and good standing with regulators are of fundamental importance to the operation and growth of our businesses. The Federal Reserve, OCC, CFPB, SEC, CFTC and other domestic and foreign regulators have broad enforcement powers, and certain of the regulators have the power to approve, deny, or refuse to act upon our applications or notices to conduct new activities, acquire or divest businesses, assets or deposits, expand our operations geographically, or reconfigure existing operations.

Among the areas that have been receiving a high level of regulatory focus are compliance with the Bank Secrecy Act and anti-money laundering laws, capital and liquidity management, fair lending and other consumer protection laws and regulations, including those governing retail sales practices, fee disclosures, unfair, deceptive or abusive acts or practices, collection practices, and protections for military service members and individuals in bankruptcy, cyber security, capital planning and stress testing, the oversight of arrangements with third-party vendors and suppliers, the protection of confidential customer information, and the structure and effectiveness of enterprise risk management frameworks.

New legislation, changes in rules promulgated by federal financial regulators, other federal and state regulatory authorities and self-regulatory organizations, or changes in the interpretation or enforcement of existing laws and rules, may directly affect the operations and profitability of our businesses. We anticipate new legislative and regulatory initiatives over the next several years, focused specifically on banking and other financial services in which we are engaged. Legislative and regulatory developments to date, as well as those that come in the future, have had and are likely to continue to have an impact on the conduct of our business. The more detailed description of the significant regulations to which we are subject included in this Report is based on current laws and regulations and is subject to potentially material change. See also the additional information included as Risk Factors in Item 1A of this Report discussing the impact of financial regulatory initiatives on the regulatory environment for us and the financial services industry.

The profitability of our businesses could also be affected by rules and regulations that impact the business and financial sectors in general, including changes to the laws governing taxation, antitrust regulation, electronic commerce, data security and privacy.

There are numerous rules governing the regulation of financial services institutions and their holding companies. Accordingly, the following discussion is general in nature and does not purport to be complete or to describe all of the laws, regulations and supervisory policies that apply to us. To a substantial extent, the purpose of the regulation and supervision of financial services institutions and their holding companies is not to protect our shareholders and our non-customer creditors, but rather to protect our customers (including depositors) and the financial markets and financial system in general.

Banking Regulation and Supervision

Regulatory Capital Requirements, Stress Testing and Capital Planning. PNC and PNC Bank are subject to the regulatory capital requirements established by the Federal Reserve and the OCC, respectively. The foundation of the agencies' regulatory capital rules is the international regulatory capital framework developed by the Basel Committee on Banking Supervision (Basel Committee), the international body responsible for developing global regulatory standards for banking organizations for consideration and adoption by national jurisdictions. The regulatory capital rules establish minimum requirements for the ratio of a banking organization's regulatory capital to its risk-weighted assets, referred to as risk-based capital requirements, as well as for the ratio of its regulatory capital to measures of assets and other exposures, referred to as leverage capital requirements. The agencies' regulatory capital rules have undergone significant change since 2013, when the agencies adopted final rules to implement the Basel Committee's international regulatory capital framework, known as "Basel III", as well as certain provisions of the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank). Certain provisions (described below) of these rules currently apply only to banking organizations that have $250 billion or more in total consolidated assets (such as PNC and PNC Bank) or that have $10 billion or more in on-balance sheet foreign exposure (referred to as advanced approaches banking organizations).

In 2018, the Federal Reserve, OCC and Federal Deposit Insurance Corporation (FDIC) requested comment on a set of proposed rules that would better tailor the application of the agencies' capital (including stress testing) and liquidity rules, and the Federal Reserve's enhanced prudential standards (EPS) adopted under Section 165 of Dodd-Frank, to banking organizations with $100 billion or more in consolidated total assets based on the risk profile and asset size of the organization (the Tailoring Proposals). The Tailoring Proposals would classify all bank holding companies (BHCs) with $100 billion or more in total assets into one of four categories (Category I, Category II, Category III and Category IV), with the most stringent capital, liquidity and EPS requirements applying to Category I firms and the least restrictive requirements applying to Category IV firms. The classification of any bank subsidiary of a BHC would generally follow that of its parent BHC. PNC and PNC Bank would be Category III firms under the Tailoring Proposals because PNC (i) has more than $250 billion in consolidated total assets, (ii) is not designated as a globally systemically important bank (GSIB), and (iii) has less than $75 billion in cross-jurisdictional activity (as defined by the proposals). The public comment period on the Tailoring Proposals closed on January 22, 2019. As described below, the Tailoring Proposals, if adopted in the form proposed, would make several important changes to the capital, liquidity and enhanced prudential standards requirements applicable to PNC and PNC Bank. However, it is unclear when, or if, the agencies may finalize the Tailoring Proposals or when the provisions of the Tailoring Proposals (if adopted in final) might become effective. In addition, any final tailoring rules adopted by the agencies could differ, perhaps materially, from the proposals issued for comment.

The regulatory capital rules generally divide regulatory capital into three components: common equity tier 1 (CET1) capital, additional Tier 1 capital (which, together with CET1 capital, comprises Tier 1 capital) and Tier 2 capital. CET1 capital is generally common stock, retained earnings, qualifying minority interest and, for PNC and PNC Bank as advanced approaches banking organizations, accumulated other comprehensive income (AOCI) related to both available for sale securities and pension and other post-retirement plans, less the deductions required to be made from CET1 capital. The Tailoring Proposals would allow PNC and PNC Bank to elect to exclude AOCI related to both available for sale securities and pension and other post-retirement plans from CET1 capital. Additional Tier 1 capital generally includes, among other things, perpetual preferred stock and qualifying minority interests, less the deductions required to be made from additional Tier 1 capital. Tier 2 capital generally comprises qualifying subordinated debt, less any required deductions from Tier 2 capital. There are significant limits on the extent to which minority interests in consolidated subsidiaries may be included in regulatory capital.

Total capital is the sum of Tier 1 capital and Tier 2 capital, less the deductions required from Total capital. Under the current regulatory capital rules, PNC and PNC Bank must deduct significant common stock investments in unconsolidated financial institutions, as well as mortgage servicing rights and deferred tax assets, from CET1 capital (in each case, net of associated deferred tax liabilities) to the extent such items individually exceed 10%, or in the aggregate exceed 15%, of the institution's adjusted CET1 capital. Under the Tailoring Proposals, PNC and PNC Bank would have to deduct each of the amounts for significant common stock investments in unconsolidated financial institutions, mortgage servicing rights and deferred tax assets from CET1 capital (in each case, net of associated deferred tax liabilities) to the extent such items individually exceed 25% of the institution's adjusted CET1 capital. PNC's common stock investment in BlackRock is treated as a significant common stock investment in an unconsolidated financial institution for these purposes. As of December 31, 2018, a portion of PNC's common stock investment in BlackRock was deducted from CET1 capital. If the Tailoring Proposals had been in effect as of December 31, 2018, no portion of PNC's common stock investment in BlackRock would have been deducted from CET1 capital.

In 2018, the banking agencies jointly adopted a final rule that permits banking organizations to elect to phase-in, on a straight-line basis over a three-year period, the day-one regulatory capital effects of implementing the Financial Accounting Standards Board's (FASB) Accounting Standards Update (ASU) 2016-13 Financial Instruments - Credit Losses (Topic 326), commonly referred to as the Current Expected Credit Losses (CECL) standard. PNC expects to implement the CECL standard effective January 1, 2020. The final rule also generally replaces references to the allowance for loan and lease losses (ALLL) in the regulatory capital and certain other rules of the agencies with references to the allowance for credit losses (ACL) for institutions that have adopted CECL. See the Critical Accounting Estimates and Judgments section of Item 7 of this Report for more detail on the CECL standard.

The regulatory capital rules include a standardized approach for determining a banking organization's risk-weighted assets for purposes of calculating the risk-based capital ratios. To determine risk-weighted assets under the standardized approach, a banking organization must allocate its assets and specified off-balance sheet financial exposures and instruments into risk-weighted categories. The standardized approach for risk-weighted assets takes into account credit and market risk. To calculate risk-weighted assets under the standardized approach for credit risk, the nominal dollar amounts of assets and credit equivalent amounts of off-balance sheet items are generally multiplied by risk weights set forth in the rules, with the risk weights increasing as the perceived credit risk of the relevant asset or exposure increases. For certain types of exposures, such as securitization exposures, the standardized approach establishes one or more methodologies that are to be used to calculate the risk-weighted asset amount for the exposure. High volatility commercial real estate, past due, securitization and equity exposures, as well as investments in unconsolidated financial institutions, mortgage servicing rights and deferred tax assets that are not deducted from capital, are generally subject to higher risk weights than other types of exposures.

Under the currently effective regulatory capital rules, banking organizations with $250 billion or more in total consolidated assets (such as PNC and PNC Bank) are also required to calculate risk-weighted assets using a separate methodology, referred to as the advanced approaches, that is based on the Basel II capital framework. The Basel II framework seeks to provide more risk-sensitive regulatory capital calculations and promote enhanced risk management practices among large, internationally active banking organizations. Advanced approaches risk-weighted assets take into account credit, market and operational risk and rely to a significant extent on internal models. Prior to fully implementing the advanced approaches to calculate risk-weighted assets, PNC and PNC Bank must successfully complete a parallel run qualification phase. PNC and PNC Bank entered this parallel run qualification phase on January 1, 2013.

Because we remain in the parallel run qualification phase for the advanced approaches, our regulatory risk-based capital ratios in 2018 were calculated using the standardized approach for determining risk-weighted assets. Until we have exited parallel run, our regulatory risk-based capital ratios will be calculated using the standardized approach for determining risk-weighted assets. Under the currently effective capital rules, once we exit parallel run, our regulatory risk-based capital ratios will be the lower of the ratios calculated under the standardized approach and the advanced approaches. Under the Tailoring Proposals, PNC and PNC Bank would no longer be considered an advanced approaches banking organization for these purposes and would no longer be required to calculate advanced approaches risk-weighted assets.

With the exception of certain nonqualifying trust preferred capital securities included in PNC's Total risk-based capital (which remain subject to a phase-out period that runs through 2021), the transitions and multi-year phase-in of the definition of capital under the Basel III rules were completed as of January 1, 2018. Accordingly, we refer to the capital ratios calculated using the definition of capital in effect as of January 1, 2018 and, for the risk-based ratios, standardized risk-weighted assets, as our Basel III regulatory capital ratios. The Basel III regulatory capital ratios of PNC and PNC Bank as of December 31, 2018 exceeded the applicable minimum levels. For additional information regarding the Basel III ratios of PNC and PNC Bank as of December 31, 2018, as well as the levels needed to be considered "well capitalized", see the Liquidity and Capital Management portion of the Risk Management section of Item 7 of this Report.

The risk-based capital rules establish certain minimum standards for the capital ratios of banking organizations, including PNC and PNC Bank. Banking organizations must maintain a minimum CET1 ratio of 4.5%, a Tier 1 capital ratio of 6.0%, and a Total capital ratio of 8.0%, in each case in relation to risk-weighted assets, to be considered "adequately capitalized." Banking organizations also must maintain a capital conservation buffer requirement above the minimum risk-based capital ratio requirements in order to avoid limitations on capital distributions (including dividends and repurchases of any Tier 1 capital instrument, such as common and qualifying preferred stock) and certain discretionary incentive compensation payments. The capital conservation buffer requirement became fully phased in as of January 1, 2019. As a result, banking organizations (including PNC and PNC Bank) now are required to maintain a CET1 capital ratio of at least 7.0%, a Tier 1 capital ratio of at least 8.5%, and a Total capital ratio of at least 10.5% to avoid limitations on capital distributions and certain discretionary incentive compensation payments.

For banking organizations with $250 billion or more in total consolidated assets (such as PNC and PNC Bank), these higher capital conservation buffer levels above the regulatory minimums could be supplemented by a countercyclical capital buffer of up to an additional 2.5% of risk-weighted assets. This buffer is currently set at zero in the U.S. A Federal Reserve policy statement establishes the framework and factors the Federal Reserve would use in setting and adjusting the amount of the U.S. countercyclical capital buffer. Covered banking organizations would generally have 12 months after the announcement of any increase in the countercyclical capital buffer to meet the increased buffer requirement, unless the Federal Reserve determines to establish an earlier effective date. If the full countercyclical buffer amount is implemented, PNC and PNC Bank would be required to maintain a CET1 capital ratio of at least 9.5%, a Tier 1 capital ratio of at least 11%, and a Total capital ratio of at least 13% to avoid limitations on capital distributions and certain discretionary incentive compensation payments.

PNC and PNC Bank are not subject to the additional CET1 capital surcharge, minimum long-term debt requirement, or minimum total loss-absorbing capacity (TLAC) requirement that applies to U.S. GSIBs.

The regulatory capital rules also require that banking organizations maintain a minimum amount of Tier 1 capital to average consolidated assets, referred to as the leverage ratio. Banking organizations are required to maintain a minimum leverage ratio of Tier 1 capital to total assets of 4.0%. As of December 31, 2018, the leverage ratios of PNC and PNC Bank were above the required minimum level.

Banking organizations with $250 billion or more in total consolidated assets (such as PNC and PNC Bank) also are subject to a minimum 3.0% supplementary leverage ratio. The supplementary leverage ratio is calculated by dividing Tier 1 capital by total leverage exposure, which takes into account on-balance sheet assets as well as certain off-balance sheet items, including loan commitments and potential future exposure under derivative contracts. BHCs with total consolidated assets of more than $700 billion or assets under custody of more than $10 trillion, as well as the insured depository institution subsidiaries of these BHCs, are subject to a higher supplementary leverage ratio requirement. These higher supplementary leverage requirements do not apply to PNC or PNC Bank.

Failure to meet applicable capital requirements could subject a banking organization to a variety of enforcement remedies available to the federal banking agencies, including a limitation on the ability to pay dividends or repurchase shares, the issuance of a capital directive to increase capital and, in severe cases, the termination of deposit insurance by the FDIC, and the appointment of a conservator or receiver. In some cases, the extent of these powers depends upon whether the institution in question is considered "well capitalized," "adequately capitalized," "undercapitalized," "significantly undercapitalized" or "critically undercapitalized." The thresholds at which an insured depository institution is considered "well capitalized," "adequately capitalized," "undercapitalized," "significantly undercapitalized" or "critically undercapitalized" are based on (i) the institution's CET1, Tier 1 and total risk-based capital ratios; (ii) the institution's leverage ratio; and (iii) for the definitions of "adequately capitalized" and "undercapitalized", the institution's supplementary leverage ratio. Generally, the smaller an institution's capital base in relation to its risk-weighted or total assets, the greater the scope and severity of the agencies' powers. Business activities may also be affected by an institution's capital classification. For example, as a financial holding company, PNC and PNC Bank must remain "well capitalized." At December 31, 2017, PNC and PNC Bank exceeded the required ratios for classification as "well capitalized." For additional discussion of capital adequacy requirements, see the Liquidity and Capital Management portion of the Risk Management section of Item 7 of this Report and to Note 18 Regulatory Matters in the Notes To Consolidated Financial Statements in Item 8 of this Report.

As discussed further in Item 1A Risk Factors of this Report, the Basel Committee in 2017 finalized additional, significant changes to the Basel III international capital framework for banking organizations. The extent to and manner in which these or similar changes by the Basel Committee would be implemented by the U.S. banking agencies, and the implications of any such developments on the U.S. regulatory capital framework applicable to PNC and PNC Bank, are not fully known at this time.

In addition to regulatory capital requirements, we are subject to the Federal Reserve's capital plan rule, annual capital stress testing requirements and Comprehensive Capital Analysis and Review (CCAR) process, as well as the annual and mid-year Dodd-Frank capital stress testing (DFAST) requirements of the Federal Reserve (annual and mid-cycle) and the OCC (annual).

As part of the CCAR process, the Federal Reserve undertakes a supervisory assessment of the capital planning process of BHCs, including PNC, that have $100 billion or more in total consolidated assets. For us, this capital planning assessment is based on a review of a comprehensive capital plan submitted to the Federal Reserve that describes the company's planned capital actions, such as plans to pay or increase common stock dividends, engage in common stock repurchase programs, or issue or redeem preferred stock or other regulatory capital instruments, during the nine quarter review period, as well as the results of stress tests conducted by both the company and the Federal Reserve under different hypothetical macro-economic scenarios, including a supervisory adverse scenario and severely adverse scenario provided by the Federal Reserve. The agencies have requested comment on proposed rules that would eliminate the supervisory adverse scenario in the CCAR and DFAST stress testing processes, but it is unclear when or if these proposals may be finalized, or when these changes (if adopted in final) might become effective.

The Federal Reserve can object to our capital plan for qualitative or quantitative reasons. If the Federal Reserve objects to a BHC's capital plan, the BHC cannot make capital distributions without Federal Reserve approval. In evaluating PNC's capital plan, the Federal Reserve considers a number of qualitative factors, which have become increasingly important in the CCAR process in recent years. The Federal Reserve's supervisory expectations for the capital planning and stress testing processes at large and complex BHCs, including PNC, are heightened relative to smaller and less complex BHCs. In assessing a BHC's capital planning and stress testing processes, the Federal Reserve considers whether the BHC has sound and effective governance to oversee these processes. The Federal Reserve's evaluation focuses on whether a BHC's capital planning and stress testing processes are supported by a strong risk management framework to identify, measure and assess material risks and that provides a strong foundation to capital planning. The Federal Reserve also considers the comprehensiveness of a BHC's control framework and evaluates a BHC's policy guidelines for capital planning and assessing capital adequacy. A BHC's stress testing scenario design processes and approaches for estimating the impact of stress on its capital position, including stress testing models and non-model qualitative approaches, are comprehensively reviewed to ensure that projections reflect the impact of appropriately stressful conditions, as well as risks idiosyncratic to the BHC, on its capital position. Significant deficiencies in a BHC's capital planning and stress testing processes may result in a qualitative objection by the Federal Reserve to its capital plan.

From a quantitative perspective, the Federal Reserve considers whether under different hypothetical macro-economic scenarios, including the supervisory severely adverse scenario, the BHC would be able to maintain, throughout each quarter of the nine quarter review period, projected regulatory risk-based and leverage capital ratios that exceed the applicable minimums. In making these estimates, the Federal Reserve assumes that the BHC would continue its base case capital actions in each supervisory scenario, including the severely adverse scenario. Failure to meet a minimum regulatory risk-based or leverage capital requirement on a projected stress basis is grounds for objection to a BHC's capital plan.

In connection with the 2019 CCAR exercise, we must file our capital plan and stress testing results using financial data as of December 31, 2018 with the Federal Reserve by April 5, 2019. We expect to receive the Federal Reserve's response (either a non-objection or objection) to the capital plan submitted as part of the 2019 CCAR in June 2019.

As part of the CCAR and annual DFAST processes, both we and the Federal Reserve release certain revenue, loss and capital results from stress testing exercises. For the 2019 exercises, the Federal Reserve has announced that it intends to publish its supervisory revenue, loss and capital projections for participating BHCs under the supervisory adverse and severely adverse macro-economic scenarios using the common assumptions concerning capital distributions established by the Federal Reserve in its DFAST regulations, as well as capital ratio information using the company's proposed base case capital actions. Within 15 days of the Federal Reserve publishing its DFAST results, we also are required to publicly disclose our own estimates of certain capital, revenue and loss information under the same hypothetical supervisory severely adverse macro-economic scenario and applying the same capital action assumptions.

Federal Reserve regulations also require that we and other large BHCs conduct a separate, mid-cycle stress test using financial data as of June 30 and three company-derived macro-economic scenarios (base, adverse and severely adverse) and publish a summary of the results under the severely adverse scenario. For the 2019 mid-cycle stress test cycle, we must publish our results in the period between October 5 and November 4, 2019. Under the Tailoring Proposals, the Federal Reserve has proposed to eliminate the mid-cycle DFAST stress test beginning in 2020, and to allow Category III BHCs (like PNC) to conduct the company-run DFAST stress test biennially (rather than annually, as currently required).

The Federal Reserve's capital plan rule provides that a BHC must resubmit a new capital plan prior to the annual submission date if, among other things, there has been or will be a material change in the BHC's risk profile, financial condition or corporate structure since its last capital plan submission. Under the "de minimis" safe harbor of the Federal Reserve's capital plan rule, we may make limited repurchases of common stock or other capital distributions in amounts that exceed the amounts included in our most recently approved capital plan subject to certain conditions, including that the Federal Reserve does not object to the additional repurchases or distributions. Such additional distributions may not exceed, in the aggregate, 0.25% of Tier 1 capital during the relevant 12-month period. The Federal Reserve's capital plan rule also allows a BHC to request the Federal Reserve's approval to make additional capital distributions, above the amounts permitted by this de minimis safe harbor and the amounts included in its most recently approved capital plan, provided that, among other things, the request is filed between July 1 and March 30 of the relevant capital plan year. In 2018, PNC received approval from the Federal Reserve for additional capital distributions above the amounts included in our most recently approved capital plan. See the Liquidity and Capital Management portion of the Risk Management section in Item 7 of this Report for additional detail.

In 2018, the Federal Reserve requested public comment on a proposal that would integrate its capital plan rule, stress test rules and the annual CCAR exercise with its Basel III regulatory capital rules. Among other things, the proposal would introduce new CET1 and

Tier 1 leverage stress capital buffer requirements. The CET1 and Tier 1 leverage stress capital buffers for a covered BHC would equal (i) the percentage decline in the BHC's CET1 and Tier 1 leverage ratios, respectively, in the most recently completed CCAR exercise as projected by the Federal Reserve under its supervisory severely adverse scenario, plus (ii) the BHC's projected common stock dividends in the fourth through seventh quarter of that exercise (expressed as a ratio to the BHC's total risk-weighted assets or average total consolidated assets, as applicable). The CET1 stress capital buffer would have a minimum "floor" of 2.5%. The CET1 and Tier 1 leverage stress capital buffers would replace the Basel III capital conservation buffer for covered BHCs. That is, a covered BHC (such as PNC) would, for example, be subject to limitations on capital distributions and certain discretionary incentive compensation payments if its CET1 ratio fell below (i) 4.5%, plus (ii) its applicable CET1 stress capital buffer, plus (iii) any applicable countercyclical capital buffer (which is currently set at zero in the United States). BHCs that are GSIBs or have exited parallel run under the advanced approaches would be subject to additional capital buffer requirements. In connection with these changes, the Federal Reserve proposed to make a number of other changes to the CCAR process.

Regulatory Liquidity Standards and Liquidity Risk Management Requirements. The Basel Committee's Basel III framework includes short-term liquidity standards (Liquidity Coverage Ratio or LCR) and long-term funding standards (Net Stable Funding Ratio or NSFR).

The U.S. banking agencies' LCR rules are designed to ensure that covered banking organizations maintain an adequate level of cash and high quality, unencumbered liquid assets (HQLA) to meet estimated net liquidity needs in a short-term stress scenario using liquidity inflow and outflow assumptions prescribed in the rules (net cash outflow). A company's LCR is the amount of its HQLA, as defined and calculated in accordance with the haircuts and limitations in the rule, divided by its net cash outflows, with the quotient expressed as a percentage. The regulatory minimum LCR that covered banking organizations are required to maintain is 100%. As of December 31, 2018, the LCR for PNC and PNC Bank exceeded the fully phased-in requirement of 100%.

Top-tier BHCs (like PNC) that have $250 billion or more in assets, as well as any subsidiary depository institution of such a company that has $10 billion or more in total consolidated assets (such as PNC Bank), currently are subject to the full LCR (rather than the less stringent modified LCR). PNC and PNC Bank are required to calculate the LCR on a daily basis. Under the full LCR, an institution required to calculate the LCR on a daily basis must promptly provide its regulator with a plan for achieving compliance with the minimum LCR requirement if its LCR is below the minimum requirement for three consecutive business days.

The Federal Reserve requires large BHCs, including PNC, to publicly disclose certain quantitative and qualitative measures of their LCR-related liquidity profile. These disclosures include major components used to calculate the LCR (*e.g.*, HQLA, cash outflows and inflows for the consolidated parent company), and a qualitative discussion of the BHC's LCR results, including, among other things, key drivers of the results, composition of HQLA and concentration of funding sources. We began making these disclosures (through postings on our website) in the second quarter of 2018.

The NSFR is designed to promote a stable maturity structure of assets and liabilities of banking organizations over a one-year time horizon. In 2016, the federal banking agencies requested comment on proposed rules that would implement the NSFR in the United States. The proposed rules would require a covered BHC to calculate its NSFR as the ratio of its available stable funding (ASF) to its required stable funding (RSF) amount, each as defined in the proposed rules, over a one-year horizon. The regulatory minimum ratio for all covered banking organizations (expressed as a percentage) is 100%. Under the proposal, PNC and PNC Bank would be subject to the full NSFR, rather than the less stringent modified NSFR. The proposal also includes requirements for quarterly quantitative and qualitative NSFR disclosures. Although the impact on us will not be fully known until the rules are finalized, we have taken several actions to prepare for implementation of the NSFR and we expect to be in compliance with the NSFR requirements if and when they become effective.

The Tailoring Proposals would reduce the LCR requirements and the proposed NSFR requirements for Category III banking organizations that, like PNC and PNC Bank, have less than $75 billion in weighted short-term wholesale funding. Under the Tailoring Proposals, the net cash ouflows calculated under the LCR rules and the RSF amount determined under the proposed NSFR rules for such a Category III organization would be scaled by a factor of between 70% and 85%, thereby reducing the amount of HQLA and ASF that the organization would have to maintain to meet its LCR and NSFR minimum ratio, respectively.

PNC also is subject to Federal Reserve rules that require BHCs with $100 billion or more in consolidated total assets to, among other things, conduct internal liquidity stress tests over a range of time horizons, maintain a buffer of highly liquid assets sufficient to meet projected net outflows under the BHC's 30-day liquidity stress test, and maintain a contingency funding plan that meets certain requirements.

For additional discussion of regulatory liquidity requirements, please refer to the Liquidity and Capital Management portion of the Risk Management section of Item 7 of this Report.

Source of Parent Company Liquidity and Dividends. The principal source of our liquidity at the parent company level is dividends from PNC Bank. PNC Bank is subject to various restrictions on its ability to pay dividends to PNC Bancorp, Inc., its direct parent, which is a wholly-owned direct subsidiary of The PNC Financial Services Group, Inc. PNC Bank is also subject to federal laws limiting extensions of credit to its parent holding company and non-bank affiliates as discussed in Note 18 Regulatory Matters in the Notes To Consolidated Financial Statements in Item 8 of this Report. Further information on bank level liquidity and parent company liquidity is also available in the Liquidity and Capital Management portion of the Risk Management section of Item 7 of this Report

Federal Reserve rules provide that a BHC is expected to serve as a source of financial strength to its subsidiary banks and to commit resources to support such banks if necessary. Dodd-Frank requires that the Federal Reserve jointly adopt new rules with the OCC and the FDIC to implement this source of strength requirement. These joint rules have not yet been proposed. Consistent with this source of strength policy for subsidiary banks, the Federal Reserve has stated that, as a matter of prudent banking, a BHC generally should not maintain a rate of cash dividends unless its net income available to common shareholders has been sufficient to fully fund the dividends and the prospective rate of earnings retention appears to be consistent with the corporation's capital needs, asset quality and overall financial condition. Further, in providing guidance to the large BHCs participating in the CCAR exercise, discussed above, the Federal Reserve has expected capital plans to reflect conservative dividend payout ratios. Requests that imply common dividend payout ratios above 30% of projected after-tax net income available to common shareholders have typically received particularly close scrutiny.

Enhanced Prudential Requirements. Under Federal Reserve rules, PNC and other BHCs with total consolidated assets of $100 billion or more are subject to various enhanced prudential standards related to liquidity risk management and overall risk management. For PNC, these rules, among other things, establish liquidity stress testing requirements (discussed above), limitations on PNC's aggregate net credit exposures to any single, unaffiliated company (referred to as the single counterparty credit limit (SCCL)), and certain oversight and governance responsibilities for PNC's chief risk officer, the board of directors, and the risk committee of the board of directors. Under the Federal Reserve's SCCL rules, which become effective July 1, 2020, PNC's aggregate net credit exposure (including exposure resulting from, among other transactions, extensions of credit, repurchase and reverse repurchase transactions, investments in securities, and derivative transactions) to any unaffiliated counterparty may not exceed 25% of PNC's Tier 1 capital. PNC is in the process of obtaining guidance from the Federal Reserve on how investments accounted for under the equity method, such as its investment in BlackRock, should be treated for purposes of the SCCL. At present, we do not expect the SCCL will have a material impact on PNC.

Under Dodd-Frank, the Federal Reserve is required to impose a maximum 15-to-1 debt to equity ratio on a BHC if the federal agencies that comprise the Financial Stability Oversight Council (FSOC) determine that the company poses a grave threat to the financial stability of the United States and that the imposition of such a debt-to-equity requirement would mitigate such risk. The Federal Reserve also is required to establish early remediation requirements for BHCs with more than $250 billion in total assets and continues to work towards finalizing these requirements.

The Federal Reserve may continue to develop the set of enhanced prudential standards that apply to large BHCs in order to further promote the resiliency of such firms and the U.S. financial system. For additional information, see Item 1A Risk Factors of this Report.

Additional Powers Under the GLB Act. The GLB Act permits a qualifying BHC, such as PNC, to become a "financial holding company" and thereby engage in, or affiliate with financial companies engaging in, a broader range of activities than would otherwise be permitted for a BHC. Permitted affiliates include securities underwriters and dealers, insurance companies, insurance agents and companies engaged in other activities that are determined by the Federal Reserve, in consultation with the Secretary of the Treasury, to be "financial in nature or incidental thereto" or are determined by the Federal Reserve unilaterally to be "complementary" to financial activities. We became a financial holding company as of March 13, 2000. A BHC qualifies to become a financial holding company if the BHC and its subsidiary depository institutions are "well capitalized" and "well managed" and its subsidiary depository institutions have a rating under the Community Reinvestment Act (CRA) of Satisfactory or better. Among other activities, we currently rely on our status as a financial holding company to conduct merchant banking activities and securities underwriting and dealing activities. As subsidiaries of a financial holding company under the GLB Act, our non-bank subsidiaries are generally allowed to conduct new financial activities, and we are generally permitted to acquire non-bank financial companies that have less than $10 billion in assets, with after-the-fact notice to the Federal Reserve.

In addition, the GLB Act permits qualifying national banks to engage in expanded activities through a "financial subsidiary." PNC Bank has filed a financial subsidiary certification with the OCC and currently engages in insurance agency activities through financial subsidiaries. PNC Bank may also generally engage through a financial subsidiary in any activity that is determined to be financial in nature or incidental to a financial activity by the Secretary of the Treasury, in consultation with the Federal Reserve (other than insurance underwriting activities, insurance company investment activities and merchant banking). In order to establish a financial subsidiary, a national bank and each of its depository institution affiliates must be "well capitalized" and "well managed" and the national bank and each of its depository institution affiliates must have a CRA rating of Satisfactory or better.

If a financial holding company or a national bank with a financial subsidiary fails to continue to meet the applicable "well capitalized" or "well managed" criteria, the financial holding company or national bank must enter into an agreement with the Federal Reserve or the OCC, respectively, that, among other things, identifies how the capital or management deficiencies will be corrected. Until such deficiencies are corrected, the relevant agency may impose limits or conditions on the activities of the company or bank, and the company or bank may not engage in, or acquire a company engaged in, the types of expanded activities only permissible for a financial holding company or financial subsidiary without prior approval of the relevant agency.

In addition, a financial holding company generally may not engage in a new financial activity authorized by the GLB Act, or acquire a company engaged in such a new activity, if any of its insured depository institutions receives a CRA rating of less than Satisfactory rating. A national bank's financial subsidiary generally may not engage in a new financial activity authorized by the GLB Act, or acquire a company engaged in such a new financial activity, if the national bank or any of its insured depository institution affiliates received a CRA rating of less than Satisfactory.

At December 31, 2018, PNC Bank had an Outstanding rating with respect to the CRA.

Volcker Rule. The Volcker Rule and its implementing regulations prohibit banking entities (as defined by the statute and its implementing regulations) from engaging in short-term trading as principal and having certain ownership interests in and relationships with hedge funds, private equity funds, and certain other private funds (together, "covered funds"), unless an exemption or exception applies. For example, the exemptions under the Volcker Rule allow banking entities to trade as principal for securities underwriting, market making and risk-mitigating hedging purposes, subject to a variety of conditions.

To date, the prohibitions under the final Volcker Rule regulations have not had, and we do not expect them to have in the future, a material effect on our businesses or revenue. However, the conditions for engaging in exempted trading activities and having permissible relationships with a private fund under the regulations could, depending on the agencies' approach to interpreting them, cause us to forego engaging in hedging or other transactions that we would otherwise undertake in the ordinary course of business and, thus, to some extent, may limit our ability to most effectively hedge our risks, manage our balance sheet or provide products or services to our customers.

The final Volcker Rule regulations impose significant compliance and reporting obligations on banking entities. We have adopted an enterprise Volcker Rule compliance program in accordance with the enhanced compliance program requirements of the agencies' current regulations. We have also divested prohibited investments in covered funds and received extensions allowing an extended conformance period for our remaining $.1 billion interests in illiquid covered funds (as defined by the applicable requirements).

In 2018, the agencies jointly requested comment on proposed changes to the final Volcker Rule regulations that would, among other things, (i) streamline the compliance program requirements for banking entities (like PNC) that have trading assets and liabilities (excluding trading assets and liabilities involving U.S. government and agency obligations) of more than $1 billion, but less than $10 billion, and (ii) simplify the requirements for engaging in permissible risk-mitigating hedging activities. The proposal also would introduce a new requirement for identifying positions deemed to be held in a trading account which, if adopted as proposed, could have a negative impact on the ability of banking entities (including PNC) to effectively manage risks, make longer-term investments, and seed new funds.

Other Federal Reserve and OCC Regulation and Supervision. The federal banking agencies possess broad powers to take corrective action as deemed appropriate based on the actions, operations or risk management programs of a BHC, an insured depository institution or their subsidiaries, and the Federal Reserve and the OCC have the ability to take enforcement action against PNC and PNC Bank, respectively, to prevent and remedy acts and practices that the agencies determine to be unfair or deceptive. A finding that we have engaged in a deceptive act or practice may have collateral consequences on our ability to rely on certain exemptions, or take advantage of certain provisions of, the securities laws absent a government waiver of such restrictions.

Moreover, less than satisfactory examination ratings, lower capital ratios than peer group institutions, or regulatory concerns regarding management, controls, assets, operations or other factors can all potentially result in practical limitations on the ability of a bank or BHC to engage in new activities, grow, acquire new businesses, repurchase its stock or pay dividends, or continue to conduct existing activities. Furthermore, the OCC has established certain heightened risk management and governance standards for large banks, including PNC Bank, as enforceable guidelines under Section 39 of the Federal Deposit Insurance Act (FDI Act). The guidelines, among other things, establish minimum standards for the design and implementation of a risk governance framework, describe the appropriate risk management roles and responsibilities of front line units, independent risk management, internal audit, and the board of directors, and provide that a covered bank should have a comprehensive written statement that articulates its risk appetite and serves as a basis for the framework. If the OCC determines that a covered national bank is not in compliance with these or other guidelines established under Section 39 of the FDI Act (including the guidelines relating to information security standards), the OCC may require the bank to submit a corrective action plan and may initiate enforcement action against the bank if an acceptable plan is not submitted or the bank fails to comply with an approved plan.

Sections 23A and 23B of the Federal Reserve Act and the Federal Reserve's implementing regulation, Regulation W, place quantitative and qualitative restrictions on covered transactions between a bank and its affiliates (for example between PNC Bank, on the one hand, and The PNC Financial Services Group, Inc. and its nonbank subsidiaries, on the other hand). In general, Section 23A and Regulation W limit the total amount of covered transactions between a bank and any single affiliate to 10% of the bank's capital stock and surplus, limit the total amount of covered transactions between a bank and all its affiliates to 20% of the bank's capital stock and surplus, prohibit a bank from purchasing low-quality assets from an affiliate, and require certain covered transactions to be secured with prescribed amounts of collateral. Section 23B generally requires that transactions between a bank and its affiliates be on terms that are at least as favorable to the bank as the terms that would apply in comparable transactions between the bank and a third party. Dodd-Frank amended Section 23A of the Federal Reserve Act to include as a covered transaction the credit exposure of a bank to an affiliate arising from a derivative transaction with the affiliate. The Federal Reserve has yet to propose rules to implement these revisions.

The Federal Reserve and the OCC have provided guidance regarding incentive and other elements of compensation provided to executives and other employees at banking organizations they regulate, both as general industry-wide guidance and guidance specific to select larger companies, including PNC. These guidelines are intended to ensure that the incentive compensation practices of covered banking organizations do not encourage excessive risk-taking. The Federal Reserve, the OCC, the FDIC, the SEC and two other regulatory agencies jointly proposed regulations in 2011 and again in 2016 to implement the incentive compensation requirements of Section 956 of Dodd-Frank. Final regulations implementing Section 956 have not been adopted. Regulation of compensation provided by us to our executives and other employees, whether through guidance or rules and regulations, could hamper our ability to attract and retain quality employees.

The Federal Reserve's prior approval is required whenever we propose to acquire all or substantially all of the assets of any bank, to acquire direct or indirect ownership or control of more than 5% of any class of voting securities of any bank or BHC, or to merge or consolidate with any other BHC. The BHC Act and other federal law enumerates the factors the Federal Reserve must consider when reviewing the merger of BHCs, the acquisition of banks or the acquisition of voting securities of a bank or BHC. These factors include the competitive effects of the proposal in the relevant geographic markets; the financial and managerial resources and future prospects of the companies and banks involved in the transaction; the effect of the transaction on the financial stability of the United States; the organizations' compliance with anti-money laundering laws and regulations; the convenience and needs of the communities to be served; and the records of performance under the CRA of the insured depository institutions involved in the transaction.

The Federal Reserve's prior approval is also required, and similar factors are considered, for a BHC to acquire direct or indirect ownership or control of more than 5% of any class of voting securities of a savings association or savings and loan holding company, or to merge or consolidate with a savings and loan holding company. In cases involving interstate bank acquisitions, the Federal Reserve also must consider the concentration of deposits nationwide and in certain individual states. A BHC is generally prohibited from merging or consolidating with, or acquiring, another company if upon consummation the resulting company would control 10% or more of deposits in the U.S or a state, or if the resulting company's liabilities would exceed 10% of the aggregate liabilities of the U.S. financial sector (including the U.S. liabilities of foreign financial companies). In extraordinary cases, the FSOC, in conjunction with the Federal Reserve, could order the break-up of financial firms that are deemed to present a grave threat to the financial stability of the United States.

OCC prior approval is required for PNC Bank to acquire another insured bank or savings association by merger or to acquire deposits or substantially all of the assets of such institutions. In deciding whether to approve such a transaction, the OCC is required to consider factors similar to those that must be considered by the Federal Reserve in connection with the acquisition of a bank or BHC. Approval of the OCC and the FDIC is required to merge a nonbank entity into PNC Bank. Our ability to grow through acquisitions or reorganize our operations could be limited by these approval requirements.

Based on the Federal Reserve's interpretation of the BHC Act, the Federal Reserve has indicated that it considers BlackRock to be a subsidiary of The PNC Financial Services Group, Inc. for purposes of the BHC Act due to PNC's current and historical ownership interest in, as well as other relationships with, BlackRock and, thus, subject to the supervision and regulation of the Federal Reserve.

FDIC Insurance and Related Matters. PNC Bank is insured by the FDIC and subject to deposit premium assessments. Regulatory matters could increase the cost of FDIC deposit insurance premiums to an insured bank as FDIC deposit insurance premiums are "risk based." Therefore, higher fee percentages would be charged to banks that have lower capital ratios or higher risk profiles. These risk profiles take into account, among other things, weaknesses that are found by the primary federal banking regulator through its examination and supervision of the bank and the bank's holdings of assets or liabilities classified as higher risk by the FDIC. A negative evaluation by the FDIC or a bank's primary federal banking regulator could increase the costs to a bank and result in an aggregate cost of deposit funds higher than that of competing banks in a lower risk category.

Federal banking laws and regulations also apply a variety of requirements or restrictions on insured depository institutions with respect to brokered deposits. For instance, only a "well capitalized" insured depository institution may accept brokered deposits without prior regulatory approval. In addition, brokered deposits are generally subject to higher outflow assumptions than other types of deposits for purposes of the LCR.

Resolution and Recovery Planning. BHCs that have $100 billion or more in assets, such as PNC, are required to periodically submit to the Federal Reserve and the FDIC a resolution plan that includes, among other things, an analysis of how the company could be resolved in a rapid and orderly fashion if the company were to fail or experience material financial distress. The Federal Reserve and the FDIC may jointly impose restrictions on a covered BHC, including additional capital requirements or limitations on growth, if the agencies jointly determine that the company's plan is not credible or would not facilitate a rapid and orderly resolution of the company under the U.S. Bankruptcy Code (or other applicable resolution framework), and additionally could require the company to divest assets or take other actions if the company did not submit an acceptable resolution plan within two years after any such restrictions were imposed. The FDIC also requires large insured depository institutions, including PNC Bank, to periodically submit a resolution plan to the FDIC that includes, among other things, an analysis of how the institution could be resolved under the FDI Act in a manner that protects depositors and limits losses or costs to creditors of the bank in accordance with the FDI Act. PNC and PNC Bank are required to provide the Federal Reserve and FDIC a public summary of their resolution plans, which the agencies then make available to the public. Depending on how the agencies conduct their review of the resolution plans submitted by PNC and PNC Bank, these requirements could affect the ways in which PNC structures and conducts its business and result in higher compliance and operating costs.

PNC Bank also is subject to OCC guidelines under Section 39 of the FDI Act that establish standards for recovery planning. These guidelines require a covered bank to develop and maintain a recovery plan that, among other things, identifies a range of options that could be undertaken by the covered bank to restore its financial strength and viability should identified triggering events occur. The recovery plan guidelines are enforceable in the same manner as the other guidelines the OCC has established under Section 39 of the FDI Act.

CFPB Regulation and Supervision. The CFPB examines PNC and PNC Bank for compliance with a broad range of federal consumer financial laws and regulations, including the laws and regulations that relate to deposit products, credit card, mortgage, automobile, student and other consumer loans, and other consumer financial products and services that we offer. The consumer financial protection laws that are subject to the CFPB's supervision and enforcement powers include, among others, the Truth in Lending Act, Truth in Savings Act, Home Mortgage Disclosure Act, Fair Credit Reporting Act, Electronic Funds Transfer Act, Real Estate Settlement Procedures Act, Fair Debt Collections Practices Act, Equal Credit Opportunity Act and Fair Housing Act. The CFPB also has authority to take enforcement actions to prevent and remedy acts and practices relating to consumer financial products and services that it deems to be unfair, deceptive or abusive, and to impose new disclosure requirements for any consumer financial product or service.

The CFPB may issue regulations that impact products and services offered by PNC or PNC Bank. The regulations could reduce the fees that we receive, alter the way we provide our products and services, or expose us to greater risk of private litigation or regulatory enforcement action. The CFPB may engage in rulemakings affecting prepaid cards, data on small business lending, the Home Mortgage Disclosure Act, and payday, vehicle title, and certain high-cost installment loans.

Securities and Derivatives Regulation
Our registered broker-dealer and investment adviser subsidiaries are subject to the Securities Exchange Act of 1934, and the Investment Advisers Act of 1940, respectively, and related rules and regulations promulgated by the SEC. Our investment adviser subsidiary that serves as adviser to registered investment companies is also subject to the requirements of the Investment Company Act of 1940 and related regulations. The Financial Industry Regulatory Authority (FINRA) is the primary self-regulatory organization for our registered broker-dealer subsidiaries. Our broker-dealer and investment adviser subsidiaries also are subject to additional regulation by states or local jurisdictions.

The SEC and FINRA have active enforcement functions that oversee broker-dealers and investment advisers and can bring actions that result in fines, restitution, a limitation on permitted activities, disqualification to continue to conduct certain activities and an inability to rely on certain favorable exemptions. Certain types of infractions and violations also can affect our ability to expeditiously issue new securities into the capital markets. In addition, certain changes in the activities of a broker-dealer require approval from FINRA, and FINRA takes into account a variety of considerations in acting upon applications for such approval, including internal controls, capital levels, management experience and quality, prior enforcement and disciplinary history and supervisory concerns.

In 2018, the SEC issued a package of regulatory proposals that, if finalized, would impact the provision of investment advice to retail customers by registered broker-dealers and investment advisers. Proposed Regulation Best Interest would create a new standard of conduct for broker-dealers making investment recommendations to retail customers. The proposed form would create a new set of disclosure obligations for broker-dealers and investment advisers dealing with retail customers. The SEC has indicated it expects to adopt final rules later in 2019. If adopted, these rules would primarily impact PNC's retail broker-dealer/investment adviser, PNC Investments LLC.

Dodd-Frank imposed comprehensive and significant regulations on the activities of financial institutions that are active in the U.S. over-the-counter derivatives and foreign exchange markets. These regulations were intended to (i) address systemic risk issues, (ii) bring greater transparency to the derivatives markets, (iii) provide enhanced disclosures and protections to customers and (iv) promote market integrity. Among other things, Dodd-Frank: (i) requires the registration of both "swap dealers" and "major swap participants" with one or both of the CFTC (in the case of non security-based swaps) and the SEC (in the case of security-based swaps); (ii) requires that most standardized swaps be centrally cleared through a regulated clearing house and traded on a centralized exchange or swap execution facility; (iii) subjects swap dealers and major swap participants to capital and margin requirements in excess of historical practice; (iv) subjects swap dealers and major swap participants to comprehensive new recordkeeping and real-time public reporting requirements; (v) subjects swap dealers and major swap participants to new business conduct requirements, including the provision of daily marks to counterparties and disclosing to counterparties (pre-execution) the material risks, material incentives, and any conflicts of interest associated with their swap; (vi) imposes special duties on swap dealers and major swap participants when transacting a swap with a "special entity" (*e.g.*, governmental agency (federal, state or local) or political subdivision thereof, pension plan or endowment); and (vii) imposes margin requirements on swaps that are not centrally cleared through a regulated clearing house.

As a registered swap dealer with the CFTC, PNC Bank's derivatives and foreign exchange businesses are subject to the regulations and requirements imposed on registered swap dealers, and the CFTC (and for certain delegated responsibilities, the National Futures Association) has a meaningful supervisory role with respect to PNC Bank's derivatives and foreign exchange businesses. Because of the limited volume of our security-based swap activities, PNC Bank has not registered with the SEC as a security-based swap dealer. The regulations and requirements applicable to swap dealers have and will continue to impose compliance burdens on PNC Bank and introduces additional legal risks (including as a result of applicable anti-fraud and anti-manipulation provisions and private rights of action). In addition, failure to comply with the "pay-to-play" regulations that govern our swap and municipal securities businesses could result in limitations on PNC Bank's ability to conduct swap and municipal securities business with state or local governments and their authorities.

BlackRock has subsidiaries in securities and related businesses subject to SEC, other governmental agencies, state, local and FINRA regulation, and a federally chartered nondepository trust company subsidiary subject to supervision and regulation by the OCC. BlackRock describes its regulation by these agencies and otherwise in its filings with the SEC.

Regulations of Other Agencies
In addition to regulations issued by the federal banking, securities and derivatives regulators, we also are subject to regulations issued by other federal agencies with respect to certain financial products and services we offer. For example, certain of our fiduciary, brokerage and investment management activities are subject to regulations issued by the Department of Labor (DOL) under the Employee Retirement Income Security Act of 1974 (ERISA), as amended, and related provisions of the Internal Revenue Code and certain of our student lending and servicing activities are subject to regulation by the Department of Education. Certain provisions of final rules issued by the DOL expanding the definition of "investment advice" for retirement accounts and certain other accounts took effect in June 2017. The rules increased the scope of activities that give rise to fiduciary status under ERISA and the Internal Revenue Code and primarily apply to aspects of our Retail Banking and Asset Management Group segments. Certain requirements of the amended rules that had been scheduled to take effect on January 1, 2018 have been delayed until July 1, 2019 and the DOL is expected to propose amendments to the rules during the delay.

Competition

We are subject to intense competition from other regulated banking organizations, as well as various other types of financial institutions and non-bank entities that can offer a number of similar products and services without being subject to bank regulatory supervision and restrictions.

PNC Bank competes for deposits and/or loans with:
- Other commercial banks,
- Savings banks,
- Credit unions,
- Consumer finance companies,
- Leasing companies,
- Other non-bank lenders,
- Financial technology companies,
- Treasury management service companies,
- Insurance companies, and
- Issuers of commercial paper and other securities, including mutual funds.

In providing asset management services, our businesses compete with:
- Investment management firms,
- Large banks and other financial institutions,
- Brokerage firms,
- Financial technology companies,
- Mutual fund complexes, and
- Insurance companies.

Our various non-bank businesses engaged in investment banking and alternative investment activities compete with:
- Commercial banks,
- Investment banking firms,
- Collateralized loan obligation managers,
- Hedge funds,
- Mutual fund complexes,
- Merchant banks,
- Insurance companies,
- Private equity firms, and
- Other investment vehicles.

Loan pricing, structure and credit standards are extremely important in the current environment as we seek to achieve appropriate risk-adjusted returns. Deposit-taking activities are also subject to pricing pressures and to customer migration as a result of intense competition for deposits and investments. Competitors may seek to compete with us through traditional channels such as physical locations or through digital channels such as internet or mobile. We include here by reference the additional information regarding competition and factors affecting our competitive position included in the Item 1A Risk Factors of this Report.

Employees

Employees totaled 53,063 at December 31, 2018. This total included 50,928 full-time and 2,135 part-time employees, of which 29,180 full-time and 1,974 part-time employees were employed by our Retail Banking business.

SEC Reports and Corporate Governance Information

We are subject to the informational requirements of the Securities Exchange Act of 1934 (Exchange Act) and, in accordance with the Exchange Act, we file annual, quarterly and current reports, proxy statements, and other information with the SEC. Our SEC File Number is 001-09718.

The SEC maintains an internet website at www.sec.gov that contains reports, including exhibits, proxy and information statements, and other information about issuers, like us, who file electronically with the SEC. You can also inspect reports, proxy statements and other information about us at the offices of the New York Stock Exchange, 20 Broad Street, New York, New York 10005.

We make our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and amendments to those reports filed with or furnished to the SEC pursuant to Section 13(a) or 15(d) of the Exchange Act available free of charge on our internet website as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. Our corporate internet address is www.pnc.com and you can find this information at www.pnc.com/secfilings. Shareholders and bondholders may obtain copies of these filings without charge by contacting Shareholder Services at 800-982-7652 or via the online contact form at www.computershare.com/contactus for copies without exhibits, or via e-mail to investor.relations@pnc.com for copies of exhibits, including financial statement and schedule exhibits where applicable. The interactive data file (XBRL) exhibit is only available electronically.

Information about our Board of Directors and its committees and corporate governance, including our PNC Code of Business Conduct and Ethics (as amended from time to time), is available on our corporate website at www.pnc.com/corporategovernance. In addition, any future waivers from a provision of the PNC Code of Business Conduct and Ethics covering any of our directors or executive officers (including our principal executive officer, principal financial officer, and principal accounting officer or controller) will be posted at this internet address.

Shareholders who would like to request printed copies of the PNC Code of Business Conduct and Ethics or our Corporate Governance Guidelines or the charters of our Board's Audit, Nominating and Governance, Personnel and Compensation, or Risk Committees (all of which are posted on our corporate website at www.pnc.com/corporategovernance) may do so by sending their requests to our Corporate Secretary at corporate headquarters at The Tower at PNC Plaza, 300 Fifth Avenue, Pittsburgh, Pennsylvania 15222-2401. Copies will be provided without charge to shareholders.

Our common stock is listed on the New York Stock Exchange (NYSE) under the symbol "PNC."

Internet Information

The PNC Financial Services Group, Inc.'s financial reports and information about its products and services are available on the internet at www.pnc.com. We provide information for investors on our corporate website under "About Us – Investor Relations." We use our Twitter account, @pncnews, as an additional way of disseminating to the public information that may be relevant to investors.

We generally post the following under "About Us – Investor Relations" shortly before or promptly following its first use or release: financially-related press releases, including earnings releases and supplemental financial information, various SEC filings, including annual, quarterly and current reports and proxy statements, presentation materials associated with earnings and other investor conference calls or events, and access to live and recorded audio from earnings and other investor conference calls or events. In some cases, we may post the presentation materials for other investor conference calls or events several days prior to the call or event. For earnings and other conference calls or events, we generally include in our posted materials a cautionary statement regarding forward-looking and non-GAAP financial information, and we provide GAAP reconciliations when we include non-GAAP financial information. Such GAAP reconciliations may be in materials for the applicable presentation, in materials for prior presentations or in our annual, quarterly or current reports.

When warranted, we will also use our website to expedite public access to time-critical information regarding PNC instead of using a press release or a filing with the SEC for first disclosure of the information. In some circumstances, the information may be relevant to investors but directed at customers, in which case it may be accessed directly through the home page rather than "About Us - Investor Relations."

We are required to provide additional public disclosure regarding estimated income, losses and pro forma regulatory capital ratios under supervisory and PNC-developed hypothetical severely adverse economic scenarios, as well as information concerning our capital stress testing processes, pursuant to the stress testing regulations adopted by the Federal Reserve and the OCC. We are also required to make certain additional regulatory capital-related public disclosures about our capital structure, risk exposures, risk assessment processes, risk-weighted assets and overall capital adequacy, including market risk-related disclosures, under the regulatory capital rules adopted by the Federal banking agencies. Under these regulations, we may satisfy these requirements through postings on our website, and we have done so and expect to continue to do so without also providing disclosure of this information through filings with the SEC.

Other information posted on our corporate website that may not be available in our filings with the SEC includes information relating to our corporate governance and annual communications from our chairman to shareholders.

Where we have included internet addresses in this Report, such as our internet address and the internet address of the SEC, we have included those internet addresses as inactive textual references only. Except as specifically incorporated by reference into this Report, information on those websites is not part hereof.

ITEM 1A – RISK FACTORS

We are subject to a number of risks potentially impacting our business, financial condition, results of operations and cash flows. As a financial services organization, certain elements of risk are inherent in what we do and the business decisions we make. Thus, we encounter risk as part of the normal course of our business, and we design risk management processes to help manage these risks.

Our success is dependent on our ability to identify, understand and manage the risks presented by our business activities so that we can appropriately balance revenue generation and profitability. We discuss our principal risk management oversight and processes and, in appropriate places, related historical performance and other metrics in the Risk Management section included in Item 7 of this Report.

The following are the key risk factors that affect us. Any one or more of these risk factors could have a material adverse impact on our business, financial condition, results of operations or cash flows. In addition, these risks present other possible adverse consequences, including those described below. These risk factors and other risks we face are also discussed further in other sections of this Report.

Our business and financial performance are vulnerable to the impact of adverse economic conditions.

As a financial services company, our business and overall financial performance are affected to a significant extent by economic conditions. We are currently in a prolonged economic expansion. This is not likely to continue forever, and at some point economic conditions are likely to turn recessionary.

Adverse economic conditions generally result in reduced business activity, which may decrease the demand for our products and services. The ability of borrowers to repay loans is often weakened as a result of economic downturns. Such economic conditions also may lead to turmoil and volatility in financial markets. Any of these effects would likely have an adverse impact on financial institutions such as PNC, with the significance of the impact generally depending on the severity of the adverse economic conditions.

Even when economic conditions are relatively good or stable, specific economic factors can negatively affect the business and performance of financial institutions. This can be especially true when the factors relate to particular industries or geographical regions. For example, shifting consumer behavior with respect to retail purchases being made over the internet rather than in physical stores has negatively impacted performance by some retailers. This likely decreases demand for financial services in that sector, possibly harming the creditworthiness of some shopping malls and retail companies. As another example, trade wars leading to increased tariffs likely adversely affect companies more dependent on imports or exports. Increased tariffs may also result in increased prices for some products or services, leading to decreases in demand. Here, as well, affected companies may experience lower levels of business and possible declining creditworthiness. Recently increased tariffs on imports into, as well as exports out of, the U.S. could have some or all of these effects on the U.S. economy and on our business.

Given the geographic scope of our business and operations, we are most exposed to issues within the U.S. economy and financial markets. Within the U.S., we are most exposed to issues within markets located in the Mid-Atlantic, Midwest and Southeast. This will continue to be the case for at least some period of time, even as we expand the national reach of some of our businesses.

Our international business activities continue to be a relatively small part of our overall business. As a result, the direct impact on our business and performance from international economic conditions is not likely to be significant. We are nonetheless susceptible to the risk that international economic conditions could affect our business and financial performance. Primarily, this risk results from the possibility that poor economic conditions or financial market disruptions affecting other major economies around the world would also affect the U.S. One example is the United Kingdom's impending exit from the European Union. This has led to uncertainty regarding the impact on the economy and capital markets of the United Kingdom and Europe more generally, including the risk that other countries might seek to exit the European Union in the future. The extent to which these uncertainties will affect the U.S. economy and capital markets is unclear. The more severe the impact, the more likely it would have adverse effects on PNC and its business.

Government legislation, regulation and policy frequently impacts the economy in ways that could have an adverse effect on our business and financial performance.

Changes in law or governmental policy affecting the economy, business activity, or personal spending, investing or saving activities may cause consumers and businesses to alter behavior in ways that impact demand for our products and services. Even to the extent that demand is not affected, such changes may also alter the profitability of the transactions in which we engage. PNC may also adjust the types of transactions we seek to pursue under those circumstances. Uncertainty regarding future law or policy may have similar impacts.

A recent example of such a change was the 2017 Tax Cuts and Jobs Act, representing the most significant change in U.S. federal tax law in decades. It has had and is likely to continue to have an impact on corporate and consumer behavior, including decisions made by PNC in response to the changes in law. Changes in PNC's behavior or that of our customers as a result of future substantial revisions to U.S. federal tax law could negatively impact us.

Concern regarding the ability of Congress and the President collectively to reach agreement on federal budgetary matters (including the debt ceiling), or prolonged stalemates leading to total or partial governmental shutdowns, such as the partial shutdown from December 2018 until January 2019, also can have adverse economic consequences and create the risk of economic instability or market volatility, with potential adverse consequences to our business and financial performance. The divided control of the U.S. government following the 2018 elections may make this type of event more likely going forward.

The policies of the Federal Reserve and other governmental agencies have a significant impact on interest rates and overall financial market performance. These in turn drive much of our business and financial performance.

The monetary policies of the Federal Reserve have a significant impact on interest rates and overall financial market performance. These policies can thus affect the activities and results of operations of financial companies such as PNC. An important function of the Federal Reserve is to monitor the national supply of bank credit and set certain interest rates. The actions of the Federal Reserve influence the rates of interest that we charge on loans and that we pay on borrowings and interest-bearing deposits. Rates of interest can also affect the value of our on-balance sheet and off-balance sheet financial instruments. As a general matter, increasing rates tend to decrease the value of fixed rate financial instruments. We cannot predict the nature or timing of future changes in monetary policies or the precise effects that they may have on our activities and financial results.

Starting in late 2015, the Federal Reserve has regularly increased its benchmark interest rate from the near-zero level that had prevailed following the financial crisis that began in 2007. We expect this to continue at least into 2019. The amount and timing of future increases will likely depend on economic conditions, including rates of inflation and unemployment.

After an extended period during which the Federal Reserve increased its balance sheet substantially above historical levels through the purchase of debt securities, the Federal Reserve has started reducing its balance sheet from these elevated levels. Its reduction in holdings of longer term Treasury securities and mortgage-backed securities would tend to push long-term interest rates higher.

It is unclear what other impacts the Federal Reserve's actions will have on the economy or on the markets and values of financial assets, including assets of the types that we hold, purchase and sell.

In addition, monetary policy actions by governmental authorities in the European Union or other countries could have an impact on global interest rates, which could affect rates in the U.S. as well as rates on instruments denominated in currencies other than the U.S. dollar, any of which could have one or more of the potential effects on us described above.

As a regulated financial services firm, we are subject to numerous governmental regulations and comprehensive oversight by a variety of regulatory agencies and enforcement authorities. These regulations and the manner in which they are implemented can have a significant impact on our businesses and operations.

The PNC Financial Services Group, Inc. is a bank holding company (BHC) and a financial holding company and is subject to numerous laws and regulations involving both its business and organization. In addition, our businesses are subject to examination and supervision by multiple banking, consumer protection, securities and derivatives regulatory bodies.

These laws, regulations and supervisory activities are intended to promote the safety and soundness of financial institutions, financial market stability, the transparency and liquidity of financial markets, and consumer and investor protection. We are also subject to oversight by criminal and civil enforcement authorities. Over time, the scope of the laws and regulations affecting our businesses, as well as the number of requirements or limitations imposed by legislative or regulatory actions, has increased. This trend is likely to continue, at least over the long term. Legislative or regulatory actions can result in increased compliance costs, reduced business opportunities, or new requirements and limitations on how we conduct our business.

Applicable laws and regulations impose capital adequacy requirements and restrict our ability to repurchase stock or to receive dividends from subsidiaries that operate in the banking and securities businesses. PNC’s ability to service its obligations and pay dividends to shareholders is largely dependent on the receipt of dividends and advances from its subsidiaries, primarily PNC Bank. The Federal Reserve requires a BHC to act as a source of financial and managerial strength for its subsidiary banks. The Federal Reserve could require PNC to commit resources to PNC Bank when doing so is not otherwise in the interests of PNC or its shareholders or creditors.

Applicable laws and regulations also restrict permissible activities and investments and require compliance with provisions designed to protect loan, deposit, brokerage, fiduciary, mutual fund and other customers, and for the protection of customer information, among other things. We also are subject to laws and regulations designed to combat money laundering, terrorist financing, and transactions with persons, companies or foreign governments designated by U.S. authorities.

We are subject to supervision and examination by numerous governmental bodies. The results of these supervisory or examination activities could result in limitations on our ability to engage in new activities or expand geographically. These activities also could result in significant fines, penalties, or required corrective actions, some of which could be expensive and difficult to implement. As we expand our product and service offerings into additional states or countries, there could be an increase in state or foreign regulation affecting our operations. Different approaches to regulation by different jurisdictions could increase our compliance costs or risks of non-compliance.

A failure to comply, or to have adequate policies and procedures designed to comply, with regulatory requirements and expectations could expose us to damages, fines and regulatory penalties and other regulatory or enforcement actions or consequences, such as limitations on activities otherwise permissible for us or additional requirements for engaging in new activities, and could also injure our reputation with customers and others with whom we do business.

New regulatory requirements or other initiatives may well be pursued and implemented in the future. Such future regulatory requirements or initiatives could further increase our compliance costs and the risks associated with non-compliance and could affect our ability to pursue or take full advantage of some desirable business opportunities.

See Supervision and Regulation in Item 1 of this Report for more information concerning the regulation of PNC and recent initiatives to reform financial institution regulation, including some of the matters discussed in this Risk Factor. Note 18 Regulatory Matters in the Notes To Consolidated Financial Statements in Item 8 of this Report also discusses some of the regulation applicable to us.

We are subject to regulatory capital and liquidity standards that affect our business, operations and ability to pay dividends, or otherwise return capital, to shareholders. These regulatory capital and liquidity standards are subject to modification. Changes in these requirements could require us to maintain higher levels of capital and liquidity than currently required.

PNC and PNC Bank are subject to regulatory capital and liquidity requirements established by the Federal Reserve and the OCC, respectively. These regulatory capital and liquidity requirements are typically developed at an international level by the Basel Committee on Banking Supervision (Basel Committee) and then applied, with adjustments, in each country by the appropriate domestic regulatory bodies. Domestic regulatory agencies have the ability to apply stricter capital and liquidity standards than those developed by Basel Committee. In several instances, the U.S. banking agencies have done so with respect to U.S. banking organizations.

Requirements to maintain specified levels of capital and liquidity, and regulatory expectations as to the quality of our capital and liquidity, impact our business activities and may prevent us from taking advantage of opportunities in the best interest of shareholders or force us to take actions contrary to their interests. For example, PNC may be limited in its ability to pay or increase dividends or otherwise return capital to shareholders. In addition, these requirements may impact the amount and type of loans we make. We may be constrained in our ability to expand, either organically or through acquisitions. These requirements may force us to sell or refrain from acquiring assets where the capital requirements appear inconsistent with the assets' underlying risks. In addition, liquidity standards require us to maintain holdings of highly liquid short-term investments, thereby reducing our ability to invest in longer-term or less liquid assets, even if more desirable from a balance sheet or interest rate risk management perspective.

Regulatory capital and liquidity requirements are subject to regular review and revision by the Basel Committee and the U.S. banking agencies. Future changes to the capital and liquidity rules that require PNC or PNC Bank to maintain more or higher quality capital, or greater liquidity, could increase some of the potential adverse effects described above. Until the scope and terms of pending or future rulemakings relating to capital, liquidity or other prudential standards are known, the extent to which such rules may apply to us and the potential impact of such rules on us will remain uncertain.

In 2018, the U.S. banking agencies proposed several changes to the capital and liquidity frameworks, including the Basel III capital standards and Liquidity Coverage Ratio (LCR) requirements, applicable to PNC and PNC Bank. If adopted, these proposed changes would provide meaningful benefits to us, but the core elements of the current regulatory framework would remain in place. Until the proposed changes are finalized, the scope of any changes, the extent to which they would apply to us and the potential impact of such changes on us will remain uncertain. The proposed changes are summarized in the Supervision and Regulation section included in Item 1 of this Report.

The Basel Committee continues to engage in capital- and liquidity-related initiatives. For example, the Basel Committee in 2017 finalized additional, significant changes to the international capital framework for banking organizations. The changes would impact the market risk capital requirements for trading positions and the standardized risk weighting approach for credit risk and the measurement of operational risk. In addition, among other things, the changes would establish a standardized approach floor for capital ratios calculated by banking organizations that use the advanced approaches for the risk weighting of assets. Moreover, the Basel Committee continues to consider other changes to the international regulatory capital framework to enhance the transparency and consistency of capital requirements among banks and jurisdictions, including, among others, the treatment of securitization positions. As it is unclear, at this time, whether or how these initiatives will be implemented in the U.S., we are unable to estimate what potential impact such initiatives may have on us.

The liquidity standards applicable to large U.S. banking organizations also are expected to be supplemented in the coming years. For example, in May 2016, the U.S. banking agencies proposed rules to implement the Net Stable Funding Ratio (NSFR), which is designed to ensure that banking organizations maintain a stable, long-term funding profile in relation to their asset composition and off-balance sheet activities. The U.S. rules have not yet been finalized and recent proposals would adjust the scope and effect of the originally-proposed U.S. rules. Thus, the potential impact of the NSFR on us remains unclear.

The regulatory capital and liquidity frameworks, as well as certain other prudential requirements and standards, that are applicable to PNC are discussed in the Supervision and Regulation section included in Item 1 of this Report and the Liquidity and Capital Management portion of the Risk Management section of Item 7 of this Report.

The planned discontinuance of the requirement that banks submit rates for the calculation of LIBOR presents risks to the financial instruments originated or held by PNC that use LIBOR as a reference rate.

LIBOR is used as a reference rate for many of our transactions, which means it is the base on which relevant interest rates are determined. Transactions include those in which we lend and borrow money, issue, purchase and sell securities, and enter into derivatives to manage our or our customers' risk. LIBOR is the subject of recent national and international regulatory guidance and proposals for reform. The United Kingdom Financial Conduct Authority, which regulates the process for setting LIBOR, announced in July 2017 that it intends to stop persuading or compelling banks to submit rates for the calculation of LIBOR to the administrator of LIBOR after 2021.

There are ongoing efforts to establish an alternative reference rate. The Secured Overnight Financing Rate (or SOFR) is considered the most likely alternative reference rate suitable for replacing LIBOR, but issues remain with respect to its implementation. As a result, the scope of its ultimate acceptance and the impact on rates, pricing and the ability to manage risk, including through derivatives, remain uncertain. No other alternative rate is currently under wide consideration. If SOFR or another rate does not achieve wide acceptance as the alternative to LIBOR, there likely will be disruption to all of the markets relying on the availability of a broadly accepted reference rate. Even if SOFR or another reference rate ultimately replaces LIBOR, risks will remain for us with respect to outstanding loans, derivatives or other instruments using LIBOR. Those risks arise in connection with transitioning those instruments to a new reference rate and the corresponding value transfer that may occur in connection with that transition. That is because a new reference rate likely will not exactly mimic LIBOR. As a result, for example, over the life of a transaction that transitions from LIBOR to a new reference rate, our monetary obligations to our counterparties and our yield from transactions with clients may change, potentially adversely to us. For some instruments, the method of transitioning to a new reference rate may be challenging, especially if parties to an instrument cannot agree as to how to effect that transition. If a contract is not transitioned to a new reference rate and LIBOR ceases to exist, the impact on our obligations is likely to vary by asset class and contract. In addition, prior to LIBOR cessation, instruments that continue to refer to LIBOR may be impacted if there is a change in the availability or calculation of LIBOR. Risks related to transitioning instruments to a new reference rate or to how LIBOR is calculated and its availability include impacts on the yield on loans or securities held by us, amounts paid on securities we have issued, or amounts received and paid on derivative instruments we have entered into. The value of loans, securities, or derivative instruments tied to LIBOR and the trading market for LIBOR-based securities could also be impacted upon its discontinuance or if it is limited.

While we expect LIBOR to continue to be available in substantially its current form until the end of 2021 or shortly before that, it is possible that LIBOR quotes will become unavailable prior to that point. This could result, for example, if sufficient banks decline to make submissions to the LIBOR administrator. In that case, the risks associated with the transition to an alternative reference rate will be accelerated and magnified. These risks may also be increased due to the shorter time for preparing for the transition.

We rely on technology to conduct our business and could suffer a material adverse impact from interruptions in the effective operation of those systems and we are vulnerable to the impact of attempts to breach data security involving our or our customers' information.

Generally. As a large financial services company, we handle a substantial volume of customer and other financial transactions. As a result, we rely heavily on information systems to conduct our business and to process, record and monitor our transactions and those of our customers. Over time, we have seen more customer usage of technological solutions for financial needs as well as higher expectations of customers and regulators regarding effective and safe systems operation. We expect these trends to continue for the foreseeable future. The need to ensure proper functioning and resiliency of these systems has become more challenging, and the costs involved in that effort continue to be high.

The risks resulting from use of these systems result from a variety of factors, both internal and external. We are vulnerable to the impact of failures of our systems to operate as needed or intended. Such failures could include those resulting from human error, unexpected transaction volumes, or overall design or performance issues. In addition, our ability to use our technology effectively could be impacted due to bad weather, disasters, terrorism and the like affecting our systems specifically or necessary infrastructure more broadly. In some cases, the risk results from the potential for bad acts on the part of hackers, criminals, foreign governments or their agents, rogue employees, contractors and others. These risks are further described below.

The consequences of failures to operate our systems properly can include disruptions to our ability to use our accounting, deposit, loan and other systems. Such events could also cause errors in transactions or impair system functionality with customers, vendors or other parties.

Throughout our businesses, we rely on other companies and on the information systems they maintain. We do so both for the provision of products and services directly to us and for assistance in providing products and services to our customers. Others may provide the infrastructure that supports, for example, communications, payment, clearing and settlement systems, or information processing and storage. These companies range from those providing highly sophisticated information processing to those that provide fundamental services, such as electric power and telecommunications. These other companies are generally subject to many of the same risks we face with respect to our systems. To the extent we rely on these other companies, we could be adversely affected if they are impacted by system failures, cyber attacks or employee misconduct.

The occurrence of any failure, interruption or security breach of any of our information or communications systems, or the systems of other companies on which we rely, could result in a wide variety of adverse consequences to us. This risk is greater if the issue is widespread or results in financial losses to our customers. Possible adverse consequences include damage to our reputation or a loss of customer business. We also could face litigation or additional regulatory scrutiny. This in turn could lead to liability or other sanctions, including fines and penalties or reimbursement of adversely affected customers. Even if we do not suffer any material adverse consequences as a result of events affecting us directly, successful attacks or systems failures at other financial institutions could lead to a general loss of customer confidence in financial institutions, including us. Also, system problems, including those resulting from third party attacks, whether at PNC or at our competitors, would likely broadly increase legislative, regulatory and customer concerns regarding the functioning, safety and security of such systems. In that case, we would expect to incur even higher levels of costs with respect to prevention and mitigation of these risks.

Risk of cyber attacks. We are faced with ongoing efforts by others to breach data security at financial institutions or with respect to financial transactions. Some of these involve efforts to enter our systems directly by going through or around our security protections. Others involve the use of social engineering schemes to gain access to confidential information from our employees or customers. Most corporate and commercial transactions are now handled electronically, and our retail customers increasingly use online access and mobile devices to bank with us. The ability to conduct business with us in this manner depends on the transmission and storage of confidential information in electronic form. As a result, efforts by bad actors to engage in various types of cyber attacks pose a serious risk to our business and reputation. The same risks are presented by attacks potentially affecting information held by third parties on our behalf.

Bad actors may attempt to harm us by gaining access to confidential or proprietary company and customer information, often with the intent of stealing from or defrauding us or our customers. In some cases, they seek to disrupt our ability to conduct our business, including by destroying information maintained by us. The protections we have in place to prevent this harm may be insufficient to do so. If our measures to prevent unauthorized access or other malicious acts are inadequate, the ability of bad actors to cause harm would be increased. Ultimately, actions by bad actors are to some extent beyond our ability to prevent. Our ability to protect confidential or proprietary information is even more limited with respect to information held by third parties.

Our customers often use their own devices, such as computers, smartphones and tablets, to do business with us and may provide their PNC customer information (including passwords) to a third party in connection with obtaining services from the third party. Although we take steps to provide safety and security for our customers' transactions with us and their customer information to the extent they are utilizing their own devices or providing third parties access to their accounts, our ability to assure such safety and security is necessarily limited.

As our customers regularly use PNC-issued credit and debit cards to pay for transactions with retailers and other businesses, there is also the risk of data security breaches at those other businesses covering PNC account information. When our customers use PNC-issued cards to make purchases from those businesses, card account information may be provided to the business. If the business's systems that process or store card account information are subject to a data security breach, holders of our cards who have made purchases from that business may experience fraud on their card accounts. We may suffer losses associated with reimbursing our customers for such fraudulent transactions on customers' card accounts, as well as for other costs related to data security compromise events, such as replacing cards associated with compromised card accounts. In addition, we provide card transaction processing services to some merchant customers under agreements we have with payment networks such as Visa and MasterCard. Under these agreements, we may be responsible for certain losses and penalties if one of our merchant customers suffers a data security breach.

Over the last few years, several large companies disclosed that they had suffered substantial data security breaches compromising millions of user accounts and credentials. To date, our losses and costs related to these breaches have not been material, but other similar events in the future could be more significant to us. Moreover, to the extent more consumer confidential information becomes available to bad actors through the cumulative effect of data breaches at companies generally, bad actors may find it easier to use such information to gain access to our customer accounts.

There have been other recent publicly announced cyber attacks that were not focused on gaining access to credit card or user credential information but instead sought access to a range of other types of confidential information including internal emails and other forms of customer financial information. Ransomware attacks have sought to deny access to data and possibly shut down systems and devices maintained by target companies. In a ransomware attack, system data is encrypted or access is otherwise denied, accompanied by a demand for ransom to restore access to the data.

A number of companies have fallen victim to business email compromise scams (BEC) scams in recent years. BEC scams involve using social engineering to cause employees to wire funds to the perpetrators in the mistaken belief that the requests were made by a company executive or established vendor. While we have not experienced such losses to date, some of our commercial customers have been victimized. Attacks on our customers may put these relationships at risk, particularly if customers' ability to continue operations is impaired due to the losses suffered.

Other attacks in recent years have included distributed denial of service (DDoS) attacks, in which individuals or organizations flood commercial websites with extraordinarily high volumes of traffic with the goal of disrupting the ability of commercial enterprises to process transactions and possibly making their websites unavailable to customers for extended periods of time. We (as well as other financial services companies) have been subject to such attacks.

To date, none of these types of attacks have had a material financial impact on us, but attacks on others demonstrate the risks posed by new and evolving types of cyber attacks. We could suffer material financial and reputational losses in the future from any of these or other types of attacks.

Methods used by others to attack information systems change frequently (with generally increasing sophistication), often are not recognized until launched against a target, may be supported by foreign governments or other well-financed entities, and may originate from less regulated and remote areas around the world. As a result, we may be unable to implement adequate preventive measures to address these methods in advance of attacks.

In addition to threats from people external to us, insider threats represent a significant risk to us. Insiders, including those having legitimate access to our systems and the information contained in them, have the easiest opportunity to make inappropriate use of the systems and information. Addressing that risk requires understanding not only how to protect us from unauthorized use and disclosure of data, but also how to engage behavioral analytics and other tools to identify potential internal threats before any damage is done.

Risks associated with inadequate planning and mitigation. We have policies, procedures and systems (including cyber security and business continuity programs) designed to prevent or limit the effect of possible failures, interruptions or breaches in security of information systems. We design our business continuity and other information and technology risk management programs to manage our capabilities to provide services in the case of an event resulting in material disruptions of business activities affecting our employees, facilities, technology or suppliers. We regularly seek to test the effectiveness of and enhance these policies, procedures and systems. Nonetheless, we cannot guarantee the effectiveness of our policies, procedures and systems to protect us in any particular future situation.

Our ability to mitigate the adverse consequences of such occurrences is in part dependent on the quality of our business continuity planning, our ability to understand threats to us from a holistic perspective, and our ability to anticipate the timing and nature of any such event that occurs. The adverse impact of natural and other disasters, terrorist activities, international hostilities and the like could be increased to the extent that there is a lack of preparedness on the part of national or regional governments, including emergency responders, or on the part of other organizations and businesses with which we deal, particularly those on which we depend, many of which we have little or no control over.

In recent years, we have devoted significant resources towards improving the reliability of our systems and their security against external and internal threats. Even with our proactive and defensive measures in place, there remains the risk that one or more adverse events might occur. If one does occur, we might not be able to remediate the event or its consequences timely or adequately, particularly to the extent that it represents a novel or unusual threat. To the extent that the risk relates to products or services provided by others, we seek to engage in due diligence and monitoring to limit the risk, but here, as well, we cannot eliminate this risk. Should an adverse event affecting another company's systems occur, we may not have financial protection from the other company sufficient to compensate us or otherwise protect us from the consequences.

New customer privacy initiatives will impose additional operational burdens on PNC, may limit our ability to pursue desirable business initiatives and increase the risks associated with any future use of customer data.

Recently there has been an increase in legislative and regulatory efforts to protect the privacy of consumer data. Significant examples include the General Data Protection Regulation of the European Union and the California Consumer Privacy Act. These initiatives, among other things, limit how companies can use customer data and impose obligations on companies in their management of such data. Financial services companies such as PNC necessarily gather, maintain and use a significant amount of customer data. Other jurisdictions may adopt similar requirements that impose different and potentially inconsistent compliance burdens. These initiatives, particularly to the extent multiple jurisdictions adopt inconsistent requirements, could increase compliance complexity and related costs, result in significant financial penalties for compliance failures, and limit our ability to develop new products or respond to technological changes. They also could heighten the reputational impact of perceived misuses of customer data, by us, our vendors, or others who gain unauthorized access to our customer data.

We depend on the effectiveness and integrity of employees, and the systems and controls for which they are responsible, to manage operational risks.

We are a large company that offers a wide variety of products and services to a broad and diverse group of customers. We rely on our employees to design, manage, and operate our systems and controls to assure that we properly enter into, record and manage processes, transactions and other relationships with customers, suppliers and other parties with whom we do business. In some cases, we rely on employees of third parties to perform these tasks. We also depend on employees and the systems and controls for which they are responsible to assure that we identify and mitigate the risks that are inherent in our relationships and activities. These concerns are increased when we change processes or procedures, introduce new products or services, or implement new technologies, as we may fail to adequately identify or manage operational risks resulting from such changes.

As a result of our necessary reliance on employees, whether ours or those of third parties, to perform these tasks and manage resulting risks, we are thus subject to human vulnerabilities. These range from innocent human error to misconduct or malfeasance, potentially leading to operational breakdowns or other failures. Our controls may not be adequate to prevent problems resulting from human involvement in our business, including risks associated with the design, operation and monitoring of automated systems.

Errors by our employees or others responsible for systems and controls on which we depend and any resulting failures of those systems and controls could result in significant harm to PNC. This could include customer remediation costs, regulatory fines or penalties, litigation or enforcement actions, or limitations on our business activities. We could also suffer damage to our reputation, impacting our ability to attract and retain customers and employees. The reputational impact is likely greater to the extent that the mistakes or failures are pervasive, long-standing or affect a significant number of customers, particularly retail consumers. It is possible that the damage to our reputation may be disproportionate to the actual harm suffered by our customers or may be severe even if we fully remediate any harm suffered by our customers.

We use automation to help reduce some risks of human error. Recently, we have started taking greater advantage of machine learning, artificial intelligence and robotic process automation tools. Nonetheless, we continue to rely on many manual processes to conduct our business and manage our risks. In addition, use of automation tools does not eliminate the need for effective design and monitoring of their operation to make sure they operate as intended. Enhanced use of automation may present its own risks. These tools are dependent on the quality of the data used by the tool to learn and enhance the process for which it is responsible. Not only bad or missing data but also anomalous data can adversely affect the functioning of such tools. In addition, use of automation tools may increase the possible impact of errors should they occur.

Our business and financial results are subject to risks associated with the creditworthiness of our customers and counterparties.

Credit risk is inherent in the financial services business. It results from, among other things, extending credit to customers, purchasing securities, and entering into financial derivative transactions and certain guarantee contracts. Credit risk is one of our most significant risks, particularly given the high percentage of our assets represented directly or indirectly by loans and securities and the importance of lending activity to our overall business. We manage credit risk by assessing and monitoring the creditworthiness of our customers and counterparties, by diversifying our loan portfolio and by investing primarily in high quality securities.

A borrower's ability to repay a loan can be adversely affected by many factors. Individual borrowers can be affected, for example, by declines in income, job losses, health issues or family issues. Commercial borrowers can be affected, for example, by poor business performance or catastrophe losses. Weakness in the economy or in financial markets would typically adversely impact the ability of our borrowers to repay outstanding loans. Borrowers with higher leverage (that is, higher ratios of indebtedness to total capitalization or income) have an increased risk that they will be unable to repay loans, particularly when economic conditions worsen. We may also be exposed to credit risk if we fail to evaluate properly at origination the likely ability of a borrower to repay a loan. A failure to identify declining creditworthiness of a borrower at a time when remedial actions could reduce our exposure also increases credit risk. Any decrease in our borrowers' ability to repay loans would result in higher levels of nonperforming loans, net charge-offs, provision for credit losses and valuation adjustments on loans held for sale.

In addition to credit risk associated with our lending activities, we have credit risk arising from many other types of business relationships. Routine transactions give us credit exposure to brokers and dealers, commercial banks, investment banks, mutual and hedge funds, other institutional clients, as well as vendors and other non-financial entities.

In the ordinary course of business, we may have heightened credit exposure to a particular industry, region or financial market. As an example, loans secured by commercial and residential real estate typically represent a significant percentage of our overall credit portfolio. They also represent a portion of the assets underlying our investment securities. Although there are limitations on the extent of total exposure to an individual or business borrower, we may have outsized exposure to a particular borrower. Events adversely affecting specific customers or counterparties, industries, regions or financial markets, including a decline in their creditworthiness or a worsening overall risk profile, could materially adversely affect us. Thus, in the example above, a decline in commercial real estate activity or valuations in a region or more broadly could have a material impact on us. This could be the case even if the rest of our portfolio was performing well. Declining economic conditions also may impact commercial borrowers more than consumer borrowers, or vice versa. The last recession, for example, impacted consumers more than commercial borrowers, particularly in residential real estate. A future recession may have the opposite result. Thus, the relative balance and mix of our loan portfolio may affect the severity of the impact of a future recession.

Our credit risk may be exacerbated when collateral held by us to secure obligations to us cannot be realized upon or is liquidated at prices that are not sufficient to recover the full amount of the loan or derivative exposure due us.

We reserve for credit losses on our loan and lease portfolio, as well as for unfunded loan commitments and letters of credit, through our Allowances for loan and lease losses and unfunded loan commitments and letters of credit. Changes in the allowances are reflected in Net income through Provision for credit losses. An increase in credit risk would likely lead to an increase in Provision for credit losses with a resulting reduction in our Net income and would increase our allowances. As described in the Recently Issued Accounting Standards portion of the Critical Accounting Estimates and Judgments section in Item 7 of this Report, the implementation of pending changes in the accounting for credit losses is likely to result in an increase in total credit loss reserves at the adoption date.

Our business and financial performance are impacted significantly by market interest rates and movements in those rates.

As a result of the high percentage of our assets and liabilities that are in the form of interest-bearing or interest-related instruments, changes in interest rates, in the shape of the yield curve, or in spreads between different market interest rates can have a material effect on our business, our profitability and the value of our financial assets and liabilities. For example:

- Changes in interest rates or interest rate spreads can affect the difference between the interest that we earn on assets and the interest that we pay on liabilities, which impacts our overall net interest income and margin as well as our profitability.
- Such changes can affect the ability of borrowers to meet obligations under variable or adjustable rate loans and other debt instruments, and can, in turn, increase our credit losses on those assets.
- Such changes may decrease the demand for interest rate-based products and services, including loans and deposit accounts.
- Such changes can also affect our ability to hedge various forms of market and interest rate risk and may decrease the effectiveness of those hedges in helping to manage such risks.
- Movements in interest rates also affect mortgage prepayment speeds and could result in impairments of mortgage servicing assets or otherwise affect the profitability of such assets.
- Increases in interest rates can lower the price we would receive on fixed-rate customer obligations if we were to sell them.

The rates on some interest-bearing instruments adjust promptly in accordance with changes in market rates, while others adjust only periodically or are fixed throughout a defined term. As a result, the impact of changes in interest rates can be either increased or diluted due to differences in the relative variability of the rates paid on our liabilities in relation to the rates received on our assets. The extent to which we have elected to hedge interest rate risk through interest rate swaps also affects the impact of rate changes. We attempt to manage the balance sheet to increase our benefit or reduce negative impacts from future movements in interest rates, but failures to anticipate actual movements may have the opposite result.

Currently, market interest rates are generally increasing. While, in general, higher interest rates enhance our ability to grow our net interest income, there are risks associated with a rising interest rate environment. For one thing, customers may be less willing overall to borrow at higher rates and the value of asset classes typically financed through secured loans may be negatively affected. These effects are likely to be found in home lending and other real estate finance businesses. As another example, there may be increased competitive pressures as rates on deposit products rise. The benefits of higher interest rates are best achieved if we can increase the rates on loans and other assets faster than the rates on deposits and other liabilities increase. We may not be able to achieve this result in a rising rate environment.

We discuss the impact of governmental monetary policy on interest rates, including recent increases by the Federal Reserve in its benchmark interest rates, under "The policies of the Federal Reserve and other governmental agencies have a significant impact on interest rates and overall financial market performance" Risk Factor in this Item 1A.

Our business and financial performance are vulnerable to the impact of changes in the values of financial assets.

As a financial institution, a substantial majority of our assets and liabilities are financial in nature. Examples include loans, securities, servicing rights, deposits and borrowings. Such assets and liabilities will fluctuate in value, often significantly, due to movements in the financial markets or market volatility as well as developments specific to the asset or liability in question. Credit-based assets and liabilities will fluctuate in value due to changes in the perceived creditworthiness of borrowers or other counterparties and also due to changes in market interest rates.

Changes in loan prepayment speeds, usually based on fluctuations in market interest rates, could adversely impact the value of our mortgage servicing rights. Also, the underlying value of assets under lease or securing an obligation may decrease due to supply and demand for the asset or the condition of the asset. This could negatively impact the ability to collect fully on the secured obligation.

In many cases, we mark our assets and liabilities to market on our financial statements, either through Net income and Retained earnings or through adjustments to Accumulated other comprehensive income. We may need to record losses in the value of financial assets even where our expectation of realizing the face value of the underlying instrument has not changed. Other assets and liabilities are not marked to market. As a result, our balance sheet may not precisely represent the fair market value of our financial assets and liabilities.

In addition, asset management revenue is earned primarily based on a percentage of the value of the assets being managed and thus is impacted by general changes in market valuations. Thus, although we are not directly impacted by changes in the value of such assets, decreases in the value of those assets would affect related Noninterest income.

Our asset and liability valuations and the determination of the amount of loss allowances and impairments taken on our assets are highly subjective. Inaccurate estimates could materially impact our results of operations or financial position.

We must use estimates, assumptions and judgments when assets and liabilities are measured and reported at fair value. Assets and liabilities carried at fair value inherently result in a higher degree of financial statement volatility. Changes in underlying factors or assumptions in any of the areas underlying our estimates could materially impact our future financial condition and results of operations. During periods of market disruption, it may be more difficult to value certain assets if trading becomes less frequent and/or market data becomes less observable. There may be certain asset classes that were historically traded in active markets with significant observable data that rapidly become illiquid due to market volatility, a loss in market confidence or other factors. In addition, we have certain assets and liabilities carried at fair value that are estimated using unobservable inputs that are significant to the fair value of the assets or liabilities. The valuation of any asset or liability substantially based on unobservable inputs is necessarily less reliable than those based on active trading markets. Further, rapidly changing and unprecedented market conditions in any particular market could materially impact the valuation of assets as reported within our consolidated financial statements. Our ability to hedge exposure is in part dependent on our ability to value the related assets or liabilities.

The determination of the amount of loss allowances and asset impairments varies by asset type and is based upon our periodic evaluation and assessment of known and inherent risks associated with the respective asset class. Management updates its evaluations regularly and reflects changes in allowances and impairments in operations as such evaluations are revised. Although we have policies and procedures in place to determine loss allowance and asset impairments, due to the subjective nature of this area, there can be no assurance that our management has accurately assessed the level of impairments taken and allowances reflected in our financial statements. Furthermore, additional impairments may need to be taken or allowances provided for in the future. Historical trends may not be indicative of future impairments or allowances.

There are risks resulting from the extensive use of models in our business.

We rely on quantitative models to measure risks and to estimate many financial values. We use models throughout much of our business, relying on them for much of our decision making. Examples of areas we use models include determining the pricing of various products, grading loans and extending credit, measuring interest rate and other market risks, predicting or estimating losses, assessing capital adequacy, and calculating economic and regulatory capital levels. We also use models to estimate the value of financial instruments and balance sheet items. Poorly designed or implemented models present the risk that our business decisions based on information incorporating model output will be adversely affected due to the inadequacy of that information. Also, information we provide to the public or to our regulators based on poorly designed or implemented models could be inaccurate or misleading. Some of the decisions that our regulators make, including those related to capital distributions to our shareholders, could be affected adversely if they perceive that the quality of the relevant models used is insufficient.

Our success depends on our ability to attract and retain customers for our products and services, which may be negatively impacted by a lack of consumer and business economic confidence as well as our actions, including our ability to anticipate and satisfy customer demands for products and services.

As a financial institution, our performance is subject to risks associated with declines in customer demand for our products and services, including as a result of a loss of economic confidence or customer trust in us.

Economic and market developments may affect consumer and business confidence levels. If customers lose confidence due to concerns regarding the economy, the demand for our products and services could suffer. We may also fail to attract or retain customers if we are unable to develop and market products and services that meet evolving customer needs or demands or if we are unable to deliver them effectively and securely to our customers. This is particularly true to the extent that our competitors are better able to do so.

News or other publicity that harms our reputation, or the reputation of our industry generally, also could cause a loss of customers or a reduction in the extent to which customers do business with us. Financial companies are highly vulnerable to reputational damage when they are found to have harmed customers, particularly retail customers, through conduct that is seen as illegal, unfair, deceptive, manipulative or otherwise wrongful. The negative impact of such reputational damage on our business may be disproportionate to the actual harm caused to customers. In addition, we could suffer reputational harm and a loss of customer trust as a result of conduct of others in the industry even where we have not engaged in the conduct. We use third parties to help in many aspects of our business, with the risk that their conduct can affect our reputation regardless of the degree to which we are responsible for it. We are also subject to the risk of reputational harm resulting from conduct of employees outside of the scope of their employment, including through activities on social media.

If we fail to attract and retain customers, demand for our loans and other financial products and services could decrease and we could experience adverse changes in payment patterns. We could lose interest income from a decline in credit usage and noninterest income from a decline in product sales, investments and other transactions. Our customers could remove money from checking, savings or other types of deposit accounts in favor of other banks or other types of investment products. Deposits are a low cost source of funds for us. Therefore, losing deposits could increase our funding costs and reduce our net interest income.

The U.S. is emerging from an extended period of very low interest rates. Very low interest rates decrease the attractiveness of alternatives to bank checking and savings accounts, which may lack deposit insurance and some of the convenience associated with more traditional banking products. As interest rates rise, customers may be less willing to maintain balances in noninterest-bearing or low interest bank accounts. In addition, if the spread between the rates we offer and those offered by alternatives to bank accounts widens, customers could be willing to forego benefits of bank accounts for the higher return. As a result, we could suffer a relatively higher cost of funds, with a negative impact on net interest income. Loss of customers could also harm noninterest income.

In our asset management business, investment performance is an important factor influencing the level of assets that we manage. Poor investment performance could hurt revenue and growth as existing clients might withdraw funds in favor of better performing products. Additionally, the ability to attract funds from existing and new clients might diminish. Overall economic conditions may limit the amount that customers are able or willing to invest as well as the value of the assets they do invest. The failure or negative performance of products of other financial institutions could lead to a loss of confidence in similar products offered by us without regard to the performance of our products. Such a negative contagion could lead to withdrawals, redemptions and liquidity issues in such products and have an adverse impact on our assets under management and asset management revenues and earnings.

We rely on third party vendors, service providers and other counterparties to help support many aspects of our business. To this extent, our direct control of activities related to our business is reduced, which could introduce risk.

Our use of third parties to support our business needs typically means that we do not directly control the activities we are having them perform. Risks can arise through greater complexity and inadequate performance by the third party, specifically where that performance could affect us or our customers. Many of the kinds of risks presented by activities performed by third parties are described elsewhere in these Risk Factors. For example, outside companies may assist us in processing confidential customer or employee information. In such a case, a cyber attack on another company may result in access to our customers' or employees' information. An outside company may also fail to comply with legal requirements relevant to its work on our behalf. We may in those circumstances suffer financial losses, legal consequences and injury to our reputation. Even if the other company makes us whole for financial losses, which is not necessarily the case, it is unlikely that it would be able to restore our reputation. As a result, the use of third parties to assist in our business activities heightens the risks to us inherent in those activities.

We operate in a highly competitive environment in terms of the products and services we offer and the geographic markets in which we conduct business. The labor markets where we compete for talented employees are also highly competitive. Competition could adversely impact our customer acquisition, growth and retention, as well as our credit spreads and product pricing, causing us to lose market share and deposits and revenues.

We are subject to intense competition from various financial institutions as well as from non-bank entities that engage in many similar activities without being subject to bank regulatory supervision and restrictions. This competition is described in Item 1 of this Report under "Competition."

The principal bases for competition are pricing, product structure, the range of products and services offered and the quality of customer service. Pricing in our industry includes interest rates on loans and deposits as well as fees for various services. Customer service expectations include ease of doing business and responsiveness to needs and concerns. The ability to access and use technology is an increasingly important competitive factor in the financial services industry. Having the right technology is a critically important component to customer satisfaction as it affects our ability to deliver the products and services that customers desire and in a manner that they find convenient and attractive. Banks generally are facing the risk of increased competition from products and services offered by non-bank financial technology companies, particularly related to payment services and lending.

Consolidation in our industry, including among smaller banks combining to form more competitive larger ones and between banks and non-bank entities, could result in PNC facing more intense competition, particularly in impacted regions or with respect to particular products.

Another increasingly competitive factor in the financial services industry is the ability to attract and retain talented employees across many of our businesses and support areas. This factor presents greater risk when we are expanding into new markets, developing new product lines, or significantly enhancing staffing in certain areas, particularly technology. This competition leads to increased expenses in many business areas and can also cause us to not pursue certain business opportunities. Limitations on the manner in which regulated financial institutions can compensate their officers and employees, including those contained in pending rule proposals implementing requirements of Dodd-Frank, may make it more difficult for regulated financial institutions, including PNC, to compete with unregulated financial institutions for talent.

A failure to adequately address the competitive pressures we face could make it harder for us to attract and retain customers across our businesses. On the other hand, meeting these competitive pressures could require us to incur significant additional expense or to accept risk beyond what we would otherwise view as desirable under the circumstances. In addition, in our interest rate sensitive businesses, pressures to increase rates on deposits or decrease rates on loans could reduce our net interest margin, resulting in a negative impact on our net interest income.

We continually encounter technological change and need to keep pace with this change in order to maintain or enhance the competitiveness of our businesses.

The financial services industry is undergoing rapid technological change with frequent introductions of new technology-driven products and services. Examples include expanded use of cloud computing, artificial intelligence and machine learning, virtual and augmented reality, biometric authentication, voice and natural language, and data protection enhancements, as well as increased online and mobile device interaction with customers. The effective use of technology increases efficiency and enables financial institutions to better serve customers. We have been investing in technology and connectivity in order to automate functions previously performed manually, to facilitate the ability of customers to engage in financial transactions, and otherwise to enhance the customer experience with respect to our products and services. On the retail banking side, this has included developments such as more sophisticated ATMs (including the ability to cash checks using exact change), cashless bank branches, and expanded access to banking transactions (including mobile deposits, instant availability of funds, online loan applications and real time payment processing) through the internet, smart phones, tablets and other mobile devices. These efforts have all been in response to actual and anticipated customer behavior and expectations. Our continued success depends, in part, upon our ability to address the needs of our customers by using technology to provide products and services that satisfy customer demands, including demands for faster and more secure payment services, and create efficiencies in our operations. A failure to maintain or enhance our competitive position with respect to technology, whether because we fail to anticipate customer expectations or because our technological developments fail to perform as desired or are not rolled out in a timely manner, may cause us to lose market share or incur additional expense.

Societal responses to climate change could adversely affect our business and performance, including indirectly through impacts on our customers.

Concerns over the long-term impacts of climate change have led and will continue to lead to governmental efforts around the world to mitigate those impacts. Consumers and businesses also may change their behavior on their own as a result of these concerns. PNC and its customers will need to respond to new laws and regulations as well as consumer and business preferences resulting from climate change concerns. We and our customers may face cost increases, asset value reductions, operating process changes, and the like. The impact on our customers will likely vary depending on their specific attributes, including reliance on or role in carbon intensive activities. Among the impacts to PNC could be a drop in demand for our products and services, particularly in certain sectors. In addition, we could face reductions in creditworthiness on the part of some customers or in the value of assets securing loans. Our efforts to take these risks into account in making lending and other decisions, including by increasing our business with climate-friendly companies, may not be effective in protecting us from the negative impact of new laws and regulations or changes in consumer or business behavior.

Our business and financial results could be impacted materially by adverse results in legal proceedings.

Many aspects of our business involve substantial risk of legal liability. We have been named or threatened to be named as defendants in various lawsuits arising from our business activities. In addition, we are regularly the subject of governmental investigations and other forms of regulatory inquiry. We also are at risk when we have agreed to indemnify others for losses related to legal proceedings they face, such as in connection with the sale of a business or assets by us. The results of these legal proceedings could lead to significant monetary damages or penalties, restrictions on the way in which we conduct our business, or reputational harm.

Although we establish accruals for legal proceedings when information related to the loss contingencies represented by those matters indicates both that a loss is probable and that the amount of loss can be reasonably estimated, we do not have accruals for all legal proceedings where we face a risk of loss. In addition, due to the inherent subjectivity of the assessments and unpredictability of the outcome of legal proceedings, amounts accrued may not represent the ultimate loss to us from the legal proceedings in question. Thus, our ultimate losses may be higher, and possibly significantly so, than the amounts accrued for legal loss contingencies. We discuss further the unpredictability of legal proceedings and describe certain of our pending legal proceedings in Note 19 Legal Proceedings in the Notes To Consolidated Financial Statements in Item 8 of this Report.

We have a substantial minority equity interest in BlackRock, a publicly traded company, and its business operations and financial performance can adversely affect PNC and our results.

Our investment in BlackRock represents a significant investment for PNC and contributes both income (through equity method accounting) and cash inflows (through dividends) to PNC. See Note 22 Segment Reporting in the Notes To Consolidated Financial Statements in Item 8 of this Report. In 2018, BlackRock contributed 15% of our net income. The value of our investment in BlackRock and its contribution to our financial results are vulnerable to poor financial performance or other issues at BlackRock affecting its business. In addition, we rely on BlackRock for its financial results that, as discussed above, are included in our financial statements. BlackRock is responsible for, and has control over, the preparation of its financial statements and its internal controls over financial reporting. PNC may be impacted by factors such as poor performance or other issues, as well as by financial reporting control failures, at BlackRock, with the extent of the impact on us and our financial results depending on the severity of the issue at BlackRock.

BlackRock is a public company that files separately with the SEC. In its filings with the SEC, BlackRock provides disclosure as to its business, including disclosure regarding its views as to the drivers of its financial performance and the most significant risks it faces. Its SEC filings also include certifications and disclosure regarding internal controls over financial reporting and disclosure controls.

We grow our business in part by acquiring other financial services businesses from time to time. Sometimes these are businesses with technologies or other assets valuable to us even if they do not themselves provide financial services to customers. These acquisitions present a number of risks and uncertainties related both to the acquisition transactions themselves and to the integration of the acquired businesses into PNC after closing.

Acquisitions of other companies or of financial assets and related deposits and other liabilities present risks and uncertainties to us in addition to those presented by the nature of the business acquired.

Acquisitions may be substantially more expensive or take longer to complete than anticipated. This risk includes unanticipated costs incurred in connection with the integration of the acquired business. Anticipated benefits (such as cost savings from synergies or strategic gains from being able to offer product sets to a broader potential customer base) may not be fully realized. It can take longer or require greater resources to achieve these benefits. It also may prove impossible to achieve them at all or in their entirety as a result of unexpected factors or events.

Specific factors that can affect our ability to achieve anticipated results from acquisitions may include, depending on the nature of the business acquired, the following:

- If the acquisition includes loan portfolios, the extent of credit losses following completion of the acquisition. Similarly, if the acquisition includes deposits, the extent of deposit attrition post-closing. Acquisitions of banking companies typically include both loans and deposits. These factors will be affected by a number of factors, including the state of the economy following the acquisition and the quality of our pre-acquisition analysis of the acquired business.
- If a significant aspect of the value of an acquired business is intellectual property, the extent to which the intellectual property may be protected and commercialized by PNC following the acquisition.
- If the acquisition involves entering into new businesses or geographic or other markets, our inability to take advantage of these opportunities as a result of our inexperience with respect to them.
- The results of litigation and governmental investigations that may be pending at the time of the acquisition or be filed or commenced thereafter, as a result of an acquisition or otherwise. It is often hard to predict the results of such legal proceedings. It may also be hard to anticipate what legal proceedings may be started following an acquisition.
- The extent to which client attrition from the acquired business exceeds expectations.

Our ability to analyze the risks presented by prospective acquisitions, as well as our ability to prepare in advance of closing for integration, depends, in part, on the information we can gather with respect to the business we are acquiring, which can be quite limited. Our pre-acquisition review of the business may also impact our ability to prepare for and execute on the integration of an acquired business.

As a regulated financial institution, our ability to pursue or complete attractive acquisition opportunities could be negatively impacted by regulatory issues, including delays in obtaining required approvals. Our ability to make large acquisitions in the future may be negatively impacted as well by regulatory rules or future regulatory initiatives designed to limit systemic risk and the potential for a financial institution to become "too big to fail."

Our business and financial performance could be adversely affected, directly or indirectly, by disasters, natural or otherwise, by terrorist activities or by international hostilities.

Neither the occurrence nor the potential impact of disasters (whether caused naturally or by human conduct), terrorist activities and international hostilities can be predicted. However, these occurrences could adversely impact us, for example, by causing significant damage to our facilities or preventing us from conducting our business in the ordinary course. Also, their impact on our borrowers, depositors, other customers, suppliers or other counterparties could result in indirect adverse effects on us. Other indirect adverse consequences from disasters, terrorist activities or international hostilities could result from impacts to the financial markets or the economy in general or in any particular region. These types of indirect effects could lead, for example, to an increase in delinquencies, bankruptcies or defaults that could result in our experiencing higher levels of nonperforming assets, net charge-offs and provisions for credit losses. They could also cause a reduction in demand for lending or other services that we provide. Climate change may be increasing the frequency or severity of adverse weather conditions, making the impact from these types of natural disasters on us or our customers worse.

Our ability to mitigate the adverse consequences of such occurrences is in part dependent on the quality of our resiliency planning. This includes our ability to anticipate the nature of any such event that might occur. The adverse impact of disasters, terrorist activities or international hostilities also could be increased to the extent that there is a lack of preparedness on the part of national or regional emergency responders or on the part of other organizations and businesses that we deal with, many of which we depend on but have limited or no control over.

ITEM 1B – UNRESOLVED STAFF COMMENTS

There are no SEC staff comments regarding PNC's periodic or current reports under the Exchange Act that are pending resolution.

ITEM 2 – PROPERTIES

Our executive and primary administrative offices are currently located at The Tower at PNC Plaza, Pittsburgh, Pennsylvania. The 33-story structure is owned by PNC Bank, National Association.

We own or lease numerous other premises for use in conducting business activities, including operations centers, offices, and branches and other facilities. We consider the facilities owned or occupied under lease by our subsidiaries to be adequate for the purposes of our business operations. We include here by reference the additional information regarding our properties in Note 8 Premises, Equipment and Leasehold Improvements in the Notes To Consolidated Financial Statements in Item 8 of this Report.

ITEM 3 – LEGAL PROCEEDINGS

See the information set forth in Note 19 Legal Proceedings in the Notes To Consolidated Financial Statements in Item 8 of this Report, which is incorporated here by reference.

ITEM 4 – MINE SAFETY DISCLOSURES

Not applicable

EXECUTIVE OFFICERS OF THE REGISTRANT

Information regarding each of our executive officers as of February 22, 2019 is set forth below. Executive officers do not have a stated term of office. Each executive officer has held the position or positions indicated or another executive position with the same entity or one of its affiliates for the past five years unless otherwise indicated below.

Name	Age	Position with PNC	Year Employed (a)
William S. Demchak	56	Chairman, President and Chief Executive Officer (b)	2002
Michael J. Hannon	62	Executive Vice President and Chief Credit Officer	1982
Vicki C. Henn	50	Executive Vice President and Chief Human Resources Officer	1994
Gregory B. Jordan	59	Executive Vice President, General Counsel and Chief Administrative Officer	2013
Stacy M. Juchno	43	Executive Vice President and General Auditor	2009
Karen L. Larrimer	56	Executive Vice President, Chief Customer Officer and Head of Retail Banking	1995
Michael P. Lyons	48	Executive Vice President, Head of Corporate & Institutional Banking and Head of Asset Management Group	2011
E William Parsley, III	53	Executive Vice President and Chief Operating Officer	2003
Robert Q. Reilly	54	Executive Vice President and Chief Financial Officer	1987
Joseph E. Rockey	54	Executive Vice President and Chief Risk Officer	1999
Steven Van Wyk	60	Executive Vice President and Head of Technology and Innovation	2013
Gregory H. Kozich	55	Senior Vice President and Controller	2010

(a) Where applicable, refers to year employed by predecessor company.
(b) Mr. Demchak also serves as a director. Biographical information for Mr. Demchak is included in "Election of Directors (Item 1)" in our proxy statement for the 2019 annual meeting of shareholders. See Item 10 of this Report.

Michael J. Hannon has served as Executive Vice President since 2009, prior to which he was a Senior Vice President. He has served as Chief Credit Officer since 2001 and was Interim Chief Risk Officer from December 2011 to February 2012.

Vicki C. Henn has served as Executive Vice President and Chief Human Resources Officer of PNC since July 2014. Ms. Henn joined PNC in 1994 and has held numerous management positions. Prior to being named to her current position, Ms. Henn was a Senior Vice President, responsible for Human Resources for Retail Banking.

Gregory B. Jordan joined PNC in 2013 as Executive Vice President, General Counsel and Head of Regulatory and Government Affairs. In February 2016, Mr. Jordan was also appointed Chief Administrative Officer. Prior to joining PNC, he served as the Global Managing Partner for the last 13 years of his 29 year tenure at Reed Smith LLP.

Stacy M. Juchno has served as Executive Vice President and General Auditor of PNC since April 2014 and previously served as Senior Vice President and Finance Governance and Oversight Director.

Karen L. Larrimer was appointed Executive Vice President in 2013 and became head of PNC's Retail Banking in 2016. She has also served as Chief Customer Officer since April 2014, prior to which she served as Chief Marketing Officer.

Michael P. Lyons has been an Executive Vice President since 2011 and is head of PNC's Corporate & Institutional Banking. Mr. Lyons assumed responsibility for PNC's Asset Management Group in January 2018. Prior to joining PNC in October 2011, from May 2010 until October 2011, Mr. Lyons was head of corporate development and strategic planning for Bank of America.

E William Parsley, III has served as Executive Vice President since 2009. In February 2018, Mr. Parsley was appointed Chief Operating Officer. Previously, he served as Treasurer and Chief Investment Officer since 2004 and head of Consumer Lending since the spring of 2016.

Robert Q. Reilly was appointed Chief Financial Officer in 2013. He served as the head of PNC's Asset Management Group from 2005 until April 2013. Previously, he held numerous management roles in both Corporate Banking and Asset Management. He was appointed Executive Vice President in 2009.

Joseph E. Rockey was appointed Executive Vice President and Chief Risk Officer in January 2015. Prior to his appointment, Mr. Rockey led enterprise risk management and the Basel office within PNC's risk management organization.

Steven Van Wyk joined PNC as Head of Technology and Operations in 2013 and was appointed Head of Technology and Innovation in April 2017. He was appointed Executive Vice President of PNC in 2013. From 2007 until joining PNC, Mr. Van Wyk served as Global Chief Operating Officer for ING.

Gregory H. Kozich has served as Controller of PNC since 2011. He was appointed as Senior Vice President in 2010. Prior to joining PNC in 2010, Mr. Kozich was with the Federal National Mortgage Association from 2005 until late 2010, most recently serving as its corporate controller.

PART II

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

(a) (1) Our common stock is listed on the New York Stock Exchange and is traded under the symbol "PNC." At the close of business on February 15, 2019, there were 53,986 common shareholders of record.

Holders of PNC common stock are entitled to receive dividends when declared by our Board of Directors out of funds legally available for this purpose. Our Board of Directors may not pay or set apart dividends on the common stock until dividends for all past dividend periods on any series of outstanding preferred stock and certain outstanding capital securities issued by the parent company have been paid or declared and set apart for payment. The Board of Directors presently intends to continue the policy of paying quarterly cash dividends. The amount of any future dividends will depend on economic and market conditions, our financial condition and operating results, and other factors, including contractual restrictions and applicable government regulations and policies (such as those relating to the ability of bank and non-bank subsidiaries to pay dividends to the parent company and regulatory capital limitations). The amount of our dividend is also currently subject to the results of the supervisory assessment of capital adequacy and capital planning processes undertaken by the Federal Reserve and our primary bank regulators as part of the Comprehensive Capital Analysis and Review (CCAR) process as described in the Supervision and Regulation section in Item 1 of this Report.

The Federal Reserve has the power to prohibit us from paying dividends without its approval. For further information concerning dividend restrictions and other factors that could limit our ability to pay dividends, as well as restrictions on loans, dividends or advances from bank subsidiaries to the parent company, see the Supervision and Regulation section in Item 1, Item 1A Risk Factors, the Liquidity and Capital Management portion of the Risk Management section in Item 7, and Note 10 Borrowed Funds, Note 15 Equity and Note 18 Regulatory Matters in the Notes To Consolidated Financial Statements in Item 8 of this Report, which we include here by reference.

We include here by reference the information regarding our compensation plans under which PNC equity securities are authorized for issuance as of December 31, 2018 in the table (with introductory paragraph and notes) in Item 12 of this Report.

Our stock transfer agent and registrar is:
Computershare Trust Company, N.A.
250 Royall Street
Canton, MA 02021
800-982-7652
www.computershare.com/pnc

Registered shareholders may contact Computershare regarding dividends and other shareholder services.

We include here by reference the information that appears under the Common Stock Performance Graph caption at the end of this Item 5.
(a)(2) None.
(b) Not applicable.
(c) Details of our repurchases of PNC common stock during the fourth quarter of 2018 are included in the following table:

In thousands, except per share data

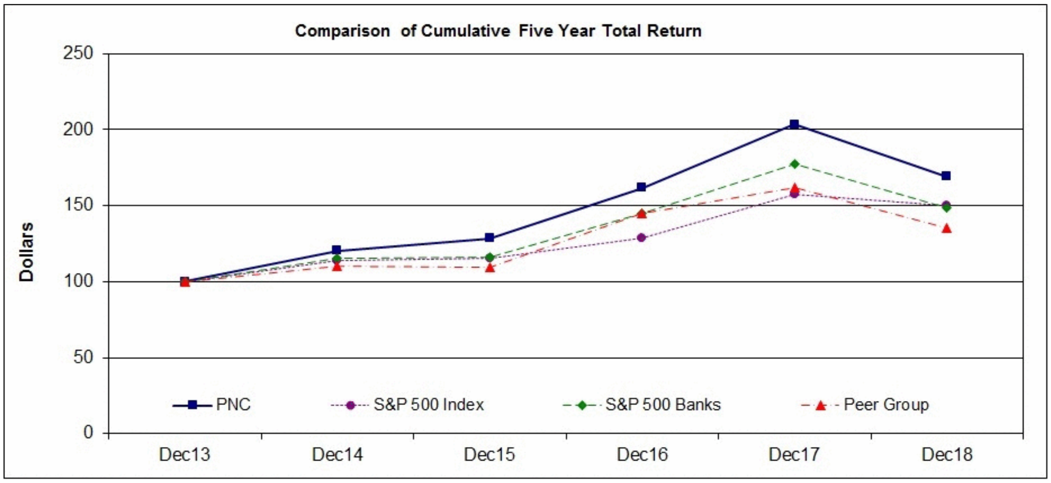
2018 period	Total shares purchased (a)	Average price paid per share	Total shares purchased as part of publicly announced programs (b)	Maximum number of shares that may yet be purchased under the programs (b)
October 1 – 31	1,204	$ 128.43	1,189	25,663
November 1 – 30	1,491	$ 133.79	1,491	24,172
December 1 – 31	3,458	$ 119.43	3,458	20,714
Total	6,153	$ 124.67		

(a) Includes PNC common stock purchased in connection with our various employee benefit plans generally related to forfeitures of unvested restricted stock awards and shares used to cover employee payroll tax withholding requirements. Note 11 Employee Benefit Plans and Note 12 Stock Based Compensation Plans in the Notes To Consolidated Financial Statements in Item 8 of this Report include additional information regarding our employee benefit and equity compensation plans that use PNC common stock.

(b) On March 11, 2015, we announced that our Board of Directors approved a stock repurchase program authorization in the amount of 100 million shares of PNC common stock, effective April 1, 2015. Repurchases are made in open market or privately negotiated transactions and the timing and exact amount of common stock repurchases will depend on a number of factors including, among others, market and general economic conditions, regulatory capital considerations, alternative uses of capital, the potential impact on our credit ratings, and contractual and regulatory limitations, including the results of the supervisory assessment of capital adequacy and capital planning processes undertaken by the Federal Reserve as part of the CCAR process. In June 2018, we announced share repurchase programs of up to $2.0 billion for the four quarter period beginning with the third quarter of 2018, including repurchases of up to $300 million related to stock issuances under employee benefit plans, in accordance with PNC's 2018 capital plan. In November 2018, we announced an increase to these previously announced programs in the amount of up to $900 million in additional common share repurchases. The aggregate repurchase price of shares repurchased during the fourth quarter of 2018 was $.8 billion. See the Liquidity and Capital Management portion of the Risk Management section in Item 7 of this Report for more information on the authorized share repurchase programs for the period July 1, 2018 through June 30, 2019.

Common Stock Performance Graph

This graph shows the cumulative total shareholder return (*i.e.*, price change plus reinvestment of dividends) on our common stock during the five-year period ended December 31, 2018, as compared with: (1) a selected peer group as set forth below and referred to as the "Peer Group;" (2) an overall stock market index, the S&P 500 Index; and (3) a published industry index, the S&P 500 Banks. The yearly points marked on the horizontal axis of the graph correspond to December 31 of each year. The stock performance graph assumes that $100 was invested on January 1, 2014 for the five-year period and that dividends were reinvested. The table below the graph shows the resultant compound annual growth rate for the performance period.



	Base Period	Assumes $100 investment at Close of Market on December 31, 2013 Total Return = Price change plus reinvestment of dividends					5-Year Compound Growth Rate
	Dec. 2013	Dec. 2014	Dec. 2015	Dec. 2016	Dec. 2017	Dec. 2018	
PNC	$ 100	$ 120.32	$ 128.51	$ 161.64	$ 203.60	$ 169.03	11.07%
S&P 500 Index	$ 100	$ 113.68	$ 115.24	$ 129.02	$ 157.17	$ 150.27	8.49%
S&P 500 Banks	$ 100	$ 115.51	$ 116.49	$ 144.81	$ 177.47	$ 148.30	8.20%
Peer Group	$ 100	$ 110.15	$ 109.59	$ 144.66	$ 162.10	$ 135.40	6.25%

The Peer Group for the preceding chart and table consists of the following companies: Bank of America Corporation; BB&T Corporation; Capital One Financial Corporation; Citizens Financial Group, Inc.; Fifth Third Bancorp; JPMorgan Chase & Co.; KeyCorp; M&T Bank Corporation; Regions Financial Corporation; SunTrust Banks, Inc.; The PNC Financial Services Group, Inc.; U.S. Bancorp; and Wells Fargo & Company. This Peer Group was approved for 2018 by the Board of Directors' Personnel and Compensation Committee. Such Committee has approved the same peer group for 2019.

Each yearly point for the Peer Group is determined by calculating the cumulative total shareholder return for each company in the Peer Group from December 31, 2013 to December 31 of that year (End of Month Dividend Reinvestment Assumed) and then using the median of these returns as the yearly plot point.

In accordance with the rules of the SEC, this section, captioned "Common Stock Performance Graph," is not incorporated by reference into any of our future filings made under the Securities Exchange Act of 1934 or the Securities Act of 1933. The Common Stock Performance Graph, including its accompanying table and footnotes, is not deemed to be soliciting material or to be filed under the Exchange Act or the Securities Act.

ITEM 6 – SELECTED FINANCIAL DATA

This Selected Financial Data should be reviewed in conjunction with the Consolidated Financial Statements and Notes included in Item 8 of this Report as well as the other disclosures in this Report concerning our historical financial performance, our future prospects and the risks associated with our business and financial performance.

	Year ended December 31				
Dollars in millions, except per share data	2018	2017	2016	2015	2014
Summary of Operations					
Interest income	$ 12,582	$ 10,814	$ 9,652	$ 9,323	$ 9,431
Interest expense	2,861	1,706	1,261	1,045	906
Net interest income	9,721	9,108	8,391	8,278	8,525
Noninterest income	7,411	7,221	6,771	6,947	6,850
Total revenue	17,132	16,329	15,162	15,225	15,375
Provision for credit losses	408	441	433	255	273
Noninterest expense	10,296	10,398	9,476	9,463	9,488
Income before income taxes and noncontrolling interests	6,428	5,490	5,253	5,507	5,614
Income taxes	1,082	102	1,268	1,364	1,407
Net income	5,346	5,388	3,985	4,143	4,207
Less: Net income attributable to noncontrolling interests	45	50	82	37	23
Preferred stock dividends	236	236	209	220	232
Preferred stock discount accretion and redemptions	4	26	6	5	5
Net income attributable to common shareholders	$ 5,061	$ 5,076	$ 3,688	$ 3,881	$ 3,947
Per Common Share					
Basic earnings	$ 10.79	$ 10.49	$ 7.42	$ 7.52	$ 7.44
Diluted earnings	$ 10.71	$ 10.36	$ 7.30	$ 7.39	$ 7.30
Book value	$ 95.72	$ 91.94	$ 85.94	$ 81.84	$ 77.61
Cash dividends declared	$ 3.40	$ 2.60	$ 2.12	$ 2.01	$ 1.88
Effective tax rate (a) (b)	16.8%	1.9%	24.1%	24.8%	25.1%
Performance Ratios					
Net interest margin (c)	2.97%	2.87%	2.73%	2.74%	3.08%
Noninterest income to total revenue	43%	44%	45%	46%	45%
Efficiency	60%	64%	62%	62%	62%
Return on:					
Average common shareholders' equity (b)	11.83%	12.09%	8.85%	9.50%	9.91%
Average assets (b)	1.41%	1.45%	1.10%	1.17%	1.28%

(a) The effective tax rates are generally lower than the statutory rate due to the relationship of pretax income to tax credits and earnings that are not subject to tax.

(b) The 2018 results reflected the change in the statutory federal income tax rate from 35% to 21%, effective January 1, 2018, as a result of the new federal tax legislation. The 2017 results reflected an income tax benefit from the new federal tax legislation primarily attributable to revaluation of deferred tax liabilities at the lower statutory tax rate.

(c) Net interest margin is the total yield on interest-earning assets minus the total rate on interest-bearing liabilities and includes the benefit from use of noninterest-bearing sources. To provide more meaningful comparisons of net interest margins, we use net interest income on a taxable-equivalent basis in calculating average yields used in the calculation of net interest margin by increasing the interest income earned on tax-exempt assets to make it fully equivalent to interest income earned on taxable investments. This adjustment is not permitted under GAAP in the Consolidated Income Statement. For additional information, see Reconciliation of Taxable-Equivalent Net Interest Income (Non-GAAP) Statistical Information (Unaudited) in Item 8 of this Report.

Certain prior period amounts have been reclassified to conform with the current period presentation, which we believe is more meaningful to readers of our consolidated financial statements.

Dollars in millions, except as noted	At or for the year ended December 31 2018	2017	2016	2015	2014
Balance Sheet Highlights					
Assets	$ 382,315	$ 380,768	$ 366,380	$ 358,493	$ 345,072
Loans	$ 226,245	$ 220,458	$ 210,833	$ 206,696	$ 204,817
Allowance for loan and lease losses	$ 2,629	$ 2,611	$ 2,589	$ 2,727	$ 3,331
Interest-earning deposits with banks (a)	$ 10,893	$ 28,595	$ 25,711	$ 30,546	$ 31,779
Investment securities	$ 82,701	$ 76,131	$ 75,947	$ 70,528	$ 55,823
Loans held for sale	$ 994	$ 2,655	$ 2,504	$ 1,540	$ 2,262
Equity investments (b)	$ 12,894	$ 11,392	$ 10,728	$ 10,587	$ 10,728
Mortgage servicing rights	$ 1,983	$ 1,832	$ 1,758	$ 1,589	$ 1,351
Goodwill	$ 9,218	$ 9,173	$ 9,103	$ 9,103	$ 9,103
Other assets	$ 34,408	$ 27,894	$ 27,506	$ 26,566	$ 28,180
Noninterest-bearing deposits	$ 73,960	$ 79,864	$ 80,230	$ 79,435	$ 73,479
Interest-bearing deposits	$ 193,879	$ 185,189	$ 176,934	$ 169,567	$ 158,755
Total deposits	$ 267,839	$ 265,053	$ 257,164	$ 249,002	$ 232,234
Borrowed funds (c)	$ 57,419	$ 59,088	$ 52,706	$ 54,532	$ 56,768
Total shareholders' equity	$ 47,728	$ 47,513	$ 45,699	$ 44,710	$ 44,551
Common shareholders' equity	$ 43,742	$ 43,530	$ 41,723	$ 41,258	$ 40,605
Accumulated other comprehensive income (loss)	$ (725)	$ (148)	$ (265)	$ 130	$ 503
Period-end common shares outstanding (millions)	457	473	485	504	523
Loans to deposits	84%	83%	82%	83%	88%
Client Assets (billions)					
Discretionary client assets under management	$ 148	$ 151	$ 137	$ 134	$ 135
Nondiscretionary client assets under administration	124	131	120	119	123
Total client assets under administration	272	282	257	253	258
Brokerage account client assets	47	49	44	43	43
Total	$ 319	$ 331	$ 301	$ 296	$ 301
Capital Ratios (d) (e)					
Basel III (f)					
Common equity Tier 1	9.6%	9.8%	10.0%	10.0%	10.0%
Tier 1 risk-based	10.8%	N/A	N/A	N/A	N/A
Total capital risk-based	13.0%	N/A	N/A	N/A	N/A
Transitional Basel III					
Common equity Tier I	N/A	10.4%	10.6%	10.6%	10.9%
Tier 1 risk-based capital	N/A	11.6%	12.0%	12.0%	12.6%
Other Selected Ratios					
Dividend payout	31.5%	24.7%	29.0%	27.0%	25.3%
Common shareholders' equity to total assets	11.4%	11.4%	11.4%	11.5%	11.8%
Average common shareholders' equity to average assets	11.3%	11.3%	11.5%	11.5%	12.1%
Selected Statistics					
Employees	53,063	52,906	52,006	52,513	53,587
Retail Banking branches	2,372	2,459	2,520	2,616	2,697
ATMs	9,162	9,051	9,024	8,956	8,605

(a) Includes balances held with the Federal Reserve Bank of Cleveland of $10.5 billion, $28.3 billion, $25.1 billion, $30.0 billion and $31.4 billion as of December 31, 2018, 2017, 2016, 2015 and 2014, respectively.
(b) Includes our equity interest in BlackRock. On January 1, 2018, $.6 billion of trading and available for sale securities, primarily money market funds, were reclassified to Equity investments in accordance with the adoption of Accounting Standards Update (ASU) 2016-01. See the Recently Adopted Accounting Standards portion of Note 1 Accounting Policies in Item 8 of this Report for additional detail on this adoption.
(c) Includes long-term borrowings of $37.4 billion, $43.1 billion, $38.3 billion, $43.6 billion and $41.5 billion for 2018, 2017, 2016, 2015 and 2014, respectively. Borrowings which mature more than one year after December 31, 2018 are considered to be long-term.
(d) See capital ratios discussion in the Supervision and Regulation section of Item 1 and in the Liquidity and Capital Management portion of the Risk Management section in Item 7 of this Report for additional discussion on these capital ratios. Additional information on the 2014-2016 fully phased-in ratios and Transitional Basel III ratios is included in the Statistical Information (Unaudited) section in Item 8 of this Report.
(e) All ratios are calculated using the regulatory capital methodology applicable to PNC during each period presented, except for the prior period Basel III Common equity Tier 1 ratios, which are fully phased-in Basel III ratios and are presented as pro forma estimates. Ratios for all periods were calculated based on the standardized approach.
(f) The 2018 Basel III ratios for Common equity Tier 1 capital and Tier 1 risk-based capital reflect the full phase-in of all Basel III adjustments to these metrics applicable to PNC. The 2018 Basel III Total risk-based capital ratio includes $80 million of nonqualifying trust preferred capital securities that are subject to a phase-out period that runs through 2021.

ITEM 7 – MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (MD&A)

EXECUTIVE SUMMARY

Key Strategic Goals

At PNC we manage our company for the long term. We are focused on the fundamentals of growing customers, loans, deposits and revenue and improving profitability, while investing for the future and managing risk, expenses and capital. We continue to invest in our products, markets and brand, and embrace our commitments to our customers, shareholders, employees and the communities where we do business.

We strive to expand and deepen customer relationships by offering a broad range of deposit, credit and fee-based products and services. We are focused on delivering those products and services to our customers with the goal of addressing their financial objectives and putting customers' needs first. Our business model is built on customer loyalty and engagement, understanding our customers' financial goals and offering our diverse products and services to help them achieve financial well-being. Our approach is concentrated on organically growing and deepening client relationships across our businesses that meet our risk/return measures.

We are focused on our strategic priorities, which are designed to enhance value over the long term, and consist of:
- Expanding our leading banking franchise to new markets and digital platforms;
- Deepening customer relationships by delivering a superior banking experience and financial solutions; and
- Leveraging technology to innovate and enhance products, services, security and processes.

Our capital priorities are to support client growth and business investment, maintain appropriate capital in light of economic conditions, the Basel III framework, and other regulatory expectations, and return excess capital to shareholders. For more detail, see the Capital Highlights portion of this Executive Summary and the Liquidity and Capital Management portion of the Risk Management section of this Item 7 and the Supervision and Regulation section in Item 1 Business of this Report.

Key Factors Affecting Financial Performance

We face a variety of risks that may impact various aspects of our risk profile from time to time. The extent of such impacts may vary depending on factors such as the current business and economic conditions, political and regulatory environment and operational challenges. Many of these risks and our risk management strategies are described in more detail elsewhere in this Report.

Our financial performance is substantially affected by a number of external factors outside of our control, including the following:
- Global and domestic economic conditions, including the continuity, speed and stamina of the current U.S. economic expansion;
- The monetary policy actions and statements of the Federal Reserve and the Federal Open Market Committee (FOMC);
- The level of, and direction, timing and magnitude of movement in, interest rates and the shape of the interest rate yield curve;
- The functioning and other performance of, and availability of liquidity in, U.S. and global financial markets, including capital markets;
- The impact of tariffs and other trade policies of the U.S. and its global trading partners;
- Changes in the competitive and regulatory landscape;
- The impact of legislative, regulatory and administrative initiatives and actions;
- The impact of market credit spreads on asset valuations;
- The ability of customers, counterparties and issuers to perform in accordance with contractual terms, and the resulting impact on our asset quality;
- Loan demand, utilization of credit commitments and standby letters of credit; and
- The impact on customers and changes in customer behavior due to changing business and economic conditions or regulatory or legislative initiatives, including the 2017 federal tax legislation.

In addition, our success will depend upon, among other things:
- Effectively managing capital and liquidity including:
    - Continuing to maintain and grow our deposit base as a low-cost stable funding source;
    - Prudent liquidity and capital management to meet evolving regulatory capital, capital planning, stress testing and liquidity standards; and
    - Actions we take within the capital and other financial markets.
- Management of credit risk in our portfolio;
- Execution of our strategic priorities;
- Our ability to manage and implement strategic business objectives within the changing regulatory environment;
- The impact of legal and regulatory-related contingencies; and
- The appropriateness of reserves needed for critical accounting estimates and related contingencies.

For additional information, see the Cautionary Statement Regarding Forward-Looking Information section in this Item 7 and Item 1A Risk Factors in this Report.

Income Statement Highlights

Net income for 2018 was $5.3 billion, or $10.71 per diluted common share, a decrease of 1% compared to $5.4 billion, or $10.36 per diluted common share, for 2017.

- Total revenue increased $803 million, or 5%, to $17.1 billion.
  - Net interest income increased $613 million, or 7%, to $9.7 billion.
  - Net interest margin increased to 2.97% for 2018 compared to 2.87% for 2017.
  - Noninterest income increased $190 million, or 3%, to $7.4 billion.
- Provision for credit losses was $408 million in 2018 compared to $441 million for 2017.
- Noninterest expense decreased $102 million, or 1%, to $10.3 billion.
- Income tax expense was $1.1 billion in 2018 compared to $102 million in 2017, which reflected a benefit of $1.2 billion from federal tax legislation, the Tax Cut and Jobs Act, enacted in December 2017.

For additional detail, see the Consolidated Income Statement Review section of this Item 7.

Balance Sheet Highlights

Our balance sheet was strong and well positioned at December 31, 2018 and 2017. In comparison to December 31, 2017:

- Total loans increased $5.8 billion, or 3%, to $226.2 billion.
  - Total commercial lending grew $4.9 billion, or 3%.
  - Total consumer lending increased $.9 billion, or 1%.
- Total deposits increased $2.8 billion, or 1%, to $267.8 billion.
- Investment securities increased $6.6 billion, or 9%, to $82.7 billion.
- Interest earning deposits with banks, primarily with the Federal Reserve Bank, decreased $17.7 billion, or 62%, to $10.9 billion.
- Other assets increased $6.5 billion, or 23%, to $34.4 billion driven by higher short-term investments in resale agreements.

For additional detail, see the Consolidated Balance Sheet Review section of this Item 7.

Credit Quality Highlights

Overall credit quality remained strong.

- At December 31, 2018 compared to December 31, 2017:
  - Nonperforming assets decreased $227 million, or 11%, to $1.8 billion.
  - Overall loan delinquencies of $1.5 billion decreased $35 million, or 2%.
- Net charge-offs of $420 million in 2018 decreased 8% compared to net charge-offs of $457 million for 2017.
- The allowance for loan and lease losses to total loans was 1.16% at December 31, 2018 and 1.18% at December 31, 2017.

For additional detail, see the Credit Risk Management portion of the Risk Management section of this Item 7.

Capital Highlights

We maintained a strong capital position during 2018 and continued to return capital to shareholders.

- The Basel III common equity Tier 1 capital ratio, which includes the full phase-in of all Basel III adjustments and became effective for PNC as of January 1, 2018, was 9.6% at December 31, 2018 compared with 9.8% at December 31, 2017, calculated on the same basis.
- In 2018 we returned $4.4 billion of capital to shareholders through repurchases of 19.9 million common shares for $2.8 billion and dividends on common shares of $1.6 billion.
- In June 2018, we announced share repurchase programs of up to $2.0 billion for the four quarter period beginning with the third quarter of 2018, including repurchases of up to $300 million related to stock issuances under employee benefit plans. In November 2018, we announced an increase to these previously announced programs in the amount of up to $900 million in additional common share repurchases.

Our ability to take certain capital actions, including plans to pay or increase common stock dividends or to repurchase shares under current or future programs, is subject to the results of the supervisory assessment of capital adequacy undertaken by the Federal Reserve as part of the Comprehensive Capital Analysis and Review (CCAR) process. For additional information, see the Supervision and Regulation section in Item 1 Business of this Report.

See the Liquidity and Capital Management portion of the Risk Management section of this Item 7 for more detail on our 2018 capital and liquidity actions as well as our capital ratios.

Business Outlook

Statements regarding our business outlook are forward-looking within the meaning of the Private Securities Litigation Reform Act of 1995. Our forward-looking financial statements are subject to the risk that economic and financial market conditions will be substantially different than those we are currently expecting and do not take into account potential legal and regulatory contingencies. These statements are based on our view that U.S. economic growth has accelerated over the past two years to above its long-run trend. We expect further gradual improvement in the labor market this year, including job gains and rising wages, which would be a positive indicator for consumer spending. However, growth is expected to slow over the course of 2019. Trade restrictions and geopolitical concerns are downside risks to the forecast. Inflation is expected to slow in the first half of 2019, to below the FOMC's 2% objective. Short-term interest rates and bond yields are expected to rise very slowly in 2019. Our baseline forecast is for one more increase in the federal funds rate, in September 2019, pushing the rate to a range of 2.50% to 2.75% in the second half of this year. See the Cautionary Statement Regarding Forward-Looking Information section in this Item 7 and Item 1A Risk Factors in this Report for other factors that could cause future events to differ, perhaps materially, from those anticipated in these forward-looking statements.

For additional information on financial results for the fourth quarter of 2018, see the Selected Quarterly Financial Data section in the Statistical Information (Unaudited) section of Item 8 of this Report.

For full year 2019 compared to full year 2018, we expect:

- Average loan growth to be between 3% and 4%;
- Revenue growth on the higher end of low-single digits, on a percentage basis;
- Noninterest expense to increase on the lower end of low-single digits, on a percentage basis; and
- The effective tax rate to be approximately 17%.

For the first quarter of 2019 compared to the fourth quarter of 2018, we expect:

- Average loans to be stable;
- Net interest income to be stable, reflecting two fewer days in the quarter;
- Fee income to decrease by low-single digits, on a percentage basis. Fee income consists of asset management, consumer services, corporate services, residential mortgage and service charges on deposits;
- Other noninterest income to be between $275 million and $325 million, excluding net securities and Visa activity;
- Noninterest expense to remain stable; and
- Provision for credit losses to be between $125 million and $175 million.

CONSOLIDATED INCOME STATEMENT REVIEW

Our Consolidated Income Statement is presented in Item 8 of this Report.

Net income for 2018 was $5.3 billion, or $10.71 per diluted common share, a decrease of 1% compared with $5.4 billion, or $10.36 per diluted common share, for 2017. The decrease was primarily driven by higher income tax expense in 2018 which more than offset a 5% increase in total revenue and a 1% decrease in noninterest expense. Income tax expense in 2017 reflected an income tax benefit of $1.2 billion from new federal tax legislation primarily attributable to revaluation of net deferred tax liabilities at the lower statutory tax rate.

Net Interest Income

Table 1: Summarized Average Balances and Net Interest Income (a)

Year ended December 31 Dollars in millions	2018 Average Balances	2018 Average Yields/ Rates	2018 Interest Income/ Expense	2017 Average Balances	2017 Average Yields/ Rates	2017 Interest Income/ Expense
Assets						
Interest-earning assets						
Investment securities	$ 78,784	2.91%	$ 2,289	$ 75,057	2.74%	$ 2,059
Loans	223,278	4.33%	9,667	217,271	3.86%	8,390
Interest-earning deposits with banks	20,603	1.84%	379	24,043	1.11%	267
Other	8,093	4.47%	362	8,983	3.48%	313
Total interest-earning assets/interest income	$ 330,758	3.84%	12,697	$ 325,354	3.39%	11,029
Liabilities						
Interest-bearing liabilities						
Interest-bearing deposits	$ 186,361	.66%	1,229	$ 179,447	.35%	623
Borrowed funds	59,306	2.75%	1,632	56,889	1.90%	1,083
Total interest-bearing liabilities/interest expense	$ 245,667	1.16%	2,861	$ 236,336	.72%	1,706
Net interest income/margin (Non-GAAP)		2.97%	9,836		2.87%	9,323
Taxable-equivalent adjustments			(115)			(215)
Net interest income (GAAP)			$ 9,721			$ 9,108

(a) Interest income calculated as taxable-equivalent interest income. To provide more meaningful comparisons of interest income and yields for all interest-earning assets, as well as net interest margins, we use interest income on a taxable-equivalent basis in calculating average yields and net interest margins by increasing the interest income earned on tax-exempt assets to make it fully equivalent to interest income earned on taxable investments. This adjustment is not permitted under GAAP on the Consolidated Income Statement. For more information, see Reconciliation of Taxable-Equivalent Net Interest Income (Non-GAAP) in the Statistical Information (Unaudited) section in Item 8 of this Report.

Changes in net interest income and margin result from the interaction of the volume and composition of interest-earning assets and related yields, interest-bearing liabilities and related rates paid, and noninterest-bearing sources of funding. See the Statistical Information (Unaudited) – Average Consolidated Balance Sheet And Net Interest Analysis and Analysis Of Year-To-Year Changes In Net Interest Income in Item 8 of this Report.

Net interest income increased $613 million, or 7%, in 2018 compared with 2017 due to higher loan and securities yields and balances partially offset by increases in deposit and borrowing costs. Net interest margin increased in the comparison reflecting the impact of higher interest rates.

Average investment securities increased $3.7 billion, or 5%, reflecting net purchases of agency residential mortgage-backed securities of $4.0 billion and U.S. Treasury and government agency securities of $3.3 billion, partially offset by declines of $1.1 billion in both commercial mortgage-backed securities and other securities. Average investment securities increased to 24% of average interest-earning assets in 2018 compared to 23% in 2017.

Average loans grew $6.0 billion, or 3%, driven by an increase in average commercial lending of $5.2 billion reflecting strong growth in our Corporate Banking, Business Credit and Equipment Finance businesses in our Corporate & Institutional Banking segment.

Average consumer lending increased $.8 billion in 2018 compared to 2017 as growth in residential real estate, automobile and credit card loans was partially offset by declines in home equity and education loans. Lower home equity loans reflected paydowns and payoffs exceeding new originated volume. In addition, run-off in the non-strategic consumer loan portfolios of brokered home equity and government guaranteed education loans contributed to the declines. Average loans represented 68% of average interest-earning assets in 2018 compared to 67% in 2017.

Average interest-bearing deposits grew $6.9 billion, or 4%, reflecting overall deposit and customer growth. The increase also reflected a shift from noninterest-bearing deposits, which declined $2.3 billion, or 3%, to interest-bearing deposits as deposit rates have risen. Within average interest-bearing deposits, average savings deposits increased $9.2 billion, due in part to a shift to relationship-based savings products from money market deposits, which decreased $6.0 billion. Additionally, average interest-bearing demand deposits grew $3.6 billion. Average interest-bearing deposits remained stable at 76% of average interest-bearing liabilities in 2018 and 2017.

Further details regarding average loans and deposits are included in the Business Segments Review section of this Item 7.

Average borrowed funds increased $2.4 billion, or 4%, primarily due to higher bank notes and senior debt of $2.3 billion and Federal Home Loan Bank borrowings of $1.1 billion, partially offset by a decline in subordinated debt of $1.0 billion. See the Consolidated Balance Sheet Review portion of this Item 7 for additional detail on the level and composition of borrowed funds.

Noninterest Income

Table 2: Noninterest Income

Year ended December 31 Dollars in millions	2018	2017	Change $	Change %
Noninterest income				
Asset management	$ 1,825	$ 1,942	$ (117)	(6)%
Consumer services	1,502	1,415	87	6 %
Corporate services	1,849	1,742	107	6 %
Residential mortgage	316	350	(34)	(10)%
Service charges on deposits	714	695	19	3 %
Other	1,205	1,077	128	12 %
Total noninterest income	$ 7,411	$ 7,221	$ 190	3 %

Noninterest income as a percentage of total revenue was 43% for 2018 and 44% for 2017.

Asset management revenue decreased in the comparison reflecting a $254 million fourth quarter 2017 flow through impact of federal tax legislation on our equity investment in BlackRock. This decline was partially offset by higher earnings from our equity investment in BlackRock which benefited from the lower federal statutory income tax rate and by stronger average equity markets during 2018. PNC's discretionary client assets under management decreased to $148 billion at December 31, 2018 compared with $151 billion at December 31, 2017 primarily due to lower equity markets as of December 31, 2018.

Consumer service fees increased in the comparison primarily due to growth in debit card fees and credit card fees, net of rewards, which increased $32 million and $23 million, respectively, reflecting higher transaction volume and customer growth. Brokerage revenue increased $38 million resulting from growth in average brokerage assets under management.

Corporate service fees were higher primarily driven by growth in treasury management product revenue of $70 million and higher merger and acquisition advisory fees of $42 million. These increases were partially offset by a decline in revenue from commercial mortgage banking activities driven by a $27 million lower benefit from commercial mortgage servicing rights valuation, net of economic hedge.

Residential mortgage revenue declined due to lower loan sales revenue of $61 million driven by lower gain on sales margins as a result of increased competition, a shift in product mix to purchases from refinancing and lower loan origination volume. This decrease was partially offset by negative residential mortgage servicing rights valuation adjustments, net of economic hedge, of $30 million in 2017, which included a negative adjustment of $71 million in the fourth quarter of 2017 for residential mortgage servicing rights fair value assumption updates. The valuation adjustment benefit in 2018 was insignificant.

Service charges on deposits increased reflecting higher consumer transaction volumes and product enhancements.

Other noninterest income increased in the comparison largely attributable to the impact of negative derivative fair value adjustments related to Visa Class B common shares of $280 million in 2017, including $248 million in the fourth quarter of 2017 primarily related to the extension of anticipated timing of litigation resolution, compared with positive adjustments of $35 million in 2018.

These increases were partially offset by the impact of a fourth quarter 2017 benefit of $119 million for appreciation in value of BlackRock common stock used to fund PNC's fourth quarter 2017 contribution to the PNC Foundation. In addition, the comparison reflected a $28 million decline in revenue from equity investments, which included the impact of first quarter 2017 positive valuation adjustments related to the Volcker Rule provisions of the Dodd-Frank Act.

In the first quarter of 2018, and in connection with the commercial and vendor finance business we acquired in 2017, we reclassified operating lease income in Other noninterest income of $121 million in 2017 and $85 million in 2016 to Corporate services noninterest income on the Consolidated Income Statement. Operating lease income was $130 million in 2018.

Other noninterest income typically fluctuates from period to period depending on the nature and magnitude of transactions completed. Further details regarding our customer-related trading activities are included in the Market Risk Management – Customer-Related Trading Risk portion of the Risk Management section of this Item 7. Further details regarding private and other equity investments are included in the Market Risk Management – Equity and Other Investment Risk section, and further details regarding gains or losses related to our equity investment in BlackRock are included in the Business Segments Review section of this Item 7.

Provision for Credit Losses

The provision for credit losses was $408 million in 2018 compared to $441 million in 2017, reflecting a lower provision for commercial loans, partially offset by a higher provision for consumer loans.

The Credit Risk Management portion of the Risk Management section of this Item 7 includes additional information regarding factors impacting the provision for credit losses.

Noninterest Expense

Table 3: Noninterest Expense

Year ended December 31 Dollars in millions	2018	2017	Change $	Change %
Noninterest expense				
Personnel	$ 5,471	$ 5,268	$ 203	4 %
Occupancy	818	868	(50)	(6)%
Equipment	1,103	1,065	38	4 %
Marketing	285	244	41	17 %
Other	2,619	2,953	(334)	(11)%
Total noninterest expense	$ 10,296	$ 10,398	$ (102)	(1)%

Noninterest expense decreased in 2018 compared to 2017 as ongoing business investments, including technology and staffing, and higher levels of business activity were more than offset by the $502 million impact of certain fourth quarter 2017 items described in the next paragraph.

Higher personnel expense reflected higher staffing levels, an increase in the minimum hourly pay rate for eligible employees, enhanced employee benefits and higher variable compensation related to revenue growth, partially offset by the fourth quarter 2017 impact of $105 million for employee cash payments and pension account credits. Marketing expense was higher in support of business expansion. The decline in other noninterest expense reflected the fourth quarter 2017 impact of a $200 million contribution of BlackRock common stock to the PNC Foundation. Additionally, fourth quarter 2017 included $197 million of charges for real estate dispositions and exits, which were primarily within other noninterest expense.

During 2018, we completed actions and achieved our 2018 continuous improvement program savings goal of $250 million, which funded a portion of our strategic investments. In 2019, we have a goal of $300 million in cost savings through our continuous improvement program, which we expect will continue to partially fund our ongoing business investments.

Effective Income Tax Rate

The effective income tax rate was 16.8% for 2018 compared with 1.9% for 2017. In the fourth quarter of 2017, an income tax benefit of $1.2 billion was recognized as a result of federal tax legislation and was primarily attributable to the revaluation of net deferred tax liabilities at the lower statutory tax rate of 21%, which became effective January 1, 2018. For additional information on our accounting related to the new federal tax legislation, see Note 17 Income Taxes in the Notes To Consolidated Financial Statements included in Item 8 of this Report.

The effective tax rate is generally lower than the statutory rate primarily due to tax credits we receive from our investments in low income housing and new markets investments, as well as earnings on other tax exempt investments.

Additional information regarding our effective tax rate is included in the Reconciliation of Statutory and Effective Tax Rates table in Note 17 Income Taxes in Item 8 of this Report.

CONSOLIDATED BALANCE SHEET REVIEW

Table 4: Summarized Balance Sheet Data

	December 31	December 31	Change	
Dollars in millions	2018	2017	$	%
Assets				
Interest-earning deposits with banks	$ 10,893	$ 28,595	$ (17,702)	(62)%
Loans held for sale	994	2,655	(1,661)	(63)%
Investment securities	82,701	76,131	6,570	9 %
Loans	226,245	220,458	5,787	3 %
Allowance for loan and lease losses	(2,629)	(2,611)	(18)	(1)%
Mortgage servicing rights	1,983	1,832	151	8 %
Goodwill	9,218	9,173	45	—
Other, net	52,910	44,535	8,375	19 %
Total assets	$ 382,315	$ 380,768	$ 1,547	—
Liabilities				
Deposits	$ 267,839	$ 265,053	$ 2,786	1 %
Borrowed funds	57,419	59,088	(1,669)	(3)%
Other	9,287	9,042	245	3 %
Total liabilities	334,545	333,183	1,362	—
Equity				
Total shareholders' equity	47,728	47,513	215	—
Noncontrolling interests	42	72	(30)	(42)%
Total equity	47,770	47,585	185	—
Total liabilities and equity	$ 382,315	$ 380,768	$ 1,547	—

The summarized balance sheet data in Table 4 is based upon our Consolidated Balance Sheet in Item 8 of this Report.

Our balance sheet at December 31, 2018 increased slightly compared to December 31, 2017 and we maintained strong capital and liquidity positions.

- Total assets increased as higher short-term investments, investment securities and loans were substantially offset by lower interest-earning deposits with banks.
- Total liabilities increased due to deposit growth, partially offset by lower borrowed funds.
- Total equity increased slightly as higher retained earnings was mostly offset by share repurchases and lower accumulated other comprehensive income (AOCI) largely related to net unrealized securities losses.

The following discussion provides additional information about the major components of our balance sheet. Information regarding our capital and regulatory compliance is included in the Liquidity and Capital Management portion of the Risk Management section of this Item 7 and in Note 18 Regulatory Matters in our Notes To Consolidated Financial Statements included in this Report.

Loans

Table 5: Loans

	December 31	December 31	Change	
Dollars in millions	2018	2017	$	%
Commercial lending				
Commercial	$ 116,834	$ 110,527	$ 6,307	6 %
Commercial real estate	28,140	28,978	(838)	(3)%
Equipment lease financing	7,308	7,934	(626)	(8)%
Total commercial lending	152,282	147,439	4,843	3 %
Consumer lending				
Home equity	26,123	28,364	(2,241)	(8)%
Residential real estate	18,657	17,212	1,445	8 %
Automobile	14,419	12,880	1,539	12 %
Credit card	6,357	5,699	658	12 %
Education	3,822	4,454	(632)	(14)%
Other consumer	4,585	4,410	175	4 %
Total consumer lending	73,963	73,019	944	1 %
Total loans	$ 226,245	$ 220,458	$ 5,787	3 %

Loans at December 31, 2018 reflected growth in both commercial and consumer lending compared to December 31, 2017.

Commercial lending increased driven by growth in our Corporate Banking and Business Credit businesses partially offset by lower loan balances in the Real Estate business within our Corporate & Institutional Banking segment. In Corporate Banking, commercial loan growth in asset-backed finance securitizations as well as increased lending to large and midsized corporate clients was partially offset by lower public finance lending. Growth in Business Credit was driven by higher utilization and new originations. Balances in the Real Estate business declined due to project loan payoffs, partially offset by higher commercial mortgage balances.

For commercial loans by industry and commercial real estate loans by geography and property type, see Loan Portfolio Characteristics and Analysis in the Credit Risk Management portion of the Risk Management section in this Item 7.

Consumer lending balances increased as growth in automobile loans, residential real estate loans and credit card balances were partially offset by lower home equity and education loans.

The growth in automobile loans was primarily due to higher indirect auto loans including continued new loan growth in the Southeast markets and expansion to franchised dealers in new markets. Residential real estate loans increased primarily as a result of originations of nonconforming loans, which are loans that do not meet government agency standards as a result of exceeding agency conforming loan limits. Credit card balances increased as we continued to focus on our long-term objective of deepening penetration within our existing customer base.

Home equity loans declined as paydowns and payoffs exceeded new originated volume. In addition, the declines in both home equity and education loans included the continued runoff in our non-strategic brokered home equity and government guaranteed education loan portfolios.

For information on home equity and residential real estate loans, including by geography and lien priority, and automobile loans, see Loan Portfolio Characteristics and Analysis in the Credit Risk Management portion of the Risk Management section in this Item 7.

For additional information regarding our loan portfolio, see the Credit Risk Management portion of the Risk Management section in this Item 7 and Note 1 Accounting Policies, Note 3 Asset Quality and Note 4 Allowance for Loan and Lease Losses in our Notes To Consolidated Financial Statements included in Item 8 of this Report.

Investment Securities

Investment securities of $82.7 billion at December 31, 2018 increased $6.6 billion compared to December 31, 2017, driven by net purchases of agency residential mortgage-backed securities of $4.8 billion and U.S. Treasury and government agencies securities of $3.6 billion. These increases were partially offset by the reclassification of $.6 billion of available for sale securities, primarily money market funds, to equity investments as part of the adoption of ASU 2016-01. See the Recently Adopted Accounting Standards portion of Note 1 Accounting Policies in Item 8 of this Report for additional detail on the adoption of this ASU.

The level and composition of the investment securities portfolio fluctuates over time based on many factors including market conditions, loan and deposit growth, and balance sheet management activities. We manage our investment securities portfolio to optimize returns, while providing a reliable source of liquidity for our banking and other activities, considering LCR and other internal and external guidelines and constraints.

Table 6: Investment Securities

	December 31, 2018		December 31, 2017		Ratings (a) As of December 31, 2018				
Dollars in millions	Amortized Cost	Fair Value	Amortized Cost	Fair Value	AAA/ AA	A	BBB	BB and Lower	No Rating
U.S. Treasury and government agencies	$ 18,862	$ 18,863	$ 15,173	$ 15,286	100%				
Agency residential mortgage-backed	45,153	44,407	40,037	39,847	100%				
Non-agency residential mortgage-backed	2,076	2,365	2,610	2,932	12%	2%	2%	50%	34%
Agency commercial mortgage-backed	2,773	2,720	2,367	2,315	100%				
Non-agency commercial mortgage-backed (b)	3,177	3,145	3,141	3,161	86%	6%			8%
Asset-backed (c)	5,115	5,155	5,531	5,598	88%	3%	4%	5%	
Other debt (d)	5,670	5,753	6,279	6,459	74%	15%	8%		3%
Other (e)			587	585					
Total investment securities (f)	$ 82,826	$ 82,408	$ 75,725	$ 76,183	95%	1%	1%	2%	1%

(a) Ratings percentages allocated based on amortized cost.
(b) Collateralized primarily by retail properties, office buildings, lodging properties and multi-family housing.
(c) Collateralized primarily by corporate debt, government guaranteed education loans and other consumer credit products.
(d) Includes state and municipal securities.
(e) On January 1, 2018, $.6 billion of available for sale securities, primarily money market funds, were reclassified to equity investments in accordance with the adoption of ASU 2016-01. See the Recently Adopted Accounting Standards portion of Note 1 Accounting Policies in the Notes to Consolidated Financial Statements in Item 8 of this Report for additional detail.
(f) Includes available for sale and held to maturity securities, which are recorded on our balance sheet at fair value and amortized cost, respectively.

Table 6 presents the distribution of our total investment securities portfolio by amortized cost and fair value, as well as by credit rating. The relationship of fair value to amortized cost at December 31, 2018 compared to December 31, 2017 primarily reflected the impact of higher interest rates on the valuation of fixed rate securities. We have included credit ratings information because we believe that the information is an indicator of the degree of credit risk to which we are exposed, which could affect our risk-weighted assets and, therefore, our risk-based regulatory capital ratios under the regulatory capital rules. Changes in credit ratings classifications could indicate increased or decreased credit risk and could be accompanied by a reduction or increase in the fair value of our investment securities portfolio.

The duration of investment securities was 3.4 years at December 31, 2018. We estimate that at December 31, 2018 the effective duration of investment securities was 3.5 years for an immediate 50 basis points parallel increase in interest rates and 3.2 years for an immediate 50 basis points parallel decrease in interest rates. Comparable amounts at December 31, 2017 for the effective duration of investment securities were 3.4 years and 3.0 years, respectively.

Based on expected prepayment speeds, the weighted-average expected maturity of the investment securities portfolio (excluding other) was 5.3 years at December 31, 2018 compared to 5.2 years at December 31, 2017.

Table 7: Weighted-Average Expected Maturities of Mortgage and Asset-Backed Debt Securities

December 31, 2018	Years
Agency residential mortgage-backed	6.3
Non-agency residential mortgage-backed	6.0
Agency commercial mortgage-backed	4.1
Non-agency commercial mortgage-backed	2.6
Asset-backed	2.2

Additional information regarding our investment securities is included in Note 5 Investment Securities and Note 6 Fair Value in the Notes To Consolidated Financial Statements included in this Report.

Funding Sources

Table 8: Details of Funding Sources

	December 31	December 31	Change	
Dollars in millions	2018	2017	$	%
Deposits				
Noninterest-bearing	$ 73,960	$ 79,864	$ (5,904)	(7)%
Interest-bearing				
Money market	53,368	59,735	(6,367)	(11)%
Demand	65,211	61,213	3,998	7 %
Savings	56,793	46,980	9,813	21 %
Time deposits	18,507	17,261	1,246	7 %
Total interest-bearing deposits	193,879	185,189	8,690	5 %
Total deposits	267,839	265,053	2,786	1 %
Borrowed funds				
Federal Home Loan Bank (FHLB) borrowings	21,501	21,037	464	2 %
Bank notes and senior debt	25,018	28,062	(3,044)	(11)%
Subordinated debt	5,895	5,200	695	13 %
Other	5,005	4,789	216	5 %
Total borrowed funds	57,419	59,088	(1,669)	(3)%
Total funding sources	$ 325,258	$ 324,141	$ 1,117	—

Total deposits increased in 2018 over 2017 as growth in interest-bearing deposits was partially offset by a decline in noninterest-bearing deposits. Noninterest-bearing deposits decreased mainly due to the impact of rising interest rates, reflecting a shift of primarily commercial noninterest-bearing deposits to interest-bearing. The increase in interest-bearing deposits was driven by growth in savings deposits reflecting, in part, a shift from consumer money market to relationship-based savings products.

Borrowed funds decreased in the comparison as a decline in bank notes and senior debt was partially offset by increases in subordinated debt and FHLB borrowings. The level and composition of borrowed funds fluctuates over time based on many factors including market conditions, loan, investment securities and deposit growth and capital considerations. We manage our borrowed funds to provide a reliable source of liquidity for our banking and other activities, considering LCR and other internal and external guidelines and constraints.

See the Liquidity and Capital Management portion of the Risk Management section of this Item 7 for additional information regarding our 2018 liquidity and capital activities.

Shareholders' Equity

Total shareholders' equity was $47.7 billion at December 31, 2018, an increase of $.2 billion compared to December 31, 2017. Higher retained earnings, which reflected net income of $5.3 billion reduced by $1.8 billion of common and preferred dividends, was partially offset by common share repurchases of $2.8 billion and lower AOCI of $.6 billion primarily due to net unrealized securities losses.

Common shares outstanding were 457 million at December 31, 2018 and 473 million at December 31, 2017 as repurchases of 19.9 million shares during 2018 were partially offset by share issuances from treasury stock related to warrants exercised and stock-based compensation activity.

BUSINESS SEGMENTS REVIEW

We have four reportable business segments:
- Retail Banking
- Corporate & Institutional Banking
- Asset Management Group
- BlackRock

Business segment results and a description of each business are included in Note 22 Segment Reporting included in the Notes To Consolidated Financial Statements in Item 8 of this Report. Certain amounts included in this Business Segments Review differ from those amounts shown in Note 22, primarily due to the presentation in this Item 7 of business net interest revenue on a taxable-equivalent basis. Note 22 presents results of businesses for 2018, 2017 and 2016.

Net interest income in business segment results reflects our internal funds transfer pricing methodology. Assets receive a funding charge and liabilities and capital receive a funding credit based on a transfer pricing methodology that incorporates product repricing characteristics, tenor and other factors.

Total business segment financial results differ from total consolidated net income. The impact of these differences is reflected in the "Other" category as shown in Table 99 in Note 22 Segment Reporting in Item 8 of this Report. "Other" includes residual activities that do not meet the criteria for disclosure as a separate reportable business, such as asset and liability management activities including net securities gains or losses, other-than-temporary impairment of investment securities, certain trading activities, certain non-strategic runoff consumer loan portfolios, private equity investments, intercompany eliminations, certain corporate overhead, tax adjustments that are not allocated to business segments, gains or losses related to BlackRock transactions, integration costs, exited businesses, and differences between business segment performance reporting and financial statement reporting (GAAP), including the presentation of net income attributable to noncontrolling interests as the segments' results exclude their portion of net income attributable to noncontrolling interests.

In the fourth quarter of 2018, we updated our internal management reporting processes relating to our segment reporting disclosures. Certain expenses that were previously recorded within "Other" were reclassified to our reportable segments. These expenses largely related to items that were previously considered corporate expenses, but were either closely aligned to processes and revenue functions within our business segments or were an allocation of expenses that the business segment would have incurred if it operated on a standalone basis. These reclassifications were retrospectively applied to the periods presented in this Business Segments Review and in Note 22 Segment Reporting in Item 8 of this Report. Additionally, certain fourth quarter 2017 net income tax benefits that were previously reported in "Other" in the fourth quarter of 2017 were reclassified within that period, in order to align the accounting of certain tax positions with the business segments that recorded the underlying activity.

Retail Banking

Retail Banking's core strategy is to acquire and retain customers who maintain their primary checking and transaction relationships with us. We seek to deepen relationships by meeting the broad range of our customers' financial needs with savings, liquidity, lending, investment and retirement solutions. A strategic priority for us is to differentiate the customer experience and drive transformation and automation. A key element of our strategy is to expand the use of lower-cost alternative distribution channels, with an emphasis on digital capabilities, while continuing to optimize the traditional branch network. In addition, we have a disciplined process to continually improve the engagement of both our employees and customers, which is a strong driver of customer growth, retention and relationship expansion. In 2018, we launched our national retail digital strategy designed to grow customers with digitally-led banking and an ultra-thin branch network in markets outside of our retail branch network.

Table 9: Retail Banking Table

(Unaudited)				
Year ended December 31			Change	
Dollars in millions, except as noted	2018	2017	$	%
Income Statement				
Net interest income	$ 5,119	$ 4,626	$ 493	11 %
Noninterest income	2,631	2,236	395	18 %
Total revenue	7,750	6,862	888	13 %
Provision for credit losses	373	347	26	7 %
Noninterest expense	5,978	5,746	232	4 %
Pretax earnings	1,399	769	630	82 %
Income taxes	335	322	13	4 %
Earnings	$ 1,064	$ 447	$ 617	138 %
Average Balance Sheet				
Loans held for sale	$ 636	$ 799	$ (163)	(20)%
Loans				
Consumer				
Home equity	$ 23,991	$ 25,278	$ (1,287)	(5)%
Automobile	13,827	12,407	1,420	11 %
Education	4,135	4,832	(697)	(14)%
Credit cards	5,838	5,248	590	11 %
Other	1,843	1,773	70	4 %
Total consumer	49,634	49,538	96	—
Commercial and commercial real estate	10,383	10,767	(384)	(4)%
Residential mortgage	13,985	12,238	1,747	14 %
Total loans	$ 74,002	$ 72,543	$ 1,459	2 %
Total assets	$ 89,739	$ 88,663	$ 1,076	1 %
Deposits				
Noninterest-bearing demand	$ 30,670	$ 29,788	$ 882	3 %
Interest-bearing demand	42,042	40,958	1,084	3 %
Money market	29,798	36,592	(6,794)	(19)%
Savings	47,019	38,802	8,217	21 %
Certificates of deposit	12,007	13,135	(1,128)	(9)%
Total deposits	$ 161,536	$ 159,275	$ 2,261	1 %
Performance Ratios				
Return on average assets	1.19%	.50%		
Noninterest income to total revenue	34%	33%		
Efficiency	77%	84%		

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Year ended December 31 Dollars in millions, except as noted	2018	2017	Change $	Change %
Supplemental Noninterest Income Information				
Consumer services	$ 1,128	$ 1,079	$ 49	5 %
Brokerage	$ 350	$ 312	$ 38	12 %
Residential mortgage	$ 316	$ 350	$ (34)	(10)%
Service charges on deposits	$ 688	$ 668	$ 20	3 %
Residential Mortgage Information				
Residential mortgage servicing statistics (in billions, except as noted) (a)				
Serviced portfolio balance (b)	$ 125	$ 127	$ (2)	(2)%
Serviced portfolio acquisitions	$ 12	$ 19	$ (7)	(37)%
MSR asset value (b)	$ 1.3	$ 1.2	$ .1	8 %
MSR capitalization value (in basis points) (b)	100	92	8	9 %
Servicing income: (in millions)				
Servicing fees, net (c)	$ 181	$ 187	$ (6)	(3)%
Mortgage servicing rights valuation, net of economic hedge	$ 3	$ (30)	$ 33	*
Residential mortgage loan statistics				
Loan origination volume (in billions)	$ 7.4	$ 9.0	$ (1.6)	(18)%
Loan sale margin percentage	2.41%	2.80%		
Percentage of originations represented by:				
Purchase volume (d)	67%	53%		
Refinance volume	33%	47%		
Other Information (b)				
Customer-related statistics (average)				
Non-teller deposit transactions (e)	55%	53%		
Digital consumer customers (f)	66%	62%		
Credit-related statistics				
Nonperforming assets (g)	$ 1,126	$ 1,129	$ (3)	—
Net charge-offs	$ 420	$ 371	$ 49	13 %
Other statistics				
ATMs	9,162	9,051	111	1 %
Branches (h)	2,372	2,459	(87)	(4)%
Brokerage account client assets (in billions) (i)	$ 47	$ 49	$ (2)	(4)%

* - Not Meaningful

(a) Represents mortgage loan servicing balances for third parties and the related income.
(b) Presented as of December 31, except for customer-related statistics, which are averages for the year ended, and net charge-offs, which are for the year ended.
(c) Servicing fees net of impact of decrease in MSR value due to passage of time, including the impact from both regularly scheduled loan prepayments and loans that were paid down or paid off during the period.
(d) Mortgages with borrowers as part of residential real estate purchase transactions.
(e) Percentage of total consumer and business banking deposit transactions processed at an ATM or through our mobile banking application.
(f) Represents consumer checking relationships that process the majority of their transactions through non-teller channels.
(g) Includes nonperforming loans of $1.1 billion at both December 31, 2018 and 2017.
(h) Excludes stand-alone mortgage offices and satellite offices (e.g., drive-ups, electronic branches and retirement centers) that provide limited products and/or services.
(i) Includes cash and money market balances.

Retail Banking earned $1.1 billion in 2018 compared with $447 million in 2017. The increase in earnings was driven by higher net interest income and noninterest income, partially offset by increases in noninterest expense and provision for credit losses. Earnings in 2018 also benefited from the lower statutory federal income tax rate.

Net interest income increased primarily due to wider interest rate spreads on the value of deposits.

The increase in noninterest income was largely attributable to the impact of negative derivative fair value adjustments related to Visa Class B common shares of $280 million in 2017, including $248 million in the fourth quarter of 2017 primarily related to the extension of anticipated timing of litigation resolution, compared with positive fair value adjustments of $35 million in 2018. Higher noninterest income also reflected growth in consumer service fees, including higher debit and credit card fees, as well as higher brokerage fees and service charges on deposits.

These increases in noninterest income were partially offset by lower residential mortgage noninterest income, reflecting a decline in loan sales revenue, as well as lower servicing revenue. The decline in loan sales revenue reflected lower gain on sales margins as a result of increased competition, a shift in product mix to purchases from refinancing, and lower loan origination volume. The comparison also included a benefit in 2018 from residential mortgage servicing rights valuation, net of economic hedge, compared with a negative valuation adjustment in 2017, which included a fourth quarter 2017 negative adjustment of $71 million for residential mortgage servicing rights fair value assumption updates.

Provision for credit losses increased in 2018 compared to 2017 primarily due to portfolio growth in credit card and unsecured installment loans partially offset by declines in the home equity portfolio.

Higher noninterest expense primarily resulted from increases in personnel expense, non-credit losses, continued investments in technology, risk and compliance expense, and marketing activity. Higher personnel expense included an increase in the minimum hourly pay rate for eligible employees.

The deposit strategy of Retail Banking is to remain disciplined on pricing and focused on growing and retaining relationship-based balances, executing on market-specific deposit growth strategies and providing a source of low-cost funding and liquidity to PNC. During 2018, average total deposits increased compared to 2017, as both interest-bearing and noninterest-bearing demand deposits increased. Savings deposits grew, reflecting, in part, a shift from money market deposits to relationship-based savings products. Certificates of deposit declined due to the net runoff of maturing accounts.

Retail Banking average total loans grew in 2018 compared with 2017:

- Average residential mortgages increased primarily as a result of growth in nonconforming residential mortgage loans.
- Average automobile loans, increased primarily due to strong new indirect auto loan volumes, including in our Southeast and new markets, as well as growth in direct auto loans.
- Average credit card balances increased as we continued to focus on our long-term objective of deepening penetration within our existing customer base.
- Average home equity loans decreased as paydowns and payoffs on loans exceeded new originated volume.
- Average education loans decreased driven by a decline in the runoff portfolio of government guaranteed education loans.
- Average commercial and commercial real estate loans declined as paydowns and payoffs on loans exceeded new volume.

Retail Banking continues to enhance the customer experience with refinements to product and service offerings that drive value for consumers and small businesses. We are focused on meeting the financial needs of our customers by providing a broad range of liquidity, banking and investment products. In 2018, Retail Banking launched its national retail digital strategy by offering a high yield savings account in markets outside of our existing retail branch network and opened a retail location in Kansas City.

Retail Banking continued to focus on its strategy of transforming the customer experience through transaction migration, branch network and home lending transformations, and multi-channel engagement and service strategies.

- Approximately 66% of consumer customers used non-teller channels for the majority of their transactions in 2018 compared with 62% in 2017.
- Deposit transactions via ATM and mobile channels increased to 55% of total deposit transactions from 53% in 2017.

Retail Banking continued to make progress on its multi-year initiative to redesign the home lending process by integrating mortgage and home equity lending into a common platform to enhance product capability and improve speed of delivery and convenience. We implemented a new mortgage origination system in 2017 and converted home equity loans to the new servicing platform in 2018. Both residential mortgage and home equity loans are now serviced on a single platform.

Corporate & Institutional Banking

Corporate & Institutional Banking's strategy is to be the leading relationship-based provider of traditional banking products and services to its customers through the economic cycles. We aim to grow our market share and drive higher returns by delivering value-added solutions that help our clients better run their organizations, all while maintaining prudent risk and expense management. We continue to focus on building client relationships where the risk-return profile is attractive.

Table 10: Corporate & Institutional Banking Table

(Unaudited) Year ended December 31 Dollars in millions, except as noted	2018	2017	Change $	Change %
Income Statement				
Net interest income	$ 3,637	$ 3,551	$ 86	2 %
Noninterest income	2,406	2,271	135	6 %
Total revenue	6,043	5,822	221	4 %
Provision for credit losses	85	160	(75)	(47)%
Noninterest expense	2,706	2,554	152	6 %
Pretax earnings	3,252	3,108	144	5 %
Income taxes	744	675	69	10 %
Earnings	$ 2,508	$ 2,433	$ 75	3 %
Average Balance Sheet				
Loans held for sale	$ 739	$ 898	$ (159)	(18)%
Loans				
Commercial	$ 103,285	$ 96,937	$ 6,348	7 %
Commercial real estate	26,569	27,372	(803)	(3)%
Equipment lease financing	7,437	7,619	(182)	(2)%
Total commercial lending	137,291	131,928	5,363	4 %
Consumer	42	233	(191)	(82)%
Total loans	$ 137,333	$ 132,161	$ 5,172	4 %
Total assets	$ 154,119	$ 148,414	$ 5,705	4 %
Deposits				
Noninterest-bearing demand	$ 44,099	$ 47,264	$ (3,165)	(7)%
Money market	24,060	22,464	1,596	7 %
Other	20,250	16,389	3,861	24 %
Total deposits	$ 88,409	$ 86,117	$ 2,292	3 %
Performance Ratios				
Return on average assets	1.63%	1.64%		
Noninterest income to total revenue	40%	39%		
Efficiency	45%	44%		
Other Information				
Consolidated revenue from: (a)				
Treasury Management (b)	$ 1,779	$ 1,516	$ 263	17 %
Capital Markets (b)	$ 1,088	$ 1,017	$ 71	7 %
Commercial mortgage banking activities:				
Commercial mortgage loans held for sale (c)	$ 107	$ 115	$ (8)	(7)%
Commercial mortgage loan servicing income (d)	247	228	19	8 %
Commercial mortgage servicing rights valuation, net of economic hedge (e)	27	54	(27)	(50)%
Total	$ 381	$ 397	$ (16)	(4)%
Commercial mortgage servicing rights asset value (f)	$ 726	$ 668	$ 58	9 %
Average Loans by C&IB Business				
Corporate Banking	$ 58,611	$ 55,701	$ 2,910	5 %
Real Estate	37,571	38,235	(664)	(2)%
Business Credit	17,411	15,804	1,607	10 %
Equipment Finance	14,531	13,408	1,123	8 %
Commercial Banking	6,984	7,028	(44)	(1)%
Other	2,225	1,985	240	12 %
Total average loans	$ 137,333	$ 132,161	$ 5,172	4 %
Credit-related statistics				
Nonperforming assets (f) (g)	$ 377	$ 531	$ (154)	(29)%

Net charge-offs	$ 10	$ 93	$ (83)	(89)%

(a) Represents consolidated amounts. See the additional revenue discussion regarding treasury management, capital markets-related products and services, and commercial mortgage banking activities in the Product Revenue section of this Corporate & Institutional Banking section.
(b) Includes amounts reported in net interest income and noninterest income.
(c) Includes other noninterest income for valuations on commercial mortgage loans held for sale and related commitments, derivative valuations, originations fees, gains on sale of loans held for sale and net interest income on loans held for sale.
(d) Includes net interest income and noninterest income (primarily in corporate service fees) from loan servicing net of reduction in commercial mortgage servicing rights due to amortization expense and payoffs. Commercial mortgage servicing rights valuation, net of economic hedge is shown separately.
(e) Amounts are reported in corporate service fees.
(f) As of December 31.
(g) Includes nonperforming loans of $.3 billion and $.5 billion at December 31, 2018 and 2017, respectively.

Corporate & Institutional Banking earned $2.5 billion in 2018 compared to $2.4 billion in 2017. The increase was primarily due to higher revenue and lower provision for credit losses, mostly offset by higher noninterest expense and income tax expense, as the 2018 impact of a lower statutory rate was more than offset by a 2017 benefit from federal tax legislation.

Net interest income increased in the comparison, primarily due to wider interest rate spreads on the value of deposits, as well as higher average loan and deposit balances, partially offset by narrower interest rate spreads on the value of loans.

Growth in noninterest income in the comparison was primarily driven by higher treasury management product revenue and higher capital markets-related revenue, including higher merger and acquisition advisory fees and revenue from customer-related derivative and foreign exchange services. Higher gains on asset sales also contributed to noninterest income growth in 2018. These increases were partially offset by a lower benefit from commercial mortgage servicing rights valuation, net of economic hedge, and decreased revenue from credit valuations on customer-related derivative activities.

Credit quality for 2018 was strong as nonperforming assets and net charge-offs declined compared with 2017. The decrease in provision for credit losses in the comparison reflected improved credit quality.

Noninterest expense increased in the comparison largely due to investments in strategic initiatives and variable costs associated with increased business activity.

Average loans increased compared with 2017 due to strong growth in Corporate Banking, Business Credit and Equipment Finance:

- Corporate Banking provides lending, treasury management and capital markets-related products and services to midsized and large corporations and government and not-for-profit entities. Average loans for this business grew in the comparison reflecting strong production in asset-backed financing as well as increased lending to large and midsized corporate clients, partially offset by lower public finance lending.
- PNC Real Estate provides banking, financing and servicing solutions for commercial real estate clients across the country. Average loans for this business decreased primarily driven by project loan payoffs, partially offset by higher commercial mortgage balances.
- PNC Business Credit provides asset-based lending. The loan portfolio is relatively high yielding, with acceptable risk as the loans are mainly secured by short-term assets. Average loans for this business grew in the comparison as increased utilization and new originations were partially offset by payoffs.
- PNC Equipment Finance provides equipment financing solutions for clients throughout the U.S. and Canada. Average loans, including commercial loans and finance leases, and operating leases totaled $15.5 billion in 2018, an increase of $1.2 billion compared with 2017 due to strong new production and the impact of the business acquired in the second quarter of 2017.
- Commercial Banking provides lending, treasury management and capital markets-related products and services to smaller corporations and businesses. Average loans for this business were relatively unchanged.

The deposit strategy of Corporate & Institutional Banking is to remain disciplined on pricing and focused on growing and retaining relationship-based balances over time, executing on customer and segment-specific deposit growth strategies and continuing to provide funding and liquidity to PNC. In 2018, average total deposits increased compared to 2017 driven by growth in interest-bearing deposits reflecting, in part, a shift from noninterest-bearing deposits in the rising rate environment. We continue to monitor and balance the relationship between increases to rates paid and the overall profitability of our deposit balances.

Corporate & Institutional Banking expanded its Corporate Banking business, focused on the middle market and larger sectors, into the Denver, Houston and Nashville markets in 2018. This followed offices opened in 2017 in Dallas, Kansas City and Minneapolis. These locations complement Corporate & Institutional Banking national businesses with a significant presence in these cities, and build on past successes in the markets where PNC's retail banking presence was limited, such as in the Southeast. Our full suite of commercial products and services is offered in these locations. We have announced plans to expand into the Boston and Phoenix markets in 2019.

Product Revenue
In addition to credit and deposit products for commercial customers, Corporate & Institutional Banking offers other services, including treasury management, capital markets-related products and services, and commercial mortgage banking activities, for

customers of all business segments. On a consolidated basis, the revenue from these other services is included in net interest income, corporate service fees and other noninterest income. From a business segment perspective, the majority of the revenue and expense related to these services is reflected in the Corporate & Institutional Banking segment results and the remainder is reflected in the results of other businesses. The Other Information section in Table 10 includes the consolidated revenue to PNC for these services. A discussion of the consolidated revenue from these services follows.

The Treasury Management business provides payables, receivables, deposit and account services, liquidity and investments, and online and mobile banking products and services to our clients. Treasury management revenue is reported in noninterest income and net interest income. Noninterest income includes treasury management product revenue less earnings credits provided to customers on compensating deposit balances used to pay for products and services. Net interest income primarily includes revenue from all treasury management customer deposit balances. Compared with 2017, treasury management revenue increased primarily due to interest rate spread expansion on deposit balances and higher product revenue.

Capital markets-related products and services include foreign exchange, derivatives, securities underwriting, loan syndications, mergers and acquisitions advisory and equity capital markets advisory related services. The increase in revenue in the comparison was broad based across most products and services and included higher merger and acquisition advisory, derivative, foreign exchange and equity capital markets advisory related services, partially offset by lower revenue from credit valuations on customer-related derivative activities.

Commercial mortgage banking activities include revenue derived from commercial mortgage servicing (including net interest income and noninterest income) and revenue derived from commercial mortgage loans held for sale and related hedges. Total revenue from commercial mortgage banking activities decreased in the comparison as a lower benefit from commercial mortgage servicing rights valuation, net of economic hedge, and lower revenue from commercial mortgage loans held for sale were partially offset by higher revenue from commercial mortgage loan servicing.

Asset Management Group

Asset Management Group is focused on being a premier bank-held individual and institutional asset manager in each of the markets it serves. The business seeks to deliver high quality banking, trust and investment management services to our high net worth, ultra high net worth and institutional client sectors through a broad array of products and services. Asset Management Group's priorities are to serve our clients' financial objectives, grow and deepen customer relationships and deliver solid financial performance with prudent risk and expense management.

Table 11: Asset Management Group Table

(Unaudited) Year ended December 31 Dollars in millions, except as noted	2018	2017	Change $	Change %
Income Statement				
Net interest income	$ 287	$ 287	$ —	—
Noninterest income	892	881	11	1 %
Total revenue	1,179	1,168	11	1 %
Provision for credit losses	2	1	1	100 %
Noninterest expense	913	905	8	1 %
Pretax earnings	264	262	2	1 %
Income taxes	62	75	(13)	(17)%
Earnings	$ 202	$ 187	$ 15	8 %
Average Balance Sheet				
Loans				
Consumer	$ 4,656	$ 5,018	$ (362)	(7)%
Commercial and commercial real estate	727	715	12	2 %
Residential mortgage	1,588	1,301	287	22 %
Total loans	$ 6,971	$ 7,034	$ (63)	(1)%
Total assets	$ 7,423	$ 7,511	$ (88)	(1)%
Deposits				
Noninterest-bearing demand	$ 1,458	$ 1,528	$ (70)	(5)%
Interest-bearing demand	3,323	3,628	(305)	(8)%
Money market	2,253	3,158	(905)	(29)%
Savings	4,890	3,947	943	24 %
Other	466	250	216	86 %
Total deposits	$ 12,390	$ 12,511	$ (121)	(1)%
Performance Ratios				
Return on average assets	2.72%	2.49%		
Noninterest income to total revenue	76%	75%		
Efficiency	77%	77%		
Supplemental Noninterest Income Information				
Asset management fees	$ 883	$ 865	$ 18	2 %
Other Information				
Nonperforming assets (a) (b)	$ 46	$ 49	$ (3)	(6)%
Net charge-offs	$ 9	$ 4	$ 5	125 %
Client Assets Under Administration (in billions) (a) (c)				
Discretionary client assets under management	$ 148	$ 151	$ (3)	(2)%
Nondiscretionary client assets under administration	124	131	(7)	(5)%
Total	$ 272	$ 282	$ (10)	(4)%
Discretionary client assets under management				
Personal	$ 87	$ 94	$ (7)	(7)%
Institutional	61	57	4	7 %
Total	$ 148	$ 151	$ (3)	(2)%

(a) As of December 31.
(b) Includes nonperforming loans of $45 million at December 31, 2018 and $44 million at December 31, 2017.
(c) Excludes brokerage account client assets.

Asset Management Group earned $202 million in 2018 compared with $187 million in 2017. Higher earnings reflected the lower statutory federal income tax rate and higher revenue, partially offset by higher noninterest expense.

Higher revenue in the comparison was driven by growth in asset management fees, reflecting stronger average equity markets, partially offset by changes in asset mix.

Noninterest expense increased in the comparison and was primarily attributable to higher compensation and continued investments in technology.

Asset Management Group's discretionary client assets under management decreased in the comparison, primarily attributable to a decline in the equity markets as of December 31, 2018 compared to the prior year-end.

The Asset Management Group strives to be the leading relationship-based provider of investment, planning, banking and fiduciary services to wealthy individuals and institutions by proactively delivering value-added ideas and solutions and exceptional service.

Wealth Management and Hawthorn have nearly 100 offices operating in seven out of the ten most affluent states in the U.S. with a majority co-located with retail banking branches. The businesses provide customized investments, wealth planning, trust and estate administration and private banking solutions to affluent individuals and ultra-affluent families.

Institutional Asset Management provides outsourced chief investment officer, custody, private real estate, cash and fixed income client solutions, and retirement administration services to institutional clients such as corporations, healthcare systems, insurance companies, unions, municipalities and non-profits. The business also offers PNC proprietary mutual funds and investment strategies. Institutional Asset Management is strengthening its partnership with Corporate & Institutional Banking to drive growth and is focused on building retirement capabilities and expanding product solutions for all customers.

BlackRock

(Unaudited)

Information related to our equity investment in BlackRock follows:

Table 12: BlackRock Table

Year ended December 31 Dollars in millions	2018	2017
Business segment earnings (a)	$ 781	$ 1,764
PNC's economic interest in BlackRock (b)	22%	22%

(a) Includes our share of BlackRock's reported GAAP earnings and income taxes on those earnings incurred by us.
(b) At December 31.

In billions	December 31, 2018	December 31, 2017
Carrying value of our investment in BlackRock (c)	$ 8.2	$ 7.7
Market value of our investment in BlackRock (d)	$ 13.7	$ 17.9

(c) We account for our investment in BlackRock under the equity method of accounting, exclusive of a related deferred tax liability of $1.7 billion at December 31, 2018 and $1.6 billion at December 31, 2017. Our voting interest in BlackRock common stock was approximately 22% at December 31, 2018.
(d) Does not include liquidity discount.

Earnings for our BlackRock segment decreased compared with 2017, reflecting the 2017 income tax benefit of $972 million resulting from the revaluation of our deferred tax liabilities related to BlackRock as a result of the new federal tax legislation. Our share of BlackRock's reported 2017 GAAP earnings also included a $254 million flow through impact of the new tax legislation on the income recognized on our equity investment in BlackRock.

In addition to our investment in BlackRock reflected in Table 12, at December 31, 2018, we held approximately 143,458 shares of BlackRock Series C Preferred Stock valued at $45 million, which were available to fund our obligation in connection with certain BlackRock long-term incentive plan (LTIP) programs. Additional information regarding the valuation of the BlackRock Series C Preferred Stock is included in Note 6 Fair Value, and additional information regarding our BlackRock LTIP share obligations is included in Note 12 Stock Based Compensation Plans, both of which are in Item 8 of this Report.

See Note 24 Subsequent Events in Item 8 of this Report for information on our January 31, 2019 transfer of our remaining shares of Series C Preferred Stock to BlackRock to satisfy our obligation under the Share Surrender Agreement.

2017 VERSUS 2016

Consolidated Income Statement Review

Summary Results
Net income for 2017 was $5.4 billion, or $10.36 per diluted common share, an increase of 35% compared with $4.0 billion, or $7.30 per diluted common share, for 2016. Higher net income was driven by an 8% increase in total revenue and a tax benefit from the new federal tax legislation, partially offset by a 10% increase in noninterest expense.

Net Interest Income
Net interest income increased $717 million, or 9%, to $9.1 billion in 2017 compared to 2016 due to increases in loan and securities balances and yields, partially offset by an increase in borrowing and deposit costs. Net interest margin increased to 2.87% in 2017 compared to 2.73% in 2016, reflecting the benefit to loans and securities yields from higher interest rates in 2017.

Noninterest Income
Noninterest income increased $450 million, or 7%, to $7.2 billion for 2017 compared to 2016. Noninterest income as a percentage of total revenue was 44% for 2017 compared to 45% for 2016.

Asset management revenue increased $421 million, or 28%, to $1.9 billion in 2017 compared to 2016 reflecting higher earnings from our equity investment in BlackRock, including a $254 million flow through impact from the new federal tax legislation on our equity investment. Additionally, the impact of stronger equity markets contributed to the increase. Discretionary client assets under management in our Asset Management Group segment were $151 billion at December 31, 2017 compared with $137 billion at December 31, 2016, primarily attributable to higher equity markets.

Consumer service fees of $1.4 billion in 2017 grew $27 million, or 2%, compared to 2016, primarily due to a $25 million increase in credit card fees, net of rewards, and debit card fees, which reflected continued momentum in customer activity in both transaction trends and customer growth. In addition, brokerage fees increased $17 million, driven by higher brokerage assets under management. These increases were partially offset by individually insignificant items.

Corporate services revenue increased $153 million, or 10%, to $1.7 billion in 2017 compared to 2016, reflecting broad based growth, including higher merger and acquisition (M&A) advisory fees of $65 million and an increase in loan syndication and agency fees of $28 million, both of which reflected continued momentum in the M&A market. Higher treasury management revenue and operating lease income related to the commercial and vendor finance business acquired in the second quarter of 2017 also contributed to the increase in corporate services revenue.

In the first quarter of 2018, and in connection with the commercial and vendor finance business we acquired in the second quarter of 2017, we reclassified operating lease income to Corporate services noninterest income from Other noninterest income on the Consolidated Income Statement. Operating lease income was $121 million in 2017 and $85 million in 2016.

Residential mortgage revenue decreased $217 million, or 38%, to $.4 billion in 2017 compared to 2016, reflecting a decline of $122 million in residential mortgage servicing rights valuation, net of economic hedge, which included a $71 million negative adjustment for mortgage servicing rights fair value assumption updates in the fourth quarter of 2017. In addition, the decrease reflected lower loan sales revenue of $85 million, which was driven by lower origination volume and compressed pricing margins.

Service charges on deposits of $.7 billion in 2017 increased $28 million, or 4%, compared to 2016, reflecting higher levels of activity.

Other noninterest income increased $38 million, or 4%, to $1.1 billion in 2017 compared to 2016, primarily due to higher revenue from private equity investments of $172 million and $119 million for the appreciation of BlackRock common stock used to fund PNC's fourth quarter 2017 contribution to the PNC Foundation. The increase in revenue from private equity investments reflected positive impacts from valuation adjustments on equity investments subject to the Volcker Rule provision of Dodd-Frank. These increases were largely offset by negative derivative fair value adjustments related to Visa Class B common shares of $280 million in 2017, including $248 million in the fourth quarter primarily related to the extension of anticipated timing of litigation resolution. In 2016, gains on sales of Visa Class B common shares, net of derivative fair value adjustments, were $32 million.

Provision For Credit Losses
The provision for credit losses increased to $441 million in 2017 compared to $433 million in 2016. The provision for 2017 reflected loan growth, including an initial provision for the loan and lease portfolio obtained through the business acquired in the second quarter of 2017, mostly offset by lower provisions in the oil, gas and coal sectors.

Noninterest Expense
Noninterest expense increased by $922 million, or 10%, to $10.4 billion in 2017 compared to 2016, reflecting higher levels of business activity and ongoing investments in technology and business infrastructure. Higher personnel expense included the fourth quarter 2017 announcement of employee cash payments and pension account credits totaling $105 million. In addition, charges for

real estate dispositions and exits totaled $197 million for the fourth quarter of 2017, primarily within other noninterest expense. Additionally, other noninterest expense for 2017 included the fourth quarter $200 million contribution of BlackRock common stock to the PNC Foundation. Contributions to the PNC Foundation in 2016 were $75 million.

During 2017, we completed actions and achieved our 2017 continuous improvement program savings goal of $350 million, which funded a significant portion of our business and technology investments, including our Retail branch strategy, enhanced digital capabilities and our home lending transformation.

Effective Income Tax Rate
An income tax benefit of $1.2 billion was recorded in the fourth quarter of 2017 related to the change in tax legislation and was primarily attributable to the revaluation of net deferred tax liabilities at the lower statutory tax rate of 21%. As a result, the effective income tax rate for 2017 was 1.9% compared with 24.1% for 2016.

Consolidated Balance Sheet Review

Summary Results
Our balance sheet grew in 2017 compared to 2016 and we had strong liquidity and capital positions. Total assets increased to $380.8 billion at December 31, 2017 compared to $366.4 billion at December 31, 2016 primarily due to strong loan growth and higher interest-earning deposits with banks. Total liabilities increased to $333.2 billion at December 31, 2017 compared to $319.5 billion at December 31, 2016 due to deposit growth and higher borrowed funds. Total equity increased to $47.6 billion at December 31, 2017 compared to $46.9 at December 31, 2016 due to higher retained earnings driven by net income, partially offset by common share repurchases and a decline in noncontrolling interests related to the redemption of Perpetual Trust Securities in the first quarter of 2017.

Loans
Loans increased $9.6 billion, or 5%, to $220.5 billion as of December 31, 2017 compared with December 31, 2016, reflecting higher commercial lending and consumer lending.

Commercial lending increased $9.5 billion, or 7%, reflecting broad based growth across our lending businesses, including Corporate Banking, Business Credit and Equipment Finance within our Corporate & Institutional Banking segment. In Corporate Banking, loan growth was largely due to increased lending related to mergers and acquisition activity and strong growth in middle market lending. In Business Credit, new originations and higher utilization drove the increase. In the Equipment Finance business, commercial loans and equipment lease financing loans increased as a result of new production, as well as the acquisition of a commercial and vendor finance business with $1.0 billion of loans and leases during the second quarter of 2017.

Growth in consumer lending balances of $.1 billion was driven by higher residential real estate, automobile and credit card loans, partially offset by lower home equity and education loans. Residential real estate loans increased as a result of growth in originations of nonconforming residential mortgage loans, both nationwide and within our branch network. Automobile loans grew in part due to continued expansion in our Southeast markets. Higher credit card balances reflected an increase in new accounts, due in part to the introduction of a new credit card product, as well as higher purchase volume. Decreases in home equity and education loans included the continued runoff in our non-strategic brokered home equity and government guaranteed education loan portfolios. The decline in home equity also reflected decreases due to paydowns and payoffs exceeding new originated volume.

Average total loans increased $8.5 billion, or 4%, to $217.3 billion in 2017 compared to 2016, reflecting increases in average commercial lending of $8.4 billion and average consumer lending of $.1 billion.

Investment Securities
Investment securities increased $.2 billion to $76.1 billion at December 31, 2017 compared to December 31, 2016. Growth in investment securities was driven by net purchases of agency residential mortgage-backed securities of $2.7 billion and U.S. Treasury and government agencies securities of $1.6 billion, partially offset by declines in commercial mortgage-backed securities of $2.2 billion, asset-backed securities of $.9 billion and non-agency residential mortgage-backed securities of $.6 billion.

Average investment securities increased $3.0 billion, or 4%, to $75.1 billion in 2017 compared to 2016. Net purchases of U.S. Treasury and government agencies securities of $2.9 billion and agency residential mortgage-backed securities of $2.8 billion were partially offset by declines in average commercial mortgage-backed securities of $1.6 billion and non-agency residential mortgage-backed securities of $.8 billion.

The weighted-average expected maturity of the investment securities portfolio (excluding other) was 5.2 years at December 31, 2017 and 5.0 years at December 31, 2016.

Funding Sources
Deposits increased $7.9 billion, or 3%, to $265.1 billion at December 31, 2017 compared with December 31, 2016. Savings deposits grew $10.0 billion reflecting, in part, a shift from consumer money market to relationship-based savings products. Money market deposits declined $4.2 billion due to the shift to savings products, which was partially offset by growth of $3.5 billion in commercial

interest-bearing money market deposits. Interest-bearing demand deposits increased $2.7 billion, reflecting growth in consumer deposits of $1.7 billion and higher commercial deposits of $1.0 billion.

Average total deposits increased $7.2 billion, or 3%, to $258.1 billion in 2017 compared to 2016 primarily due to growth in average interest-bearing deposits of $6.7 billion, or 4%, driven by higher average savings deposits of $13.1 billion. This increase reflected a shift, in part, to relationship-based savings products from money market deposits, which decreased $9.2 billion. Additionally, average interest-bearing demand deposits grew $4.3 billion, mainly attributable to the higher interest rate environment and customer growth. Average noninterest-bearing deposits increased $.5 billion in 2017 over 2016.

Total borrowed funds increased $6.4 billion, or 12%, to $59.1 billion at December 31, 2017 compared with December 31, 2016 as higher bank notes and senior debt and FHLB borrowings were driven by new issuances outpacing maturities and calls. These increases were partially offset by subordinated debt maturities.

Shareholders' Equity
Total shareholders' equity grew $1.8 billion, or 4%, to $47.5 billion at December 31, 2017 compared with December 31, 2016. Higher retained earnings, which reflected net income of $5.4 billion reduced by $1.5 billion of common and preferred dividends, was partially offset by common share repurchases of $2.3 billion. Common shares outstanding were 473 million and 485 million at December 31, 2017 and December 31, 2016, respectively, reflecting repurchases of 18.6 million shares during 2017, which were partially offset by share issuances from treasury stock related to warrants exercised and stock-based compensation activity.

RISK MANAGEMENT

Enterprise Risk Management

We encounter risk as part of the normal course of operating our business. Accordingly, we design risk management processes to help manage this risk. We manage risk in light of our risk appetite to optimize long-term shareholder value while supporting our employees, customers and communities.

Our Enterprise Risk Management (ERM) Framework is structurally aligned with enhanced prudential standards that establish minimum requirements for the design and implementation of a risk management framework. This Risk Management section describes our ERM Framework which consists of risk culture, enterprise strategy (including risk appetite, strategic planning, capital planning and stress testing), risk governance and oversight, risk identification, risk assessments, risk controls and monitoring, and risk aggregation and reporting. The overall Risk Management section of this Item 7 also provides an analysis of our key areas of risk, which include but are not limited to credit, liquidity and capital, market, operational and compliance. Our use of financial derivatives as part of our overall asset and liability risk management process is also addressed within this Risk Management section.

We operate within a rapidly evolving regulatory environment. Accordingly, we are actively focused on the timely adoption of applicable regulatory pronouncements within our ERM Framework.

We view risk management as a cohesive combination of the following risk elements which form our ERM Framework:

Risk Culture
A strong risk culture helps us make well-informed decisions, ensures individuals conform to the established culture, reduces an individual's ability to do something for personal gain, and rewards employees working toward a common goal rather than individual interests. Our risk culture reinforces the appropriate protocols for responsible and ethical behavior. These protocols are especially critical in terms of our risk awareness, risk-taking behavior and risk management practices.

Managing risk is every employee's responsibility. All of our employees individually and collectively assume responsibility for ensuring the organization is performing with the utmost integrity, is applying sound risk management practices and is striving to achieve our stated objectives rather than pursuing individual interests. All employees are responsible for understanding our Enterprise Risk Appetite Statement, the ERM Framework and how risk management applies to their respective roles and responsibilities. Employees are encouraged to collaborate across groups to identify and mitigate risks and elevate issues as required. We reinforce risk management responsibilities through a performance management system where employee performance goals include risk management objectives and incentives for employees to reinforce balanced measures of risk-adjusted performance.

Proactive communication, between groups and up to the Board of Directors, facilitates timely identification and resolution of risk issues. Our multi-level risk committee structure provides formal channels to identify and report risk.

Enterprise Strategy
We ensure that our overall enterprise strategy is within acceptable risk parameters through our risk appetite, strategic planning, capital planning and stress testing processes. These components are reviewed and approved at least annually by the Board of Directors.

Risk Appetite: Our risk appetite represents the organization's desired enterprise risk position, set within our capital based risk and liquidity capacity to achieve our strategic objectives and business plans. The Enterprise Risk Appetite Statement qualitatively describes the aggregate level of risk we are willing to accept in order to execute our business strategies. Qualitative guiding principles further define each of the risks within our taxonomy to support the risk appetite statement. Risk appetite metrics and limits, including forward-looking metrics, quantitatively measure whether we are operating within our stated Risk Appetite. Our risk appetite metrics reflect material risks, align with our established Risk Appetite Framework, balance risk and reward, leverage analytics, and adjust in a timely manner to changes in the external and internal risk environments.

Strategic Planning: Our enterprise and line of business strategic plans outline major objectives, strategies and goals which are expected to be achieved over the next five years while seeking to ensure we remain compliant with all capital, risk appetite and liquidity targets and guidelines. Our CEO and CFO lead the development of the strategic plan, the strategic objectives and the comprehensive identification of material risks that could hinder successful implementation and execution of strategies. Strategic planning is linked to our risk management and capital planning processes.

Capital Planning and Stress Testing: Capital planning helps to ensure we are maintaining safe and sound operations and viability. The capital planning process and the resulting capital plan evolve as our overall risks, activities and risk management practices change. Capital planning aligns with our strategic planning process.

Stress testing is an essential element of the capital planning process. Effective stress testing enables us to consider the estimated effect on capital of various hypothetical scenarios.

Risk Governance and Framework
We employ a comprehensive risk management governance framework to help ensure that risks are identified, balanced decisions are made that consider risk and return, and risks are adequately monitored and managed. Risk committees established within this risk governance and oversight framework provide oversight for risk management activities at the Board of Directors, executive, corporate and business levels. Committee composition is designed to provide effective oversight balanced across the three lines of defense in accordance with the OCC's heightened risk management and governance standards and guidelines. See discussion of the enhanced prudential standards in the Supervision and Regulation section in Item 1 of this Report.

To ensure the appropriate risks are being taken and effectively managed and controlled, risk is managed across three lines of defense. The Board of Directors' and each line of defense's responsibilities are detailed below:

Board of Directors – The Board of Directors oversees our risk-taking activities and is responsible for exercising sound, independent judgment when assessing risk.

First line of defense – The front line units are accountable for identifying, owning and managing risks to within acceptable levels while adhering to the risk management framework established by the Independent Risk Management department. Our businesses strive to enhance risk management and internal control processes within their areas. Integrated and comprehensive processes are designed to adequately identify, measure, manage, monitor and report risks which may significantly impact each business.

Second line of defense – The second line of defense is independent from the first line of defense and is responsible for establishing the standards for identifying, measuring, monitoring, controlling and reporting aggregate risks. As the second line of defense, the independent risk areas monitor the risks generated by the first line of defense, review and challenge the implementation of effective risk management practices, and report any issues or exceptions. The risk areas help to ensure the first line of defense is properly designed and operating as intended, and they may intervene directly in modifying and developing first line of defense risk processes and controls.

Third line of defense – As the third line of defense, Internal Audit is independent from the first and second lines of defense. Internal Audit provides the Board of Directors and executive management comprehensive assurance on the effectiveness of risk management practices across the organization.

Within the three lines of defense, the independent risk organization has sufficient authority to influence material decisions. Our business oversight and decision-making is supported through a governance structure at the Board of Directors and management level. Specific responsibilities include:

Board of Directors – Our Board of Directors oversees our business and affairs as managed by our officers and employees. The Board of Directors may receive assistance in carrying out its duties and may delegate authority through the following standing committees:

- *Audit Committee*: monitors the integrity of our consolidated financial statements; monitors internal control over financial reporting; monitors compliance with our code of ethics; evaluates and monitors the qualifications and independence of our independent auditors; and evaluates and monitors the performance of our Internal Audit function and our independent auditors.
- *Nominating and Governance Committee*: oversees the implementation of sound corporate governance principles and practices while promoting our best interests and those of our shareholders
- *Personnel and Compensation Committee*: oversees the compensation of our executive officers and other specified responsibilities related to personnel compensation matters affecting us. The committee is also responsible for evaluating the relationship between risk-taking activities and incentive compensation plans.
- *Risk Committee*: oversees enterprise-wide risk structure and the processes established to identify, measure, monitor and manage the organization's risks and evaluates and approves our risk governance framework. The Risk Committee has formed a Technology Subcommittee and a Compliance Subcommittee to facilitate Board-level oversight of risk management in these areas.

Executive Committee: The Executive Committee is responsible for guiding the creation and execution of our business strategy across the company. With this responsibility, the Executive Committee executes various strategic approval and review activities, with a focus on capital deployment, business performance and risk management.

Corporate Committees – The corporate committees are responsible for overseeing risk standards and strategies, recommending risk limits, policies and metrics, monitoring risk exposures, reviewing risk profiles and key risk issues, and approving significant transactions and initiatives. We have established several senior management-level corporate committees to facilitate the review, evaluation and management of risk.

Working Committees – The working committees are generally subcommittees of the corporate committees. Working committees are intended to assist in the implementation of key enterprise-level activities within a business or function; recommend and/or approve risk appetite metrics and limits; recommend and/or approve policies that are generally within the standards outlined in the applicable enterprise policy; and review and/or approve certain significant transactions or initiatives.

Policies and Procedures – We have established risk management policies and procedures to provide direction, guidance and clarity on roles and responsibilities to management and the Board of Directors. These policies and procedures are organized in a multi-tiered framework and require periodic review and approval by relevant committees within the governance structure.

We have established risk management policies, programs and procedures to support our ERM Framework, articulate our risk culture, define the parameters and processes within which employees are to manage risk and conduct our business activities and to provide direction, guidance and clarity on roles and responsibilities to management and the Board of Directors. These policies, programs and procedures are organized in a multi-tiered framework and require periodic review and approval by relevant committees within the governance structure.

Risk Identification

Risk identification takes place across a variety of risk types throughout the organization. These risk types consist of, but are not limited to, credit, liquidity and capital, market, operational and compliance. Risks are identified based on a balanced use of analytical tools and management judgment for both on- and off-balance sheet exposures. Our governance structure supports risk identification by facilitating assessment of key risk issues, emerging risks and idiosyncratic risks and implementation of mitigation strategies as appropriate. These risks are prioritized based on quantitative and qualitative analysis and assessed against the risk appetite. Multiple tools and approaches are used to help identify and prioritize risks, including Risk Appetite Metrics, Key Risk Indicators, Key Performance Indicators, Risk Control and Self-Assessments, scenario analysis, stress testing and special investigations.

Risks are aggregated and assessed within and across risk functions or businesses. The aggregated risk information is reviewed and reported at an enterprise level for adherence to the Risk Appetite Framework and approved by the Board of Directors or by appropriate committees. This enterprise aggregation and reporting approach promotes the identification and appropriate escalation of material risks across the organization and supports an understanding of the cumulative impact of risk in relation to our risk appetite.

Risk Assessment
Once risks are identified, they are evaluated based on quantitative and qualitative analysis to determine whether they are material. Risk assessments support the overall management of an effective ERM Framework and allow us to control and monitor our actual risk level and risk management effectiveness through the use of risk measures. Comprehensive, accurate and timely assessments of risk are essential to an effective ERM Framework. Effective risk measurement practices will uncover recurring risks that have been experienced in the past; make the known risks easy to see, understand, compare and report; and reveal unanticipated risks that may not be easy to understand or predict.

Risk Controls and Monitoring
Our ERM Framework consists of policies, processes, personnel and control systems. Risk controls and limits provide the linkage from our Risk Appetite Statement and associated guiding principles to the risk taking activities of our businesses. In addition to risk appetite limits, a system of more detailed internal controls exists which oversees and monitors our various processes and functions. These control systems measure performance, help employees make correct decisions, ensure information is accurate and reliable, and document compliance with laws and regulations.

Our monitoring and evaluation of risks and controls provides assurance that policies, procedures and controls are effective and also results in the identification of control improvement recommendations. Risk monitoring is a daily, ongoing process used by both the first and second line of defense to ensure compliance with our ERM Framework. Risk monitoring is accomplished in many ways, including performing risk assessments at the prime process and risk assessment unit level, monitoring an area's key controls, the timely reporting of issues, and establishing a quality control and/or quality assurance function, as applicable.

Risk Aggregation and Reporting
Risk reporting is a comprehensive way to: (i) aggregate risks; (ii) identify concentrations; (iii) help ensure we remain within our established risk appetite; (iv) serve as a basis for monitoring our risk profile in relation to our risk appetite and (v) communicate risks to the Board of Directors and executive management.

Risk reports are produced at the line of business, functional risk and enterprise levels. The enterprise level risk report aggregates risks identified in the functional and business reports to define the enterprise risk profile. The enterprise risk profile is a point-in-time assessment of enterprise risk and represents our overall risk position in relation to the desired enterprise risk appetite. The determination of the enterprise risk profile is based on analysis of quantitative reporting of risk limits and other measures along with qualitative assessments. Quarterly aggregation of our risk profile enables a clear view of our risk level relative to our quantitative risk appetite. The enterprise level report is provided through the governance structure to the Board of Directors.

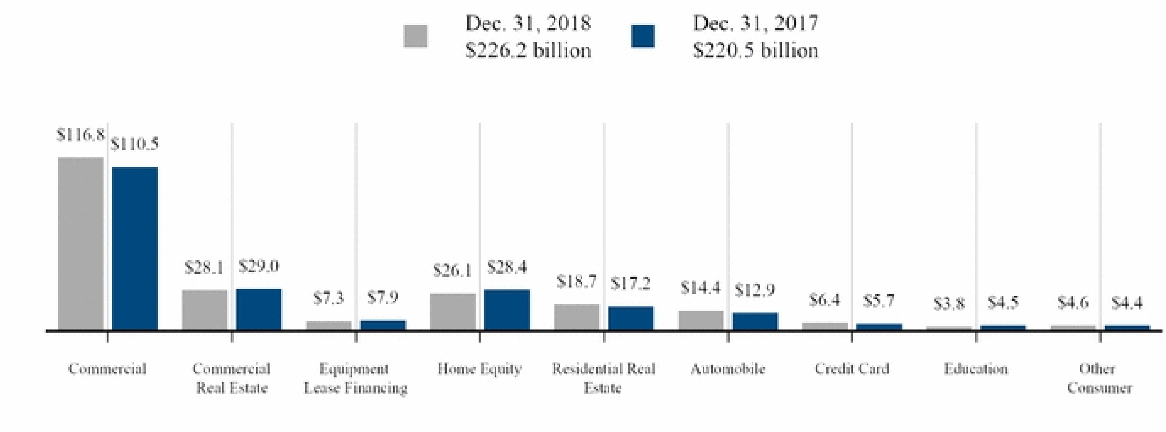
Each individual risk report includes an assessment of inherent risk, quality of risk management, residual risk, risk appetite and risk outlook. The enterprise level risk report includes an aggregate view of risks identified in the individual report and provides a summary of our overall risk profile compared to our risk appetite.

Credit Risk Management

Credit risk represents the possibility that a customer, counterparty or issuer may not perform in accordance with contractual terms. Credit risk is inherent in the financial services business and results from extending credit to customers, purchasing securities, and entering into financial derivative transactions and certain guarantee contracts. Credit risk is one of our most significant risks. Our processes for managing credit risk are embedded in our risk culture and in our decision-making processes using a systematic approach whereby credit risks and related exposures are identified and assessed, managed through specific policies and processes, measured and evaluated against our risk appetite and credit concentration limits, and reported, along with specific mitigation activities, to management and the Board of Directors through our governance structure. Our most significant concentration of credit risk is in our loan portfolio.

Loan Portfolio Characteristics and Analysis

Table 13: Details of Loans
Dollars in billions



We use several asset quality indicators, as further detailed in Note 3 Asset Quality, to monitor and measure our exposure to credit risk within our loan portfolio. The following provides additional information about our significant loan classes.

<u>Commercial</u>
Commercial loans comprised 52% and 50% of our total loan portfolio at December 31, 2018 and 2017, respectively. The majority of our commercial loans are secured by collateral that provides a secondary source of repayment for the loan should the borrower experience cash generation difficulties. Examples of this collateral include short-term assets, such as accounts receivable, inventory and securities, and long-lived assets, such as equipment, real estate and other business assets.

We actively manage our commercial loans to assess any changes (both positive and negative) in the level of credit risk at both the borrower and portfolio level. To evaluate the level of credit risk, we assign internal risk ratings reflecting our estimates of the borrower's probability of default (PD) and loss given default (LGD) for each related credit facility. This two-dimensional credit risk rating methodology provides granularity in the risk monitoring process and is updated on an ongoing basis through our credit risk management processes. In addition to continual monitoring of the level of credit risk, we also monitor concentrations of credit risk pertaining to both specific industries and geography that may exist in our portfolio. Our portfolio remains stable and well-diversified as shown in the following table which provides a breakout of our commercial loans by industry classification (classified based on the North American Industry Classification System (NAICS)).

Table 14: Commercial Loans by Industry

	December 31, 2018		December 31, 2017	
Dollars in millions	Amount	% of Total	Amount	% of Total
Commercial				
Manufacturing	$ 21,207	18%	$ 20,578	19%
Retail/wholesale trade	20,850	18	17,846	16
Service providers	14,869	13	15,100	14
Real estate related (a)	12,312	11	12,496	11
Financial services	9,500	8	8,532	8
Health care	8,886	8	9,739	9
Transportation and warehousing	5,781	5	5,609	5
Other industries	23,429	19	20,627	18
Total commercial loans	$ 116,834	100%	$ 110,527	100%

(a) Includes loans to customers in the real estate and construction industries.

Commercial Real Estate

Commercial real estate loans comprised $6.6 billion of real estate project loans, $7.1 billion of intermediate term financing loans and $14.4 billion related to commercial mortgages as of December 31, 2018. Comparable amounts were $6.9 billion, $8.4 billion and $13.7 billion, respectively, as of December 31, 2017.

We monitor credit risk associated with our commercial real estate loans similar to commercial loans by analyzing PD and LGD. Additionally, risks associated with these types of credit activities tend to be correlated to the loan structure, collateral location, project progress and business environment. These attributes are also monitored and utilized in assessing credit risk. The portfolio is geographically diverse due to the nature of our business involving clients throughout the U.S. The following table presents our commercial real estate loans by geographic market and property type.

Table 15: Commercial Real Estate Loans by Geography and Property Type

	December 31, 2018		December 31, 2017	
Dollars in millions	Amount	% of Total	Amount	% of Total
Geography				
California	$ 4,154	15%	$ 4,192	14%
Florida	2,157	8	2,221	8
Maryland	1,966	7	2,104	7
Virginia	1,682	6	1,609	5
Texas	1,531	5	1,639	6
Illinois	1,368	5	1,325	5
Pennsylvania	1,214	4	1,394	5
New York	1,151	4	1,163	4
Ohio	1,053	4	1,134	4
North Carolina	915	3	943	3
All other states	10,949	39	11,254	39
Total commercial real estate loans	$ 28,140	100%	$ 28,978	100%
Property Type				
Multifamily	$ 8,770	31%	$ 8,958	31%
Office	7,279	26	7,178	25
Retail	4,065	14	4,670	16
Hotel/Motel	1,686	6	1,793	6
Industrial/Warehouse	1,678	6	1,877	6
Senior Housing	1,092	4	905	3
Mixed Use	933	3	1,142	4
Other	2,637	10	2,455	9
Total commercial real estate loans	$ 28,140	100%	$ 28,978	100%

Home Equity

Home equity loans comprised $15.5 billion of primarily variable-rate home equity lines of credit and $10.6 billion of closed-end home equity installment loans at December 31, 2018. Comparable amounts were $16.8 billion and $11.6 billion, respectively, as of December 31, 2017.

We track borrower performance monthly, including obtaining original loan-to-value ratios (LTV), updated FICO scores at least quarterly, updated LTVs at least semi-annually, and other credit metrics at least quarterly, including the historical performance of any related mortgage loans regardless of lien position that we do or do not hold. This information is used for internal reporting and risk management. For internal reporting and risk management we also segment the population into pools based on product type (*e.g.*, home equity loans, brokered home equity loans, home equity lines of credit, brokered home equity lines of credit). As part of our overall risk analysis and monitoring, we also segment the portfolio based upon the loan delinquency, nonperforming status, modification and bankruptcy status, FICO scores, LTV, lien position and geographic concentration.

The portfolio is primarily originated within markets located in the Mid-Atlantic, Midwest, and Southeast, with less than 5% of the portfolio in states outside of those markets as of December 31, 2018. The credit quality of newly originated loans in 2018 was strong overall as evidenced by a weighted-average LTV on originations of 67% and a weighted-average FICO score of 773.

The credit performance of the majority of the home equity portfolio where we hold the first lien position is superior to the portion of the portfolio where we hold the second lien position, but do not hold the first lien. Lien position information is generally based upon original LTV at the time of origination. We use an industry-leading third-party service provider to obtain updated loan, lien and collateral data that is aggregated from public and private sources.

The following table presents our home equity loans by geographic market and lien type.

Table 16: Home Equity Loans by Geography and by Lien Priority

	December 31, 2018		December 31, 2017	
Dollars in millions	Amount	% of Total	Amount	% of Total
Geography				
Pennsylvania	$ 6,160	24%	$ 6,792	24%
New Jersey	3,935	15	4,252	15
Ohio	3,095	12	3,413	12
Illinois	1,634	6	1,801	6
Maryland	1,481	6	1,572	6
Michigan	1,340	5	1,442	5
Florida	1,227	5	1,255	4
North Carolina	1,161	4	1,266	5
Kentucky	1,040	4	1,138	4
Indiana	845	3	924	3
All other states	4,205	16	4,509	16
Total home equity loans	$ 26,123	100%	$ 28,364	100%
Lien type				
1st lien		58%		58%
2nd lien		42		42
Total		100%		100%

<u>Residential Real Estate</u>
Residential real estate loans primarily consisted of residential mortgage loans at both December 31, 2018 and 2017.

We track borrower performance of this portfolio monthly similar to home equity loans. This information is used for internal reporting and risk management. For internal reporting and risk management we also segment the mortgage portfolio into pools based on product type (*e.g.*, nonconforming, conforming). As part of our overall risk analysis and monitoring, we also segment the portfolio based upon loan delinquency, nonperforming status, modification and bankruptcy status, FICO scores, LTV and geographic concentrations. Loan performance is evaluated by source originators and loan servicers.

The credit quality of newly originated loans that we retained on our balance sheet in 2018 was strong overall as evidenced by a weighted-average LTV on originations of 71% and a weighted-average FICO score of 769.

The following presents our residential real estate loans by geographic market.

Table 17: Residential Real Estate Loans by Geography

	December 31, 2018		December 31, 2017	
Dollars in millions	Amount	% of Total	Amount	% of Total
Geography				
California	$ 4,666	25%	$ 3,676	21%
New Jersey	1,649	9	1,503	9
Florida	1,544	8	1,529	9
Illinois	1,161	6	1,230	7
Pennsylvania	1,031	6	962	5
New York	956	5	847	5
Maryland	913	5	902	5
North Carolina	854	5	821	5
Virginia	825	4	824	5
Ohio	682	4	684	4
All other states	4,376	23	4,234	25
Total residential real estate loans	$ 18,657	100%	$ 17,212	100%

We originate residential mortgage loans nationwide through our national mortgage business as well as within our branch network. Residential mortgage loans underwritten to government agency standards, including conforming loan amount limits, are typically sold with servicing retained by us. We also originate nonconforming residential mortgage loans that do not meet government agency standards, which we retain on our balance sheet. The nonconforming residential mortgage portfolio had strong credit quality at December 31, 2018 with an average original LTV of 70% and an average original FICO score of 772. Our portfolio of nonconforming residential mortgage loans totaled $12.8 billion at December 31, 2018 with 30% located in California.

Automobile

Within auto loans, $12.9 billion resided in the indirect auto portfolio while $1.5 billion were in the direct auto portfolio as of December 31, 2018. Comparable amounts as of December 31, 2017 were $11.4 billion and $1.4 billion, respectively, and also included $.1 billion of securitized loans. The indirect auto portfolio relates to loan applications originated through franchised automobile dealers. This business is strategically aligned with our core retail banking business.

We continue to focus on borrowers with strong credit profiles as evidenced by a weighted-average loan origination FICO score during 2018 of 740 for indirect auto loans and 762 for direct auto loans. The weighted-average term of loan originations during 2018 was 74 months for indirect auto loans and 62 months for direct auto loans. We offer both new and used automobile financing to customers through our various channels. At December 31, 2018, the portfolio was composed of 53% new vehicle loans and 47% used vehicle loans. Comparable amounts at December 31, 2017 were 54% and 46%, respectively.

The auto loan portfolio's performance is measured monthly, including updated collateral values that are obtained monthly and updated FICO scores that are obtained at least quarterly. For internal reporting and risk management, we analyze the portfolio by product channel and product type and regularly evaluate default and delinquency experience. As part of our overall risk analysis and monitoring, we segment the portfolio by loan structure, collateral attributes and credit metrics which include FICO score, LTV and term.

Nonperforming Assets and Loan Delinquencies

Nonperforming Assets

Nonperforming assets include nonperforming loans and leases for which ultimate collectability of the full amount of contractual principal and interest is not probable and include nonperforming troubled debt restructurings (TDRs), other real estate owned (OREO) and foreclosed assets. Loans held for sale, certain government insured or guaranteed loans, purchased impaired loans and loans accounted for under the fair value option are excluded from nonperforming loans. Additional information regarding our nonperforming loans and nonaccrual policies is included in Note 1 Accounting Policies in the Notes To Consolidated Financial Statements in Item 8 of this report. A summary of the major categories of nonperforming assets are presented in Table 18. See Note 3 Asset Quality in the Notes To Consolidated Financial Statements in Item 8 of this Report for further detail of nonperforming asset categories.

Table 18: Nonperforming Assets by Type

			Change	
Dollars in millions	December 31 2018	December 31 2017	$	%
Nonperforming loans				
Commercial lending	$ 432	$ 554	$ (122)	(22)%
Consumer lending (a)	1,262	1,311	(49)	(4)%
Total nonperforming loans	1,694	1,865	(171)	(9)%
OREO and foreclosed assets	114	170	(56)	(33)%
Total nonperforming assets	$ 1,808	$ 2,035	$ (227)	(11)%
TDRs included in nonperforming loans	$ 863	$ 964	$ (101)	(10)%
Percentage of total nonperforming loans	51%	52%		
Nonperforming loans to total loans	.75%	.85%		
Nonperforming assets to total loans, OREO and foreclosed assets	.80%	.92%		
Nonperforming assets to total assets	.47%	.53%		
Allowance for loan and lease losses to total nonperforming loans	155%	140%		

(a) Excludes most consumer loans and lines of credit not secured by residential real estate, which are charged off after 120 to 180 days past due and are not placed on nonperforming status.

Table 19: Change in Nonperforming Assets

In millions	2018	2017
January 1	$ 2,035	$ 2,374
New nonperforming assets	1,110	1,376
Charge-offs and valuation adjustments	(556)	(585)
Principal activity, including paydowns and payoffs	(476)	(638)
Asset sales and transfers to loans held for sale	(139)	(178)
Returned to performing status	(166)	(314)
December 31	$ 1,808	$ 2,035

As of December 31, 2018, approximately 89% of total nonperforming loans were secured by collateral which lessened reserve requirements and is expected to reduce credit losses in the event of default. As of December 31, 2018, commercial lending nonperforming loans were carried at approximately 70% of their unpaid principal balance, due to charge-offs recorded to date, before consideration of the Allowance for loan and lease losses (ALLL).

Within consumer lending nonperforming loans, residential real estate TDRs comprised 81% and 75% of total residential real estate nonperforming loans at December 31, 2018 and 2017, respectively. Home equity TDRs comprised 47% of home equity nonperforming loans at December 31, 2018, down from 50% at December 31, 2017. TDRs generally remain in nonperforming status until a borrower has made at least six consecutive months of both principal and interest payments under the modified terms or ultimate resolution occurs. Loans where borrowers have been discharged from personal liability through Chapter 7 bankruptcy and have not formally reaffirmed their loan obligations to us and loans to borrowers not currently obligated to make both principal and interest payments under the restructured terms are not returned to accrual status.

At December 31, 2018, our largest nonperforming asset was $36 million in the Information industry and the ten largest individual nonperforming assets represented 11% of total nonperforming assets.

Loan Delinquencies
We regularly monitor the level of loan delinquencies and believe these levels may be a key indicator of loan portfolio asset quality. Measurement of delinquency status is based on the contractual terms of each loan. Loans that are 30 days or more past due in terms of payment are considered delinquent. Loan delinquencies exclude loans held for sale and purchased impaired loans, but include government insured or guaranteed loans and loans accounted for under the fair value option.

Table 20: Accruing Loans Past Due (a)

	Amount				Percentage of Total Loans Outstanding	
			Change			
Dollars in millions	December 31, 2018	December 31, 2017	$	%	December 31, 2018	December 31, 2017
Early stage loan delinquencies						
Accruing loans past due 30 to 59 days	$ 585	$ 545	$ 40	7 %	.26%	.25%
Accruing loans past due 60 to 89 days	271	238	33	14 %	.12%	.11%
Total	856	783	73	9 %	.38%	.36%
Late stage loan delinquencies						
Accruing loans past due 90 days or more	629	737	(108)	(15)%	.28%	.33%
Total	$ 1,485	$ 1,520	$ (35)	(2)%	.66%	.69%

(a) Past due loan amounts include government insured or guaranteed loans of $.7 billion at December 31, 2018 and $.9 billion at December 31, 2017.

Accruing loans past due 90 days or more are not included in nonperforming loans and continue to accrue interest because they are well secured by collateral and are in the process of collection, or are managed in homogenous portfolios with specified charge-off timeframes adhering to regulatory guidelines, or are certain government insured or guaranteed loans.

Troubled Debt Restructurings and Loan Modifications

Troubled Debt Restructurings
A TDR is a loan whose terms have been restructured in a manner that grants a concession to a borrower experiencing financial difficulties. TDRs result from our loss mitigation activities and include rate reductions, principal forgiveness, postponement/reduction of scheduled amortization and extensions, which are intended to minimize economic loss and to avoid foreclosure or repossession of collateral. Additionally, TDRs also result from court imposed concessions (*e.g.,* a Chapter 7 bankruptcy where the debtor is discharged from personal liability to us and a court approved Chapter 13 bankruptcy repayment plan).

Table 21: Summary of Troubled Debt Restructurings (a)

In millions	December 31 2018	December 31 2017	Change $	Change %
Total commercial lending	$ 409	$ 409	$ —	—
Total consumer lending	1,442	1,652	(210)	(13)%
Total TDRs	$ 1,851	$ 2,061	$ (210)	(10)%
Nonperforming	$ 863	$ 964	$ (101)	(10)%
Accruing (b)	988	1,097	(109)	(10)%
Total TDRs	$ 1,851	$ 2,061	$ (210)	(10)%

(a) Amounts in table represent recorded investment. Recorded investment does not include any associated valuation allowance.
(b) Accruing loans include consumer credit card loans and loans that have demonstrated a period of at least six months of performance under the restructured terms and are excluded from nonperforming loans.

Excluded from TDRs are $1.1 billion and $1.2 billion of consumer loans held for sale, loans accounted for under the fair value option and pooled purchased impaired loans, as well as certain government insured or guaranteed loans at December 31, 2018 and 2017, respectively. Nonperforming TDRs represented approximately 51% and 52% of total nonperforming loans at December 31, 2018 and 2017, respectively, while representing 47% of total TDRs at both December 31, 2018 and 2017. The remaining portion of TDRs represents TDRs that have been returned to accrual status after performing under the restructured terms for at least six consecutive months.

See Note 3 Asset Quality in the Notes To Consolidated Financial Statements in Item 8 of this Report for additional information on TDRs.

Commercial Loan Modifications

Modifications of terms for commercial loans are based on individual facts and circumstances. Commercial loan modifications may involve reduction of the interest rate, extension of the loan term and/or forgiveness of principal. We evaluate these modifications for TDR classification based upon whether we granted a concession to a borrower experiencing financial difficulties.

Consumer Loan Modifications

We modify loans under government and PNC-developed programs based upon our commitment to help eligible homeowners and borrowers avoid foreclosure, where appropriate. Initially, a borrower is evaluated for a modification under a government program. If a borrower does not qualify under a government program, the borrower is then evaluated under a PNC program. Our programs utilize both temporary and permanent modifications and typically reduce the interest rate, extend the term and/or defer principal. Loans that are either temporarily or permanently modified under programs involving a change to loan terms are generally classified as TDRs. Further, loans that have certain types of payment plans and trial payment arrangements which do not include a contractual change to loan terms may be classified as TDRs.

A temporary modification, with a term up to 24 months, involves a change in original loan terms for a period of time and reverts to a calculated exit rate for the remaining term of the loan as of a specific date. A permanent modification, with a term greater than 24 months, is a modification in which the terms of the original loan are changed. Permanent modification programs generally result in principal forgiveness, interest rate reduction, term extension, capitalization of past due amounts, interest-only period or deferral of principal.

We also monitor the success rates and delinquency status of our loan modification programs to assess their effectiveness in serving our borrowers' and servicing customers' needs while mitigating credit losses.

Allowances for Loan and Lease Losses and Unfunded Loan Commitments and Letters of Credit

We maintain an ALLL to absorb losses from the loan and lease portfolio and determine this allowance based on quarterly assessments of the estimated probable credit losses incurred in the loan and lease portfolio. Our total ALLL of $2.6 billion at December 31, 2018 consisted of $1.6 billion and $1.0 billion established for the commercial lending and consumer lending categories, respectively. We maintain the ALLL at a level that we believe to be appropriate to absorb estimated probable credit losses incurred in the loan and lease portfolio as of the balance sheet date. The reserve calculation and determination process is dependent on the use of key assumptions. Key reserve assumptions and estimation processes react to and are influenced by observed changes in loan and lease portfolio performance experience, the financial strength of the borrower, and economic conditions. Key reserve assumptions are periodically updated.

Reserves are established for non-impaired commercial loan classes based primarily on PD and LGD.

Our commercial pool reserve methodology is sensitive to changes in key risk parameters such as PD and LGD. The results of these parameters are then applied to the loan balance and unfunded loan commitments and letters of credit to determine the amount of the respective reserves. The majority of the commercial portfolio is secured by collateral, including loans to asset-based lending customers, which generally demonstrate lower LGD compared to loans not secured by collateral. Our PDs and LGDs are primarily determined using internal commercial loan loss data. This internal data is supplemented with third-party data and management judgment, as deemed necessary. We continue to evaluate and enhance our use of internal commercial loss data and will periodically update our PDs and LGDs as well as consider third-party data, regulatory guidance and management judgment.

Allowances for non-impaired consumer loan classes are primarily based upon transition matrices, including using a roll-rate model. The roll-rate model uses statistical relationships, calculated from historical data that estimate the movement of loan outstandings through the various stages of delinquency and ultimately charge-off.

We establish specific allowances for loans considered impaired using methods prescribed by GAAP. All impaired loans are subject to individual analysis, except leases and large groups of smaller-balance homogeneous loans which may include, but are not limited to, credit card, loans secured by residential real estate and consumer installment loans. Specific allowances for individual loans (including commercial and consumer TDRs) are determined based on an analysis of the present value of expected future cash flows from the loans discounted at their effective interest rate, observable market price or the fair value of the underlying collateral.

A portion of the ALLL is related to qualitative measurement factors. These factors may include, but are not limited to, the following:

- Industry concentrations and conditions,
- Changes in market conditions,
- Recent credit quality trends,
- Recent loss experience in particular portfolios, including specific and unique events,
- Recent macro-economic factors,
- Model imprecision,
- Changes in lending policies and procedures,
- Timing of available information, including the performance of first lien positions, and
- Limitations of available historical data.

Our determination of the ALLL for non-impaired loans is sensitive to the risk grades assigned to commercial loans and loss rates for consumer loans. There are several other qualitative and quantitative factors considered in determining the ALLL. Periodically, reserve sensitivity analyses are performed. Such analyses provide insight into the impact of adverse changes to risk grades and loss rates. Given the current processes used, we believe the risk grades and loss rates currently assigned are appropriate.

Purchased impaired loans are initially recorded at fair value and applicable accounting guidance prohibits the carry over or creation of valuation allowances at acquisition. Because the initial fair values of these loans already reflect a credit component, additional reserves are established when performance is expected to be worse than our expectations as of the acquisition date. At December 31, 2018, we had established reserves of $.3 billion for purchased impaired loans. In addition, loans (purchased impaired and non-impaired) acquired after January 1, 2009 were recorded at fair value. No allowance for loan losses was carried over and no allowance was created at the date of acquisition.

In determining the appropriateness of the ALLL, we make specific allocations to impaired loans and allocations to portfolios of commercial and consumer loans. We also allocate reserves to provide coverage for probable losses incurred in the portfolio at the balance sheet date based upon current market conditions, which may not be reflected in historical loss data. Commercial lending is the largest category of credits and is sensitive to changes in assumptions and judgments underlying the determination of the ALLL.

In addition to the ALLL, we maintain an allowance for unfunded loan commitments and letters of credit. We report this allowance as a liability on our Consolidated Balance Sheet. We maintain the allowance for unfunded loan commitments and letters of credit at a level we believe is appropriate to absorb estimated probable losses on these unfunded credit facilities. We determine this amount using estimates of the probability of the ultimate funding and losses related to those credit exposures. Other than the estimation of the probability of funding, this methodology is very similar to the one we use for determining our ALLL.

See Note 1 Accounting Policies and Note 3 Asset Quality in the Notes To Consolidated Financial Statements in Item 8 of this Report for further information on certain key asset quality indicators that we use to evaluate our portfolios and establish the allowances.

Table 22: Allowance for Loan and Lease Losses

Dollars in millions	2018	2017
January 1	$ 2,611	$ 2,589
Total net charge-offs	(420)	(457)
Provision for credit losses	408	441
Net decrease / (increase) in allowance for unfunded loan commitments and letters of credit	12	4
Other	18	34
December 31	$ 2,629	$ 2,611
Net charge-offs to average loans (for the year ended)	.19%	.21%
Allowance for loan and lease losses to total loans	1.16%	1.18%
Commercial lending net charge-offs	$ (25)	$ (105)
Consumer lending net charge-offs	(395)	(352)
Total net charge-offs	$ (420)	$ (457)
Net charge-offs to average loans (for the year ended)		
Commercial lending	.02%	.07%
Consumer lending	.54%	.49%

At December 31, 2018, total ALLL to total nonperforming loans was 155%. The comparable amount for December 31, 2017 was 140%. These ratios are 112% and 102%, respectively, when excluding the $.7 billion of ALLL at both December 31, 2018 and 2017 allocated to consumer loans and lines of credit not secured by residential real estate and purchased impaired loans. We have excluded these amounts from ALLL in these ratios as these asset classes are not included in nonperforming loans. See Table 18 within this Credit Risk Management section for additional information.

The ALLL balance increases or decreases across periods in relation to fluctuating risk factors, including asset quality trends, net charge-offs and changes in aggregate portfolio balances. During 2018, overall credit quality remained strong, which resulted in an essentially flat ALLL balance as of December 31, 2018 compared to December 31, 2017.

The following table summarizes our loan charge-offs and recoveries.

Table 23: Loan Charge-Offs and Recoveries

Year ended December 31 Dollars in millions	Gross Charge-offs	Recoveries	Net Charge-offs / (Recoveries)	Percent of Average Loans
2018				
Commercial	$ 108	$ 67	$ 41	.04 %
Commercial real estate	8	24	(16)	(.06)%
Equipment lease financing	8	8		
Home equity	110	98	12	.04 %
Residential real estate	6	21	(15)	(.08)%
Automobile	171	77	94	.68 %
Credit card	217	24	193	3.30 %
Education	31	8	23	.56 %
Other consumer	105	17	88	1.98 %
Total	$ 764	$ 344	$ 420	.19 %
2017				
Commercial	$ 186	$ 81	$ 105	.10 %
Commercial real estate	24	28	(4)	(.01)%
Equipment lease financing	11	7	4	.05 %
Home equity	123	91	32	.11 %
Residential real estate	9	18	(9)	(.06)%
Automobile	126	58	68	.54 %
Credit card	182	21	161	3.06 %
Education	34	8	26	.54 %
Other consumer	91	17	74	1.66 %
Total	$ 786	$ 329	$ 457	.21 %

See Note 1 Accounting Policies and Note 4 Allowance for Loan and Lease Losses in the Notes To Consolidated Financial Statements in Item 8 of this Report for additional information on the ALLL.

Liquidity and Capital Management

Liquidity risk has two fundamental components. The first is potential loss assuming we were unable to meet our funding requirements at a reasonable cost. The second is the potential inability to operate our businesses because adequate contingent liquidity is not available. We manage liquidity risk at the consolidated company level (bank, parent company and nonbank subsidiaries combined) to help ensure that we can obtain cost-effective funding to meet current and future obligations under both normal "business as usual" and stressful circumstances, and to help ensure that we maintain an appropriate level of contingent liquidity.

Management monitors liquidity through a series of early warning indicators that may indicate a potential market, or PNC-specific, liquidity stress event. In addition, management performs a set of liquidity stress tests over multiple time horizons with varying levels of severity and maintains a contingency funding plan to address a potential liquidity stress event. In the most severe liquidity stress simulation, we assume that our liquidity position is under pressure, while the market in general is under systemic pressure. The simulation considers, among other things, the impact of restricted access to both secured and unsecured external sources of funding, accelerated run-off of customer deposits, valuation pressure on assets and heavy demand to fund committed obligations. Parent company liquidity guidelines are designed to help ensure that sufficient liquidity is available to meet our parent company obligations over the succeeding 24-month period. Liquidity-related risk limits are established within our Enterprise Liquidity Management Policy and supporting policies. Management committees, including the Asset and Liability Committee, and the Board of Directors and its Risk Committee regularly review compliance with key established limits.

In addition to these liquidity monitoring measures and tools described above, we also monitor our liquidity by reference to the Liquidity Coverage Ratio (LCR) which is further described in the Supervision and Regulation section in Item 1 of this Report. PNC and PNC Bank calculate the LCR on a daily basis and as of December 31, 2018, the LCR for PNC and PNC Bank exceeded the fully phased-in requirement of 100%.

We provide additional information regarding regulatory liquidity requirements and their potential impact on us in the Supervision and Regulation section of Item 1 Business and Item 1A Risk Factors of this Report.

Sources of Liquidity

Our largest source of liquidity on a consolidated basis is the customer deposit base generated by our banking businesses. These deposits provide relatively stable and low-cost funding. Total deposits increased to $267.8 billion at December 31, 2018 from $265.1 billion at December 31, 2017 driven by growth in interest-bearing deposits partially offset by a decrease in noninterest-bearing deposits. See the Funding Sources section of the Consolidated Balance Sheet Review in this Report for additional information related to our deposits. Additionally, certain assets determined by us to be liquid as well as unused borrowing capacity from a number of sources are also available to manage our liquidity position.

At December 31, 2018, our liquid assets consisted of short-term investments (federal funds sold, resale agreements, trading securities and interest-earning deposits with banks) totaling $22.1 billion and securities available for sale totaling $63.4 billion. The level of liquid assets fluctuates over time based on many factors, including market conditions, loan and deposit growth and balance sheet management activities. Our liquid assets included $2.7 billion of securities available for sale and trading securities pledged as collateral to secure public and trust deposits, repurchase agreements and for other purposes. In addition, $4.9 billion of securities held to maturity were also pledged as collateral for these purposes.

We also obtain liquidity through various forms of funding, including long-term debt (senior notes, subordinated debt and FHLB borrowings) and short-term borrowings (securities sold under repurchase agreements, commercial paper and other short-term borrowings). See Note 10 Borrowed Funds and the Funding Sources section of the Consolidated Balance Sheet Review in this Report for additional information related to our Borrowings.

Total senior and subordinated debt, on a consolidated basis, decreased due to the following activity:

Table 24: Senior and Subordinated Debt

In billions	2018
January 1	$ 33.3
Issuances	4.5
Calls and maturities	(6.8)
Other	(.1)
December 31	$ 30.9

Bank Liquidity

Under PNC Bank's 2014 bank note program, as amended, PNC Bank may from time to time offer up to $40.0 billion aggregate principal amount outstanding at any one time of its unsecured senior and subordinated notes with maturity dates more than nine months (in the case of senior notes) and five years or more (in the case of subordinated notes) from their date of issue. At December 31, 2018, PNC Bank had $24.5 billion of notes outstanding under this program of which $20.2 billion were senior bank notes and $4.3 billion were subordinated bank notes. There were no new issuances for the three months ended December 31, 2018.

PNC Bank maintains additional secured borrowing capacity with the FHLB-Pittsburgh and through the Federal Reserve Bank discount window. The Federal Reserve Bank, however, is not viewed as a primary means of funding our routine business activities, but rather as a potential source of liquidity in a stressed environment or during a market disruption. At December 31, 2018, our unused secured borrowing capacity at the FHLB-Pittsburgh and the Federal Reserve Bank totaled $40.4 billion.

PNC Bank has the ability to offer up to $10.0 billion of its commercial paper to provide additional liquidity. As of December 31, 2018, there were no issuances outstanding under this program.

Parent Company Liquidity

In addition to managing liquidity risk at the bank level, we monitor the parent company's liquidity. The parent company's contractual obligations consist primarily of debt service related to parent company borrowings and funding non-bank affiliates. Additionally, the parent company maintains adequate liquidity to fund discretionary activities such as paying dividends to our shareholders, share repurchases and acquisitions.

As of December 31, 2018, available parent company liquidity totaled $4.6 billion. Parent company liquidity is primarily held in intercompany short-term investments, the terms of which provide for the availability of cash in 31 days or less. Investments with longer durations may also be acquired, but if so, the related maturities are aligned with scheduled cash needs, such as the maturity of parent company debt obligations.

The principal source of parent company liquidity is the dividends it receives from PNC Bank, which may be impacted by the following:

- Bank-level capital needs;
- Laws and regulations;
- Corporate policies;
- Contractual restrictions; and
- Other factors.

There are statutory and regulatory limitations on the ability of a national bank to pay dividends or make other capital distributions or to extend credit to the parent company or its non-bank subsidiaries. The amount available for dividend payments by PNC Bank to the parent company without prior regulatory approval was approximately $2.9 billion at December 31, 2018. See Note 18 Regulatory Matters in the Notes To Consolidated Financial Statements in Item 8 of this Report for a further discussion of these limitations.

In addition to dividends from PNC Bank, other sources of parent company liquidity include cash and investments, as well as dividends and loan repayments from other subsidiaries and dividends or distributions from equity investments. We can also generate liquidity for the parent company and PNC's non-bank subsidiaries through the issuance of debt and equity securities, including certain capital instruments, in public or private markets and commercial paper. The parent company has the ability to offer up to $5.0 billion of commercial paper to provide additional liquidity. As of December 31, 2018, there were no commercial paper issuances outstanding.

The parent company has an effective shelf registration statement pursuant to which we can issue additional debt, equity and other capital instruments. See Note 24 Subsequent Events in Item 8 of this Report for information on the January 23, 2019 and February 15, 2019 issuances of $1.05 billion aggregate principal amount of senior fixed rate notes by the parent company utilizing this shelf registration statement.

Parent company senior and subordinated debt outstanding totaled $6.7 billion at December 31, 2018 compared with $6.8 billion at December 31, 2017.

Contractual Obligations and Commitments

The following tables set forth contractual obligations and various other commitments as of December 31, 2018.

Table 25: Contractual Obligations

		Payment Due By Period			
December 31, 2018 – in millions	Total	Less than one year	One to three years	Four to five years	After five years
Remaining contractual maturities of time deposits	$ 18,507	$ 11,972	$ 4,760	$ 1,150	$ 625
Borrowed funds (a)	57,419	20,007	21,242	7,185	8,985
Minimum annual rentals on noncancellable leases	2,455	374	654	486	941
Nonqualified pension and postretirement benefits	464	54	105	94	211
Purchase obligations (b)	1,012	455	348	152	57
Total contractual cash obligations	$ 79,857	$ 32,862	$ 27,109	$ 9,067	$ 10,819

(a) Includes basis adjustment relating to accounting hedges and purchase accounting adjustments.
(b) Includes purchase obligations for goods and services covered by noncancellable contracts and contracts including cancellation fees.

Our contractual obligations totaled $80.4 billion at December 31, 2017. The decrease in the comparison is primarily attributable to the decrease in borrowed funds, partially offset by the increase in remaining contractual maturities of time deposits. See Funding Sources in the Consolidated Balance Sheet Review section of this Item 7 for additional information regarding our funding sources.

Table 26: Other Commitments (a)

		Amount Of Commitment Expiration By Period			
December 31, 2018 – in millions	Total Amounts Committed	Less than one year	One to three years	Four to five years	After five years
Commitments to extend credit (b)	$ 169,278	$ 80,571	$ 39,056	$ 48,800	$ 851
Net outstanding standby letters of credit (c)	8,655	4,966	2,497	1,105	87
Reinsurance agreements (d)	1,549	1	6	10	1,532
Standby bond purchase agreements	1,000	171	802	27	
Other commitments (e)	1,130	739	261	95	35
Total commitments	$ 181,612	$ 86,448	$ 42,622	$ 50,037	$ 2,505

(a) Other commitments are funding commitments that could potentially require performance in the event of demands by third parties or contingent events. Loan commitments are reported net of syndications, assignments and participations.
(b) Commitments to extend credit, or net unfunded loan commitments, represent arrangements to lend funds or provide liquidity subject to specified contractual conditions.
(c) Includes $3.7 billion of standby letters of credit that support remarketing programs for customers' variable rate demand notes.
(d) Reinsurance agreements are with third-party insurers related to insurance sold to our customers. Balances represent estimates based on availability of financial information.
(e) Includes other commitments of $.3 billion that were not on our Consolidated Balance Sheet. The remaining $.8 billion of other commitments were included in Other liabilities on our Consolidated Balance Sheet.

Our total commitments were $172.5 billion at December 31, 2017. The increase in the comparison was primarily attributable to an increase in commitments to extend credit, partially offset by declines in other commitments.

Credit Ratings

PNC's credit ratings affect the cost and availability of short and long-term funding, collateral requirements for certain derivative instruments and the ability to offer certain products.

In general, rating agencies base their ratings on many quantitative and qualitative factors, including capital adequacy, liquidity, asset quality, business mix, level and quality of earnings, and the current legislative and regulatory environment, including implied government support. A decrease, or potential decrease, in credit ratings could impact access to the capital markets and/or increase the cost of debt, and thereby adversely affect liquidity and financial condition.

Table 27: Credit Ratings for PNC and PNC Bank

	December 31, 2018		
	Moody's	Standard & Poor's	Fitch
PNC			
Senior debt	A3	A-	A+
Subordinated debt	A3	BBB+	A
Preferred stock	Baa2	BBB-	BBB-
PNC Bank			
Senior debt	A2	A	A+
Subordinated debt	A3	A-	A
Long-term deposits	Aa2	A	AA-
Short-term deposits	P-1	A-1	F1+
Short-term notes	P-1	A-1	F1

Capital Management

We manage our funding and capital positions by making adjustments to our balance sheet size and composition, issuing or redeeming debt, issuing equity or other capital instruments, executing treasury stock transactions and capital redemptions or repurchases, and managing dividend policies and retaining earnings.

In 2018, we returned $4.4 billion of capital to shareholders through repurchases of 19.9 million common shares for $2.8 billion and dividends on common shares of $1.6 billion.

We repurchase shares of PNC common stock under share repurchase authorization provided by our Board of Directors in the amount of up to 100 million shares and consistent with capital plans submitted to, and accepted by, the Federal Reserve. Repurchases are made on the open market or in privately negotiated transactions and the extent and timing of share repurchases under authorizations depend on a number of factors including, among others, market and general economic conditions, economic and regulatory capital considerations, alternative uses of capital, the potential impact on our credit ratings, contractual and regulatory limitations, and the results of supervisory assessments of capital adequacy and capital planning processes undertaken by the Federal Reserve as part of the CCAR and Dodd-Frank capital stress testing (DFAST) processes.

In relation to the 2017 capital plan accepted by the Federal Reserve, we announced share repurchase programs of up to $2.7 billion for the four quarter period ended June 30, 2018, including repurchases of up to $.3 billion related to employee benefit plans. For the four quarter period ended June 30, 2018, we repurchased 18.4 million shares of PNC common stock for $2.6 billion. Of the total repurchased, 10.5 million shares for $1.5 billion occurred in the first two quarters of 2018.

In connection with the 2018 CCAR process, we submitted our capital plan, as approved by our Board of Directors, to the Federal Reserve in April 2018. In June 2018, the Federal Reserve accepted the capital plan and did not object to our proposed capital actions. As provided for in the 2018 capital plan, we announced new share repurchase programs of up to $2.0 billion for the four quarter period beginning in the third quarter of 2018, including repurchases of up to $.3 billion related to employee benefit plans. In November 2018, we announced an increase to these previously announced programs in the amount of up to $900 million in additional common share repurchases. We repurchased 9.4 million common shares for $1.3 billion during the third and fourth quarters of 2018 under these share repurchase programs.

The quarterly cash dividend was increased from $.75 to $.95 per share effective with the August 5, 2018 dividend payment date.

See the Supervision and Regulation section of Item 1 Business in this Report for further information concerning the CCAR and DFAST process and the factors the Federal Reserve takes into consideration in its evaluation of capital plans.

Table 28: Basel III Capital

Dollars in millions	Basel III December 31, 2018 (a) (b)	Fully Phased-In Basel III (Non-GAAP) December 31, 2017 (c)	2017 Transitional Basel III December 31, 2017 (a)
Common equity Tier 1 capital			
Common stock plus related surplus, net of treasury stock	$ 5,548	$ 8,195	$ 8,195
Retained earnings	38,919	35,481	35,481
Accumulated other comprehensive income (loss) for securities currently, and those transferred from, available for sale	(80)	337	270
Accumulated other comprehensive income (loss) for pension and other postretirement plans	(530)	(544)	(436)
Goodwill, net of associated deferred tax liabilities	(9,022)	(8,988)	(8,988)
Other disallowed intangibles, net of deferred tax liabilities	(255)	(319)	(255)
Other adjustments/(deductions)	(211)	(141)	(138)
Total common equity Tier 1 capital before threshold deductions	34,369	34,021	34,129
Total threshold deductions (d)	(3,464)	(2,928)	(1,983)
Common equity Tier 1 capital	$ 30,905	$ 31,093	$ 32,146
Additional Tier 1 capital			
Preferred stock plus related surplus	3,986	3,985	3,985
Other adjustments/(deductions)	(156)	(146)	(124)
Tier 1 capital	$ 34,735	$ 34,932	$ 36,007
Additional Tier 2 capital			
Qualifying subordinated debt	3,877	3,433	3,482
Trust preferred capital securities	80		100
Eligible credit reserves includable in Tier 2 capital	2,914	2,907	2,907
Total Basel III capital	$ 41,606	$ 41,272	$ 42,496
Risk-weighted assets			
Basel III standardized approach risk-weighted assets (e)	$ 320,595	$ 316,120	$ 309,460
Basel III advanced approaches risk-weighted assets (f)	$ 282,902	$ 285,226	N/A
Average quarterly adjusted total assets	$ 370,921	$ 363,967	$ 364,999
Supplementary leverage exposure (g)	$ 443,899	$ 434,698	$ 435,731
Basel III risk-based capital and leverage ratios			
Common equity Tier 1 (i)	9.6%	9.8% (h)	10.4%
Tier 1 (j)	10.8%	11.1% (h)	11.6%
Total (k) (l) (m)	13.0%	13.1% (h)	13.7%
Leverage (n)	9.4%	9.6%	9.9%
Supplementary leverage ratio (o)	7.8%	8.0%	8.3%

(a) All ratios are calculated using the regulatory capital methodology applicable to PNC during each period presented and calculated based on the standardized approach.
(b) The Basel III Common equity Tier 1 capital, Tier 1 risk-based capital, Leverage and Supplementary ratios as of December 31, 2018 reflect the full phase-in of all Basel III adjustments to these metrics applicable to PNC.
(c) 2017 Fully Phased-In Basel III results are presented as pro forma estimates.
(d) Under the Basel III rules, certain items such as significant common stock investments in unconsolidated financial institutions (primarily BlackRock), mortgage servicing rights and deferred tax assets must be deducted from capital (subject to a phase-in schedule that ended December 31, 2017 and net of associated deferred tax liabilities) to the extent they individually exceed 10%, or in the aggregate exceed 15%, of PNC's adjusted common equity Tier 1 capital.
(e) Includes credit and market risk-weighted assets.
(f) Basel III advanced approaches risk-weighted assets are calculated based on the Basel III advanced approaches rules, and include credit, market and operational risk-weighted assets. During the parallel run qualification phase, PNC has refined the data, models and internal processes used as part of the advanced approaches for determining risk-weighted assets. We anticipate additional refinements to this calculation through the parallel run qualification phase.
(g) Supplementary leverage exposure is the sum of Adjusted average assets and certain off-balance sheet exposures including undrawn credit commitments and derivative potential future exposures.
(h) Pro forma Fully phased-in Basel III capital ratio based on Basel III standardized approach risk-weighted assets and rules.
(i) For comparative purposes only, the advanced approaches Basel III Common equity Tier 1 capital ratio for both December 31, 2018 and December 31, 2017 (estimated) is 10.9%. This capital ratio is calculated using Common equity Tier 1 capital and dividing by Basel III advanced approaches risk-weighted assets.
(j) For comparative purposes only, the advanced approaches Basel III Tier 1 risk-based capital ratio for December 31, 2018 is 12.3% and for December 31, 2017 is 12.2% (estimated). This capital ratio is calculated using Tier 1 capital and dividing by Basel III advanced approaches risk-weighted assets.
(k) For comparative purposes only, the advanced approaches Basel III Total capital risk-based capital ratio for December 31, 2018 is 13.7% and for December 31, 2017 is 13.5% (estimated). This ratio is calculated using Total Basel III capital, which under the advanced approaches, Additional Tier 2 capital includes allowance for loan and lease losses in excess of Basel expected credit losses, if any, up to 0.6% of credit risk-weighted assets, and dividing by Basel III advanced approaches risk-weighted assets.
(l) The Basel III Total risk-based capital ratio includes $80 million of nonqualifying trust preferred capital securities that are subject to a phase-out period that runs through 2021.
(m) For comparative purposes only, as of December 31, 2018 the ratio would be 13.0%, assuming nonqualifying trust preferred capital securities are phased out.
(n) Leverage ratio is calculated based on Tier 1 capital divided by Average quarterly adjusted total assets.
(o) Supplementary leverage ratio is calculated based on Tier 1 capital divided by Supplementary leverage exposure. As advanced approaches banking organizations, PNC and PNC Bank are subject to a 3% minimum supplementary leverage ratio effective January 1, 2018.

The decline in our Basel III Common equity Tier 1 capital ratio at December 31, 2018 compared to December 31, 2017 reflected continued capital return to shareholders in the form of common share repurchases and dividends and a decline in AOCI largely related to the impact of higher interest rates on the valuation of our available for sale securities portfolio.

We refer to the capital ratios calculated using the definition of capital in effect as of January 1, 2018 and, for the risk-based ratios, standardized approach risk-weighted assets, as the Basel III ratios. In addition, we refer to the capital ratios calculated using the phased-in Basel III provisions in effect for 2017 and, for the risk-based ratios, standardized approach risk-weighted assets, as the 2017 Transitional Basel III ratios. All current period capital ratios are calculated using the regulatory capital methodology applicable to us during 2018.

Federal banking regulators have stated that they expect the largest U.S. bank holding companies (BHCs), including PNC, to have a level of regulatory capital well in excess of the regulatory minimum and have required the largest U.S. BHCs, including PNC, to have a capital buffer sufficient to withstand losses and allow them to meet the credit needs of their customers through estimated stress scenarios. We seek to manage our capital consistent with these regulatory principles, and believe that our December 31, 2018 capital levels were aligned with them.

At December 31, 2018, PNC and PNC Bank, our sole bank subsidiary, were both considered "well capitalized," based on applicable U.S. regulatory capital ratio requirements. To qualify as "well capitalized", PNC must have Basel III capital ratios of at least 6% for Tier 1 risk-based capital and 10% for Total risk-based capital, and PNC Bank must have Basel III capital ratios of at least 6.5% for Common equity Tier 1 risk-based capital, 8% for Tier 1 risk-based capital, 10% for Total risk-based capital and a Leverage ratio of at least 5%.

We provide additional information regarding regulatory capital requirements and some of their potential impacts on us in the Supervision and Regulation section of Item 1 Business, Item 1A Risk Factors and Note 18 Regulatory Matters in the Notes To Consolidated Financial Statements in Item 8 of this Report. See the Statistical Information (Unaudited) section in Item 8 of this Report for details on our December 31, 2016, 2015, and 2014 Transitional Basel III and Fully Phased-in Basel III Common equity Tier 1 capital ratios.

Market Risk Management

Market risk is the risk of a loss in earnings or economic value due to adverse movements in market factors such as interest rates, credit spreads, foreign exchange rates, commodity prices and equity prices. We are exposed to market risk primarily by our involvement in the following activities, among others:

- Traditional banking activities of gathering deposits and extending loans;
- Equity and other investments and activities whose economic values are directly impacted by market factors; and
- Fixed income securities, derivatives and foreign exchange activities, as a result of customer activities and securities underwriting.

We have established enterprise-wide policies and methodologies to identify, measure, monitor and report market risk. Market Risk Management provides independent oversight by monitoring compliance with established guidelines and reporting significant risks in the business to the Risk Committee of the Board of Directors.

Market Risk Management – Interest Rate Risk

Interest rate risk results primarily from our traditional banking activities of gathering deposits and extending loans. Many factors, including economic and financial conditions, movements in interest rates and consumer preferences, affect the difference between the interest that we earn on assets and the interest that we pay on liabilities and the level of our noninterest-bearing funding sources. Due to the repricing term mismatches and embedded options inherent in certain of these products, changes in market interest rates not only affect expected near-term earnings, but also the economic values of these assets and liabilities.

The interest rates that we pay on customer deposits have risen in 2018 as a result of higher short-term market interest rates. The rates paid on commercial deposits have had a higher correlation to increases in short-term interest rates, as compared to the rates paid on consumer deposits. During 2019, we anticipate that the rates paid on our consumer deposits will continue to reflect increases in short-term interest rates. The rates paid on customer deposits are also impacted by factors including the level of interest rates, competition for deposits, new product offerings and changes in business strategies.

Our Asset and Liability Management group centrally manages interest rate risk as prescribed in our risk management policies, which are approved by management's Asset and Liability Committee and the Risk Committee of the Board of Directors.

Sensitivity results and market interest rate benchmarks for the fourth quarters of 2018 and 2017 follow.

Table 29: Interest Sensitivity Analysis

	Fourth Quarter 2018	Fourth Quarter 2017
Net Interest Income Sensitivity Simulation (a)		
Effect on net interest income in first year from gradual interest rate change over the following 12 months of:		
100 basis point increase	1.7 %	2.7 %
100 basis point decrease	(2.2)%	(3.2)%
Effect on net interest income in second year from gradual interest rate change over the preceding 12 months of:		
100 basis point increase	3.7 %	5.0 %
100 basis point decrease	(6.2)%	(8.1)%
Duration of Equity Model (a)		
Base case duration of equity (in years)	(1.0)	(1.7)
Key Period-End Interest Rates		
One-month LIBOR	2.50 %	1.56 %
Three-month LIBOR	2.81 %	1.69 %
Three-year swap	2.59 %	2.17 %

(a) Given the inherent limitations in certain of these measurement tools and techniques, results become less meaningful as interest rates approach zero.

In addition to measuring the effect on net interest income assuming parallel changes in current interest rates, we routinely simulate the effects of a number of nonparallel interest rate environments. Table 30 reflects the percentage change in net interest income over the next two 12-month periods assuming (i) the PNC Economist's most likely rate forecast, (ii) implied market forward rates and (iii) yield curve slope flattening (a 100 basis point yield curve slope flattening between one-month and ten-year rates superimposed on current base rates) scenario.

All changes in forecasted net interest income are relative to results in a base rate scenario where current market rates are assumed to remain unchanged over the forecast horizon.

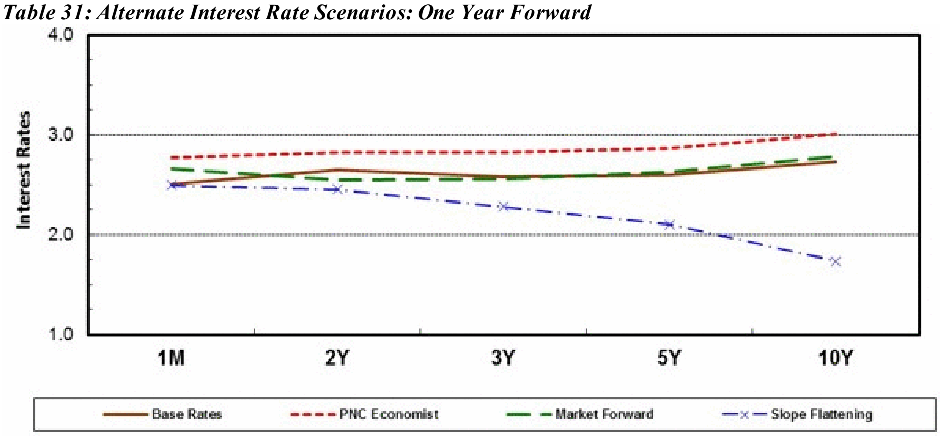
Table 30: Net Interest Income Sensitivity to Alternative Rate Scenarios

	December 31, 2018		
	PNC Economist	Market Forward	Slope Flattening
First year sensitivity	.5%	.6 %	(.7)%
Second year sensitivity	.8%	(.6)%	(3.3)%

When forecasting net interest income, we make assumptions about interest rates and the shape of the yield curve, the volume and characteristics of new business and the behavior of existing on- and off-balance sheet positions. These assumptions determine the future level of simulated net interest income in the base interest rate scenario and the other interest rate scenarios presented in Tables 29 and 30. These simulations assume that as assets and liabilities mature, they are replaced or repriced at then current market rates.

The following graph presents the LIBOR/Swap yield curves for the base rate scenario and each of the alternate scenarios one year forward.

Table 31: Alternate Interest Rate Scenarios: One Year Forward



The fourth quarter 2018 interest sensitivity analyses indicate that our Consolidated Balance Sheet is positioned to benefit from an increase in interest rates and an upward sloping interest rate yield curve. We believe that we have the deposit funding base and balance sheet flexibility to adjust, where appropriate and permissible, to changing interest rates and market conditions.

Market Risk Management – Customer-Related Trading Risk

We engage in fixed income securities, derivatives and foreign exchange transactions to support our customers' investing and hedging activities. These transactions, related hedges and the credit valuation adjustment related to our customer derivatives portfolio are marked-to-market daily and reported as customer-related trading activities. We do not engage in proprietary trading of these products.

We use value-at-risk (VaR) as the primary means to measure and monitor market risk in customer-related trading activities. VaR is used to estimate the probability of portfolio losses based on the statistical analysis of historical market risk factors. A diversified VaR reflects empirical correlations across different asset classes. We calculate a diversified VaR at a 95% confidence interval and the results for 2018 and 2017 were within our acceptable limits.

To help ensure the integrity of the models used to calculate VaR for each portfolio and enterprise-wide, we use a process known as backtesting. The backtesting process consists of comparing actual observations of gains or losses against the VaR levels that were calculated at the close of the prior day. Our VaR measure assumes that exposures remain constant and that recent market variability is a good predictor of future variability. Actual observations include customer related revenue and intraday hedging which helps to reduce losses and can reduce the number of instances actual losses exceed the prior day VaR measure. There were minimal instances during 2018 and 2017 under our diversified VaR measure where actual losses exceeded the prior day VaR measure and those losses were insignificant. Our portfolio and enterprise-wide VaR models utilize a historical approach with a 500 day look back period.

Customer-related trading revenue was $248 million in 2018 compared with $255 million in 2017 and is recorded in Other noninterest income and Other interest income on our Consolidated Income Statement. The decrease was primarily due to the impact of changes in credit valuations for customer-related derivative activities, which was partially offset by higher foreign exchange and derivative client revenues.

Market Risk Management – Equity And Other Investment Risk

Equity investment risk is the risk of potential losses associated with investing in both private and public equity markets. In addition to extending credit, taking deposits, underwriting securities and trading financial instruments, we make and manage direct investments in a variety of transactions, including management buyouts, recapitalizations and growth financings in a variety of industries. We also have investments in affiliated and non-affiliated funds that make similar investments in private equity. The economic and/or book value of these investments and other assets are directly affected by changes in market factors.

Various PNC business units manage our equity and other investment activities. Our businesses are responsible for making investment decisions within the approved policy limits and associated guidelines.

A summary of our equity investments follows:

Table 32: Equity Investments Summary

			Change	
Dollars in millions	December 31 2018	December 31 2017	$	%
BlackRock	$ 8,016	$ 7,576	$ 440	6%
Tax credit investments	2,219	2,148	71	3%
Private equity and other	2,659	1,668	991	59%
Total	$ 12,894	$ 11,392	$ 1,502	13%

<u>BlackRock</u>

We owned approximately 35 million common stock equivalent shares of BlackRock equity at December 31, 2018, accounted for under the equity method. The Business Segments Review section of this Item 7 includes additional information about BlackRock.

<u>Tax Credit Investments</u>

Included in our equity investments are direct tax credit investments and equity investments held by consolidated entities. These tax credit investment balances included unfunded commitments totaling $.8 billion at both December 31, 2018 and 2017, respectively. These unfunded commitments are included in Other Liabilities on our Consolidated Balance Sheet.

Note 2 Loan Sale and Servicing Activities and Variable Interest Entities in the Notes To Consolidated Financial Statements in Item 8 of this Report has further information on Tax Credit Investments.

Private Equity and Other

The majority of our other equity investments consists of our private equity portfolio. The private equity portfolio is an illiquid portfolio consisting of mezzanine and equity investments that vary by industry, stage and type of investment. Private equity investments carried at estimated fair value totaled $1.5 billion and $1.3 billion at December 31, 2018 and 2017, respectively. As of December 31, 2018, $1.3 billion was invested directly in a variety of companies and $.2 billion was invested indirectly through various private equity funds. See the Supervision and Regulation section in Item 1 of this Report for discussion of the potential impacts of the Volcker Rule provisions of Dodd-Frank on our interests in and of private funds covered by the Volcker Rule.

Effective January 1, 2018, $.6 billion of available for sale securities were reclassified to equity investments as part of the adoption of ASU 2016-01. These securities were primarily money market funds.

Included in our other equity investments are Visa Class B common shares, which are recorded at cost. Visa Class B common shares that we own are transferable only under limited circumstances until they can be converted into shares of the publicly-traded Class A common shares, which cannot happen until the resolution of the pending interchange litigation. Based upon the December 31, 2018 per share closing price of $131.94 for a Visa Class A common share, the estimated value of our total investment in the Class B common shares was approximately $756 million at the current conversion rate of Visa B shares to Visa A shares, while our cost basis was not significant. See Note 6 Fair Value and Note 19 Legal Proceedings in the Notes To Consolidated Financial Statements in Item 8 of this Report for additional information regarding our Visa agreements. The estimated value does not represent fair value of the Visa B common shares given the share's limited transferability and the lack of observable transactions in the marketplace. In the fourth quarter of 2017, we recorded a negative derivative fair value adjustment of $248 million related to swap agreements with purchasers of Visa Class B common shares. These fair value adjustments were primarily related to the extension of anticipated timing of litigation resolution.

We also have certain other equity investments, the majority of which represent investments in affiliated and non-affiliated funds with both traditional and alternative investment strategies. Net gains related to these investments were not significant during 2018 and 2017.

Impact of Inflation

Our assets and liabilities are primarily financial in nature and typically have varying maturity dates. Accordingly, future changes in prices do not affect the obligations to pay or receive fixed and determinable amounts of money. However, during periods of inflation, there may be a subsequent impact affecting certain fixed costs or expenses, an erosion of consumer and customer purchasing power, and fluctuations in the need or demand for our products and services. Should significant levels of inflation occur, our business could potentially be impacted by, among other things, reducing our tolerance for extending credit or causing us to incur additional credit losses resulting from possible increased default rates.

Financial Derivatives

We use a variety of financial derivatives as part of the overall asset and liability risk management process to help manage exposure to market (primarily interest rate) and credit risk inherent in our business activities. We also enter into derivatives with customers to facilitate their risk management activities.

Financial derivatives involve, to varying degrees, market and credit risk. Derivatives represent contracts between parties that usually require little or no initial net investment and result in one party delivering cash or another type of asset to the other party based on a notional and an underlying as specified in the contract. Therefore, cash requirements and exposure to credit risk are significantly less than the notional amount on these instruments.

Further information on our financial derivatives is presented in Note 1 Accounting Policies, Note 6 Fair Value and Note 13 Financial Derivatives in Item 8 of this Report.

Not all elements of market and credit risk are addressed through the use of financial derivatives, and such instruments may be ineffective for their intended purposes due to unanticipated market changes, among other reasons.

Operational Risk Management

Operational risk is the risk to the current or projected financial condition and resilience arising from inadequate or failed internal processes or systems, human errors or misconduct, or adverse external events. Operational risk is inherent to the entire organization.

Operational risk management is embedded in our culture and decision-making processes through a systematic approach whereby operational risks and exposures are: 1) identified and assessed; 2) managed through the design and implementation of controls; 3) measured and evaluated against our risk tolerance limits; and 4) appropriately reported to management and the Risk Committee. Strong operational risk management and well-informed risk-based decisions benefit us by improving the customer experience, enhancing compliance, reducing reputational risk, minimizing losses and establishing an appropriate amount of required operational risk capital held by us.

The Operational Risk Management Framework supports our effective and consistent management of operational risk. The primary purpose of the framework is to enable us to understand our operational risks and manage them to the desired risk profile, in line with our Risk Appetite. Additionally, the guidance established within the framework enables management to make well-informed risk-based business decisions.

The framework provides a disciplined and structured process for us to manage operational risk across eight operational risk domains. These domains provide a comprehensive view of operational risk and allow us to discuss operational risk in a standard way, facilitating reporting and ongoing risk mitigation.

The operational risk domains are:

- Operations: Risk resulting from inadequate or failed internal processes, misconduct or errors of people or fraud.
- Compliance: Risk of legal or regulatory sanctions, financial loss, or damage to reputation resulting from failure to comply with laws, regulations, rules, self-regulatory standards, or other regulatory requirements.
- Data Management: Risk associated with incomplete or inaccurate data.
- Model: Risk associated with the design, implementation, and ongoing use and management of a model.
- Technology and Systems: Risk associated with the use, operation, and adoption of technology.
- Information Security: Risk resulting from the failure to protect information and ensure appropriate access to, and use and handling of information assets.
- Business Continuity: Risk of potential disruptive events to business activities.
- Third Party: Risk arising from failure of third party providers to conduct activity in a safe and sound manner and in compliance with contract provisions and applicable laws and regulations.

We utilize operational risk management programs within the framework, including Risk Control and Self-Assessments, scenario analysis, and internal and external loss event review and analysis, to assess existing risks, determine potential/emerging risks and evaluate the effectiveness of internal controls. The program tools and methodology enable our business managers to identify potential risks and control gaps.

Lines of business are responsible for identifying, owning, managing and monitoring the operational risks and controls associated with its business activities and product or service offerings to within acceptable levels. Centralized functions, such as Business Continuity, Enterprise Third Party Management, and Information Security, are responsible for the development, implementation and management of their individual programs and for the development and maintenance of the policies, procedures, methodologies, tools and technology utilized across the enterprise to identify, assess, monitor and report program risks. Additionally, independent risk management reviews and challenges line of business adherence to the framework to ensure proper controls are in place and appropriate risk mitigation plans are established as necessary.

Compliance Risk

Enterprise Compliance is responsible for coordinating the compliance risk component of our Operational Risk Management Framework. Compliance issues are identified and tracked through enterprise-wide monitoring and tracking programs. Key compliance risk issues are escalated through a comprehensive risk reporting process at both a business and enterprise level and incorporated, as appropriate, into the development and assessment of our operational risk profile. A committee, co-chaired by the Chief Compliance Officer and the Chief BSA/AML Officer, is responsible for oversight of compliance and fiduciary risk management programs across PNC. In order to help understand and proactively address emerging regulatory issues where appropriate, Enterprise Compliance communicates regularly with various regulators having supervisory or regulatory responsibilities with respect to us, our subsidiaries, or businesses and participates in forums focused on regulatory and compliance matters in the financial services industry.

CRITICAL ACCOUNTING ESTIMATES AND JUDGMENTS

Our consolidated financial statements are prepared by applying certain accounting policies. Note 1 Accounting Policies in the Notes To Consolidated Financial Statements in Item 8 of this Report describes the most significant accounting policies that we use. Certain of these policies require us to make estimates or economic assumptions that may vary under different assumptions or conditions and such variations may significantly affect our reported results and financial position for the period or in future periods.

Fair Value Measurements

We must use estimates, assumptions and judgments when assets and liabilities are required to be recorded at, or adjusted to reflect, fair value. Assets and liabilities carried at fair value inherently result in a higher degree of financial statement volatility. Fair values and the information used to record valuation adjustments for certain assets and liabilities are based on either quoted market prices or are provided by independent third-party sources, including appraisers and valuation specialists, when available. When such third-party information is not available, we estimate fair value primarily by using cash flow and other financial modeling techniques. Changes in underlying factors, assumptions, or estimates in any of these areas could materially impact our future financial condition and results of operations.

We apply ASC 820 – Fair Value Measurements. This guidance defines fair value as the price that would be received to sell a financial asset or paid to transfer a financial liability in an orderly transaction between market participants at the measurement date. This guidance requires a three level hierarchy for disclosure of assets and liabilities recorded at fair value. The classification of assets and liabilities within the hierarchy is based on whether the inputs to the valuation methodology used in the measurement are observable or unobservable.

The following table summarizes the assets and liabilities measured at fair value on a recurring basis at December 31, 2018 and 2017, respectively, and the portions of such assets and liabilities that are classified within Level 3 of the valuation hierarchy. Level 3 assets and liabilities are those where the fair value is estimated using significant unobservable inputs.

Table 33: Fair Value Measurements – Summary

	December 31, 2018		December 31, 2017	
Dollars in millions	Total Fair Value	Level 3	Total Fair Value	Level 3
Total assets	$ 75,744	$ 6,157	$ 69,673	$ 6,475
Total assets at fair value as a percentage of consolidated assets	20%		18%	
Level 3 assets as a percentage of total assets at fair value		8%		9%
Level 3 assets as a percentage of consolidated assets		2%		2%
Total liabilities	$ 3,355	$ 333	$ 4,233	$ 531
Total liabilities at fair value as a percentage of consolidated liabilities	1%		1%	
Level 3 liabilities as a percentage of total liabilities at fair value		10%		13%
Level 3 liabilities as a percentage of consolidated liabilities		<1%		<1%

The majority of assets recorded at fair value are included in the securities available for sale portfolio. The majority of Level 3 assets represent non-agency residential mortgage-backed securities in the securities available for sale portfolio, mortgage servicing rights and equity investments. The majority of Level 3 liabilities represent financial derivatives. For further information on fair value, see Note 6 Fair Value in the Notes To the Consolidated Financial Statements in Item 8 of this Report.

Allowances for Loan and Lease Losses and Unfunded Loan Commitments and Letters of Credit

We maintain the ALLL and the Allowance for Unfunded Loan Commitments and Letters of Credit at levels that we believe to be appropriate to absorb estimated probable credit losses incurred in the loan and lease portfolios and on these unfunded credit facilities as of the balance sheet date. Our determination of the allowances is based on periodic evaluations of the loan and lease portfolios and unfunded credit facilities and other relevant factors. These critical estimates include significant use of our own historical data and complex methods to interpret them. We have an ongoing process to evaluate and enhance the quality, quantity and timeliness of our data and interpretation methods used in the determination of these allowances. These evaluations are inherently subjective, as they require material estimates and may be susceptible to significant change, and include, among others:

- Probability of default (PD);
- Loss given default (LGD);
- Exposure at default;
- Movement through delinquency stages;
- Amounts and timing of expected future cash flows;
- Value of collateral; and
- Qualitative factors, such as changes in current economic conditions, that may not be reflected in modeled results.

For all loans, the ALLL is the sum of three components: (i) asset specific/individual impaired reserves, (ii) quantitative (formulaic or pooled) reserves and (iii) qualitative (judgmental) reserves. The reserve calculation and determination process is dependent on the use of key assumptions. Key reserve assumptions and estimation processes react to and are influenced by observed changes in loan portfolio performance experience, the financial strength of the borrower, and economic conditions. For unfunded commitments, the reserve estimate also includes estimation of the probability of funding. Key reserve assumptions are periodically updated.

To the extent actual outcomes differ from our estimates, additional provision for credit losses may be required that would reduce future earnings. See the following for additional information:

- Allowances For Loan And Lease Losses And Unfunded Loan Commitments And Letters Of Credit in the Credit Risk Management section of this Item 7; and
- Note 1 Accounting Policies and Note 4 Allowance for Loan and Lease Losses in the Notes To Consolidated Financial Statements and Allocation of Allowance for Loan and Lease Losses in the Statistical Information (Unaudited) section of Item 8 of this Report.

Residential and Commercial Mortgage Servicing Rights

We elect to measure our residential and commercial mortgage servicing rights (MSRs) at fair value. This election was made to be consistent with our risk management strategy to hedge changes in the fair value of these assets. The fair value of residential and commercial MSRs is estimated by using a discounted cash flow valuation model which calculates the present value of estimated future net servicing cash flows, taking into consideration actual and expected mortgage loan prepayment rates, discount rates, servicing costs, and other factors which are determined based on current market conditions.

We employ risk management strategies designed to protect the value of MSRs from changes in interest rates and related market factors. The values of the residential and commercial MSRs are economically hedged with securities and derivatives, including interest-rate swaps, options, and forward mortgage-backed and futures contracts. As interest rates change, these financial instruments are expected to have changes in fair value negatively correlated to the change in fair value of the hedged MSR portfolios. The hedge relationships are actively managed in response to changing market conditions over the life of the MSRs. Selecting appropriate financial instruments to economically hedge residential or commercial MSRs requires significant management judgment to assess how mortgage rates and prepayment speeds could affect the future values of MSRs. Hedging results can frequently be less predictable in the short term, but over longer periods of time are expected to protect the economic value of the MSRs.

For additional information on our residential and commercial MSRs, see Note 6 Fair Value and Note 7 Goodwill and Mortgage Servicing Rights in Item 8 of this Report.

Recently Issued Accounting Standards

Accounting Standards Update (ASU)	Description	Financial Statement Impact
Leases - ASU 2016-02 Issued February 2016	• Required effective date of January 1, 2019.[a] • Requires lessees to recognize a right-of-use asset and related lease liability for all leases with lease terms of more than 12 months. • Recognition, measurement and presentation of expenses and cash flows arising from a lease by a lessee will depend on its classification as a finance or operating lease. • Targeted changes have been made to the lessor accounting model to align the guidance with the new lessee model and revenue recognition guidance. • May be adopted using a modified retrospective approach through a cumulative-effect adjustment. • Financial Accounting Standards Board (FASB) issued an ASU which permits the option to adopt the new standard prospectively as of the effective date, without adjusting comparative periods presented. Under this new transition method, an entity initially applies the new leases standard at the effective date and recognizes a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption.	• We adopted this standard prospectively as of January 1, 2019, without adjusting comparative periods presented. We recognized lease liabilities and right-of-use assets of $2.1 billion and $2.0 billion, respectively, as of January 1, 2019. We recognized a one-time adjustment of $83 million to retained earnings, related primarily to deferred gains on previous sale-leaseback transactions. • The impact of adoption was immaterial to PNC's consolidated income statement. • The impact of adoption of the changes to the lessor accounting model did not have a material impact on our financial statements.
Credit Losses - ASU 2016-13 Issued June 2016	• Required effective date of January 1, 2020.[a] • Requires the use of an expected credit loss methodology; specifically, current expected credit losses (CECL) for the remaining life of the asset will be recognized at the time of origination or acquisition. • Methodology will apply to loans, debt securities, and other financial assets and net investment in leases not accounted for at fair value through net income. It will also apply to off-balance sheet credit exposures except for unconditionally cancellable commitments. • In-scope assets will be presented at the net amount expected to be collected after deducting the allowance for credit losses from the amortized cost basis of the assets. • Requires enhanced credit quality disclosures including disaggregation of credit quality indicators by vintage. • Requires a modified retrospective approach through a cumulative-effect adjustment to retained earnings as of the beginning of the year of adoption.	• We did not adopt the standard at its early adoption date as of January 2019. • We established a company-wide, cross-functional governance structure in the third quarter of 2016, which oversees overall strategy for implementation of CECL. • We have prepared preliminary CECL accounting policies and interpretations, and continue to refine and test our models, estimation techniques, data, operational processes and controls to be used in preparing the CECL estimates. • We expect that we will be able to test-run all of our processes by the end of the second quarter of 2019, pending any unforeseen circumstances or significant changes to the requirements. During 2019, we expect to continually address any gaps in our interpretations, methodology, data and operational processes based upon our reviews and tests. • We are also participating in the FASB's standard setting activity related to CECL. Recently, the FASB has issued a proposed ASU for technical corrections related to financial instruments, which has an impact on the implementation of CECL related to treatment of recoveries, accrued interest receivables and some disclosure requirements. The comment period for the proposed ASU closed on January 18, 2019. We are awaiting final guidance from the FASB, and expect to be able to implement any changes. • We believe that given current conditions, our credit loss reserves will increase primarily for longer duration consumer loans, due to the difference between loss emergence periods currently used versus prepayment adjusted contractual maturities required under CECL. We will continue to refine our estimates throughout 2019, as CECL models and techniques are implemented and the results are vetted. We continue to believe that total credit loss reserves will increase at the adoption date and that the magnitude of the increase will depend upon the nature and characteristics of the portfolio at the adoption date, as well as macroeconomic conditions and forecasts at that date.
Goodwill - ASU 2017-04 Issued January 2017	• Required effective date of January 1, 2020.[a] • Eliminates Step 2 from the goodwill impairment test to simplify the subsequent measurement of goodwill under which a loss was recognized only if the estimated implied fair value of the goodwill is below its carrying value. • Requires impairment to be recognized if the carrying amount exceeds the reporting unit's fair value.	• We plan to adopt the standard on its effective date and we do not expect the adoption of this standard to impact our consolidated results of operations or our consolidated financial position.

(a) Early adoption is permitted.

Recently Adopted Accounting Pronouncements

See Note 1 Accounting Policies in the Notes To the Consolidated Financial Statements in Item 8 of this Report regarding the impact of new accounting pronouncements which we have adopted.

OFF-BALANCE SHEET ARRANGEMENTS AND VARIABLE INTEREST ENTITIES

We engage in a variety of activities that involve entities that are not consolidated or otherwise reflected in our Consolidated Balance Sheet that are generally referred to as "off-balance sheet arrangements." Additional information on these types of activities is included in the following sections of this Report:

- Commitments, including contractual obligations and other commitments, included within the Risk Management section of this Item 7; and
- Note 2 Loan Sale and Servicing Activities and Variable Interest Entities;
- Note 10 Borrowed Funds;
- Note 15 Equity; and
- Note 20 Commitments, all of which are in the Notes To Consolidated Financial Statements included in Item 8 of this Report.

A summary and further description of variable interest entities (VIEs) as of December 31, 2018 and 2017 is included in Note 1 Accounting Policies and Note 2 Loan Sale and Servicing and Variable Interest Entities in the Notes To Consolidated Financial Statements included in Item 8 of this Report.

Trust Preferred Securities

See Note 10 Borrowed Funds in the Notes To Consolidated Financial Statements in Item 8 of this Report for additional information on trust preferred securities issued by PNC Capital Trust C including information on contractual limitations potentially imposed on payments (including dividends) with respect to PNC's equity securities.

GLOSSARY OF TERMS

Adjusted average total assets – Primarily consisted of total average quarterly (or annual) assets plus/less unrealized losses (gains) on investment securities, less goodwill and certain other intangible assets (net of eligible deferred taxes).

Basel III common equity Tier 1 capital – Common stock plus related surplus, net of treasury stock, plus retained earnings, plus accumulated other comprehensive income for securities currently, and those transferred from, available for sale and pension and other postretirement benefit plans, subject to phase-in limits, less goodwill, net of associated deferred tax liabilities, less other disallowed intangibles, net of deferred tax liabilities and plus/less other adjustments. Significant common stock investments in unconsolidated financial institutions, as well as mortgage servicing rights and deferred tax assets, must then be deducted to the extent such items individually exceed 10%, or in the aggregate exceed 15%, of our adjusted Basel III common equity Tier 1 capital.

Basel III common equity Tier 1 capital ratio – Common equity Tier 1 capital divided by period-end risk-weighted assets (as applicable).

Basel III Tier 1 capital – Common equity Tier 1 capital, plus qualifying preferred stock, plus certain trust preferred capital securities, plus certain noncontrolling interests that are held by others and plus/less other adjustments.

Basel III Tier 1 capital ratio – Tier 1 capital divided by period-end risk-weighted assets (as applicable).

Basel III Total capital – Tier 1 capital plus qualifying subordinated debt, plus certain trust preferred securities, plus, under the Basel III transitional rules and the standardized approach, the allowance for loan and lease losses included in Tier 2 capital and other.

Basel III Total capital ratio – Total capital divided by period-end risk-weighted assets (as applicable).

Charge-off – Process of removing a loan or portion of a loan from our balance sheet because it is considered uncollectible. We also record a charge-off when a loan is transferred from portfolio holdings to held for sale by reducing the loan carrying amount to the fair value of the loan, if fair value is less than carrying amount.

Combined loan-to-value ratio (CLTV) – This is the aggregate principal balance(s) of the mortgages on a property divided by its appraised value or purchase price.

Common shareholders' equity – Total shareholders' equity less the liquidation value of preferred stock.

Credit valuation adjustment – Represents an adjustment to the fair value of our derivatives for our own and counterparties' non-performance risk.

Criticized commercial loans – Loans with potential or identified weaknesses based upon internal risk ratings that comply with the regulatory classification definitions of "Special Mention," "Substandard" or "Doubtful."

Discretionary client assets under management – Assets over which we have sole or shared investment authority for our customers/clients. We do not include these assets on our Consolidated Balance Sheet.

Duration of equity – An estimate of the rate sensitivity of our economic value of equity. A negative duration of equity is associated with asset sensitivity (*i.e.*, positioned for rising interest rates), while a positive value implies liability sensitivity (*i.e.*, positioned for declining interest rates). For example, if the duration of equity is -1.5 years, the economic value of equity increases by 1.5% for each 100 basis point increase in interest rates.

Earning assets – Assets that generate income, which include: interest-earning deposits with banks; loans held for sale; loans; investment securities; and certain other assets.

Effective duration – A measurement, expressed in years, that, when multiplied by a change in interest rates, would approximate the percentage change in value of on- and off- balance sheet positions.

Efficiency – Noninterest expense divided by total revenue.

Fair value – The price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.

Fee income – When referring to the components of Noninterest income, we use the term fee income to refer to the following categories within Noninterest income: Asset management; Consumer services; Corporate services; Residential mortgage; and Service charges on deposits.

FICO score – A credit bureau-based industry standard score created by Fair Isaac Co. which predicts the likelihood of borrower default. We use FICO scores both in underwriting and assessing credit risk in our consumer lending portfolio. Lower FICO scores indicate likely higher risk of default, while higher FICO scores indicate likely lower risk of default. FICO scores are updated on a periodic basis.

Foreign exchange contracts – Contracts that provide for the future receipt and delivery of foreign currency at previously agreed-upon terms.

Futures and forward contracts – Contracts in which the buyer agrees to purchase and the seller agrees to deliver a specific financial instrument at a predetermined price or yield. May be settled either in cash or by delivery of the underlying financial instrument.

GAAP – Accounting principles generally accepted in the United States of America.

Home price index (HPI) – A broad measure of the movement of single-family house prices in the U.S.

Impaired loans – Loans are determined to be impaired when, based on current information and events, it is probable that all contractually required payments will not be collected. Impaired loans include commercial nonperforming loans and consumer and commercial TDRs, regardless of nonperforming status. Excluded from impaired loans are nonperforming leases, loans held for sale, loans accounted for under the fair value option, smaller balance homogenous type loans and purchased impaired loans.

Interest rate swap contracts – Contracts that are entered into primarily as an asset/liability management strategy to reduce interest rate risk. Interest rate swap contracts are exchanges of interest rate payments, such as fixed-rate payments for floating-rate payments, based on notional principal amounts.

Intrinsic value – The difference between the price, if any, required to be paid for stock issued pursuant to an equity compensation arrangement and the fair market value of the underlying stock.

Leverage ratio – Tier 1 capital divided by average quarterly adjusted total assets.

LIBOR – Acronym for London InterBank Offered Rate. LIBOR is the average interest rate charged when banks in the London wholesale money market (or interbank market) borrow unsecured funds from each other. LIBOR rates are used as a benchmark for interest rates on a global basis. Our product set includes loans priced using LIBOR as a benchmark.

Loan-to-value ratio (LTV) – A calculation of a loan's collateral coverage that is used both in underwriting and assessing credit risk in our lending portfolio. LTV is the sum total of loan obligations secured by collateral divided by the market value of that same collateral. Market values of the collateral are based on an independent valuation of the collateral. For example, a LTV of less than 90% is better secured and has less credit risk than a LTV of greater than or equal to 90%.

Loss given default (LGD) – An estimate of loss, net of recovery based on collateral type, collateral value, loan exposure and other factors. Each loan has its own LGD. The LGD risk rating measures the percentage of exposure of a specific credit obligation that we expect to lose if default occurs. LGD is net of recovery, through any means, including but not limited to the liquidation of collateral or deficiency judgments rendered from foreclosure or bankruptcy proceedings.

Nonaccrual loans – Loans for which we do not accrue interest income. Nonaccrual loans include nonperforming loans, in addition to loans accounted for under fair value option and loans accounted for as held for sale for which full collection of contractual principal and/or interest is not probable.

Nondiscretionary client assets under administration – Assets we hold for our customers/clients in a nondiscretionary, custodial capacity. We do not include these assets on our Consolidated Balance Sheet.

Nonperforming assets – Nonperforming assets include nonperforming loans and OREO and foreclosed assets, but exclude certain government insured or guaranteed loans for which we expect to collect substantially all principal and interest, loans held for sale, loans accounted for under the fair value option and purchased impaired loans. We do not accrue interest income on assets classified as nonperforming.

Nonperforming loans – Loans accounted for at amortized cost for which we do not accrue interest income. Nonperforming loans include loans to commercial, commercial real estate, equipment lease financing, home equity, residential real estate, credit card and other consumer customers as well as TDRs which have not returned to performing status. Nonperforming loans exclude certain government insured or guaranteed loans for which we expect to collect substantially all principal and interest, loans held for sale, loans accounted for under the fair value option and purchased impaired loans. Nonperforming loans exclude purchased impaired loans as we are currently accreting interest income over the expected life of the loans.

Notional amount – A number of currency units, shares or other units specified in a derivative contract.

Operating leverage – The period to period dollar or percentage change in total revenue (GAAP basis) less the dollar or percentage change in noninterest expense. A positive variance indicates that revenue growth exceeded expense growth (*i.e.*, positive operating leverage) while a negative variance implies expense growth exceeded revenue growth (*i.e.*, negative operating leverage).

Options – Contracts that grant the purchaser, for a premium payment, the right, but not the obligation, to either purchase or sell the associated financial instrument at a set price during a specified period or at a specified date in the future.

Other real estate owned (OREO) and foreclosed assets –Assets taken in settlement of troubled loans primarily through deed-in-lieu of foreclosure or foreclosure. Foreclosed assets include real and personal property. Excludes certain assets that have a government-guarantee which are classified as other receivables.

Probability of default (PD) – An internal risk rating that indicates the likelihood that a credit obligor will enter into default status.

Recovery – Cash proceeds received on a loan that we had previously charged off. We credit the amount received to the allowance for loan and lease losses.

Risk – The potential that an event or series of events could occur that would threaten our ability to achieve our strategic objectives, thereby negatively affecting shareholder value or reputation.

Risk appetite – A dynamic, forward-looking view on the aggregate amount of risk we are willing and able to take in executing business strategy in light of the current business environment.

Risk limits – Quantitative measures based on forward-looking assumptions that allocate the firm's aggregate risk appetite (*e.g.,* measure of loss or negative events) to business lines, legal entities, specific risk categories, concentrations and as appropriate, other levels.

Risk profile – The risk profile is a point-in-time assessment of risk. The profile represents overall risk position in relation to the desired risk appetite. The determination of the risk profile's position is based on qualitative and quantitative analysis of reported risk limits, metrics, operating guidelines and qualitative assessments.

Risk-weighted assets – Computed by the assignment of specific risk-weights (as defined by the Board of Governors of the Federal Reserve System) to assets and off-balance sheet instruments.

Servicing rights – An intangible asset or liability created by an obligation to service assets for others. Typical servicing rights include the right to receive a fee for collecting and forwarding payments on loans and related taxes and insurance premiums held in escrow.

Taxable-equivalent interest income – The interest income earned on certain assets that is completely or partially exempt from federal income tax. These tax-exempt instruments typically yield lower returns than taxable investments. To provide more meaningful comparisons of yields and margins for all interest-earning assets, we use interest income on a taxable-equivalent basis in calculating average yields and net interest margins by increasing the interest income earned on tax-exempt assets to make it fully equivalent to interest income earned on other taxable investments. This adjustment is not permitted under GAAP on the Consolidated Income Statement.

Transitional Basel III common equity Tier 1 capital – Common equity Tier 1 capital calculated under Basel III using phased-in definitions and deductions applicable to us during the related presentation period and standardized approach risk-weighted assets.

Troubled debt restructuring (TDR) – A loan whose terms have been restructured in a manner that grants a concession to a borrower experiencing financial difficulties.

Value-at-risk (VaR) – A statistically-based measure of risk that describes the amount of potential loss which may be incurred due to adverse market movements. The measure is of the maximum loss which should not be exceeded on 95 out of 100 days for a 95% VaR.

Yield curve – A graph showing the relationship between the yields on financial instruments or market indices of the same credit quality with different maturities. For example, a "normal" or "positive" yield curve exists when long-term bonds have higher yields than short-term bonds. A "flat" yield curve exists when yields are the same for short-term and long-term bonds. A "steep" yield curve exists when yields on long-term bonds are significantly higher than on short-term bonds. An "inverted" or "negative" yield curve exists when short-term bonds have higher yields than long-term bonds.

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING INFORMATION

We make statements in this Report, and we may from time to time make other statements, regarding our outlook for earnings, revenues, expenses, tax rates, capital and liquidity levels and ratios, asset levels, asset quality, financial position, and other matters regarding or affecting us and our future business and operations that are forward-looking statements within the meaning of the Private Securities Litigation Reform Act. Forward-looking statements are typically identified by words such as "believe," "plan," "expect," "anticipate," "see," "look," "intend," "outlook," "project," "forecast," "estimate," "goal," "will," "should" and other similar words and expressions. Forward-looking statements are subject to numerous assumptions, risks and uncertainties, which change over time.

Forward-looking statements speak only as of the date made. We do not assume any duty to update forward-looking statements. Actual results or future events could differ, possibly materially, from those anticipated in forward-looking statements, as well as from historical performance.

Our forward-looking statements are subject to the following principal risks and uncertainties.

- Our businesses, financial results and balance sheet values are affected by business and economic conditions, including the following:
  - Changes in interest rates and valuations in debt, equity and other financial markets.
  - Disruptions in the U.S. and global financial markets.
  - Actions by the Federal Reserve Board, U.S. Treasury and other government agencies, including those that impact money supply and market interest rates.
  - Changes in customer behavior due to recently enacted tax legislation, changing business and economic conditions or legislative or regulatory initiatives.
  - Changes in customers', suppliers' and other counterparties' performance and creditworthiness.
  - Impacts of tariffs and other trade policies of the U.S. and its global trading partners.
  - Slowing or reversal of the current U.S. economic expansion.
  - Commodity price volatility.
- Our forward-looking financial statements are subject to the risk that economic and financial market conditions will be substantially different than those we are currently expecting and do not take into account potential legal and regulatory contingencies. These statements are based on our views that:
  - U.S. economic growth has accelerated over the past two years to above its long-run trend.
  - However, growth is expected to slow over the course of 2019.
  - We expect further gradual improvement in the labor market this year, including job gains and rising wages, which would be a positive indicator for consumer spending.
  - Trade restrictions and geopolitical concerns are downside risks to the forecast.
  - Inflation is expected to slow in the first half of 2019, to below the FOMC's 2% objective.
  - Short-term interest rates and bond yields are expected to rise very slowly in 2019.
  - Our baseline forecast is for one more increase in the federal funds rate, in September 2019, pushing the rate to a range of 2.50 to 2.75% in the second half of this year.

- Our ability to take certain capital actions, including returning capital to shareholders, is subject to review by the Federal Reserve Board as part of our comprehensive capital plan for the applicable period in connection with the Federal Reserve Board's Comprehensive Capital Analysis and Review (CCAR) process and to the acceptance of such capital plan and non-objection to such capital actions by the Federal Reserve Board.
- Our regulatory capital ratios in the future will depend on, among other things, the company's financial performance, the scope and terms of final capital regulations then in effect and management actions affecting the composition of our balance sheet. In addition, our ability to determine, evaluate and forecast regulatory capital ratios, and to take actions (such as capital distributions) based on actual or forecasted capital ratios, will be dependent at least in part on the development, validation and regulatory approval of related models.
- Legal and regulatory developments could have an impact on our ability to operate our businesses, financial condition, results of operations, competitive position, reputation, or pursuit of attractive acquisition opportunities. Reputational impacts could affect matters such as business generation and retention, liquidity, funding, and ability to attract and retain management. These developments could include:
  – Changes resulting from legislative and regulatory reforms, including changes affecting oversight of the financial services industry, consumer protection, pension, bankruptcy and other industry aspects, and changes in accounting policies and principles.
  – Changes to regulations governing bank capital and liquidity standards.
  – Unfavorable resolution of legal proceedings or other claims and regulatory and other governmental investigations or other inquiries. These matters may result in monetary judgments or settlements or other remedies, including fines, penalties, restitution or alterations in our business practices, and in additional expenses and collateral costs, and may cause reputational harm to us.
  – Results of the regulatory examination and supervision process, including our failure to satisfy requirements of agreements with governmental agencies.
  – Impact on business and operating results of any costs associated with obtaining rights in intellectual property claimed by others and of adequacy of our intellectual property protection in general.
- Business and operating results are affected by our ability to identify and effectively manage risks inherent in our businesses, including, where appropriate, through effective use of systems and controls, third-party insurance, derivatives, and capital management techniques, and to meet evolving regulatory capital and liquidity standards.
- Business and operating results also include impacts relating to our equity interest in BlackRock, Inc. and rely to a significant extent on information provided to us by BlackRock. Risks and uncertainties that could affect BlackRock are discussed in more detail by BlackRock in its SEC filings.
- We grow our business in part through acquisitions and new strategic initiatives. Risks and uncertainties include those presented by the nature of the business acquired and strategic initiative, including in some cases those associated with our entry into new businesses or new geographic or other markets and risks resulting from our inexperience in those new areas, as well as risks and uncertainties related to the acquisition transactions themselves, regulatory issues, and the integration of the acquired businesses into PNC after closing.
- Competition can have an impact on customer acquisition, growth and retention and on credit spreads and product pricing, which can affect market share, deposits and revenues. Our ability to anticipate and respond to technological changes can also impact our ability to respond to customer needs and meet competitive demands.
- Business and operating results can also be affected by widespread natural and other disasters, pandemics, dislocations, terrorist activities, system failures, security breaches, cyberattacks or international hostilities through impacts on the economy and financial markets generally or on us or our counterparties specifically.

We provide greater detail regarding these as well as other factors in this Report, including in the Risk Factors and Risk Management sections and the Legal Proceedings and Commitments Notes of the Notes To Consolidated Financial Statements in this Report. Our forward-looking statements may also be subject to other risks and uncertainties, including those discussed elsewhere in this Report or in our other filings with the SEC.

ITEM 7A – QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

This information is set forth in the Risk Management section of Item 7 and in Note 1 Accounting Policies, Note 6 Fair Value and Note 13 Financial Derivatives in the Notes To Consolidated Financial Statements in Item 8 of this Report.

ITEM 8 – FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of The PNC Financial Services Group, Inc.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of The PNC Financial Services Group, Inc. and its subsidiaries (the "Company") as of December 31, 2018 and 2017, and the related consolidated statements of income, comprehensive income, changes in equity and cash flows for each of the three years in the period ended December 31, 2018, including the related notes (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in *Internal Control - Integrated Framework (*2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018 based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the COSO.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control over Financial Reporting under Item 9A. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ PricewaterhouseCoopers LLP
Pittsburgh, Pennsylvania
February 28, 2019

We have served as the Company's auditor since 2007.

CONSOLIDATED INCOME STATEMENT

THE PNC FINANCIAL SERVICES GROUP, INC.

In millions, except per share data	Year ended December 31 2018	2017	2016
Interest Income			
Loans	$ 9,580	$ 8,238	$ 7,414
Investment securities	2,261	1,998	1,826
Other	741	578	412
Total interest income	12,582	10,814	9,652
Interest Expense			
Deposits	1,229	623	430
Borrowed funds	1,632	1,083	831
Total interest expense	2,861	1,706	1,261
Net interest income	9,721	9,108	8,391
Noninterest Income			
Asset management	1,825	1,942	1,521
Consumer services	1,502	1,415	1,388
Corporate services	1,849	1,742	1,589
Residential mortgage	316	350	567
Service charges on deposits	714	695	667
Other	1,205	1,077	1,039
Total noninterest income	7,411	7,221	6,771
Total revenue	17,132	16,329	15,162
Provision For Credit Losses	408	441	433
Noninterest Expense			
Personnel	5,471	5,268	4,873
Occupancy	818	868	861
Equipment	1,103	1,065	974
Marketing	285	244	247
Other	2,619	2,953	2,521
Total noninterest expense	10,296	10,398	9,476
Income before income taxes and noncontrolling interests	6,428	5,490	5,253
Income taxes	1,082	102	1,268
Net income	5,346	5,388	3,985
Less: Net income attributable to noncontrolling interests	45	50	82
Preferred stock dividends	236	236	209
Preferred stock discount accretion and redemptions	4	26	6
Net income attributable to common shareholders	$ 5,061	$ 5,076	$ 3,688
Earnings Per Common Share			
Basic	$ 10.79	$ 10.49	$ 7.42
Diluted	$ 10.71	$ 10.36	$ 7.30
Average Common Shares Outstanding			
Basic	467	481	494
Diluted	470	486	500

See accompanying Notes To Consolidated Financial Statements.

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

THE PNC FINANCIAL SERVICES GROUP, INC.

	Year ended December 31		
In millions	2018	2017	2016
Net income	$ 5,346	$ 5,388	$ 3,985
Other comprehensive income (loss), before tax and net of reclassifications into Net income:			
Net unrealized gains (losses) on non-OTTI securities	(526)	16	(369)
Net unrealized gains (losses) on OTTI securities	(14)	172	63
Net unrealized gains (losses) on cash flow hedge derivatives	(178)	(287)	(153)
Pension and other postretirement benefit plan adjustments	16	169	1
Other	(37)	61	(59)
Other comprehensive income (loss), before tax and net of reclassifications into Net income	(739)	131	(517)
Income tax benefit (expense) related to items of other comprehensive income	156	(14)	122
Other comprehensive income (loss), after tax and net of reclassifications into Net income	(583)	117	(395)
Comprehensive income	4,763	5,505	3,590
Less: Comprehensive income attributable to noncontrolling interests	45	50	82
Comprehensive income attributable to PNC	$ 4,718	$ 5,455	$ 3,508

See accompanying Notes To Consolidated Financial Statements.

CONSOLIDATED BALANCE SHEET

THE PNC FINANCIAL SERVICES GROUP, INC.

In millions, except par value	December 31 2018	December 31 2017
Assets		
Cash and due from banks	$ 5,608	$ 5,249
Interest-earning deposits with banks	10,893	28,595
Loans held for sale (a)	994	2,655
Investment securities – available for sale	63,389	57,618
Investment securities – held to maturity	19,312	18,513
Loans (a)	226,245	220,458
Allowance for loan and lease losses	(2,629)	(2,611)
Net loans	223,616	217,847
Equity investments (b)	12,894	11,392
Mortgage servicing rights	1,983	1,832
Goodwill	9,218	9,173
Other (a)	34,408	27,894
Total assets	$ 382,315	$ 380,768
Liabilities		
Deposits		
Noninterest-bearing	$ 73,960	$ 79,864
Interest-bearing	193,879	185,189
Total deposits	267,839	265,053
Borrowed funds		
Federal Home Loan Bank borrowings	21,501	21,037
Bank notes and senior debt	25,018	28,062
Subordinated debt	5,895	5,200
Other (c)	5,005	4,789
Total borrowed funds	57,419	59,088
Allowance for unfunded loan commitments and letters of credit	285	297
Accrued expenses and other liabilities	9,002	8,745
Total liabilities	334,545	333,183
Equity		
Preferred stock (d)		
Common stock ($5 par value, Authorized 800 shares, issued 542 shares)	2,711	2,710
Capital surplus	16,277	16,374
Retained earnings	38,919	35,481
Accumulated other comprehensive income (loss)	(725)	(148)
Common stock held in treasury at cost: 85 and 69 shares	(9,454)	(6,904)
Total shareholders' equity	47,728	47,513
Noncontrolling interests	42	72
Total equity	47,770	47,585
Total liabilities and equity	$ 382,315	$ 380,768

(a) Our consolidated assets included the following for which we have elected the fair value option: Loans held for sale of $.9 billion, Loans of $.8 billion, and Other assets of $.2 billion at December 31, 2018 and Loans held for sale of $1.7 billion, Loans of $.9 billion, and Other assets of $.3 billion at December 31, 2017.

(b) Amounts include our equity interest in BlackRock. Effective for the first quarter of 2018, $.6 billion of trading and available for sale securities, primarily money market funds, were reclassified to Equity investments on January 1, 2018 in accordance with the adoption of Accounting Standards Update 2016-01, Financial Instruments - Overall: *Recognition and Measurement of Financial Assets and Financial Liabilities*.

(c) Our consolidated liabilities included Other borrowed funds of $.1 billion at both December 31, 2018 and 2017, for which we have elected the fair value option.

(d) Par value less than $.5 million at each date.

See accompanying Notes To Consolidated Financial Statements.

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY

THE PNC FINANCIAL SERVICES GROUP, INC.

		Shareholders' Equity							
In millions	Shares Outstanding Common Stock	Common Stock	Capital Surplus - Preferred Stock	Capital Surplus - Common Stock and Other	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Treasury Stock	Noncontrolling Interests	Total Equity
Balance at December 31, 2015 (a)	504	$ 2,708	$ 3,452	$ 12,745	$29,043	$ 130	$ (3,368)	$ 1,270	$45,980
Net income					3,903			82	3,985
Other comprehensive income (loss), net of tax						(395)			(395)
Cash dividends declared									
Common					(1,061)				(1,061)
Preferred					(209)				(209)
Preferred stock discount accretion			6		(6)				
Preferred stock issuance - Series S (b)			519						519
Common stock activity (c)		1		18					19
Treasury stock activity	(19)			(131)			(1,698)		(1,829)
Other				42				(197)	(155)
Balance at December 31, 2016 (a)	485	$ 2,709	$ 3,977	$ 12,674	$31,670	$ (265)	$ (5,066)	$ 1,155	$46,854
Net income					5,338			50	5,388
Other comprehensive income (loss), net of tax						117			117
Cash dividends declared									
Common					(1,266)				(1,266)
Preferred					(236)				(236)
Preferred stock discount accretion			6		(6)				
Redemption of noncontrolling interests (d)					(19)			(981)	(1,000)
Common stock activity (c)		1		17					18
Treasury stock activity	(12)			(309)			(1,838)		(2,147)
Other			2	7				(152)	(143)
Balance at December 31, 2017 (a)	473	$ 2,710	$ 3,985	$ 12,389	$35,481	$ (148)	$ (6,904)	$ 72	$47,585
Cumulative effect of ASU adoptions (e)					(22)	6			(16)
Balance at January 1, 2018 (a)	473	$ 2,710	$ 3,985	$ 12,389	$35,459	$ (142)	$ (6,904)	$ 72	$47,569
Net income					5,301			45	5,346
Other comprehensive income (loss), net of tax						(583)			(583)
Cash dividends declared									
Common					(1,601)				(1,601)
Preferred					(236)				(236)
Preferred stock discount accretion			4		(4)				
Common stock activity (c)		1		19					20
Treasury stock activity	(16)			(101)			(2,550)		(2,651)
Other			(3)	(16)				(75)	(94)
Balance at December 31, 2018 (a)	457	$ 2,711	$ 3,986	$ 12,291	$38,919	$ (725)	$ (9,454)	$ 42	$47,770

(a) The par value of our preferred stock outstanding was less than $.5 million at each date and, therefore, is excluded from this presentation.
(b) On November 1, 2016, PNC issued 5,250 shares of Series S preferred stock with a $1 par value.
(c) Common stock activity totaled less than .5 million shares issued.
(d) Relates to the redemption of Perpetual Trust Securities in the first quarter of 2017. See Note 15 in our 2017 Annual Report on Form 10-K for additional information.
(e) Represents the cumulative effect of adopting ASU 2014-09, ASU 2016-01, ASU 2017-12 and ASU 2018-02. See Recently Adopted Accounting Standards portion of Note 1 Accounting Policies for additional detail on the adoption of these ASUs.

See accompanying Notes To Consolidated Financial Statements.

CONSOLIDATED STATEMENT OF CASH FLOWS
THE PNC FINANCIAL SERVICES GROUP, INC.

In millions	Year ended December 31 2018	2017	2016
Operating Activities			
Net income	$ 5,346	$ 5,388	$ 3,985
Adjustments to reconcile net income to net cash provided (used) by operating activities			
Provision for credit losses	408	441	433
Depreciation and amortization	1,129	1,117	1,193
Deferred income taxes	133	(403)	326
Changes in fair value of mortgage servicing rights	172	323	179
Gain on sales of Visa Class B common shares			(126)
Undistributed earnings of BlackRock	(525)	(727)	(361)
Net change in			
Trading securities and other short-term investments	(893)	305	(1,167)
Loans held for sale	1,635	(1,148)	(935)
Other assets	108	647	(744)
Accrued expenses and other liabilities	295	(704)	652
Other	32	340	65
Net cash provided (used) by operating activities	$ 7,840	$ 5,579	$ 3,500
Investing Activities			
Sales			
Securities available for sale	$ 7,505	$ 5,647	$ 3,456
Loans	1,323	2,001	1,897
Repayments/maturities			
Securities available for sale	9,388	10,734	11,061
Securities held to maturity	2,447	2,948	3,209
Purchases			
Securities available for sale	(23,418)	(13,605)	(19,495)
Securities held to maturity	(3,370)	(5,605)	(4,305)
Loans	(690)	(841)	(1,334)
Net change in			
Federal funds sold and resale agreements	(5,837)	(245)	126
Interest-earning deposits with banks	17,702	(2,884)	4,835
Loans	(7,335)	(10,483)	(5,940)
Net cash paid for acquisition		(1,342)	
Other	(1,684)	(1,220)	(817)
Net cash provided (used) by investing activities	$ (3,969)	$ (14,895)	$ (7,307)

(continued on following page)

CONSOLIDATED STATEMENT OF CASH FLOWS

THE PNC FINANCIAL SERVICES GROUP, INC.

(continued from previous page)

In millions	Year ended December 31 2018	2017	2016
Financing Activities			
Net change in			
Noninterest-bearing deposits	$ (6,016)	$ (264)	$ 1,212
Interest-bearing deposits	8,690	8,255	7,367
Federal funds purchased and repurchase agreements	392	(148)	18
Federal Home Loan Bank borrowings	1,500		
Commercial paper	(100)	100	
Other borrowed funds	20	459	272
Sales/issuances			
Federal Home Loan Bank borrowings	9,500	11,000	1,000
Bank notes and senior debt	3,238	7,062	5,601
Subordinated debt	1,243		
Other borrowed funds	500	427	165
Preferred stock			519
Common and treasury stock	69	132	151
Repayments/maturities			
Federal Home Loan Bank borrowings	(10,536)	(7,512)	(3,559)
Bank notes and senior debt	(6,175)	(1,800)	(3,750)
Subordinated debt	(575)	(2,758)	(488)
Other borrowed funds	(548)	(318)	(555)
Redemption of noncontrolling interests		(1,000)	
Acquisition of treasury stock	(2,877)	(2,447)	(2,062)
Preferred stock cash dividends paid	(236)	(236)	(209)
Common stock cash dividends paid	(1,601)	(1,266)	(1,061)
Net cash provided (used) by financing activities	$ (3,512)	$ 9,686	$ 4,621
Net Increase (Decrease) In Cash And Due From Banks	$ 359	$ 370	$ 814
Cash and due from banks at beginning of period	5,249	4,879	4,065
Cash and due from banks at end of period	$ 5,608	$ 5,249	$ 4,879
Supplemental Disclosures			
Interest paid	$ 2,835	$ 1,743	$ 1,317
Income taxes paid	$ 372	$ 72	$ 658
Income taxes refunded	$ 468	$ 24	$ 111
Non-cash Investing and Financing Items			
Transfer from loans to loans held for sale, net	$ 403	$ 419	$ 606
Transfer from loans to foreclosed assets	$ 193	$ 215	$ 281
Transfer from trading securities to investment securities		$ 192	

See accompanying Notes To Consolidated Financial Statements.

BUSINESS

The PNC Financial Services Group, Inc. (PNC) is one of the largest diversified financial services companies in the United States and is headquartered in Pittsburgh, Pennsylvania.

We have businesses engaged in retail banking, including residential mortgage, corporate and institutional banking and asset management, providing many of our products and services nationally. Our retail branch network is located in markets across the Mid-Atlantic, Midwest and Southeast. We also have strategic international offices in four countries outside the U.S.

NOTE 1 ACCOUNTING POLICIES

Basis of Financial Statement Presentation

Our consolidated financial statements include the accounts of the parent company and its subsidiaries, most of which are wholly-owned, certain partnership interests, and variable interest entities.

We prepared these consolidated financial statements in accordance with accounting principles generally accepted in the United States of America (GAAP). We have eliminated intercompany accounts and transactions. We have also reclassified certain prior year amounts to conform to the 2018 presentation, which did not have a material impact on our consolidated financial condition or results of operations.

We have also considered the impact of subsequent events on these consolidated financial statements.

Use of Estimates

We prepared these consolidated financial statements using financial information available at the time of preparation, which requires us to make estimates and assumptions that affect the amounts reported. Our most significant estimates pertain to our fair value measurements and allowances for loan and lease losses and unfunded loan commitments and letters of credit. Actual results may differ from the estimates and the differences may be material to the consolidated financial statements.

Investment in BlackRock, Inc.

We account for our investment in the common stock and Series B Preferred Stock of BlackRock (deemed to be in-substance common stock) under the equity method of accounting. The investment in BlackRock is reflected on our Consolidated Balance Sheet in Equity investments, while our equity in earnings of BlackRock is reported on our Consolidated Income Statement in Asset management noninterest income.

We also held shares of Series C Preferred Stock of BlackRock pursuant to our obligation to partially fund a portion of certain BlackRock long-term incentive plan (LTIP) programs. Since these preferred shares were not deemed to be in-substance common stock, we elected to account for these preferred shares at fair value and the changes in fair value offset the impact of marking-to-market the obligation to deliver these shares to BlackRock. Our investment in the BlackRock Series C Preferred Stock was included on our Consolidated Balance Sheet in Other assets. Our obligation to transfer these shares to BlackRock was classified as a derivative not designated as a hedging instrument under GAAP as disclosed in Note 13 Financial Derivatives.

See Note 24 Subsequent Events for information on our January 31, 2019 transfer of our remaining shares of Series C Preferred Stock to BlackRock to satisfy our obligation under the Share Surrender Agreement.

Variable Interest Entities

A variable interest entity (VIE) is a corporation, partnership, limited liability company, or any other legal structure used to conduct activities or hold assets generally that either:

- Does not have equity investors with voting rights that can directly or indirectly make decisions about the entity's activities through those voting rights or similar rights; or
- Has equity investors that do not provide sufficient equity for the entity to finance its activities without additional subordinated financial support.

A VIE often holds financial assets, including loans or receivables, real estate or other property.

VIEs are assessed for consolidation under ASC 810 – Consolidation when we hold a variable interest in these entities. We consolidate a VIE if we are its primary beneficiary. The primary beneficiary of a VIE is determined to be the party that meets both of the following criteria: (i) has the power to make decisions that most significantly affect the economic performance of the VIE; and (ii) has the obligation to absorb losses or the right to receive benefits that in either case could potentially be significant to the VIE. Upon consolidation of a VIE, we recognize all of the VIE's assets, liabilities and noncontrolling interests on our Consolidated Balance Sheet. On a quarterly basis, we determine whether any changes occurred requiring a reassessment of whether we are the primary beneficiary of an entity.

See Note 2 Loan Sale and Servicing Activities and Variable Interest Entities for information about VIEs that we consolidate as well as those that we do not consolidate but in which we hold a significant variable interest.

Revenue Recognition

We earn interest and noninterest income from various sources, including:
- Lending;
- Securities portfolio;
- Asset management;
- Customer deposits;
- Loan sales, loan securitizations, and servicing;
- Brokerage services;
- Sale of loans and securities;
- Certain private equity activities; and
- Securities, derivatives and foreign exchange activities.

In addition, we earn fees and commissions from:
- Issuing loan commitments, standby letters of credit and financial guarantees;
- Deposit account services;
- Merchant services;
- Selling various insurance products;
- Providing treasury management services;
- Providing merger and acquisition advisory and related services;
- Debit and credit card transactions; and
- Participating in certain capital markets transactions.

Our Asset management noninterest income also includes our share of the earnings of BlackRock recognized under the equity method of accounting.

Service charges on deposit accounts are recognized when earned. Brokerage fees and gains and losses on the sale of securities and certain derivatives are recognized on a trade-date basis.

We record private equity income or loss based on changes in the valuation of the underlying investments or when we dispose of our interest.

We recognize gain/(loss) on changes in the fair value of certain financial instruments where we have elected the fair value option. These financial instruments include certain commercial and residential mortgage loans originated for sale, certain residential mortgage portfolio loans, resale agreements and our investment in BlackRock Series C preferred stock. We also recognize gain/(loss) on changes in the fair value of residential and commercial mortgage servicing rights (MSRs).

We recognize revenue from servicing residential mortgages, commercial mortgages and other consumer loans as earned based on the specific contractual terms. These revenues are reported on the Consolidated Income Statement in the line items Residential mortgage, Corporate services and Consumer services. We recognize revenue from securities, derivatives and foreign exchange customer-related trading, as well as securities underwriting activities, as these transactions occur or as services are provided. We generally recognize gains from the sale of loans upon receipt of cash. Mortgage revenue recognized is reported net of mortgage repurchase reserves.

For the fee-based revenue within the scope of ASC Topic 606 - *Revenue from Contracts with Customers*, revenue is recognized when or as those services are transferred to the customer. See Note 23 Fee-based Revenue from Contracts with Customers for additional information related to revenue within the scope of Topic 606.

Cash and Cash Equivalents

Cash and due from banks are considered "cash and cash equivalents" for financial reporting purposes.

Investments

We hold interests in various types of investments. The accounting for these investments is dependent on a number of factors including, but not limited to, items such as:

- Ownership interest;
- Our plans for the investment; and
- The nature of the investment.

Debt Securities

Debt securities are recorded on a trade-date basis. We classify debt securities as held to maturity and carry them at amortized cost if we have the positive intent and ability to hold the securities to maturity. Debt securities that we purchase for certain risk management activities or customer-related trading activities are carried at fair value and classified as trading securities and are reported in the Other assets line item on our Consolidated Balance Sheet. Realized and unrealized gains and losses on trading securities are included in Other noninterest income.

Debt securities not classified as held to maturity or trading are designated as securities available for sale and carried at fair value with unrealized gains and losses, net of income taxes, reflected in Accumulated other comprehensive income (AOCI).

On at least a quarterly basis, we review all debt securities that are in an unrealized loss position for other than temporary impairment (OTTI). An investment security is deemed impaired if the fair value of the investment is less than its amortized cost. Amortized cost includes adjustments (if any) made to the cost basis of an investment for accretion, amortization, previous other-than-temporary impairments and hedging gains and losses. After an investment security is determined to be impaired, we evaluate whether the decline in value is other-than-temporary. Declines in the fair value of available for sale and held to maturity debt securities that are deemed other-than-temporary and are attributable to credit deterioration are recognized in Other noninterest income on our Consolidated Income Statement in the period in which the determination is made. Declines in fair value which are deemed other-than-temporary and attributable to factors other than credit deterioration are recognized in AOCI on our Consolidated Balance Sheet.

We include all interest on debt securities, including amortization of premiums and accretion of discounts on investment securities, in net interest income using the constant effective yield method generally calculated over the contractual lives of the securities. Effective yields reflect either the effective interest rate implicit in the security at the date of acquisition or the effective interest rate determined based on improved cash flows subsequent to impairment. We compute gains and losses realized on the sale of available for sale debt securities on a specific security basis. These securities gains/(losses) are included in Other noninterest income on the Consolidated Income Statement.

Equity Securities and Partnership Interests

We account for equity securities, equity investments other than BlackRock, private equity investments, and investments in limited partnerships, limited liability companies and other investments that are not required to be consolidated under one of the following methods:

- We use the equity method for general and limited partner ownership interests and limited liability companies in which we are considered to have significant influence over the operations of the investee. Under the equity method, we record our equity ownership share of net income or loss of the investee in Noninterest income and any dividends received on equity method investments are recorded as a reduction to the investment balance. When an equity investment experiences an other-than-temporary decline in value, we may be required to record a loss on the investment.
- We measure equity securities that have a readily determinable fair value at fair value through Net income. Both realized and unrealized gains and losses are included in Noninterest income. Dividend income on these equity securities is included in Other interest income on our Consolidated Income Statement.
- We generally use the practicability exception to fair value measurement for all other investments. When we elect this alternative measurement method, the carrying value is adjusted for impairment, if any, plus or minus changes in value resulting from observable price changes in orderly transactions for identical or similar instruments of the same issuer. These investments are written down to fair value if a qualitative assessment indicates impairment and the fair value is less than the carrying value. The amount of the write-down is accounted for as a loss included in Noninterest income. Distributions received on these investments are included in Noninterest income.

Investments described above are included in Equity investments on our Consolidated Balance Sheet.

Private Equity Investments

We report private equity investments, which include direct investments in companies, affiliated partnership interests and indirect investments in private equity funds, at estimated fair value. These estimates are based on available information and may not necessarily represent amounts that we will ultimately realize through distribution, sale or liquidation of the investments. Fair values of publicly-traded direct investments are determined using quoted market prices and are subject to various discount factors arising from security level restrictions, when appropriate. The valuation procedures applied to direct investments and indirect investments are detailed in Note 6 Fair Value. We include all private equity investments within Equity investments on our Consolidated Balance Sheet. Changes in fair value of private equity investments are recognized in Other noninterest income.

We consolidate affiliated partnerships when we have determined that we have control of the partnership or are the primary beneficiary if the entity is a VIE. The portion we do not own is reflected in Noncontrolling interests on our Consolidated Balance Sheet.

Loans

Loans are classified as held for investment when management has both the intent and ability to hold the loan for the foreseeable future, or until maturity or payoff. Management's intent and view of the foreseeable future may change based on changes in business strategies, the economic environment, market conditions and the availability of government programs.

Measurement of delinquency status is based on the contractual terms of each loan. Loans that are 30 days or more past due in terms of payment are considered delinquent.

Except as described below, loans held for investment are stated at recorded investment, which represents the principal amounts outstanding, net of unearned income, unamortized deferred fees and costs on originated loans, and premiums or discounts on purchased loans. Interest on performing loans (excluding interest on purchased impaired loans, which is further discussed below) is accrued based on the principal amount outstanding and recorded in Interest income as earned using the constant effective yield method. Loan origination fees, direct loan origination costs, and loan premiums and discounts are deferred and accreted or amortized into Net interest income using the constant effective yield method, over the contractual life of the loan.

In addition to originating loans, we also acquire loans through portfolio purchases or acquisitions of other financial services companies. For certain acquired loans that have experienced a deterioration of credit quality, we follow the guidance contained in ASC 310-30 – Loans and Debt Securities Acquired with Deteriorated Credit Quality. Under this guidance, acquired purchased impaired loans are to be recorded at fair value without the carryover of any existing valuation allowances. When evidence of credit quality deterioration and evidence that it is probable that we will be unable to collect all contractual amounts due exist, we consider the loans to be purchased credit impaired and we estimate the amount and timing of undiscounted expected cash flows at acquisition for each loan either individually or on a pool basis. The excess of undiscounted cash flows expected to be collected on a purchased impaired loan (or pool of loans) over its carrying value represents the accretable yield which is recognized into interest income over the remaining life of the loan (or pool of loans) using the constant effective yield method. Subsequent decreases in expected cash flows that are attributable, at least in part, to credit quality are recognized as impairments through a charge to the provision for credit losses resulting in an increase in the Allowance for Loan and Lease Losses (ALLL). Subsequent increases in expected cash flows are recognized as a provision recapture of previously recorded ALLL or prospectively through an adjustment of the loan's or pool's yield over its remaining life.

Loans Held for Sale

We designate loans as held for sale when we have the intent to sell them. We transfer loans to the Loans held for sale category at the lower of cost or estimated fair value less cost to sell. At the time of transfer, write-downs on the loans are recorded as charge-offs. We establish a new cost basis upon transfer. Any subsequent lower-of-cost-or-market adjustment is determined on an individual loan basis and is recognized as a valuation allowance with any charges included in Other noninterest income.

We have elected to account for certain commercial and residential mortgage loans held for sale at fair value. The changes in the fair value of the commercial mortgage loans are measured and recorded in Other noninterest income while the residential mortgage loans are measured and recorded in Residential mortgage noninterest income each period. See Note 6 Fair Value for additional information.

Interest income with respect to loans held for sale is accrued based on the principal amount outstanding and the loan's contractual interest rate.

In certain circumstances, loans designated as held for sale may be transferred to held for investment based on a change in strategy. We transfer these loans at the lower of cost or estimated fair value; however, any loans originated or purchased for held for sale and designated at fair value remain at fair value for the life of the loan.

Leases

We provide financing for various types of equipment, including aircraft, energy and power systems, and vehicles through a variety of lease arrangements. Direct financing leases are carried at the aggregate of lease payments plus estimated residual value of the leased equipment, less unearned income. Leveraged leases, a form of financing lease, are carried net of nonrecourse debt. We recognize income over the term of the lease using the constant effective yield method. Lease residual values are reviewed for impairment at least annually. Gains or losses on the sale of leased assets are included in Other noninterest income while valuation adjustments on lease residuals are included in Other noninterest expense.

We adopted Accounting Standards Update (ASU) 2016-02 – Leases as of January 1, 2019 and recognized lease liabilities and right-of-use assets of $2.1 billion and $2.0 billion, respectively. In addition, we recognized a one-time adjustment of $83 million to retained earnings, related primarily to deferred gains on previous sale-leaseback transactions.

Loan Sales, Loan Securitizations and Retained Interests

We recognize the sale of loans or other financial assets when the transferred assets are legally isolated from our creditors and the appropriate accounting criteria are met. We have sold mortgage and other loans through securitization transactions. In a securitization, financial assets are transferred into trusts or to special purpose entities (SPEs) in transactions to effectively legally isolate the assets from us.

In a securitization, the trust or SPE issues beneficial interests in the form of senior and subordinated securities backed or collateralized by the assets sold to the trust. The senior classes of the asset-backed securities typically receive investment grade credit ratings at the time of issuance. These ratings are generally achieved through the creation of lower-rated subordinated classes of asset-backed securities, as well as subordinated or residual interests. In certain cases, we may retain a portion or all of the securities issued, interest-only strips, one or more subordinated tranches, servicing rights and, in some cases, cash reserve accounts. Securitized loans are removed from the balance sheet and a net gain or loss is recognized in Noninterest income at the time of initial sale. Gains or losses recognized on the sale of the loans depend on the fair value of the loans sold and the retained interests at the date of sale. We generally estimate the fair value of the retained interests based on the present value of future expected cash flows using assumptions as to discount rates, interest rates, prepayment speeds, credit losses and servicing costs, if applicable.

With the exception of loan sales to certain U.S. government-chartered entities, our loan sales and securitizations are generally structured without recourse to us except for representations and warranties and with no restrictions on the retained interests. We originate, sell and service commercial mortgage loans under the Federal National Mortgage Association (FNMA) Delegated Underwriting and Servicing (DUS) program. Under the provisions of the DUS program, we participate in a loss-sharing arrangement with FNMA. When we are obligated for loss-sharing or recourse, our policy is to record such liabilities initially at fair value and subsequently reserve for estimated losses in accordance with guidance contained in applicable GAAP.

Nonperforming Loans and Leases

The matrix below summarizes our policies for classifying certain loans as nonperforming loans and/or discontinuing the accrual of loan interest income.

Commercial loans	
Loans Classified as Nonperforming and Accounted for as Nonaccrual	• Loans accounted for at amortized cost where: – The loan is 90 days or more past due. – The loan is rated substandard or worse due to the determination that full collection of principal and interest is not probable as demonstrated by the following conditions: • The collection of principal or interest is 90 days or more past due; • Reasonable doubt exists as to the certainty of the borrower's future debt service ability, according to the terms of the credit arrangement, regardless of whether 90 days have passed or not; • The borrower has filed or will likely file for bankruptcy; • The bank advances additional funds to cover principal or interest; • We are in the process of liquidating a commercial borrower; or • We are pursuing remedies under a guarantee.
Loans Excluded from Nonperforming Classification but Accounted for as Nonaccrual	• Loans accounted for under the fair value option and full collection of principal and interest is not probable. • Loans accounted for at the lower of cost or market less costs to sell (held for sale) and full collection of principal and interest is not probable.
Loans Excluded from Nonperforming Classification and Nonaccrual Accounting	• Loans that are well secured and in the process of collection.

Consumer loans	
Loans Classified as Nonperforming and Accounted for as Nonaccrual	• Loans accounted for at amortized cost where full collection of contractual principal and interest is not deemed probable as demonstrated in the policies below: – The loan is 90 days past due for home equity and installment loans, and 180 days past due for well secured residential real estate loans; – The loan has been modified and classified as a troubled debt restructuring (TDR); – Notification of bankruptcy has been received within the last 60 days; – The bank holds a subordinate lien position in the loan and the first lien mortgage loan is seriously stressed (i.e., 90 days or more past due); – Other loans within the same borrower relationship have been placed on nonaccrual or charge-offs have been taken on them; – The bank has repossessed non-real estate collateral securing the loan; or – The bank has charged-off the loan to the value of the collateral.
Loans Excluded from Nonperforming Classification but Accounted for as Nonaccrual	• Loans accounted for under the fair value option and full collection of principal and interest is not probable. • Loans accounted for at the lower of cost or market less costs to sell (held for sale) and full collection of principal and interest is not probable.
Loans Excluded from Nonperforming Classification and Nonaccrual Accounting	• Purchased impaired loans because interest income is accreted through the accounting model. • Certain government insured loans where substantially all principal and interest is insured. • Residential real estate loans that are well secured and in the process of collection. • Consumer loans and lines of credit, not secured by residential real estate or automobiles, as permitted by regulatory guidance.

See Note 3 Asset Quality in this Report for additional detail on nonperforming assets and asset quality indicators for commercial and consumer loans.

Commercial Loans
We generally charge off Commercial Lending (Commercial, Commercial Real Estate, and Equipment Lease Financing) nonperforming loans when we determine that a specific loan, or portion thereof, is uncollectible. This determination is based on the specific facts and circumstances of the individual loans. In making this determination, we consider the viability of the business or project as a going concern, the past due status when the asset is not well-secured, the expected cash flows to repay the loan, the value of the collateral, and the ability and willingness of any guarantors to perform.

Additionally, in general, for smaller commercial loans of $1 million or less, a partial or full charge-off occurs at 120 days past due for term loans and 180 days past due for revolvers. Certain small business credit card balances that are placed on nonaccrual status when they become 90 days or more past due are charged-off at 180 days past due.

Consumer Loans
Home equity installment loans, home equity lines of credit, and residential real estate loans that are not well-secured and in the process of collection are charged-off at no later than 180 days past due. At that time, the basis in the loan is reduced to the fair value of the collateral less costs to sell. In addition to this policy, the bank recognizes a charge-off on a secured consumer loan when:

- The bank holds a subordinate lien position in the loan and a foreclosure notice has been received on the first lien loan;
- The bank holds a subordinate lien position in the loan which is 30 days or more past due with a combined loan to value ratio of greater than or equal to 110% and the first lien loan is seriously stressed (*i.e.*, 90 days or more past due);
- The loan is modified or otherwise restructured in a manner that results in the loan becoming collateral dependent;
- Notification of bankruptcy has been received within the last 60 days;
- The borrower has been discharged from personal liability through Chapter 7 bankruptcy and has not formally reaffirmed his or her loan obligation to us; or
- The collateral securing the loan has been repossessed and the value of the collateral is less than the recorded investment of the loan outstanding.

For loans that continue to meet any of the above policies, collateral values are updated annually and subsequent declines in collateral values are charged-off resulting in incremental provision for credit loss.

Most consumer loans and lines of credit, not secured by residential real estate, are charged off after 120-180 days past due.

Accounting for Nonperforming Assets and Leases and Other Nonaccrual Loans
For accrual loans, interest income is accrued on a monthly basis and certain fees and costs are deferred upon origination and recognized in income over the term of the loan utilizing an effective yield method. For nonaccrual loans, interest income accrual and deferred fee/cost recognition is discontinued. Additionally, the current year accrued and uncollected interest is reversed through Net interest income and prior year accrued and uncollected interest is charged-off. Nonaccrual loans may also be charged-off to reduce the basis to the fair value of collateral less costs to sell.

If payment is received on a nonaccrual loan, generally the payment is first applied to the recorded investment; payments are then applied to recover any charged-off amounts related to the loan. Finally, if both recorded investment and any charge-offs have been recovered, then the payment will be recorded as fee and interest income. For certain consumer loans, the receipt of interest payments is recognized as interest income on a cash basis. Cash basis income recognition is applied if a loan's recorded investment is deemed fully collectible and the loan has performed for at least six months.

For TDRs, payments are applied based upon their contractual terms unless the related loan is deemed non-performing. TDRs are generally included in nonperforming and nonaccrual loans. However, after a reasonable period of time in which the loan performs under restructured terms and meets other performance indicators, it is returned to performing/accruing status. This return to performing/accruing status demonstrates that the bank expects to collect all of the loan's remaining contractual principal and interest. TDRs resulting from 1) borrowers that have been discharged from personal liability through Chapter 7 bankruptcy and have not formally reaffirmed their loan obligations to us and 2) borrowers that are not currently obligated to make both principal and interest payments under the restructured terms are not returned to accrual status.

Other nonaccrual loans are generally not returned to accrual status until the borrower has performed in accordance with the contractual terms and other performance indicators for at least six months, the period of time which was determined to demonstrate the expected collection of the loan's remaining contractual principal and interest. When a nonperforming loan is returned to accrual status, it is then considered a performing loan.

See Note 3 Asset Quality and Note 4 Allowance for Loan and Lease Losses in this Report for additional TDR information.

Foreclosed assets consist of any asset seized or property acquired through a foreclosure proceeding or acceptance of a deed-in-lieu of foreclosure. Other real estate owned comprises principally commercial and residential real estate properties obtained in partial or total satisfaction of loan obligations. After obtaining a foreclosure judgment, or in some jurisdictions the initiation of proceedings under a power of sale in the loan instruments, the property will be sold. When we are awarded title or completion of deed-in-lieu of foreclosure, we transfer the loan to foreclosed assets included in Other assets on our Consolidated Balance Sheet. Property obtained in satisfaction of a loan is initially recorded at estimated fair value less cost to sell. Based upon the estimated fair value less cost to sell, the recorded investment of the loan is adjusted and, typically, a charge-off/recovery is recognized to the ALLL. We estimate fair values primarily based on appraisals, or sales agreements with third parties. Subsequently, foreclosed assets are valued at the lower of the amount recorded at acquisition date or estimated fair value less cost to sell. Valuation adjustments on these assets and gains or losses realized from disposition of such property are reflected in Other noninterest expense.

For certain mortgage loans that have a government guarantee, we establish a separate other receivable upon foreclosure. The receivable is measured based on the loan balance (inclusive of principal and interest) that is expected to be recovered from the guarantor.

Allowance for Loan and Lease Losses

We maintain the ALLL at a level that we believe to be appropriate to absorb estimated probable credit losses incurred in the loan and lease portfolios as of the balance sheet date. Our determination of the allowance is based on periodic evaluations of these loan and lease portfolios and other relevant factors. This critical estimate includes significant use of our own historical data and complex methods to interpret this data. These evaluations are inherently subjective, as they require material estimates and may be susceptible to significant change, and include, among others:

- Probability of default (PD);
- Loss given default (LGD);
- Exposure at default (EAD);
- Movement through delinquency stages;
- Amounts and timing of expected future cash flows;
- Value of collateral; and
- Qualitative factors, such as changes in current economic conditions, that may not be reflected in modeled results.

For all loans, except purchased impaired loans, the ALLL is the sum of three components: (i) asset specific/individual impaired reserves, (ii) quantitative (formulaic or pooled) reserves and (iii) qualitative (judgmental) reserves.

The reserve calculation and determination process is dependent on the use of key assumptions. Key reserve assumptions and estimation processes react to and are influenced by observed changes in loan portfolio performance experience, the financial strength of the borrower, and economic conditions. Key reserve assumptions are periodically updated.

See Note 4 Allowance for Loan and Lease Losses for additional detail on our ALLL.

Asset Specific/Individual Component

Nonperforming loans that are considered impaired under ASC 310 – Receivables, which include all commercial and consumer TDRs, are evaluated for a specific reserve. Specific reserve allocations are determined as follows:

- For commercial nonperforming loans and commercial TDRs greater than or equal to a defined dollar threshold, specific reserves are based on an analysis of the present value of the loan’s expected future cash flows, the loan’s observable market price or the fair value of the collateral.
- For commercial nonperforming loans and commercial TDRs below the defined dollar threshold, the individual loan’s LGD percentage is multiplied by the loan balance and the results are aggregated for purposes of measuring specific reserve impairment.
- Consumer nonperforming loans are collectively reserved for unless classified as consumer TDRs. For consumer TDRs, specific reserves are determined through an analysis of the present value of the loan’s expected future cash flows, except for those instances where loans have been deemed collateral dependent, including loans where borrowers have been discharged from personal liability through Chapter 7 bankruptcy and have not formally reaffirmed their loan obligations to us. Once that determination has been made, those TDRs are charged down to the fair value of the collateral less costs to sell at each period end.

Commercial Lending Quantitative Component

The estimates of the quantitative component of ALLL for incurred losses within the commercial lending portfolio segment are determined through statistical loss modeling utilizing PD, LGD and outstanding balance of the loan. Based upon borrower and transaction characteristics, we assign PDs and LGDs. Each of these statistical parameters is determined based on internal historical data, supplemented with third party data and management judgment, as deemed necessary. PD is influenced by such factors as liquidity, industry, obligor financial structure, access to capital and cash flow. LGD is influenced by collateral type, original and/or updated loan-to-value ratio (LTV), facility structure and other factors.

Consumer Lending Quantitative Component
Quantitative estimates within the consumer lending portfolio segment are calculated primarily using transition matrices, including using a roll-rate model. The roll-rate model uses statistical relationships, calculated from historical data that estimate the movement of loan outstandings through the various stages of delinquency and ultimately charge-off over our loss emergence period.

Qualitative Component
While our reserve methodologies strive to reflect all relevant risk factors, there continues to be uncertainty associated with, but not limited to, potential imprecision in the estimation process due to the inherent time lag of obtaining information and normal variations between estimates and actual outcomes. We provide additional reserves that are designed to provide coverage for losses attributable to such risks. The ALLL also includes factors that may not be directly measured in the determination of specific or pooled reserves. Such qualitative factors may include:

- Industry concentrations and conditions;
- Changes in market conditions;
- Recent credit quality trends;
- Recent loss experience in particular portfolios, including specific and unique events;
- Recent macro-economic factors;
- Model imprecision;
- Changes in lending policies and procedures;
- Timing of available information, including the performance of first lien positions; and
- Limitations of available historical data.

Allowance for Purchased Non-Impaired Loans
ALLL for purchased non-impaired loans is determined based upon a comparison between the methodologies described above and the remaining acquisition date fair value discount that has yet to be accreted into interest income. After making the comparison, an ALLL is recorded for the amount greater than the discount, or no ALLL is recorded if the discount is greater.

Allowance for Purchased Impaired Loans
ALLL for purchased impaired loans is determined in accordance with ASC 310-30 by comparing the net present value of management's best estimate of cash flows expected to be collected over the life of the loan (or pool of loans) to the recorded investment for a given loan (or pool of loans). In cases where the net present value of expected cash flows is lower than the recorded investment, ALLL is established.

Allowance for Unfunded Loan Commitments and Letters of Credit

We maintain the allowance for unfunded loan commitments and letters of credit at a level we believe is appropriate to absorb estimated probable credit losses incurred on these unfunded credit facilities as of the balance sheet date. We determine the allowance based on periodic evaluations of the unfunded credit facilities, including an assessment of the probability of commitment usage, credit risk factors, and, solely for commercial lending, the terms and expiration dates of the unfunded credit facilities. Other than the estimation of the probability of funding, the reserve for unfunded loan commitments is estimated in a manner similar to the methodology used for determining reserves for funded exposures. The allowance for unfunded loan commitments and letters of credit is recorded as a liability on the Consolidated Balance Sheet. Net adjustments to the allowance for unfunded loan commitments and letters of credit are included in the provision for credit losses.

Mortgage Servicing Rights

We provide servicing under various loan servicing contracts for commercial and residential loans. These contracts are either purchased in the open market or retained as part of a loan securitization or loan sale. All acquired or originated servicing rights are measured at fair value. Fair value is based on the present value of the expected future net cash flows, including assumptions as to:

- Deposit balances and interest rates for escrow and commercial reserve earnings;
- Discount rates;
- Estimated prepayment speeds; and
- Estimated servicing costs.

We measure commercial and residential MSRs at fair value in order to reduce any potential measurement mismatch between our economic hedges and the MSRs. We manage the risk by hedging the fair value of the MSR with derivatives and securities which are expected to increase in value when the value of the servicing right declines. Changes in the fair value of MSRs are recognized as gains/(losses). The fair value of these servicing rights is estimated by using a discounted cash flow valuation model which calculates the present value of estimated future net servicing cash flows, taking into consideration actual and expected mortgage loan prepayment rates, discount rates, servicing costs, and other factors which are determined based on current market conditions.

Fair Value of Financial Instruments

The fair value of financial instruments and the methods and assumptions used in estimating fair value amounts and financial assets and liabilities for which fair value was elected are detailed in Note 6 Fair Value.

Goodwill

Goodwill arising from business acquisitions represents the value attributable to unidentifiable intangible elements in the business acquired. At least annually, in the fourth quarter, or more frequently if events occur or circumstances have changed significantly from the annual test date, management performs our goodwill impairment test at a reporting unit level.

If, after considering all relevant events and circumstances, PNC determines it is not more-likely-than-not that the fair value of a reporting unit is less than its carrying amount, then performing an impairment test is not necessary. If PNC elects to bypass the qualitative analysis, or concludes via qualitative analysis that it is more-likely-than-not that the fair value of a reporting unit is less than its carrying amount, a two-step goodwill impairment test is performed. In the first step, inputs are generated and used in calculating the fair value of the reporting unit, which is compared to its carrying amount. If the fair value is greater than the carrying amount, then the reporting unit's goodwill is deemed not to be impaired. If the fair value is less than the carrying amount, then the second step is performed. In the second step, the implied fair value of reporting unit goodwill, which is determined as if the reporting unit had been acquired in a business combination, would be compared to the carrying amount of that goodwill. If the carrying amount of goodwill exceeds the implied fair value of goodwill, the difference is recognized as an impairment loss.

Depreciation and Amortization

For financial reporting purposes, we depreciate premises and equipment, net of salvage value, principally using the straight-line method over their estimated useful lives.

We use estimated useful lives for furniture and equipment ranging from one to 10 years, and depreciate buildings over an estimated useful life of up to 40 years. We amortize leasehold improvements over their estimated useful lives of up to 15 years or the respective lease terms, whichever is shorter.

We purchase, as well as internally develop and customize, certain software to enhance or perform internal business functions. Software development costs incurred in the planning and post-development project stages are charged to Noninterest expense. Costs associated with designing software configuration and interfaces, installation, coding programs and testing systems are capitalized and amortized using the straight-line method over periods ranging from one to 10 years.

Other Comprehensive Income

Other comprehensive income, on an after-tax basis, primarily consists of unrealized gains or losses, excluding OTTI attributable to credit deterioration, on investment securities classified as available for sale, unrealized gains or losses on derivatives designated as cash flow hedges, and changes in pension and other postretirement benefit plan liability adjustments. Details of each component are included in Note 16 Other Comprehensive Income.

Treasury Stock

We record common stock purchased for treasury at cost. At the date of subsequent reissue, the treasury stock account is reduced by the cost of such stock on the first-in, first-out basis.

Derivative Instruments and Hedging Activities

We use a variety of financial derivatives as part of our overall asset and liability risk management process to help manage exposure to market (primarily interest rate) and credit risk inherent in our business activities. We also enter into derivatives with customers to facilitate their risk management activities. Financial derivatives involve, to varying degrees, market and credit risk. We manage these risks as part of our asset and liability management process and through credit policies and procedures.

We recognize all derivative instruments at fair value as either Other assets or Other liabilities on the Consolidated Balance Sheet and the related cash flows in the Operating Activities section of the Consolidated Statement of Cash Flows. Adjustments for counterparty credit risk are included in the determination of fair value. The accounting for changes in the fair value of a derivative instrument depends on whether it has been designated and qualifies as part of a cash flow or net investment hedging relationship. For all other derivatives, changes in fair value are recognized in earnings.

We utilize a net presentation for derivative instruments on the Consolidated Balance Sheet taking into consideration the effects of legally enforceable master netting agreements. Cash collateral exchanged with counterparties is also netted against the applicable derivative exposures by offsetting obligations to return, or general rights to reclaim, cash collateral against the fair values of the net derivatives being collateralized.

For those derivative instruments that are designated and qualify as accounting hedges, we designate the hedging instrument, based on the exposure being hedged, as a fair value hedge, a cash flow hedge or a hedge of the net investment in a foreign operation.

We formally document the relationship between the hedging instruments and hedged items, as well as the risk management objective and strategy, before undertaking an accounting hedge. To qualify for hedge accounting, the derivatives and related hedged items must be designated as a hedge at inception of the hedge relationship. In addition, a derivative must be highly effective at reducing the risk associated with the exposure being hedged. For accounting hedge relationships, we formally assess, both at the inception of the hedge and on an ongoing basis, if the derivatives are highly effective in offsetting designated changes in the fair value or cash flows of the hedged item. If it is determined that the derivative instrument is not highly effective, hedge accounting is discontinued. We assess effectiveness using statistical regression analysis. Where the critical terms of the derivative and hedged item match, effectiveness may be assessed qualitatively.

For derivatives that are designated as fair value hedges (*i.e*., hedging the exposure to changes in the fair value of an asset or a liability attributable to a particular risk, such as changes in LIBOR), changes in the fair value of the hedging instrument are recognized in earnings and offset by also recognizing in earnings the changes in the fair value of the hedged item attributable to the hedged risk. To the extent the change in fair value of the derivative does not offset the change in fair value of the hedged item, the difference is reflected in the Consolidated Income Statement in the same income statement line as the hedged item.

For derivatives designated as cash flow hedges (*i.e*., hedging the exposure to variability in expected future cash flows), the gain or loss on derivatives is reported as a component of AOCI and subsequently reclassified to income in the same period or periods during which the hedged cash flows affect earnings and recorded in the same income statement line item as the hedged cash flows. For derivatives designated as a hedge of net investment in a foreign operation, the gain or loss on the derivatives is reported as a component of AOCI.

We discontinue hedge accounting when it is determined that the derivative no longer qualifies as an effective hedge; the derivative expires or is sold, terminated or exercised; or the derivative is de-designated as a fair value or cash flow hedge or, for a cash flow hedge, it is no longer probable that the forecasted transaction will occur by the end of the originally specified time period.

We purchase or originate financial instruments that contain an embedded derivative. For financial instruments not measured at fair value with changes in fair value reported in earnings, we assess, at inception of the transaction, if the economic characteristics of the embedded derivative are clearly and closely related to the economic characteristics of the host contract, and whether a separate instrument with the same terms as the embedded derivative would be a derivative. If the embedded derivative is not clearly and closely related to the host contract and meets the definition of a derivative, the embedded derivative is recorded separately from the host contract with changes in fair value recorded in earnings, unless we elect to account for the hybrid instrument at fair value.

We have elected, on an instrument-by-instrument basis, fair value measurement for certain financial instruments with embedded derivatives.

We enter into commitments to originate residential and commercial mortgage loans for sale. We also enter into commitments to purchase or sell commercial and residential real estate loans. These commitments are accounted for as free-standing derivatives which are recorded at fair value in Other assets or Other liabilities on the Consolidated Balance Sheet. Any gain or loss from the change in fair value after the inception of the commitment is recognized in Noninterest income.

Income Taxes

We account for income taxes under the asset and liability method. Deferred tax assets and liabilities are determined based on differences between the financial reporting and tax bases of assets and liabilities and are measured using the enacted tax rates and laws that we expect will apply at the time when we believe the differences will reverse. Changes in tax rates and tax law are accounted for in the period of enactment. Thus, at the enactment date, deferred taxes are remeasured and the change is recognized in Income Tax expense. The recognition of deferred tax assets requires an assessment to determine the realization of such assets. Realization refers to the incremental benefit achieved through the reduction in future taxes payable or refunds receivable from the deferred tax assets, assuming that the underlying deductible differences and carryforwards are the last items to enter into the determination of future taxable income. We establish a valuation allowance for tax assets when it is more likely than not that they will not be realized, based upon all available positive and negative evidence.

We use the deferral method of accounting on investments that generate investment tax credits. Under this method, the investment tax credits are recognized as a reduction to the related asset.

Related Party Transactions - PNC Foundation

During 2017, we contributed $200 million of BlackRock common stock to the PNC Foundation.

Earnings Per Common Share

Basic earnings per common share is calculated using the two-class method to determine income attributable to common shareholders. Unvested share-based payment awards that contain nonforfeitable rights to dividends or dividend equivalents are considered participating securities under the two-class method. Distributed dividends and dividend equivalents related to participating securities and an allocation of undistributed net income to participating securities reduce the amount of income attributable to common shareholders. Income attributable to common shareholders is then divided by the weighted-average common shares outstanding for the period.

Diluted earnings per common share is calculated under the more dilutive of either the treasury method or the two-class method. For the diluted calculation, we increase the weighted-average number of shares of common stock outstanding by the assumed conversion of outstanding convertible preferred stock from the beginning of the year or date of issuance, if later, and the number of shares of common stock that would be issued assuming the exercise of stock options and warrants and the issuance of incentive shares using the treasury stock method.These adjustments to the weighted-average number of shares of common stock outstanding are made only when such adjustments will dilute earnings per common share. See Note 14 Earnings Per Share for additional information.

Recently Adopted Accounting Standards

Accounting Standards Update (ASU)	Description	Financial Statement Impact
Revenue Recognition - ASU 2014-09 ASU 2015-14 ASU 2016-08 ASU 2016-10 ASU 2016-12 ASU 2016-20 Issued May 2014	• Replaces nearly all existing revenue recognition guidance in U.S. GAAP. • Revenue recognized when an entity satisfies its performance obligation by transferring a promised good or service to a customer. • Additional qualitative and quantitative disclosures relating to the nature, amount, timing and uncertainty of revenue and cash flows arising from contracts with customers.	• Adopted January 1, 2018 under the modified retrospective approach. • Cumulative-effect adjustment was immaterial to our consolidated results of operations and financial position. • Most significant impact of adoption is expanded disclosures related to disaggregation of in-scope revenue, see Note 23 Fee-based Revenue from Contracts with Customers.
Financial Instruments - ASU 2016-01 ASU 2018-03 Issued January 2016	• Changes the accounting for certain equity investments, financial liabilities under the fair value option and presentation and disclosure requirements for financial instruments. • Equity investments not accounted for under the equity method of accounting are required to be measured at fair value with any changes in fair value recognized in net income. • For an equity investment which does not have a readily determinable fair value, an election can be made to measure the investment at cost, less any impairment, plus or minus changes in value resulting from observable price changes in identical or similar instruments of the issuer. • Simplifies the impairment assessment of equity investments for which fair value is not readily determinable. • Changes the presentation of certain fair value changes for financial liabilities measured at fair value and amends certain disclosure requirements relating to the fair value of financial instruments. In addition, separate presentation is required of financial assets and financial liabilities by measurement category and form of financial asset on the balance sheet or the notes to the financial statements.	• Adopted January 1, 2018 under the modified retrospective approach, except for the amendment related to equity securities without readily determinable fair values, which is applied prospectively. • Cumulative-effect adjustment was immaterial to our consolidated results of operations and financial position. • For the standard's requirement for a separate presentation of financial assets and financial liabilities by measurement category, refer to the disclosures in this Note 1 and Note 6 Fair Value in this Report for further discussion of our measurement categories.

Statement of Cash Flows - ASU 2016-15
 	
Issued August 2016
	• Provides guidance on eight specific issues related to classification within the statement of cash flows with the objective of reducing existing diversity in practice.
	• The specific issues cover:
	  • cash payments for debt prepayment or debt extinguishment costs;
	  • cash outflows for settlement of zero-coupon debt instruments or other debt instruments with coupon interest rates that are insignificant;
	  • contingent consideration payments that are not made soon after a business combination;
	  • proceeds from the settlement of insurance claims;
	  • proceeds from the settlement of corporate-owned life insurance policies, including bank-owned life insurance policies;
	  • distributions received from equity method investees;
	  • beneficial interests received in securitization transactions; and
	  • when no specific GAAP guidance exists and the source of the cash flows are not separately identifiable, then the predominant source of cash flows should be used to determine the classification for the item.
		• Adopted January 1, 2018 under the retrospective transition method.
		• Impact of adoption was immaterial to our consolidated statement of cash flows.

Compensation-Retirement Benefits - ASU 2017-07 Issued March 2017	• Requires the service cost component of net periodic pension cost and net periodic postretirement benefit cost (net benefit cost) to be included in the same income statement line as other employee compensation cost arising from services rendered during the period. • Other components of net benefit cost are required to be presented separately from the line item that includes the service cost component and outside a subtotal of income from operations, if one is presented. • Allows only the service cost component to be eligible for capitalization when applicable.	• Adopted January 1, 2018. • Presentation requirements in our Consolidated Income Statement have been applied retrospectively. • Impact of adoption was immaterial to our consolidated results of operations and financial position.
Derivatives and Hedging - ASU 2017-12 Issued August 2017	• Simplifies the application of hedge accounting by easing the requirements for effectiveness testing, hedge documentation and the application of the critical terms match method. • Provides new alternatives for applying hedge accounting to additional hedging strategies and measuring the hedged item in fair value hedges of interest rate risk.	• Adopted January 1, 2018 using the modified retrospective approach. • Amended presentation and disclosures are required prospectively. • One-time transition elections were available to modify existing hedge documentation. • Cumulative-effect adjustment was immaterial to our consolidated results of operations and financial position.
Comprehensive Income - ASU 2018-02 Issued February 2018	• Permits the reclassification to retained earnings of the income tax effects stranded within AOCI as a result of the enactment of the Tax Cuts and Jobs Act. • Requires qualitative disclosures of the accounting policy relating to releasing income tax effects from AOCI and if the reclassification election is made, the impacts of the change on the financial statements.	• Adopted January 1, 2018 and elected to reclassify the income tax effects from AOCI to Retained earnings at the beginning of the period of adoption. • The impact of adoption was immaterial to our consolidated financial position.

NOTE 2 LOAN SALE AND SERVICING ACTIVITIES AND VARIABLE INTEREST ENTITIES

Loan Sale and Servicing Activities

We have transferred residential and commercial mortgage loans in securitization or sales transactions in which we have continuing involvement. These transfers have occurred through Agency securitization, Non-agency securitization, and loan sale transactions. Agency securitizations consist of securitization transactions with FNMA, Federal Home Loan Mortgage Corporation (FHLMC) and Government National Mortgage Association (GNMA) (collectively, the Agencies). FNMA and FHLMC generally securitize our transferred loans into mortgage-backed securities for sale into the secondary market through SPEs that they sponsor. As an authorized GNMA issuer/servicer, we pool Federal Housing Administration (FHA) and Department of Veterans Affairs (VA) insured loans into mortgage-backed securities for sale into the secondary market. In Non-agency securitizations, we have transferred loans into securitization SPEs. In other instances, third-party investors have also purchased our loans in loan sale transactions and in certain instances have subsequently sold these loans into securitization SPEs. Securitization SPEs utilized in the Agency and Non-agency securitization transactions are VIEs.

Our continuing involvement in the FNMA, FHLMC, and GNMA securitizations, Non-agency securitizations, and loan sale transactions generally consists of servicing, repurchasing previously transferred loans under certain conditions and loss share arrangements, and, in limited circumstances, holding of mortgage-backed securities issued by the securitization SPEs.

Depending on the transaction, we may act as the master, primary and/or special servicer to the securitization SPEs or third-party investors. Servicing responsibilities typically consist of collecting and remitting monthly borrower principal and interest payments, maintaining escrow deposits, performing loss mitigation and foreclosure activities, and, in certain instances, funding of servicing advances. Servicing advances, which are generally reimbursable, are made for principal and interest and collateral protection and are carried in Other assets at cost.

We earn servicing and other ancillary fees for our role as servicer and, depending on the contractual terms of the servicing arrangement, we can be terminated as servicer with or without cause. At the consummation date of each type of loan transfer where we retain the servicing, we recognize a servicing right at fair value. See Note 6 Fair Value and Note 7 Goodwill and Mortgage Servicing Rights for further discussion of our servicing rights.

Certain loans transferred to the Agencies contain removal of account provisions (ROAPs). Under these ROAPs, we hold an option to repurchase at par individual delinquent loans that meet certain criteria. In other limited cases, GNMA has granted us the right to repurchase current loans when we intend to modify the borrower’s interest rate under established guidelines. When we have the unilateral ability to repurchase a loan, effective control over the loan has been regained and we recognize an asset (in either Loans or Loans held for sale) and a corresponding liability (in Other borrowed funds) on the balance sheet regardless of our intent to repurchase the loan.

The Agency and Non-agency mortgage-backed securities issued by the securitization SPEs that are purchased and held on our balance sheet are typically purchased in the secondary market. We do not retain any credit risk on our Agency mortgage-backed security positions as FNMA, FHLMC and the U.S. Government (for GNMA) guarantee losses of principal and interest.

We also have involvement with certain Agency and Non-agency commercial securitization SPEs where we have not transferred commercial mortgage loans. These SPEs were sponsored by independent third-parties and the loans held by these entities were purchased exclusively from other third-parties. Generally, our involvement with these SPEs is as servicer with servicing activities consistent with those described above.

We recognize a liability for our loss exposure associated with contractual obligations to repurchase previously transferred loans due to possible breaches of representations and warranties and also for loss sharing arrangements (recourse obligations) with the Agencies. Other than providing temporary liquidity under servicing advances and our loss exposure associated with our repurchase and recourse obligations, we have not provided nor are we required to provide any type of credit support, guarantees or commitments to the securitization SPEs or third-party investors in these transactions.

The following table provides cash flows associated with our loan sale and servicing activities:

Table 34: Cash Flows Associated with Loan Sale and Servicing Activities

In millions	Residential Mortgages	Commercial Mortgages (a)
Cash Flows - Year ended December 31, 2018		
Sales of loans (b)	$ 4,474	$ 4,140
Repurchases of previously transferred loans (c)	$ 393	$ 32
Servicing fees (d)	$ 362	$ 135
Servicing advances recovered/(funded), net	$ 45	$ (3)
Cash flows on mortgage-backed securities held (e)	$ 1,964	$ 109
Cash Flows - Year ended December 31, 2017		
Sales of loans (b)	$ 5,759	$ 5,276
Repurchases of previously transferred loans (c)	$ 464	
Servicing fees (d)	$ 374	$ 126
Servicing advances recovered/(funded), net	$ 101	$ 48
Cash flows on mortgage-backed securities held (e)	$ 1,527	$ 206

(a) Represents cash flow information associated with both commercial mortgage loan transfer and servicing activities.
(b) Gains/losses recognized on sales of loans were insignificant for the periods presented.
(c) Includes both residential and commercial mortgage government insured or guaranteed loans eligible for repurchase through the exercise of our ROAP option, as well as residential mortgage loans repurchased due to alleged breaches of origination covenants or representations and warranties made to purchasers.
(d) Includes contractually specified servicing fees, late charges and ancillary fees.
(e) Represents cash flows on securities where we transferred to, and/or service loans for, a securitization SPE and we hold securities issued by that SPE. The carrying values of such securities held were $13.3 billion in residential mortgage-backed securities and $.6 billion in commercial mortgage-backed securities at December 31, 2018 and $8.8 billion in residential mortgage-backed securities and $.6 billion in commercial mortgage-backed securities at December 31, 2017.

Table 35 presents information about the principal balances of transferred loans that we service and are not recorded on our Consolidated Balance Sheet. We would only experience a loss on these transferred loans if we were required to repurchase a loan due to a breach in representations and warranties or a loss sharing arrangement associated with our continuing involvement with these loans. The estimate of losses related to breaches in representations and warranties was insignificant at December 31, 2018.

Table 35: Principal Balance, Delinquent Loans and Net Charge-offs Related to Serviced Loans For Others

In millions	Residential Mortgages	Commercial Mortgages (a)
December 31, 2018		
Total principal balance	$ 54,028	$ 47,969
Delinquent loans (b)	$ 622	$ 234
December 31, 2017		
Total principal balance	$ 58,320	$ 49,116
Delinquent loans (b)	$ 899	$ 355
Year ended December 31, 2018		
Net charge-offs (c)	$ 47	$ 269
Year ended December 31, 2017		
Net charge-offs (c)	$ 78	$ 965

(a) Represents information at the securitization level in which we have sold loans and we are the servicer for the securitization.
(b) Serviced delinquent loans are 90 days or more past due or are in process of foreclosure.
(c) Net charge-offs for Residential mortgages represent credit losses less recoveries distributed and as reported to investors during the period. Net charge-offs for Commercial mortgages represent credit losses less recoveries distributed and as reported by the trustee for commercial mortgage backed securitizations. Realized losses for Agency securitizations are not reflected as we do not manage the underlying real estate upon foreclosure and, as such, do not have access to loss information.

Variable Interest Entities (VIEs)

We are involved with various entities in the normal course of business that are deemed to be VIEs. We assess VIEs for consolidation based upon the accounting policies described in Note 1 Accounting Policies. Our consolidated VIEs were insignificant at both December 31, 2018 and 2017. We have not provided additional financial support to these entities which we are not contractually required to provide.

The following table provides a summary of non-consolidated VIEs with which we have significant continuing involvement but are not the primary beneficiary. We have excluded certain transactions with non-consolidated VIEs from the balances presented in Table 36 where we have determined that our continuing involvement is not significant. We do not consider our continuing involvement to be significant when it relates to a VIE where we only invest in securities issued by the VIE and were not involved in the design of the VIE or where no transfers have occurred between us and the VIE. In addition, where we only have lending arrangements in the normal course of business with entities that could be VIEs, we have excluded these transactions with non-consolidated entities from the balances presented in Table 36. These loans are included as part of the asset quality disclosures that we make in Note 3 Asset Quality.

Table 36: Non-Consolidated VIEs

In millions	PNC Risk of Loss (a)	Carrying Value of Assets Owned by PNC	Carrying Value of Liabilities Owned by PNC
December 31, 2018			
Mortgage-Backed Securitizations (b)	$ 14,266	$ 14,266 (c)	
Tax Credit Investments and Other	2,949	2,911 (d)	$ 806 (e)
Total	$ 17,215	$ 17,177	$ 806
December 31, 2017			
Mortgage-Backed Securitizations (b)	$ 9,738	$ 9,738 (c)	
Tax Credit Investments and Other	3,069	3,001 (d)	$ 858 (e)
Total	$ 12,807	$ 12,739	$ 858

(a) Represents loans, investments and other assets related to non-consolidated VIEs, net of collateral (if applicable).
(b) Amounts reflect involvement with securitization SPEs where we transferred to, and/or service loans for, an SPE and we hold securities issued by that SPE. Values disclosed in the PNC Risk of Loss column represent our maximum exposure to loss for those securities' holdings.
(c) Included in Investment securities, Mortgage servicing rights and Other assets on our Consolidated Balance Sheet.
(d) Included in Investment securities, Loans, Equity investments and Other assets on our Consolidated Balance Sheet.
(e) Included in Deposits and Other liabilities on our Consolidated Balance Sheet.

Mortgage-Backed Securitizations

In connection with each Agency and Non-agency residential and commercial mortgage-backed securitization discussed above, we evaluate each SPE utilized in these transactions for consolidation. In performing these assessments, we evaluate our level of continuing involvement in these transactions as the nature of our involvement ultimately determines whether or not we hold a variable interest and/or are the primary beneficiary of the SPE. Factors we consider in our consolidation assessment include the significance of (i) our role as servicer, (ii) our holdings of mortgage-backed securities issued by the securitization SPE and (iii) the rights of third-party variable interest holders.

The first step in our assessment is to determine whether we hold a variable interest in the securitization SPE. We hold variable interests in Agency and Non-agency securitization SPEs through our holding of residential and commercial mortgage-backed securities issued by the SPEs and/or our recourse obligations. Each SPE in which we hold a variable interest is evaluated to determine whether we are the primary beneficiary of the entity. For Agency securitization transactions, our contractual role as servicer does not give us the power to direct the activities that most significantly affect the economic performance of the SPEs. Thus, we are not the primary beneficiary of these entities. For Non-agency securitization transactions, we would be the primary beneficiary to the extent our servicing activities give us the power to direct the activities that most significantly affect the economic performance of the SPE and we hold a more than insignificant variable interest in the entity.

Details about the Agency and Non-agency securitization SPEs where we hold a variable interest and are not the primary beneficiary are included in Table 36. Our maximum exposure to loss as a result of our involvement with these SPEs is the carrying value of the mortgage-backed securities, servicing assets, servicing advances and our liabilities associated with our recourse obligations. Creditors of the securitization SPEs have no recourse to our assets or general credit.

Tax Credit Investments and Other

For tax credit investments in which we do not have the right to make decisions that will most significantly impact the economic performance of the entity, we are not the primary beneficiary and thus do not consolidate the entity. These investments are disclosed in Table 36. The table also reflects our maximum exposure to loss exclusive of any potential tax credit recapture. Our maximum exposure to loss is equal to our legally binding equity commitments adjusted for recorded impairment, partnership results or amortization for qualifying low income housing tax credit investments when applicable. For all legally binding unfunded equity commitments, we increase our recognized investment and recognize a liability. As of December 31, 2018, we had a liability for unfunded commitments of $.5 billion related to investments in qualified affordable housing projects which is reflected in Other liabilities on our Consolidated Balance Sheet.

Table 36 also includes our involvement in lease financing transactions with limited liability companies (LLCs) engaged in solar power generation that, to a large extent, provided returns in the form of tax credits. The outstanding financings and operating lease assets are reflected as Loans and Other assets, respectively, on our Consolidated Balance Sheet, whereas related liabilities are reported in Deposits and Other liabilities.

We make certain equity investments in various tax credit limited partnerships or LLCs. The purpose of these investments is to achieve a satisfactory return on capital and to assist us in achieving goals associated with the Community Reinvestment Act. During 2018 and 2017, we recognized $.2 billion of amortization, $.2 billion of tax credits and $.1 billion of other tax benefits associated with qualified investments in low income housing tax credits within Income taxes.

NOTE 3 ASSET QUALITY

We closely monitor economic conditions and loan performance trends to manage and evaluate our exposure to credit risk. Trends in delinquency rates may be a key indicator, among other considerations, of credit risk within the loan portfolios. The measurement of delinquency status is based on the contractual terms of each loan. Loans that are 30 days or more past due in terms of payment are considered delinquent.

Nonperforming assets include nonperforming loans and leases, OREO and foreclosed assets. Nonperforming loans are those loans accounted for at amortized cost whose credit quality has deteriorated to the extent that full collection of contractual principal and interest is not probable. Interest income is not recognized on these loans. Loans accounted for under the fair value option are reported as performing loans as these loans are accounted for at fair value. However, when nonaccrual criteria is met, interest income is not recognized on these loans. Additionally, certain government insured or guaranteed loans for which we expect to collect substantially all principal and interest are not reported as nonperforming loans and continue to accrue interest. Purchased impaired loans are excluded from nonperforming loans as we are currently accreting interest income over the expected life of the loans.

See Note 1 Accounting Policies for additional information on our loan related policies.

The following tables display the delinquency status of our loans and our nonperforming assets at December 31, 2018 and 2017, respectively.

Table 37: Analysis of Loan Portfolio (a)

	Accruing								
Dollars in millions	Current or Less Than 30 Days Past Due	30-59 Days Past Due	60-89 Days Past Due	90 Days Or More Past Due	Total Past Due (b)	Nonperforming Loans	Fair Value Option Nonaccrual Loans (c)	Purchased Impaired Loans	Total Loans (d)
December 31, 2018									
Commercial Lending									
Commercial	$ 116,300	$ 82	$ 54	$ 52	$ 188	$ 346			$ 116,834
Commercial real estate	28,056	6	3		9	75			28,140
Equipment lease financing	7,229	56	12		68	11			7,308
Total commercial lending	151,585	144	69	52	265	432			152,282
Consumer Lending									
Home equity	24,556	66	25		91	797		$ 679	26,123
Residential real estate	16,216	135	73	363	571 (b)	350	$ 182	1,338	18,657
Automobile	14,165	113	29	12	154	100			14,419
Credit card	6,222	46	29	53	128	7			6,357
Education	3,571	69	41	141	251 (b)				3,822
Other consumer	4,552	12	5	8	25	8			4,585
Total consumer lending	69,282	441	202	577	1,220	1,262	182	2,017	73,963
Total	$ 220,867	$ 585	$ 271	$ 629	$ 1,485	$ 1,694	$ 182	$ 2,017	$ 226,245
Percentage of total loans	97.62%	.26%	.12%	.28%	.66%	.75%	.08%	.89%	100.00%
December 31, 2017									
Commercial Lending									
Commercial	$ 109,989	$ 45	$ 25	$ 39	$ 109	$ 429			$ 110,527
Commercial real estate	28,826	27	2		29	123			28,978
Equipment lease financing	7,914	17	1		18	2			7,934
Total commercial lending	146,729	89	28	39	156	554			147,439
Consumer Lending									
Home equity	26,561	78	26		104	818		$ 881	28,364
Residential real estate	14,389	151	74	486	711 (b)	400	$ 197	1,515	17,212
Automobile	12,697	79	20	8	107	76			12,880
Credit card	5,579	43	26	45	114	6			5,699
Education	4,154	90	58	152	300 (b)				4,454
Other consumer	4,371	15	6	7	28	11			4,410
Total consumer lending	67,751	456	210	698	1,364	1,311	197	2,396	73,019
Total	$ 214,480	$ 545	$ 238	$ 737	$ 1,520	$ 1,865	$ 197	$ 2,396	$ 220,458
Percentage of total loans	97.29%	.25%	.11%	.33%	.69%	.85%	.09%	1.08%	100.00%

(a) Amounts in table represent recorded investment and exclude loans held for sale. Recorded investment does not include any associated valuation allowance.

(b) Past due loan amounts exclude purchased impaired loans, even if contractually past due (or if we do not expect to receive payment in full based on the original contractual terms), as we are currently accreting interest income over the expected life of the loans. Past due loan amounts include government insured or guaranteed Residential real estate mortgages totaling $.5 billion and $.6 billion at December 31, 2018 and 2017, respectively, and Education loans totaling $.2 billion and $.3 billion at December 31, 2018 and 2017, respectively.

(c) Consumer loans accounted for under the fair value option for which we do not expect to collect substantially all principal and interest are subject to nonaccrual accounting and classification upon meeting any of our nonaccrual policies. Given that these loans are not accounted for at amortized cost, these loans have been excluded from the nonperforming loan population.

(d) Net of unearned income, net deferred loan fees, unamortized discounts and premiums, and purchase discounts and premiums totaling $1.2 billion at both December 31, 2018 and 2017.

In the normal course of business, we originate or purchase loan products with contractual characteristics that, when concentrated, may increase our exposure as a holder of those loan products. Possible product features that may create a concentration of credit risk would include a high original or updated loan-to-value (LTV) ratio, terms that may expose the borrower to future increases in repayments above increases in market interest rates, and interest-only loans, among others.

We originate interest-only loans to commercial borrowers. Such credit arrangements are usually designed to match borrower cash flow expectations (*e.g.*, working capital lines, revolvers). These products are standard in the financial services industry and product features

are considered during the underwriting process to mitigate the increased risk that the interest-only feature may result in borrowers not being able to make interest and principal payments when due. We do not believe that these product features create a concentration of credit risk.

At December 31, 2018, we pledged $17.3 billion of commercial loans to the Federal Reserve Bank (FRB) and $63.2 billion of residential real estate and other loans to the Federal Home Loan Bank (FHLB) as collateral for the ability to borrow, if necessary. The comparable amounts at December 31, 2017 were $18.7 billion and $62.8 billion, respectively. Amounts pledged reflect the unpaid principal balances.

Table 38: Nonperforming Assets

Dollars in millions	December 31 2018	December 31 2017
Nonperforming loans		
Total commercial lending	$ 432	$ 554
Total consumer lending (a)	1,262	1,311
Total nonperforming loans	1,694	1,865
OREO and foreclosed assets	114	170
Total nonperforming assets	$ 1,808	$ 2,035
Nonperforming loans to total loans	.75%	.85%
Nonperforming assets to total loans, OREO and foreclosed assets	.80%	.92%
Nonperforming assets to total assets	.47%	.53%
Interest on nonperforming loans (b)		
Computed on original terms	$ 123	$ 114
Recognized prior to nonperforming status	$ 17	$ 19

(a) Excludes most consumer loans and lines of credit not secured by residential real estate, which are charged off after 120 to 180 days past due and are not placed on nonperforming status.
(b) Amounts are for the year ended.

Nonperforming loans also include certain loans whose terms have been restructured in a manner that grants a concession to a borrower experiencing financial difficulties. In accordance with applicable accounting guidance, these loans are considered TDRs. See Note 1 Accounting Policies and the TDR section of this Note 3.

Total nonperforming loans in Table 38 include TDRs of $.9 billion at December 31, 2018 and $1.0 billion at December 31, 2017. TDRs that are performing, including consumer credit card TDR loans, totaled $1.0 billion and $1.1 billion at December 31, 2018 and 2017, respectively, and are excluded from nonperforming loans. Nonperforming TDRs are returned to accrual status and classified as performing after demonstrating a period of at least six months of consecutive performance under the restructured terms. Loans where borrowers have been discharged from personal liability through Chapter 7 bankruptcy and have not formally reaffirmed their loan obligations to us and loans to borrowers not currently obligated to make both principal and interest payments under the restructured terms are not returned to accrual status. See the TDRs section of this Note 3 for more information on TDRs.

Additional Asset Quality Indicators

We have two portfolio segments – Commercial Lending and Consumer Lending. Each of these two segments comprises multiple loan classes. Classes are characterized by similarities in initial measurement, risk attributes and the manner in which we monitor and assess credit risk. The Commercial Lending segment is composed of the commercial, commercial real estate and equipment lease financing loan classes. The Consumer Lending segment is composed of the home equity, residential real estate, automobile, credit card, education and other consumer loan classes.

Commercial Lending Asset Classes

Commercial Loan Class

For commercial loans, we monitor the performance of the borrower in a disciplined and regular manner based upon the level of credit risk inherent in the loan. To evaluate the level of credit risk, we assign internal risk ratings reflecting our estimates of the borrower's PD and LGD for each related credit facility. This two-dimensional credit risk rating methodology provides granularity in the risk monitoring process on an ongoing basis. These ratings are reviewed and updated, generally at least once per year. Additionally, no less frequently than on an annual basis, we review PD rates related to each rating grade based upon internal historical data. These rates are updated as needed and augmented by market data as deemed necessary. For small balance homogeneous pools of commercial loans, mortgages and leases, we apply statistical modeling to assist in determining the PD within these pools. Further, on a periodic basis, we update our LGD estimation methodology based upon historical data. The combination of the PD and LGD ratings assigned to commercial loans, capturing both the combination of expectations of default and loss severity in event of default, reflects the relative estimated likelihood of loss at the reporting date. In general, loans with better PD and LGD tend to have a lower likelihood of loss compared to loans with worse PD and LGD. The loss amount also considers an estimate of EAD, which we also periodically update based upon historical data.

Based upon the amount of the lending arrangement and our risk rating assessment, we follow a formal schedule of written periodic review. Quarterly, we conduct formal reviews of a market's or business unit's loan portfolio, focusing on those loans which we perceive to be of higher risk, based upon PDs and LGDs, or loans for which credit quality is weakening. If circumstances warrant, it is our practice to review any customer obligation and its level of credit risk more frequently. We attempt to proactively manage our loans by using various procedures that are customized to the risk of a given loan, including ongoing outreach, contact, and assessment of obligor financial conditions, collateral inspection and appraisal.

Commercial Real Estate Loan Class
We manage credit risk associated with our commercial real estate loan class similar to commercial loans by analyzing PD and LGD. Additionally, risks associated with commercial real estate activities tend to be correlated to the loan structure and collateral location, project progress and business environment. As a result, these attributes are also monitored and utilized in assessing credit risk.

As with the commercial class, a formal schedule of periodic review is also performed to assess market/geographic risk and business unit/industry risk. Often as a result of these overviews, increased scrutiny can be placed on areas of higher risk, including adverse changes in risk ratings, deteriorating operating trends, and/or areas that concern management. These reviews are designed to assess risk and take actions to mitigate our exposure to such risks.

Equipment Lease Financing Loan Class
We manage credit risk associated with our equipment lease financing loan class similar to commercial loans by analyzing PD and LGD.

Based upon the dollar amount of the lease and the level of credit risk, we follow a formal schedule of periodic review. Generally, this occurs quarterly, although we have established practices to review such credit risk more frequently if circumstances warrant. Our review process entails analysis of the following factors: equipment value/residual value, exposure levels, jurisdiction risk, industry risk and guarantor requirements as applicable.

Table 39: Commercial Lending Asset Quality Indicators (a)

In millions	Pass Rated	Criticized	Total Loans
December 31, 2018			
Commercial	$ 111,276	$ 5,558	$ 116,834
Commercial real estate	27,682	458	28,140
Equipment lease financing	7,180	128	7,308
Total commercial lending	$ 146,138	$ 6,144	$ 152,282
December 31, 2017			
Commercial	$ 105,280	$ 5,247	$ 110,527
Commercial real estate	28,380	598	28,978
Equipment lease financing	7,754	180	7,934
Total commercial lending	$ 141,414	$ 6,025	$ 147,439

(a) Loans are classified as "Pass" and "Criticized" based on the Regulatory Classification definitions. The "Criticized" classification includes loans that were rated “Special Mention”, “Substandard” or “Doubtful” as of December 31, 2018 and 2017. We use PD and LGD to rate loans in the commercial lending portfolio.

Consumer Lending Asset Classes

Home Equity and Residential Real Estate Loan Classes
We use several credit quality indicators, including delinquency information, nonperforming loan information, updated credit scores, and originated and updated LTV ratios to monitor and manage credit risk within the home equity and residential real estate loan classes. A summary of asset quality indicators follows:

Delinquency/Delinquency Rates: We monitor trending of delinquency/delinquency rates for home equity and residential real estate loans. See Table 37 for additional information.

Nonperforming Loans: We monitor trending of nonperforming loans for home equity and residential real estate loans. See Table 37 for additional information.

Credit Scores: We use a national third-party provider to update FICO credit scores for home equity loans and lines of credit and residential real estate loans at least quarterly. The updated scores are incorporated into a series of credit management reports, which are utilized to monitor the risk in the loan classes.

LTV (inclusive of combined loan-to-value (CLTV) for first and subordinate lien positions): At least annually, we update the property values of real estate collateral and calculate an updated LTV ratio. For open-end credit lines secured by real estate in regions experiencing significant declines in property values, more frequent valuations may occur. We examine LTV migration and stratify LTV into categories to monitor the risk in the loan classes.

We use a combination of original LTV and updated LTV for internal risk management and reporting purposes (*e.g.*, line management, loss mitigation strategies). In addition to the fact that estimated property values by their nature are estimates, given certain data limitations it is important to note that updated LTVs may be based upon management's assumptions (*e.g.*, if an updated LTV is not provided by the third-party service provider, home price index (HPI) changes will be incorporated in arriving at management's estimate of updated LTV).

Updated LTV is estimated using modeled property values. The related estimates and inputs are based upon an approach that uses a combination of third-party automated valuation models (AVMs), broker price opinions (BPOs), HPI indices, property location, internal and external balance information, origination data and management assumptions. We generally utilize origination lien balances provided by a third-party, where applicable, which do not include an amortization assumption when calculating updated LTV. Accordingly, the results of the calculations do not represent actual appraised loan level collateral or updated LTV based upon lien balances held by others, and as such, are necessarily imprecise and subject to change as we refine our methodology.

The following table presents certain asset quality indicators for the home equity and residential real estate loan classes.

Table 40: Asset Quality Indicators for Home Equity and Residential Real Estate Loans

In millions	December 31, 2018 Home equity	December 31, 2018 Residential real estate	December 31, 2017 Home equity	December 31, 2017 Residential real estate
Current estimated LTV ratios				
Greater than or equal to 125%	$ 461	$ 116	$ 583	$ 150
Greater than or equal to 100% to less than 125%	1,020	255	1,342	303
Greater than or equal to 90% to less than 100%	1,174	335	1,421	382
Less than 90%	22,644	15,922	24,105	14,033
No LTV ratio available	145	6	32	23
Government insured or guaranteed loans		685		806
Purchased impaired loans	679	1,338	881	1,515
Total loans	$ 26,123	$ 18,657	$ 28,364	$ 17,212
Updated FICO Scores				
Greater than 660	$ 22,996	$ 15,956	$ 24,876	$ 14,148
Less than or equal to 660	2,210	585	2,451	630
No FICO score available	238	93	156	113
Government insured or guaranteed loans		685		806
Purchased impaired loans	679	1,338	881	1,515
Total loans	$ 26,123	$ 18,657	$ 28,364	$ 17,212

Automobile, Credit Card, Education and Other Consumer Loan Classes

We monitor a variety of asset quality information in the management of these consumer loan classes. For all loan types, we generally use a combination of internal loan parameters as well as an updated FICO score. We use FICO scores as a primary asset quality indicator for automobile and credit card loans, as well as non-government guaranteed or non-insured education loans and other secured and unsecured lines and loans. Internal credit metrics, such as delinquency status, are relied upon heavily as asset quality indicators for government guaranteed or insured education loans and consumer loans to high net worth individuals, as internal credit metrics tend to be more relevant than FICO scores for these types of loans.

Along with the monitoring of delinquency trends and losses for each class, FICO credit score updates are obtained at least quarterly along with a variety of credit bureau attributes. Loans with high FICO scores tend to have a lower likelihood of loss. Conversely, loans with low FICO scores tend to have a higher likelihood of loss.

The following table presents asset quality indicators for the automobile, credit card, education and other consumer loan classes.

Table 41: Asset Quality Indicators for Automobile, Credit Card, Education and Other Consumer Loans

Dollars in millions	Automobile	Credit Card	Education	Other Consumer
December 31, 2018				
FICO score greater than 719	$ 7,740	$ 3,809	$ 1,240	$ 1,280
650 to 719	4,365	1,759	194	641
620 to 649	1,007	280	26	106
Less than 620	1,027	332	24	105
No FICO score available or required (a)	280	177	57	25
Total loans using FICO credit metric	14,419	6,357	1,541	2,157
Consumer loans using other internal credit metrics			2,281	2,428
Total loans	$ 14,419	$ 6,357	$ 3,822	$ 4,585
Weighted-average updated FICO score (b)	726	733	774	732
December 31, 2017				
FICO score greater than 719	$ 7,825	$ 3,457	$ 1,315	$ 1,226
650 to 719	3,636	1,596	209	507
620 to 649	543	250	31	85
Less than 620	587	272	30	98
No FICO score available or required (a)	242	124	49	23
Total loans using FICO credit metric	12,833	5,699	1,634	1,939
Consumer loans using other internal credit metrics	47		2,820	2,471
Total loans	$ 12,880	$ 5,699	$ 4,454	$ 4,410
Weighted-average updated FICO score (b)	738	735	773	737

(a) Loans with no FICO score available or required generally refers to new accounts issued to borrowers with limited credit history, accounts for which we cannot obtain an updated FICO score (e.g., recent profile changes), cards issued with a business name and/or cards secured by collateral. Management proactively assesses the risk and size of this loan category and, when necessary, takes actions to mitigate the credit risk.

(b) Weighted-average updated FICO score excludes accounts with no FICO score available or required.

Troubled Debt Restructurings (TDRs)

A TDR is a loan whose terms have been restructured in a manner that grants a concession to a borrower experiencing financial difficulty. TDRs result from our loss mitigation activities, and include rate reductions, principal forgiveness, postponement/reduction of scheduled amortization, and extensions, which are intended to minimize economic loss and to avoid foreclosure or repossession of collateral. Additionally, TDRs also result from borrowers that have been discharged from personal liability through Chapter 7 bankruptcy and have not formally reaffirmed their loan obligations to us. In those situations where principal is forgiven, the amount of such principal forgiveness is immediately charged off.

Some TDRs may not ultimately result in the full collection of principal and interest, as restructured, and result in potential incremental losses. These potential incremental losses have been factored into our overall ALLL estimate. The level of any subsequent defaults will likely be affected by future economic conditions. Once a loan becomes a TDR, it will continue to be reported as a TDR until it is ultimately repaid in full, the collateral is foreclosed upon, or it is fully charged off. We held specific reserves in the ALLL of $.2 billion at both December 31, 2018 and 2017, for the total TDR portfolio.

Table 42 quantifies the number of loans that were classified as TDRs as well as the change in the loans' recorded investment as a result of becoming a TDR during 2018, 2017 and 2016. Additionally, the table provides information about the types of TDR concessions. The Principal Forgiveness TDR category includes principal forgiveness and accrued interest forgiveness. The Rate Reduction TDR category includes reduced interest rate and interest deferral. The Other TDR category primarily includes consumer borrowers that have been discharged from personal liability through Chapter 7 bankruptcy and have not formally reaffirmed their loan obligations to us, as well as postponement/reduction of scheduled amortization and contractual extensions for both consumer and commercial borrowers.

In some cases, there have been multiple concessions granted on one loan. This is most common within the commercial loan portfolio. When there have been multiple concessions granted in the commercial loan portfolio, the principal forgiveness concession was prioritized for purposes of determining the inclusion in Table 42. Second in priority would be rate reduction. In the event that multiple concessions are granted on a consumer loan, concessions resulting from discharge from personal liability through Chapter 7 bankruptcy without formal affirmation of the loan obligations to us would be prioritized and included in the Other type of concession in Table 42. After that, consumer loan concessions would follow the previously discussed priority of concessions for the commercial loan portfolio.

Table 42: Financial Impact and TDRs by Concession Type (a)

During the year ended December 31, 2018 Dollars in millions	Number of Loans	Pre-TDR Recorded Investment (b)	Post-TDR Recorded Investment (c) Principal Forgiveness	Rate Reduction	Other	Total
Total commercial lending	85	$ 272	$ 2	$ 67	$ 179	$ 248
Total consumer lending	12,096	163	1	86	63	150
Total TDRs	12,181	$ 435	$ 3	$ 153	$ 242	$ 398
During the year ended December 31, 2017 Dollars in millions						
Total commercial lending	120	$ 293	$ 18	$ 7	$ 227	$ 252
Total consumer lending	11,993	248		146	97	243
Total TDRs	12,113	$ 541	$ 18	$ 153	$ 324	$ 495
During the year ended December 31, 2016 Dollars in millions						
Total commercial lending	143	$ 524		$ 57	$ 413	$ 470
Total consumer lending	11,262	245		157	76	233
Total TDRs	11,405	$ 769		$ 214	$ 489	$ 703

(a) Impact of partial charge-offs at TDR date are included in this table.
(b) Represents the recorded investment of the loans as of the quarter end prior to TDR designation, and excludes immaterial amounts of accrued interest receivable.
(c) Represents the recorded investment of the TDRs as of the end of the quarter in which the TDR occurs, and excludes immaterial amounts of accrued interest receivable.

After a loan is determined to be a TDR, we continue to track its performance under its most recent restructured terms. We consider a TDR to have subsequently defaulted when it becomes 60 days past due after the most recent date the loan was restructured. The recorded investment of loans that were both (i) classified as TDRs or were subsequently modified during each 12-month period preceding January 1, 2018, 2017 and 2016, and (ii) subsequently defaulted during the 12-month period following each of January 1, 2018, 2017 and 2016, totaled $.1 billion, $.1 billion and $.2 billion, respectively.

Impaired Loans

Impaired loans include commercial and consumer nonperforming loans and TDRs, regardless of nonperforming status. TDRs that were previously recorded at amortized cost and are now classified and accounted for as held for sale are also included. Excluded from impaired loans are nonperforming leases, loans accounted for as held for sale other than the TDRs described in the preceding sentence, loans accounted for under the fair value option, smaller balance homogeneous type loans and purchased impaired loans. We did not recognize any interest income on impaired loans that have not returned to performing status, while they were impaired during the year ended December 31, 2018 and December 31, 2017. Table 43 provides further detail on impaired loans individually evaluated for impairment and the associated allowance for loan and lease losses. Certain commercial and consumer impaired loans do not have a related ALLL as the valuation of these impaired loans exceeded the recorded investment.

Table 43: Impaired Loans

In millions	Unpaid Principal Balance	Recorded Investment	Associated Allowance	Average Recorded Investment (a)
December 31, 2018				
Impaired loans with an associated allowance				
Total commercial lending	$ 440	$ 315	$ 73	$ 349
Total consumer lending	863	817	136	904
Total impaired loans with an associated allowance	1,303	1,132	209	1,253
Impaired loans without an associated allowance				
Total commercial lending	413	326		294
Total consumer lending	1,042	625		645
Total impaired loans without an associated allowance	1,455	951		939
Total impaired loans	$ 2,758	$ 2,083	$ 209	$ 2,192
December 31, 2017				
Impaired loans with an associated allowance				
Total commercial lending	$ 580	$ 353	$ 76	$ 419
Total consumer lending	1,061	1,014	195	1,072
Total impaired loans with an associated allowance	1,641	1,367	271	1,491
Impaired loans without an associated allowance				
Total commercial lending	494	366		330
Total consumer lending	1,019	638		648
Total impaired loans without an associated allowance	1,513	1,004		978
Total impaired loans	$ 3,154	$ 2,371	$ 271	$ 2,469

(a) Average recorded investment is for the years ended December 31, 2018 and 2017.

NOTE 4 ALLOWANCE FOR LOAN AND LEASE LOSSES

We maintain the ALLL at levels that we believe to be appropriate to absorb estimated probable credit losses incurred in the portfolios as of the balance sheet date. We have two portfolio segments – Commercial Lending and Consumer Lending, and develop and document the ALLL under separate methodologies for each of these portfolio segments. See Note 1 Accounting Policies for a description of the accounting policies for the ALLL. A rollforward of the ALLL and associated loan data follows.

Table 44: Rollforward of Allowance for Loan and Lease Losses and Associated Loan Data

	2018			2017			2016		
At or for the year ended December 31 Dollars in millions	Commercial Lending	Consumer Lending	Total	Commercial Lending	Consumer Lending	Total	Commercial Lending	Consumer Lending	Total
Allowance for Loan and Lease Losses									
January 1	$ 1,582	$ 1,029	$ 2,611	$ 1,534	$ 1,055	$ 2,589	$ 1,605	$ 1,122	$ 2,727
Charge-offs	(124)	(640)	(764)	(221)	(565)	(786)	(363)	(523)	(886)
Recoveries	99	245	344	116	213	329	178	165	343
Net (charge-offs)	(25)	(395)	(420)	(105)	(352)	(457)	(185)	(358)	(543)
Provision for credit losses	97	311	408	147	294	441	153	280	433
Net decrease / (increase) in allowance for unfunded loan commitments and letters of credit	11	1	12	5	(1)	4	(39)	(1)	(40)
Other	(2)	20	18	1	33	34		12	12
December 31	$ 1,663	$ 966	$ 2,629	$ 1,582	$ 1,029	$ 2,611	$ 1,534	$ 1,055	$ 2,589
TDRs individually evaluated for impairment	$ 25	$ 136	$ 161	$ 35	$ 195	$ 230	$ 45	$ 226	$ 271
Other loans individually evaluated for impairment	48		48	41		41	60		60
Loans collectively evaluated for impairment	1,590	555	2,145	1,506	561	2,067	1,392	546	1,938
Purchased impaired loans		275	275		273	273	37	283	320
December 31	$ 1,663	$ 966	$ 2,629	$ 1,582	$ 1,029	$ 2,611	$ 1,534	$ 1,055	$ 2,589
Loan Portfolio									
TDRs individually evaluated for impairment	$ 409	$ 1,442	$ 1,851	$ 409	$ 1,652	$ 2,061	$ 428	$ 1,793	$ 2,221
Other loans individually evaluated for impairment	232		232	310		310	371		371
Loans collectively evaluated for impairment	151,641	69,722	221,363	146,720	68,102	214,822	137,047	67,345	204,392
Fair value option loans (a)		782	782		869	869		893	893
Purchased impaired loans		2,017	2,017		2,396	2,396	109	2,847	2,956
December 31	$ 152,282	$ 73,963	$ 226,245	$ 147,439	$ 73,019	$ 220,458	$ 137,955	$ 72,878	$ 210,833
Portfolio segment ALLL as a percentage of total ALLL	63%	37%	100%	61%	39%	100%	59%	41%	100%
Ratio of ALLL to total loans	1.09%	1.31%	1.16%	1.07%	1.41%	1.18%	1.11%	1.45%	1.23%

(a) Loans accounted for under the fair value option are not evaluated for impairment as these loans are accounted for at fair value. Accordingly there is no allowance recorded on these loans.

Net interest income less the provision for credit losses was $9.3 billion, $8.7 billion and $8.0 billion for 2018, 2017 and 2016, respectively.

NOTE 5 INVESTMENT SECURITIES

Table 45: Investment Securities Summary

	December 31, 2018				December 31, 2017			
		Unrealized				Unrealized		
In millions	Amortized Cost	Gains	Losses	Fair Value	Amortized Cost	Gains	Losses	Fair Value
Securities Available for Sale								
Debt securities								
U.S. Treasury and government agencies	$ 18,104	$ 133	$ (137)	$ 18,100	$ 14,432	$ 173	$ (84)	$ 14,521
Residential mortgage-backed								
Agency	29,413	104	(524)	28,993	25,534	121	(249)	25,406
Non-agency	1,924	300	(13)	2,211	2,443	336	(21)	2,758
Commercial mortgage-backed								
Agency	2,630	13	(66)	2,577	1,960	2	(58)	1,904
Non-agency	2,689	5	(37)	2,657	2,603	19	(9)	2,613
Asset-backed	4,933	59	(20)	4,972	5,331	74	(8)	5,397
Other debt	3,821	96	(38)	3,879	4,322	129	(17)	4,434
Total debt securities	63,514	710	(835)	63,389	56,625	854	(446)	57,033
Other (a)					587		(2)	585
Total securities available for sale	$ 63,514	$ 710	$ (835)	$ 63,389	$ 57,212	$ 854	$ (448)	$ 57,618
Securities Held to Maturity								
Debt securities								
U.S. Treasury and government agencies	$ 758	$ 28	$ (23)	$ 763	$ 741	$ 37	$ (13)	$ 765
Residential mortgage-backed								
Agency	15,740	32	(358)	15,414	14,503	77	(139)	14,441
Non-agency	152	2		154	167	7		174
Commercial mortgage-backed								
Agency	143	1	(1)	143	407	4		411
Non-agency	488	1	(1)	488	538	10		548
Asset-backed	182	1		183	200	1		201
Other debt	1,849	53	(28)	1,874	1,957	88	(20)	2,025
Total securities held to maturity	$ 19,312	$ 118	$ (411)	$ 19,019	$ 18,513	$ 224	$ (172)	$ 18,565

(a) On January 1, 2018, $.6 billion of available for sale securities, primarily money market funds, were reclassified to equity investments in accordance with the adoption of ASU 2016-01. See the Recently Adopted Accounting Standards portion of Note 1 Accounting Policies for additional detail.

The fair value of investment securities is impacted by interest rates, credit spreads, market volatility and liquidity conditions. Net unrealized gains and losses in the securities available for sale portfolio are included in Shareholders' equity as AOCI unless credit-related. Securities held to maturity are carried at amortized cost. Investment securities at December 31, 2018 included $430 million of net unsettled purchases which represent non-cash investing activity, and accordingly, are not reflected on the Consolidated Statement of Cash Flows. The amount for December 31, 2017 was insignificant.

At December 31, 2018, AOCI included an insignificant amount of pretax gains from derivatives that hedged the purchase of investment securities classified as held to maturity. The gains will be accreted into interest income as an adjustment of yield on the securities.

Table 46 presents gross unrealized losses and fair value of debt securities at December 31, 2018 and 2017. The securities are segregated between investments that have been in a continuous unrealized loss position for less than twelve months and twelve months or more, based on the point in time that the fair value declined below the amortized cost basis. The table includes debt securities where the noncredit portion of OTTI has been recognized in AOCI.

Table 46: Gross Unrealized Loss and Fair Value of Debt Securities

In millions	Unrealized loss position less than 12 months		Unrealized loss position 12 months or more		Total	
	Unrealized Loss	Fair Value	Unrealized Loss	Fair Value	Unrealized Loss	Fair Value
December 31, 2018						
Securities Available for Sale						
Debt securities						
U.S. Treasury and government agencies	$ (21)	$ 4,125	$ (116)	$ 5,423	$ (137)	$ 9,548
Residential mortgage-backed						
Agency	(57)	4,823	(467)	13,830	(524)	18,653
Non-agency	(1)	74	(12)	310	(13)	384
Commercial mortgage-backed						
Agency	(1)	65	(65)	1,516	(66)	1,581
Non-agency	(23)	1,809	(14)	498	(37)	2,307
Asset-backed	(11)	2,149	(9)	1,032	(20)	3,181
Other debt	(12)	868	(26)	1,293	(38)	2,161
Total debt securities available for sale	$ (126)	$ 13,913	$ (709)	$ 23,902	$ (835)	$ 37,815
Securities Held to Maturity						
Debt securities						
U.S. Treasury and government agencies			$ (23)	$ 446	$ (23)	$ 446
Residential mortgage-backed - Agency	$ (58)	$ 4,191	(300)	7,921	(358)	12,112
Commerical mortgage-backed						
Agency	(1)	88			(1)	88
Non-agency	(1)	152			(1)	152
Other debt	(2)	75	(26)	123	(28)	198
Total debt securities held to maturity	$ (62)	$ 4,506	$ (349)	$ 8,490	$ (411)	$ 12,996
December 31, 2017						
Securities Available for Sale						
Debt securities						
U.S. Treasury and government agencies	$ (42)	$ 6,099	$ (42)	$ 1,465	$ (84)	$ 7,564
Residential mortgage-backed						
Agency	(47)	8,151	(202)	9,954	(249)	18,105
Non-agency			(21)	383	(21)	383
Commercial mortgage-backed						
Agency	(11)	524	(47)	1,302	(58)	1,826
Non-agency	(3)	400	(6)	333	(9)	733
Asset-backed	(4)	1,697	(4)	462	(8)	2,159
Other debt	(3)	966	(14)	798	(17)	1,764
Total debt securities available for sale	$ (110)	$ 17,837	$ (336)	$ 14,697	$ (446)	$ 32,534
Securities Held to Maturity						
Debt securities						
U.S. Treasury and government agencies	$ (3)	$ 195	$ (10)	$ 255	$ (13)	$ 450
Residential mortgage-backed - Agency	(10)	3,167	(129)	6,168	(139)	9,335
Other debt	(12)	83	(8)	67	(20)	150
Total debt securities held to maturity	$ (25)	$ 3,445	$ (147)	$ 6,490	$ (172)	$ 9,935

Evaluating Investment Securities for Other-than-Temporary Impairments

For the securities in Table 46, as of December 31, 2018 we do not intend to sell and believe we will not be required to sell the securities prior to recovery of the amortized cost basis.

On at least a quarterly basis, we review all debt securities that are in an unrealized loss position for OTTI, as discussed in Note 1 Accounting Policies. For those securities on our balance sheet at December 31, 2018, where during our quarterly security-level impairment assessments we determined losses represented OTTI, we have recorded cumulative credit losses of $1.1 billion in earnings and accordingly have reduced the amortized cost of our securities.

The majority of these cumulative impairment charges related to non-agency residential mortgage-backed and asset-backed securities rated BB or lower. During 2018, 2017 and 2016, the OTTI credit losses recognized in noninterest income and the OTTI noncredit losses recognized in AOCI on securities were not significant.

Information relating to gross realized securities gains and losses from the sales of securities is set forth in the following table.

Table 47: Gains (Losses) on Sales of Securities Available for Sale

Year ended December 31 In millions	Gross Gains	Gross Losses	Net Gains	Tax Expense
2018	$ 57	$ (57)		
2017	$ 38	$ (31)	$ 7	$ 2
2016	$ 24	$ (8)	$ 16	$ 6

The following table presents, by remaining contractual maturity, the amortized cost, fair value and weighted-average yield of debt securities at December 31, 2018.

Table 48: Contractual Maturity of Debt Securities

December 31, 2018 Dollars in millions	1 Year or Less	After 1 Year through 5 Years	After 5 Years through 10 Years	After 10 Years	Total
Securities Available for Sale					
U.S. Treasury and government agencies	$ 678	$ 13,285	$ 3,546	$ 595	$ 18,104
Residential mortgage-backed					
Agency	1	64	629	28,719	29,413
Non-agency				1,924	1,924
Commercial mortgage-backed					
Agency	4	596	306	1,724	2,630
Non-agency			425	2,264	2,689
Asset-backed	26	2,118	1,674	1,115	4,933
Other debt	572	1,616	713	920	3,821
Total debt securities available for sale	$ 1,281	$ 17,679	$ 7,293	$ 37,261	$ 63,514
Fair value	$ 1,277	$ 17,567	$ 7,343	$ 37,202	$ 63,389
Weighted-average yield, GAAP basis	2.33%	2.27%	3.03%	3.19%	2.90%
Securities Held to Maturity					
U.S. Treasury and government agencies			$ 487	$ 271	$ 758
Residential mortgage-backed					
Agency		$ 74	529	15,137	15,740
Non-agency				152	152
Commercial mortgage-backed					
Agency	$ 46	42	4	51	143
Non-agency				488	488
Asset-backed		12	100	70	182
Other debt	24	573	790	462	1,849
Total debt securities held to maturity	$ 70	$ 701	$ 1,910	$ 16,631	$ 19,312
Fair value	$ 70	$ 713	$ 1,948	$ 16,288	$ 19,019
Weighted-average yield, GAAP basis	4.79%	3.81%	3.55%	3.31%	3.35%

Weighted-average yields are based on historical cost with effective yields weighted for the contractual maturity of each security. At December 31, 2018, there were no securities of a single issuer, other than FNMA, that exceeded 10% of Total shareholders' equity. The FNMA investments had a total amortized cost of $37.4 billion and fair value of $36.8 billion.

The following table presents the fair value of securities that have been either pledged to or accepted from others to collateralize outstanding borrowings.

Table 49: Fair Value of Securities Pledged and Accepted as Collateral

In millions	December 31 2018	December 31 2017
Pledged to others	$ 7,597	$ 8,175
Accepted from others:		
Permitted by contract or custom to sell or repledge (a)	$ 6,905	$ 1,152
Permitted amount repledged to others	$ 923	$ 1,097

(a) Includes $6.0 billion in fair value of securities accepted from others to collateralize short-term investments in resale agreements at December 31, 2018 that were not repledged to others.

The securities pledged to others include positions held in our portfolio of investment securities, trading securities, and securities accepted as collateral from others that we are permitted by contract or custom to sell or repledge and were used to secure public and trust deposits and repurchase agreements, as well as for other purposes.

NOTE 6 FAIR VALUE

Fair Value Measurement

We measure certain financial assets and liabilities at fair value. Fair value is defined as the price that would be received to sell an asset or the price that would be paid to transfer a liability on the measurement date, and is determined using an exit price in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants. The fair value hierarchy established by GAAP requires us to maximize the use of observable inputs when measuring fair value. The three levels of the fair value hierarchy are:

- **Level 1:** Fair value is determined using a quoted price in an active market for identical assets or liabilities. Level 1 assets and liabilities may include debt securities, equity securities and listed derivative contracts that are traded in an active exchange market, and certain U.S. Treasury securities that are actively traded in over-the-counter markets.
- **Level 2:** Fair value is estimated using inputs other than quoted prices included within Level 1 that are observable for assets or liabilities, either directly or indirectly. The majority of Level 2 assets and liabilities include debt securities, equity securities and listed derivative contracts with quoted prices that are traded in markets that are not active, and certain debt and equity securities and over-the-counter derivative contracts whose fair value is determined using a pricing model without significant unobservable inputs.
- **Level 3:** Fair value is estimated using unobservable inputs that are significant to the fair value of the assets or liabilities. Level 3 assets and liabilities include financial instruments whose value is determined using pricing models and discounted cash flow methodologies, or similar techniques for which the significant valuation inputs are not observable and the determination of fair value requires significant management judgment or estimation.

We characterize active markets as those where transaction volumes are sufficient to provide objective pricing information, with reasonably narrow bid/ask spreads, and where dealer quotes received do not vary widely and are based on current information. Inactive markets are typically characterized by low transaction volumes, price quotations that vary substantially among market participants or are not based on current information, wide bid/ask spreads, a significant increase in implied liquidity risk premiums, yields, or performance indicators for observed transactions or quoted prices compared to historical periods, a significant decline or absence of a market for new issuance, or any combination of the above factors. We also consider nonperformance risks, including credit risk, as part of our valuation methodology for all assets and liabilities measured at fair value.

Assets and liabilities measured at fair value, by their nature, result in a higher degree of financial statement volatility. Assets and liabilities classified within Level 3 inherently require the use of various assumptions, estimates and judgments when measuring their fair value. As observable market activity is commonly not available to use when estimating the fair value of Level 3 assets and liabilities, we must estimate fair value using various modeling techniques. These techniques include the use of a variety of inputs/assumptions including credit quality, liquidity, interest rates or other relevant inputs across the entire population of our Level 3 assets and liabilities. Changes in the significant underlying factors or assumptions (either an increase or a decrease) in any of these areas underlying our estimates may result in a significant increase/decrease in the Level 3 fair value measurement of a particular asset and/or liability from period to period.

Any models used to determine fair values or to validate dealer quotes are subject to review and independent testing as part of our model validation and internal control testing processes. Our Model Risk Management Group reviews significant models on at least an annual basis. In addition, the Valuation Committee approves valuation methodologies and reviews the results of independent valuation reviews and processes for assets and liabilities measured at fair value on a recurring basis.

Assets and Liabilities Measured at Fair Value on a Recurring Basis

Residential Mortgage Loans Held for Sale

We account for certain residential mortgage loans originated for sale at fair value on a recurring basis. The election of the fair value option aligns the accounting for the residential mortgages with the related hedges. Residential mortgage loans are valued based on quoted market prices, where available, prices for other traded mortgage loans with similar characteristics, and purchase commitments and bid information received from market participants. The prices are adjusted as necessary to include the embedded servicing value in the loans and to take into consideration the specific characteristics of certain loans that are priced based on the pricing of similar loans. These adjustments represent unobservable inputs to the valuation but are not considered significant given the relative insensitivity of the value to changes in these inputs to the fair value of the loans. Accordingly, the majority of residential mortgage loans held for sale are classified as Level 2.

Commercial Mortgage Loans Held for Sale

We account for certain commercial mortgage loans classified as held for sale in whole loan transactions at fair value. We determine the fair value of commercial mortgage loans held for sale based upon discounted cash flows. Fair value is determined using sale valuation assumptions that management believes a market participant would use in pricing the loans.

Valuation assumptions may include observable inputs based on the benchmark interest rate swap curve, whole loan sales and agency sales transactions. The significant unobservable input for commercial mortgage loans held for sale, excluding those to be sold to agencies, is management's assumption of the spread applied to the benchmark rate. The spread over the benchmark curve includes management's assumptions of the impact of credit and liquidity risk. Significant increases (decreases) in the spread applied to the benchmark would result in a significantly lower (higher) asset value. The wide range of the spread over the benchmark curve is due to the varying risk and underlying property characteristics within our portfolio. Based on the significance of the unobservable input we classified this portfolio as Level 3.

For loans to be sold to agencies with servicing retained, the fair value is adjusted for the estimated servicing cash flows, which is an unobservable input. This adjustment is not considered significant given the relative insensitivity of the value to changes in the input to the fair value of the loans. Accordingly, commercial mortgage loans held for sale to agencies are classified as Level 2.

Securities Available for Sale and Trading Securities
Securities accounted for at fair value include both the available for sale and trading portfolios. We primarily use prices obtained from pricing services, dealer quotes or recent trades to determine the fair value of securities. The majority of securities were priced by third-party vendors. The third-party vendors use a variety of methods when pricing securities that incorporate relevant market data to arrive at an estimate of what a buyer in the marketplace would pay for a security under current market conditions. We monitor and validate the reliability of vendor pricing on an ongoing basis through pricing methodology reviews, including detailed reviews of the assumptions and inputs used by the vendor to price individual securities, and through price validation testing. Securities not priced by one of our pricing vendors may be valued using a dealer quote, which are also subject to price validation testing. Price validation testing is performed independent of the risk-taking function and involves corroborating the prices received from third-party vendors and dealers with prices from another third party or through other sources, such as internal valuations or sales of similar securities. Security prices are also validated through actual cash settlement upon sale of a security.

Securities are classified within the fair value hierarchy after giving consideration to the activity level in the market for the security type and the observability of the inputs used to determine the fair value. When a quoted price in an active market exists for the identical security, this price is used to determine fair value and the security is classified within Level 1 of the hierarchy. Level 1 securities include U.S. Treasury securities.

When a quoted price in an active market for the identical security is not available, fair value is estimated using either an alternative market approach, such as a recent trade or matrix pricing, or an income approach, such as a discounted cash flow pricing model. If the inputs to the valuation are based primarily on market observable information, then the security is classified within Level 2 of the hierarchy. Level 2 securities include agency debt securities, agency residential mortgage-backed securities, agency and non-agency commercial mortgage-backed securities, certain non-agency residential mortgage-backed securities, asset-backed securities collateralized by non-mortgage-related corporate and consumer loans, and other debt securities. Level 2 securities are predominantly priced by third parties, either by a pricing vendor or dealer.

In certain cases where there is limited activity or less transparency around the inputs to the valuation, securities are classified within Level 3 of the hierarchy. Securities classified as Level 3 consist primarily of non-agency residential mortgage-backed and asset-backed securities collateralized by first- and second-lien residential mortgage loans. Fair value for these securities is primarily estimated using pricing obtained from third-party vendors. In some cases, fair value is estimated using a dealer quote, by reference to prices of securities of a similar vintage and collateral type or by reference to recent sales of similar securities. Market activity for these security types is limited with little price transparency. As a result, these securities are generally valued by the third-party vendor using a discounted cash flow approach that incorporates significant unobservable inputs and observable market activity where available. Significant inputs to the valuation include prepayment projections and credit loss assumptions (default rate and loss severity) and discount rates that are deemed representative of current market conditions. Significant increases (decreases) in any of those assumptions in isolation would result in a significantly lower (higher) fair value measurement.

Certain infrequently traded debt securities within Other debt securities available for sale and Trading securities are also classified in Level 3 and are included in the Insignificant Level 3 assets, net of liabilities line item in Table 52. The significant unobservable inputs used to estimate the fair value of these securities include an estimate of expected credit losses and a discount for liquidity risk. These inputs are incorporated into the fair value measurement by either increasing the spread over the benchmark curve or by applying a credit and liquidity discount to the par value of the security. Significant increases (decreases) in credit and/or liquidity risk could result in a significantly lower (higher) fair value estimate.

Loans
Loans accounted for at fair value consist primarily of residential mortgage loans. These loans are generally valued similarly to residential mortgage loans held for sale and are classified as Level 2. However, similar to residential mortgage loans held for sale, if these loans are repurchased and unsalable, they are classified as Level 3. In addition, repurchased VA loans, where only a portion of the principal will be reimbursed, are classified as Level 3. The fair value is determined using a discounted cash flow calculation based on our historical loss rate. We have elected to account for certain home equity lines of credit at fair value. These loans are classified as

Level 3. Significant inputs to the valuation of these loans include credit and liquidity discount, cumulative default rate, loss severity and gross discount rate and are deemed representative of current market conditions. Significant increases (decreases) in any of these assumptions would result in a significantly lower (higher) fair value measurement.

Equity Investments

Equity investments includes money market mutual funds as well as direct and indirect private equity investments. Money market mutual funds are valued based on quoted prices in active markets for identical securities and classified within Level 1 of the hierarchy. The valuation of direct and indirect private equity investments requires significant management judgment due to the absence of quoted market prices, inherent lack of liquidity and the long-term nature of such investments. Various valuation techniques are used for direct investments, including multiples of adjusted earnings of the entity, independent appraisals, anticipated financing and sale transactions with third parties, or the pricing used to value the entity in a recent financing transaction. A multiple of adjusted earnings calculation is the valuation technique utilized most frequently and is the most significant unobservable input used in such calculation. Significant decreases (increases) in the multiple of earnings could result in a significantly lower (higher) fair value measurement. Direct equity investments are classified as Level 3.

Indirect investments are not redeemable; however, we receive distributions over the life of the partnerships from liquidation of the underlying investments by the investee, which we expect to occur over the next 12 years. We value indirect investments in private equity funds using the net asset value (NAV) practical expedient as provided in the financial statements that we receive from fund managers. Due to the time lag in our receipt of the financial information and based on a review of investments and valuation techniques applied, adjustments to the manager-provided value are made when available recent portfolio company information or market information indicates a significant change in value from that provided by the manager of the fund. Indirect investments valued using NAV are not classified in the fair value hierarchy.

Mortgage Servicing Rights (MSRs)

MSRs are carried at fair value on a recurring basis. Assumptions incorporated into the MSRs valuation model reflect management's best estimate of factors that a market participant would use in valuing the MSRs. Although sales of MSRs do occur and can offer some market insight, MSRs do not trade in an active, open market with readily observable prices so the precise terms and conditions of sales are not available.

Residential MSRs

As a benchmark for the reasonableness of our residential MSRs fair value, we obtained opinions of value from independent brokers. These brokers provided a range (+/-10 bps) based upon their own discounted cash flow calculations of our portfolio that reflect conditions in the secondary market and any recently executed servicing transactions. We compare our internally-developed residential MSRs value to the ranges of values received from the brokers. If our residential MSRs fair value falls outside of the brokers' ranges, management will assess whether a valuation adjustment is warranted. For the periods presented, our residential MSRs value did not fall outside of the brokers' ranges. We consider our residential MSRs value to represent a reasonable estimate of fair value.

Due to the nature of the unobservable valuation inputs, residential MSRs are classified as Level 3. The significant unobservable inputs used in the fair value measurement of residential MSRs are constant prepayment rates and spread over the benchmark curve. Significant increases (decreases) in prepayment rates and spread over the benchmark curve would result in lower (higher) fair market value of residential MSRs.

Commercial MSRs

The fair value of commercial MSRs is estimated by using a discounted cash flow model incorporating unobservable inputs for assumptions such as constant prepayment rates, discount rates and other factors. Due to the nature of the unobservable valuation inputs and the limited availability of market pricing, commercial MSRs are classified as Level 3. Significant increases (decreases) in constant prepayment rates and discount rates would result in significantly lower (higher) commercial MSR value determined based on current market conditions and expectations.

Financial Derivatives

Exchange-traded derivatives are valued using quoted market prices and are classified as Level 1. The majority of derivatives that we enter into are executed over-the-counter and are valued using internal models. These derivatives are primarily classified as Level 2, as the readily observable market inputs to these models are validated to external sources, such as industry pricing services, or are corroborated through recent trades, dealer quotes, yield curves, implied volatility or other market-related data. Level 2 financial derivatives are primarily estimated using a combination of Eurodollar future prices and observable benchmark interest rate swaps to construct projected discounted cash flows.

Financial derivatives that are priced using significant management judgment or assumptions are classified as Level 3. Unobservable inputs related to interest rate contracts include probability of funding of residential mortgage loan commitments and estimated servicing cash flows of commercial and residential mortgage loan commitments. Probability of default and loss severity are the significant unobservable inputs used in the valuation of risk participation agreements. The fair values of Level 3 assets and liabilities related to these interest rate contract financial derivatives as of December 31, 2018 and 2017 are included in the Insignificant Level 3 assets, net of liabilities line item in Table 52 of this Note 6.

In connection with the sales of portions of our Visa Class B common shares, we entered into swap agreements with the purchasers of the shares to retain any future risk of decreases in the conversion rate of Class B common shares to Class A common shares resulting from increases in the escrow funded by Visa to pay for the costs of resolution of specified litigation (see Note 19 Legal Proceedings). These swaps also require PNC to make periodic payments based on the market price of the Class A common shares and a fixed rate of interest until the Visa litigation is resolved. An increase in the estimated length of litigation resolution date, a decrease in the estimated conversion rate, or an increase in the estimated growth rate of the Class A share price will each have a negative impact on the fair value of the swaps and vice versa.

The fair values of our derivatives include a credit valuation adjustment to reflect our own and our counterparties' nonperformance risk. Our credit valuation adjustment is computed using new loan pricing and considers externally available bond spreads, in conjunction with internal historical recovery observations.

Other Assets and Liabilities
Other assets held at fair value on a recurring basis primarily include assets related to PNC's deferred compensation and supplemental incentive savings plans and BlackRock Series C Preferred Stock.

The assets related to PNC's deferred compensation and supplemental incentive savings plans primarily consist of a prepaid forward contract referencing an amount of shares of PNC stock, equity mutual funds and fixed income funds, and are valued based on the underlying investments. These assets are valued either by reference to the market price of PNC's stock or by using the quoted market prices for investments other than PNC's stock and are classified in Levels 1 and 2.

We have elected to account for the shares of BlackRock Series C Preferred Stock received in a stock exchange with BlackRock at fair value as these shares economically hedge the BlackRock LTIP liability that is accounted for and reported as a derivative. The fair value of the Series C Preferred Stock is determined using a third-party modeling approach, which includes both observable and unobservable inputs. Due to the significance of unobservable inputs, this security is classified as Level 3. Significant increases (decreases) in the liquidity discount would result in a lower (higher) asset value for the BlackRock Series C Preferred Stock.

See Note 24 Subsequent Events for information on our January 31, 2019 transfer of our remaining shares of Series C Preferred Stock to BlackRock to satisfy our obligation under the Share Surrender Agreement.

All Level 3 other assets and liabilities are included in the Insignificant Level 3 assets, net of liabilities line item in Table 52 in this Note 6.

Other Borrowed Funds
Other borrowed funds primarily consist of U.S. Treasury securities sold short which are classified as Level 1. Other borrowed funds also includes the related liability for certain repurchased loans for which we have elected the fair value option and are classified as either Level 2 or Level 3, consistent with the level classification of the corresponding loans. All Level 3 amounts are included in the Insignificant Level 3 assets, net of liabilities line item in Table 52 in this Note 6.

The following table summarizes our assets and liabilities measured at fair value on a recurring basis, including instruments for which we have elected the fair value option.

Table 50: Fair Value Measurements – Recurring Basis Summary

	December 31, 2018				December 31, 2017			
In millions	Level 1	Level 2	Level 3	Total Fair Value	Level 1	Level 2	Level 3	Total Fair Value
Assets								
Residential mortgage loans held for sale		$ 493	$ 2	$ 495		$ 829	$ 3	$ 832
Commercial mortgage loans held for sale		309	87	396		723	107	830
Securities available for sale								
U.S. Treasury and government agencies	$ 17,753	347		18,100	$ 14,088	433		14,521
Residential mortgage-backed								
Agency		28,993		28,993		25,406		25,406
Non-agency		83	2,128	2,211		97	2,661	2,758
Commercial mortgage-backed								
Agency		2,577		2,577		1,904		1,904
Non-agency		2,657		2,657		2,613		2,613
Asset-backed		4,698	274	4,972		5,065	332	5,397
Other debt		3,795	84	3,879		4,347	87	4,434
Total debt securities	17,753	43,150	2,486	63,389	14,088	39,865	3,080	57,033
Other (a)					524	61		585
Total securities available for sale	17,753	43,150	2,486	63,389	14,612	39,926	3,080	57,618
Loans		510	272	782		571	298	869
Equity investments (b)	751		1,255	2,209			1,036	1,265
Residential mortgage servicing rights			1,257	1,257			1,164	1,164
Commercial mortgage servicing rights			726	726			668	668
Trading securities (c)	2,137	1,777	2	3,916	1,243	1,670	2	2,915
Financial derivatives (c) (d)	3	2,053	25	2,081		2,864	10	2,874
Other assets	291	157	45	493	278	253	107	638
Total assets	$ 20,935	$ 48,449	$ 6,157	$ 75,744	$ 16,133	$ 46,836	$ 6,475	$ 69,673
Liabilities								
Other borrowed funds	$ 868	$ 132	$ 7	$ 1,007	$ 1,079	$ 254	$ 11	$ 1,344
Financial derivatives (d) (e)	1	2,021	268	2,290		2,369	487	2,856
Other liabilities			58	58			33	33
Total liabilities	$ 869	$ 2,153	$ 333	$ 3,355	$ 1,079	$ 2,623	$ 531	$ 4,233

(a) Prior period amounts included $.6 billion of available for sale securities, primarily money market funds, that were reclassified to equity investments on January 1, 2018 as the result of the adoption of ASU 2016-01. See the Recently Adopted Accounting Standards portion of Note 1 Accounting Policies for additional details on this adoption.
(b) Certain investments that are measured at fair value using the NAV per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy.
(c) Included in Other assets on the Consolidated Balance Sheet.
(d) Amounts at December 31, 2018 and 2017 are presented gross and are not reduced by the impact of legally enforceable master netting agreements that allow us to net positive and negative positions and cash collateral held or placed with the same counterparty. See Note 13 Financial Derivatives for additional information related to derivative offsetting.
(e) Included in Other liabilities on the Consolidated Balance Sheet.

Reconciliations of assets and liabilities measured at fair value on a recurring basis using Level 3 inputs for 2018 and 2017 follow.

Table 51: Reconciliation of Level 3 Assets and Liabilities

Year Ended December 31, 2018

Level 3 Instruments Only In millions	Fair Value Dec. 31, 2017	Total realized / unrealized gains or losses for the period (a) Included in Earnings	Total realized / unrealized gains or losses for the period (a) Included in Other comprehensive income	Purchases	Sales	Issuances	Settlements	Transfers into Level 3	Transfers out of Level 3	Fair Value Dec. 31, 2018	Unrealized gains / losses on assets and liabilities held on Consolidated Balance Sheet at December 31, 2018 (a) (b)
Assets											
Residential mortgage loans held for sale	$ 3			$ 4	$ (3)			$ 14	$ (16) (c)	$ 2	
Commercial mortgage loans held for sale	107						$ (20)			87	$ 1
Securities available for sale											
Residential mortgage-backed non-agency	2,661	$ 53	$ (24)				(562)			2,128	
Commercial mortgage-backed non-agency											
Asset-backed	332	5	(7)				(56)			274	
Other debt	87	5	6	7			(16)		(5)	84	
Total securities available for sale	3,080	63	(25)	7			(634)		(5)	2,486	
Loans	298	13		102	(25)		(74)	10	(52) (c)	272	2
Equity investments	1,036	204		411	(396)					1,255	110
Residential mortgage servicing rights	1,164	90		129		$ 44	(170)			1,257	83
Commercial mortgage servicing rights	668	51		93		57	(143)			726	51
Trading securities	2									2	
Financial derivatives	10	59		4			(48)			25	47
Other assets	107	(14)					(48)			45	(14)
Total assets	$ 6,475	$ 466	$ (25)	$ 750	$ (424)	$ 101	$ (1,137)	$ 24	$ (73)	$ 6,157	$ 280
Liabilities											
Other borrowed funds	$ 11					$ 64	$ (68)			$ 7	
Financial derivatives	487	$ (53)			$ 12		(178)			268	$ (42)
Other liabilities	33	15		$ 12		103	(105)			58	13
Total liabilities	$ 531	$ (38)		$ 12	$ 12	$ 167	$ (351)			$ 333	$ (29)
Net gains (losses)		$ 504 (d)									$ 309 (e)

Year Ended December 31, 2017

Level 3 Instruments Only In millions	Fair Value Dec. 31, 2016	Total realized / unrealized gains or losses for the period (a): Included in Earnings	Total realized / unrealized gains or losses for the period (a): Included in Other comprehensive income	Purchases	Sales	Issuances	Settlements	Transfers into Level 3	Transfers out of Level 3	Fair Value Dec. 31, 2017	Unrealized gains / losses on assets and liabilities held on Consolidated Balance Sheet at December 31, 2017 (a) (b)
Assets											
Residential mortgage loans held for sale	$ 2			$ 8	$ (1)			$ 10	$ (16) (c)	$ 3	
Commercial mortgage loans held for sale	1,400	$ 81			(5,278)	$ 4,885	$ (258)		(723) (f)	107	$ 4
Securities available for sale											
Residential mortgage-backed non-agency	3,254	77	$ 137		(33)		(774)			2,661	(1)
Commercial mortgage-backed non-agency		12			(12)						
Asset-backed	403	12	22		(25)		(80)			332	
Other debt	66		19	13	(1)		(10)			87	
Total securities available for sale	3,723	101	178	13	(71)		(864)			3,080	(1)
Loans	335			97	(28)		(68)	13	(51) (c)	298	(7)
Equity investments	1,331	239		214	(565)				(183) (g)	1,036	145
Residential mortgage servicing rights	1,182	(83)		185		55	(175)			1,164	(79)
Commercial mortgage servicing rights	576	46		69		88	(111)			668	45
Trading securities	2									2	
Financial derivatives	40	39		3			(67)		(5)	10	67
Other assets	239	23					(155)			107	24
Total assets	$ 8,830	$ 446	$ 178	$ 589	$ (5,943)	$ 5,028	$ (1,698)	$ 23	$ (978)	$ 6,475	$ 198
Liabilities											
Other borrowed funds	$ 10					$ 72	$ (71)			$ 11	
Financial derivatives	414	$ 293			$ 3		(221)		$ (2)	487	$ 297
Other liabilities	9	25				173	(174)			33	26
Total liabilities	$ 433	$ 318			$ 3	$ 245	$ (466)		$ (2)	$ 531	$ 323
Net gains (losses)		$ 128 (d)									$ (125) (e)

(a) Losses for assets are bracketed while losses for liabilities are not.
(b) The amount of the total gains or losses for the period included in earnings that is attributable to the change in unrealized gains or losses related to those assets and liabilities held at the end of the reporting period.
(c) Transfers out of Level 3 primarily reflect the reclassification of residential mortgage loans held for sale to held for investment and the transfer of residential mortgage loans to OREO.
(d) Net gains (losses) realized and unrealized included in earnings related to Level 3 assets and liabilities included amortization and accretion. The amortization and accretion amounts were included in Interest income on the Consolidated Income Statement and the remaining net gains (losses) realized and unrealized were included in Noninterest income on the Consolidated Income Statement.
(e) Net unrealized gains (losses) related to assets and liabilities held at the end of the reporting period were included in Noninterest income on the Consolidated Income Statement.
(f) Reflects a transfer from Level 3 to Level 2 due to an unobservable valuation input that was deemed to be not significant.
(g) Reflects transfers out of Level 3 associated with changes in valuation methodology for certain equity investments subject to the Volcker Rule provisions of the Dodd-Frank Act.

An instrument's categorization within the hierarchy is based on the lowest level of input that is significant to the fair value measurement. Changes from one quarter to the next related to the observability of inputs to a fair value measurement may result in a reclassification (transfer) of assets or liabilities between hierarchy levels. Our policy is to recognize transfers in and transfers out as of the end of the reporting period.

Quantitative information about the significant unobservable inputs within Level 3 recurring assets and liabilities follows.

Table 52: Fair Value Measurements – Recurring Quantitative Information

December 31, 2018

Level 3 Instruments Only Dollars in millions	Fair Value	Valuation Techniques	Unobservable Inputs	Range (Weighted Average)
Commercial mortgage loans held for sale	$ 87	Discounted cash flow	Spread over the benchmark curve (a)	535bps - 1,900bps (1,217bps)
Residential mortgage-backed non-agency securities	2,128	Priced by a third-party vendor using a discounted cash flow pricing model	Constant prepayment rate	1.0% - 33.0% (11.8%)
			Constant default rate	0.0% - 18.8% (5.1%)
			Loss severity	10.0% - 100.0% (50.8%)
			Spread over the benchmark curve (a)	216bps weighted-average
Asset-backed securities	274	Priced by a third-party vendor using a discounted cash flow pricing model	Constant prepayment rate	1.0% - 19.0% (8.5%)
			Constant default rate	1.0% - 18.5% (4.0%)
			Loss severity	15.0% - 100.0% (63.8%)
			Spread over the benchmark curve (a)	198bps weighted-average
Loans	129	Consensus pricing (b)	Cumulative default rate	11.0% - 100.0% (81.8%)
			Loss severity	0.0% - 100.0% (17.2%)
			Discount rate	5.5% - 8.3% (5.8%)
	90	Discounted cash flow	Loss severity	8.0% weighted-average
			Discount rate	5.8% weighted-average
	53	Consensus pricing (b)	Credit and Liquidity Discount	0.0% - 99.0% (61.3%)
Equity investments	1,255	Multiple of adjusted earnings	Multiple of earnings	4.5x - 16.0x (8.4x)
Residential mortgage servicing rights	1,257	Discounted cash flow	Constant prepayment rate	0.0% - 54.5% (8.7%)
			Spread over the benchmark curve (a)	492bps - 1,455bps (806bps)
Commercial mortgage servicing rights	726	Discounted cash flow	Constant prepayment rate	4.6% - 14.7% (5.7%)
			Discount rate	6.9% - 8.5% (8.4%)
Financial derivatives - Swaps related to sales of certain Visa Class B common shares	(210)	Discounted cash flow	Estimated conversion factor of Visa Class B shares into Class A shares	163.0% weighted-average
			Estimated annual growth rate of Visa Class A share price	16.0%
			Estimated length of litigation resolution date	Q4 2020
Insignificant Level 3 assets, net of liabilities (c)	35			
Total Level 3 assets, net of liabilities (d)	$ 5,824			

December 31, 2017

Level 3 Instruments Only Dollars in millions	Fair Value	Valuation Techniques	Unobservable Inputs	Range (Weighted Average)
Commercial mortgage loans held for sale	$ 107	Discounted cash flow	Spread over the benchmark curve (a)	525bps - 1,470bps (1,020bps)
Residential mortgage-backed non-agency securities	2,661	Priced by a third-party vendor using a discounted cash flow pricing model	Constant prepayment rate	1.0% - 31.6% (10.8%)
			Constant default rate	0.1% - 18.8% (5.4%)
			Loss severity	15.0% - 100.0% (51.5%)
			Spread over the benchmark curve (a)	190bps weighted-average
Asset-backed securities	332	Priced by a third-party vendor using a discounted cash flow pricing model	Constant prepayment rate	1.0% - 19.0% (7.9%)
			Constant default rate	2.0% - 11.8% (5.4%)
			Loss severity	15.0% - 100.0% (68.5%)
			Spread over the benchmark curve (a)	179bps weighted-average
Loans	133	Consensus pricing (b)	Cumulative default rate	11.0% - 100.0% (85.7%)
			Loss severity	0.0% - 100.0% (20.6%)
			Discount rate	5.5% - 8.0% (5.7%)
	104	Discounted cash flow	Loss severity	8.0% weighted-average
			Discount rate	4.9% weighted-average
	61	Consensus pricing (b)	Credit and Liquidity discount	0.0% - 99.0% (61.1%)
Equity investments	1,036	Multiple of adjusted earnings	Multiple of earnings	4.5x - 29.7x (8.3x)
Residential mortgage servicing rights	1,164	Discounted cash flow	Constant prepayment rate	0.0% - 36.7% (10.0%)
			Spread over the benchmark curve (a)	390bps - 1,839bps (830bps)
Commercial mortgage servicing rights	668	Discounted cash flow	Constant prepayment rate	7.7% - 14.2% (8.5%)
			Discount rate	6.4% - 7.9% (7.8%)
Financial derivatives - Swaps related to sales of certain Visa Class B common shares	(380)	Discounted cash flow	Estimated conversion factor of Visa Class B shares into Class A shares	163.8% weighted-average
			Estimated annual growth rate of Visa Class A share price	16.0%
			Estimated length of litigation resolution date	Q2 2021
Insignificant Level 3 assets, net of liabilities (c)	58			
Total Level 3 assets, net of liabilities (d)	$ 5,944			

(a) The assumed yield spread over the benchmark curve for each instrument is generally intended to incorporate non-interest-rate risks, such as credit and liquidity risks.
(b) Consensus pricing refers to fair value estimates that are generally internally developed using information such as dealer quotes or other third-party provided valuations or comparable asset prices.
(c) Represents the aggregate amount of Level 3 assets and liabilities measured at fair value on a recurring basis that are individually and in the aggregate insignificant. The amount includes certain financial derivative assets and liabilities, trading securities, other debt securities, residential mortgage loans held for sale, other assets, other borrowed funds and other liabilities.
(d) Consisted of total Level 3 assets of $6.1 billion and total Level 3 liabilities of $.3 billion as of December 31, 2018 and $6.4 billion and $.5 billion as of December 31, 2017, respectively.

Financial Assets Accounted for at Fair Value on a Nonrecurring Basis

We may be required to measure certain financial assets at fair value on a nonrecurring basis. These adjustments to fair value usually result from the application of lower of amortized cost or fair value accounting or write-downs of individual assets due to impairment and are included in Table 53.

Nonaccrual Loans
Nonaccrual loans represent the fair value of those loans which have been adjusted due to impairment. The impairment is primarily based on the appraised value of the collateral.

Appraisals are obtained by licensed or certified appraisers at least annually and more recently in certain instances. All third-party appraisals are reviewed and any adjustments to the initial appraisal are incorporated into the final issued appraisal report. In instances where an appraisal is not obtained, collateral value is determined consistent with external third-party appraisal standards by an internal person independent of the asset manager.

OREO and Foreclosed Assets
The carrying value of OREO and foreclosed assets includes valuation adjustments recorded subsequent to the transfer to OREO and foreclosed assets. These valuation adjustments are based on the fair value less cost to sell of the property. Fair value is based on appraised value or sales price and the appraisal process for OREO and foreclosed assets is the same as described above for nonaccrual loans.

Long-Lived Assets
Long-lived assets consists of buildings for which valuation adjustments were recorded during the period. A facility classified as held and used is impaired to the extent its carrying value is not recoverable and exceeds fair value. Valuation adjustments on buildings held for sale are based on the fair value of the property less an estimated cost to sell and are recorded subsequent to the transfer of the asset

to held for sale status. Fair value is determined either by a third-party appraisal, recent sales offer, changes in market or property conditions, or, where we have agreed to sell the building to a third party, the contractual sales price. Impairment on these long-lived assets is recorded in Other noninterest expense on our Consolidated Income Statement.

Table 53: Fair Value Measurements – Nonrecurring (a) (b) (c)

Year ended December 31 In millions	Fair Value 2018	Fair Value 2017	Gains (Losses) 2018	Gains (Losses) 2017	Gains (Losses) 2016
Assets					
Nonaccrual loans	$ 128	$ 100	$ (28)	$ (8)	$ (106)
OREO and foreclosed assets	59	70	(7)	(10)	(16)
Long-lived assets	11	80	(4)	(168)	(15)
Total assets	$ 198	$ 250	$ (39)	$ (186)	$ (137)

(a) All Level 3 for the periods presented.
(b) Valuation techniques applied were fair value of property or collateral.
(c) Unobservable inputs used were appraised value/sales price, broker opinions or projected income/required improvement costs. Additional quantitative information was not meaningful for the periods presented.

Financial Instruments Accounted for under Fair Value Option

We elect the fair value option to account for certain financial instruments. For more information on these financial instruments for which the fair value option election has been made, please refer to the Fair Value Measurement section of this Note 6. These financial instruments are initially measured at fair value. Gains and losses from initial measurement and any changes in fair value are subsequently recognized in earnings.

Interest income related to changes in the fair values of these financial instruments is recorded on the Consolidated Income Statement in Other interest income, except for certain Residential mortgage loans, for which income is also recorded in Loan interest income. Changes in the value on prepaid forward contracts included in Other Assets is reported in Noninterest expense and interest expense on the Other borrowed funds is reported in Borrowed funds interest expense.

Fair values and aggregate unpaid principal balances of items for which we elected the fair value option follow.

Table 54: Fair Value Option – Fair Value and Principal Balances

In millions	December 31, 2018 Fair Value	December 31, 2018 Aggregate Unpaid Principal Balance	December 31, 2018 Difference	December 31, 2017 Fair Value	December 31, 2017 Aggregate Unpaid Principal Balance	December 31, 2017 Difference
Assets						
Residential mortgage loans held for sale						
Performing loans	$ 489	$ 472	$ 17	$ 822	$ 796	$ 26
Accruing loans 90 days or more past due	2	2		3	3	
Nonaccrual loans	4	4		7	8	(1)
Total	$ 495	$ 478	$ 17	$ 832	$ 807	$ 25
Commercial mortgage loans held for sale (a)						
Performing loans	$ 396	$ 411	$ (15)	$ 828	$ 842	$ (14)
Nonaccrual loans				2	3	(1)
Total	$ 396	$ 411	$ (15)	$ 830	$ 845	$ (15)
Residential mortgage loans						
Performing loans	$ 279	$ 298	$ (19)	$ 251	$ 280	$ (29)
Accruing loans 90 days or more past due	321	329	(8)	421	431	(10)
Nonaccrual loans	182	292	(110)	197	317	(120)
Total	$ 782	$ 919	$ (137)	$ 869	$ 1,028	$ (159)
Other assets	$ 156	$ 176	$ (20)	$ 216	$ 212	$ 4
Liabilities						
Other borrowed funds	$ 64	$ 65	$ (1)	$ 84	$ 85	$ (1)

(a) There were no accruing loans 90 days or more past due within this category at December 31, 2018 or December 31, 2017.

The changes in fair value for items for which we elected the fair value option are as follows.

Table 55: Fair Value Option – Changes in Fair Value (a)

Year ended December 31 In millions	Gains (Losses) 2018	2017	2016
Assets			
Residential mortgage loans held for sale	$ 38	$ 121	$ 152
Commercial mortgage loans held for sale	$ 67	$ 87	$ 76
Residential mortgage loans	$ 24	$ 27	$ 30
Other assets	$ (40)	$ 60	$ 50

(a) The impact on earnings of offsetting hedged items or hedging instruments is not reflected in these amounts.

Additional Fair Value Information Related to Financial Instruments Not Recorded at Fair Value

This section presents fair value information for all other financial instruments that are not recorded on the Consolidated Balance Sheet at fair value. We used the following methods and assumptions to estimate the fair value amounts for these financial instruments.

Cash and Due from Banks and Interest-earning Deposits with Banks
Due to their short-term nature, the carrying amounts for Cash and due from banks and Interest-earning deposits with banks reported on our Consolidated Balance Sheet approximate fair value.

Securities Held to Maturity
We primarily use prices obtained from pricing services, dealer quotes or recent trades to determine the fair value of securities. Refer to the Fair Value Measurement section of this Note 6 for additional information relating to our pricing processes and procedures.

Net Loans
Fair values are estimated based on the discounted value of expected net cash flows incorporating assumptions about prepayment rates, net credit losses and servicing fees. Nonaccrual loans are valued at their estimated recovery value. Loans are presented net of the ALLL.

Other Assets
Other assets includes accrued interest receivable, cash collateral, federal funds sold and resale agreements, certain loans held for sale, and FHLB and FRB stock. The aggregate carrying value of our FHLB and FRB stock was $1.8 billion at both December 31, 2018 and 2017, which approximated fair value at each date.

Deposits
For time deposits, fair values are estimated by discounting contractual cash flows using current market rates for instruments with similar maturities. For deposits with no defined maturity, such as noninterest-bearing and interest-bearing demand and interest-bearing money market and savings deposits, carrying values approximate fair values.

Borrowed Funds
For short-term borrowed funds, including federal funds purchased, commercial paper, repurchase agreements and certain other short-term borrowings and payables, carrying values approximated fair values. For long-term borrowed funds, quoted market prices are used, when available, to estimate fair value. When quoted market prices are not available, fair value is estimated based on current market interest rates and credit spreads for debt with similar terms and maturities.

Unfunded Loan Commitments and Letters of Credit
The fair value of unfunded loan commitments and letters of credit is determined from a market participant's view including the impact of changes in interest rates and credit. We establish a liability on these facilities related to the creditworthiness of our counterparty.

Other Liabilities
Other liabilities includes interest-bearing cash collateral held related to derivatives and other accrued liabilities. Due to its short-term nature, the carrying value of Other liabilities reported on our Consolidated Balance Sheet approximates fair value.

The carrying amounts and estimated fair values, as well as the level within the fair value hierarchy, of these financial instruments as of December 31, 2018 and 2017 are as follows.

Table 56: Additional Fair Value Information Related to Other Financial Instruments

In millions	Carrying Amount	Fair Value Total	Level 1	Level 2	Level 3
December 31, 2018					
Assets					
Cash and due from banks	$ 5,608	$ 5,608	$ 5,608		
Interest-earning deposits with banks	10,893	10,893		$ 10,893	
Securities held to maturity	19,312	19,019	763	18,112	$ 144
Net loans (excludes leases)	215,525	216,492			216,492
Other assets	11,065	11,065		11,060	5
Total assets	$ 262,403	$ 263,077	$ 6,371	$ 40,065	$ 216,641
Liabilities					
Time deposits (a)	$ 18,507	$ 18,246		$ 18,246	
Borrowed funds	56,412	56,657		54,872	$ 1,785
Unfunded loan commitments and letters of credit	285	285			285
Other liabilities	393	393		393	
Total liabilities	$ 75,597	$ 75,581		$ 73,511	$ 2,070
December 31, 2017					
Assets					
Cash and due from banks	$ 5,249	$ 5,249	$ 5,249		
Interest-earning deposits with banks	28,595	28,595		$ 28,595	
Securities held to maturity	18,513	18,565	765	17,658	$ 142
Net loans (excludes leases)	209,044	211,175			211,175
Other assets	6,078	6,736		5,949	787
Total assets	$ 267,479	$ 270,320	$ 6,014	$ 52,202	$ 212,104
Liabilities					
Deposits	$ 265,053	$ 264,854		$ 264,854	
Borrowed funds	57,744	58,503		56,853	$ 1,650
Unfunded loan commitments and letters of credit	297	297			297
Other liabilities	399	399		399	
Total liabilities	$ 323,493	$ 324,053		$ 322,106	$ 1,947

(a) The amount at December 31, 2018 excludes deposit liabilities with no defined or contractual maturities in accordance with the adoption of ASU 2016-01. See the Recently Adopted Accounting Standards portion of Note 1 Accounting Policies for additional details on this adoption.

The aggregate fair value in Table 56 represents only a portion of the total market value of our total assets and liabilities as, in accordance with the guidance related to fair values about financial instruments, we exclude the following:

- financial instruments recorded at fair value on a recurring basis (as they are disclosed in Table 50);
- investments accounted for under the equity method;
- equity securities without a readily determinable fair value that apply for the alternative measurement approach to fair value under ASU 2016-01;
- real and personal property;
- lease financing;
- loan customer relationships;
- deposit customer intangibles;
- mortgage servicing rights;
- retail branch networks;
- fee-based businesses, such as asset management and brokerage;
- trademarks and brand names;
- trade receivables and payables due in one year or less; and
- deposit liabilities with no defined or contractual maturities under ASU 2016-01.

NOTE 7 GOODWILL AND MORTGAGE SERVICING RIGHTS

Assets and liabilities of acquired entities are recorded at estimated fair value as of the acquisition date.

Goodwill

Allocations of Goodwill by business segment during 2018, 2017 and 2016 follow:

Table 57: Goodwill by Business Segment (a)

In millions	Retail Banking	Corporate & Institutional Banking	Asset Management Group	Total
December 31, 2016	$ 5,795	$ 3,244	$ 64	$ 9,103
December 31, 2017 (b)	$ 5,795	$ 3,314	$ 64	$ 9,173
December 31, 2018 (b)	$ 5,795	$ 3,359	$ 64	$ 9,218

(a) The BlackRock business segment did not have any allocated goodwill during 2018, 2017 and 2016.
(b) Corporate & Institutional Banking's goodwill balances include the impacts of $45 million at December 31, 2018 and $70 million at December 31, 2017 resulting from business acquisitions.

We review goodwill in each of our reporting units for impairment at least annually, in the fourth quarter, or more frequently if events occur or circumstances have changed significantly from the annual test date. The fair value of our reporting units with goodwill is determined by using discounted cash flow and market comparability methodologies. Based on the results of our analysis, there were no impairment charges related to goodwill in 2018, 2017 or 2016.

Mortgage Servicing Rights

We recognize the right to service mortgage loans for others when we recognize it as an intangible asset and the servicing income we receive is more than adequate compensation. MSRs are purchased or originated when loans are sold with servicing retained. MSRs totaled $2.0 billion at December 31, 2018 and $1.8 billion at December 31, 2017, and consisted of loan servicing contracts for commercial and residential mortgages measured at fair value.

Commercial Mortgage Servicing Rights
We recognize gains/(losses) on changes in the fair value of commercial MSRs. Commercial MSRs are subject to changes in value from actual or expected prepayment of the underlying loans and defaults as well as market driven changes in interest rates. We manage this risk by economically hedging the fair value of commercial MSRs with securities and derivative instruments which are expected to increase (or decrease) in value when the value of commercial MSRs declines (or increases).

The fair value of commercial MSRs is estimated by using a discounted cash flow model incorporating inputs for assumptions as to constant prepayment rates, discount rates and other factors determined based on current market conditions and expectations.

Changes in the commercial MSRs follow:

Table 58: Commercial Mortgage Servicing Rights

In millions	2018	2017	2016
January 1	$ 668	$ 576	$ 526
Additions:			
From loans sold with servicing retained	57	88	61
Purchases	93	69	36
Changes in fair value due to:			
Time and payoffs (a)	(143)	(111)	(92)
Other (b)	51	46	45
December 31	$ 726	$ 668	$ 576
Related unpaid principal balance at December 31	$ 180,496	$ 162,182	$ 143,139
Servicing advances at December 31	$ 220	$ 217	$ 265

(a) Represents decrease in MSR value due to passage of time, including the impact from both regularly scheduled loan principal payments and loans that were paid down or paid off during the period.
(b) Represents MSR value changes resulting primarily from market-driven changes in interest rates.

Residential Mortgage Servicing Rights
Residential MSRs are subject to changes in value from actual or expected prepayment of the underlying loans and defaults as well as market driven changes in interest rates. We manage this risk by economically hedging the fair value of residential MSRs with

securities and derivative instruments which are expected to increase (or decrease) in value when the value of residential MSRs declines (or increases).

The fair value of residential MSRs is estimated by using a discounted cash flow valuation model which calculates the present value of estimated future net servicing cash flows, taking into consideration actual and expected mortgage loan prepayment rates, discount rates, servicing costs, and other factors which are determined based on current market conditions.

Changes in the residential MSRs follow:

Table 59: Residential Mortgage Servicing Rights

In millions		2018		2017		2016
January 1	$	1,164	$	1,182	$	1,063
Additions:						
From loans sold with servicing retained		44		55		62
Purchases		129		185		188
Changes in fair value due to:						
Time and payoffs (a)		(170)		(175)		(168)
Other (b)		90		(83)		37
December 31	$	1,257	$	1,164	$	1,182
Unpaid principal balance of loans serviced for others at December 31	$	125,388	$	126,769	$	125,381
Servicing advances at December 31	$	156	$	201	$	302

(a) Represents decrease in MSR value due to passage of time, including the impact from both regularly scheduled loan principal payments and loans that were paid down or paid off during the period.
(b) Represents MSR value changes resulting from market-driven changes in interest rates and changes in model assumptions.

Sensitivity Analysis
The fair value of commercial and residential MSRs and significant inputs to the valuation models as of December 31, 2018 are shown in Tables 60 and 61. The expected and actual rates of mortgage loan prepayments are significant factors driving the fair value. Management uses both internal proprietary models and a third-party model to estimate future commercial mortgage loan prepayments and a third-party model to estimate future residential mortgage loan prepayments. These models have been refined based on current market conditions and management judgment. Future interest rates are another important factor in the valuation of MSRs. Management utilizes market implied forward interest rates to estimate the future direction of mortgage and discount rates. The forward rates utilized are derived from the current yield curve for U.S. dollar interest rate swaps and are consistent with pricing of capital markets instruments. Changes in the shape and slope of the forward curve in future periods may result in volatility in the fair value estimate.

A sensitivity analysis of the hypothetical effect on the fair value of MSRs to adverse changes in key assumptions is presented in Tables 60 and 61. These sensitivities do not include the impact of the related hedging activities. Changes in fair value generally cannot be extrapolated because the relationship of the change in the assumption to the change in fair value may not be linear. Also, the effect of a variation in a particular assumption on the fair value of the MSRs is calculated independently without changing any other assumption. In reality, changes in one factor may result in changes in another (for example, changes in mortgage interest rates, which drive changes in prepayment rate estimates, could result in changes in the interest rate spread), which could either magnify or counteract the sensitivities.

The following tables set forth the fair value of commercial and residential MSRs and the sensitivity analysis of the hypothetical effect on the fair value of MSRs to immediate adverse changes of 10% and 20% in those assumptions:

Table 60: Commercial Mortgage Servicing Rights –Key Valuation Assumptions

Dollars in millions		December 31 2018		December 31 2017
Fair value	$	726	$	668
Weighted-average life (years)		4.1		4.4
Weighted-average constant prepayment rate		5.65%		8.51%
Decline in fair value from 10% adverse change	$	10	$	12
Decline in fair value from 20% adverse change	$	19	$	23
Effective discount rate		8.39%		7.81%
Decline in fair value from 10% adverse change	$	19	$	18
Decline in fair value from 20% adverse change	$	39	$	36

Table 61: Residential Mortgage Servicing Rights – Key Valuation Assumptions

Dollars in millions	December 31 2018	December 31 2017
Fair value	$ 1,257	$ 1,164
Weighted-average life (years)	6.9	6.4
Weighted-average constant prepayment rate	8.69 %	10.04 %
Decline in fair value from 10% adverse change	$ 41	$ 44
Decline in fair value from 20% adverse change	$ 79	$ 85
Weighted-average option adjusted spread	806 bps	830 bps
Decline in fair value from 10% adverse change	$ 37	$ 35
Decline in fair value from 20% adverse change	$ 73	$ 67

Fees from mortgage loan servicing, which includes contractually specified servicing fees, late fees and ancillary fees were $.5 billion for each of 2018, 2017 and 2016. We also generate servicing fees from fee-based activities provided to others for which we do not have an associated servicing asset. Fees from commercial and residential MSRs are reported on our Consolidated Income Statement in Corporate services and Residential mortgage, respectively.

NOTE 8 PREMISES, EQUIPMENT AND LEASEHOLD IMPROVEMENTS

Premises, equipment and leasehold improvements, stated at cost less accumulated depreciation and amortization, were as follows:

Table 62: Premises, Equipment and Leasehold Improvements

In millions	December 31 2018	December 31 2017
Premises, equipment and leasehold improvements	$ 11,864	$ 10,939
Accumulated depreciation and amortization	(6,137)	(5,503)
Net book value	$ 5,727	$ 5,436

The following table includes depreciation expense on premises, equipment and leasehold improvements, as well as amortization expense, excluding intangible assets, primarily for capitalized internally developed software.

Table 63: Depreciation and Amortization Expense

Year ended December 31 In millions	2018	2017	2016
Depreciation	$ 754	$ 743	$ 683
Amortization	78	56	46
Total depreciation and amortization	$ 832	$ 799	$ 729

We lease certain facilities and equipment under agreements expiring at various dates through the year 2081. We account for these as operating leases. Rental expense on such leases was $416 million, $431 million and $442 million at December 31, 2018, 2017 and 2016, respectively.

Required minimum annual rentals that we owe on noncancelable leases having initial or remaining terms in excess of one year totaled $2.5 billion at December 31, 2018.

Future minimum annual rentals are as follows:

Table 64: Minimum Annual Lease Rentals

In millions	
2019	$ 374
2020	$ 346
2021	$ 308
2022	$ 258
2023	$ 228
2024 and thereafter	$ 941

NOTE 9 TIME DEPOSITS

Total time deposits of $18.5 billion at December 31, 2018 have future contractual maturities as follows:

Table 65: Time Deposits

In billions	
2019	$ 12.0
2020	$ 3.9
2021	$ .9
2022	$ .7
2023	$ .4
2024 and thereafter	$ .6

NOTE 10 BORROWED FUNDS

The following shows the carrying value of total borrowed funds of $57.4 billion at December 31, 2018 (including adjustments related to purchase accounting, accounting hedges and unamortized original issuance discounts) by remaining contractual maturity:

Table 66: Borrowed Funds

In billions	
2019	$ 20.0
2020	$ 14.8
2021	$ 6.5
2022	$ 4.9
2023	$ 2.3
2024 and thereafter	$ 8.9

The following table presents the contractual rates and maturity dates of our FHLB borrowings, senior debt and subordinated debt as of December 31, 2018 and the carrying values as of December 31, 2018 and 2017.

Table 67: FHLB Borrowings, Senior Debt and Subordinated Debt

	Stated Rate	Maturity	Carrying Value	
Dollars in millions	2018	2018	2018	2017
Parent Company				
Senior debt	2.85%-6.70%	2019-2027	$ 5,063	$ 5,203
Subordinated debt	3.90%-6.88%	2019-2024	1,447	1,440
Junior subordinated debt	3.31%	2028	205	205
Subtotal			6,715	6,848
Bank				
FHLB (a)	zero-6.35%	2019-2030	21,501	21,037
Senior debt	1.45%-3.50%	2019-2043	19,955	22,859
Subordinated debt	2.70%-4.20%	2022-2028	4,243	3,555
Subtotal			45,699	47,451
Total			$ 52,414	$ 54,299

(a) FHLB borrowings are generally collateralized by residential mortgage loans, other mortgage-related loans and commercial mortgage-backed securities.

In Table 67, the carrying values for Parent Company senior and subordinated debt include basis adjustments of $(29) million and $8 million, respectively, whereas Bank senior and subordinated debt include basis adjustments of $(246) million and $7 million, respectively, related to fair value accounting hedges as of December 31, 2018.

Certain borrowings are reported at fair value, refer to Note 6 Fair Value for more information on those borrowings.

Junior Subordinated Debentures

PNC Capital Trust C, a wholly-owned finance subsidiary of The PNC Financial Services Group, Inc., owns junior subordinated debentures issued by PNC with a carrying value of $205 million. In June 1998, PNC Capital Trust C issued $200 million of trust preferred securities which bear interest at an annual rate of 3 month LIBOR plus 57 basis points. The trust preferred securities are currently redeemable by PNC Capital Trust C at par. In accordance with GAAP, the financial statements of the Trust are not included in our consolidated financial statements.

The obligations of The PNC Financial Services Group, Inc., as the parent of the Trust, when taken collectively, are the equivalent of a full and unconditional guarantee of the obligations of the Trust under the terms of the trust preferred securities. Such guarantee is subordinate in right of payment in the same manner as other junior subordinated debt. There are certain restrictions on our overall ability to obtain funds from our subsidiaries. For additional disclosure on these funding restrictions, see Note 18 Regulatory Matters.

We are subject to certain restrictions, including restrictions on dividend payments, in connection with the outstanding junior subordinated debentures. Generally, if there is (i) an event of default under the debenture, (ii) we elect to defer interest on the debenture, (iii) we exercise our right to defer payments on the related trust preferred securities, or (iv) there is a default under our guarantee of such payment obligations, subject to certain limited exceptions, we would be unable during the period of such default or deferral to make payments on our debt securities that rank equal or junior to the debentures as well as to make payments on our equity securities, including dividend payments.

NOTE 11 EMPLOYEE BENEFIT PLANS

Pension and Postretirement Plans

We have a noncontributory, qualified defined benefit pension plan covering eligible employees. Benefits are determined using a cash balance formula where earnings credits are a percentage of eligible compensation. Earnings credit percentages for those employees who were plan participants on December 31, 2009 are frozen at the level earned to that point. Earnings credits for all employees who became participants on or after January 1, 2010 are a flat 3% of eligible compensation. All plan participants earn interest on their cash balances based on 30-year Treasury securities rates with those who were participants at December 31, 2009 earning a minimum rate. New participants on or after January 1, 2010 are not subject to the minimum rate. Beginning in 2018, the plan provides for a minimum annual earnings credit amount of $2,000, subject to eligibility criteria. Pension contributions to the plan are typically based on an actuarially determined amount necessary to fund total benefits payable to plan participants. We made a voluntary contribution of $200 million in September 2018 to the qualified pension plan. Assets of the qualified pension plan are held in a separate Trust (Trust).

We also maintain nonqualified supplemental retirement plans for certain employees and provide certain health care and life insurance benefits for qualifying retired employees (postretirement benefits) through various plans. PNC reserves the right to terminate or make changes to these plans at any time. The nonqualified pension plan is unfunded. Contributions from PNC and, in the case of the postretirement benefit plans, participant contributions cover all benefits paid under the nonqualified pension plan and postretirement benefit plans. The postretirement plan provides benefits to certain retirees that are at least actuarially equivalent to those provided by Medicare Part D and accordingly, we receive a federal subsidy as shown in Table 68. In November of 2015, we established a voluntary employee beneficiary association (VEBA) to partially fund postretirement medical and life insurance benefit obligations.

We use a measurement date of December 31 for plan assets and benefit obligations. A reconciliation of the changes in the projected benefit obligation for qualified pension, nonqualified pension and postretirement benefit plans as well as the change in plan assets for the qualified pension plan follows.

Table 68: Reconciliation of Changes in Projected Benefit Obligation and Change in Plan Assets

	Qualified Pension		Nonqualified Pension		Postretirement Benefits	
December 31 (Measurement Date) – in millions	2018	2017	2018	2017	2018	2017
Accumulated benefit obligation at end of year	$ 4,315	$ 4,726	$ 253	$ 280		
Projected benefit obligation at beginning of year	$ 4,789	$ 4,547	$ 286	$ 289	$ 355	$ 373
Service cost	116	160	3	3	5	5
Interest cost	171	179	9	10	12	14
Amendments		17				2
Actuarial (gains)/losses and changes in assumptions	(424)	172	(16)	8	(28)	(18)
Participant contributions					3	3
Federal Medicare subsidy on benefits paid					1	1
Benefits paid	(297)	(286)	(24)	(24)	(26)	(25)
Projected benefit obligation at end of year	$ 4,355	$ 4,789	$ 258	$ 286	$ 322	$ 355
Fair value of plan assets at beginning of year	$ 5,253	$ 4,617			$ 230	$ 208
Actual return on plan assets	(193)	722			3	9
Employer contribution	200	200	$ 24	$ 24	21	34
Participant contributions					3	3
Federal Medicare subsidy on benefits paid					1	1
Benefits paid	(297)	(286)	(24)	(24)	(26)	(25)
Fair value of plan assets at end of year	$ 4,963	$ 5,253	$ —	$ —	$ 232	$ 230
Funded status	$ 608	$ 464	$ (258)	$ (286)	$ (90)	$ (125)
Amounts recognized on the consolidated balance sheet						
Noncurrent asset	$ 608	$ 464				
Current liability			$ (26)	$ (28)	$ (2)	$ (2)
Noncurrent liability			(232)	(258)	(88)	(123)
Net amount recognized on the consolidated balance sheet	$ 608	$ 464	$ (258)	$ (286)	$ (90)	$ (125)
Amounts recognized in AOCI consist of:						
Prior service cost (credit)	$ 12	$ 13			$ 1	$ 1
Net actuarial loss (gain)	608	534	$ 57	$ 77	(7)	18
Amount recognized in AOCI	$ 620	$ 547	$ 57	$ 77	$ (6)	$ 19

PNC Pension Plan Assets

The long-term investment strategy for pension plan assets in our qualified pension plan (the Plan) is to:

- Meet present and future benefit obligations to all participants and beneficiaries;
- Cover reasonable expenses incurred to provide such benefits, including expenses incurred in the administration of the Trust and the Plan;
- Provide sufficient liquidity to meet benefit and expense payment requirements on a timely basis; and
- Provide a total return that, over the long term, maximizes the ratio of trust assets to liabilities by maximizing investment return, at an appropriate level of risk.

The Plan's named investment fiduciary has the ability to make short to intermediate term asset allocation shifts under the dynamic asset allocation strategy based on factors such as the Plan's funded status, the named investment fiduciary's view of return on equities relative to long term expectations, the named investment fiduciary's view on the direction of interest rates and credit spreads, and other relevant financial or economic factors which would be expected to impact the ability of the Trust to meet its obligation to participants and beneficiaries. Accordingly, the allowable asset allocation ranges have been updated to incorporate the flexibility required by the dynamic allocation policy.

The asset strategy allocations for the Trust at the end of 2018 and 2017, and the target allocation range at the end of 2018, by asset category, are as follows.

Table 69: Asset Strategy Allocations

PNC Pension Plan	Target Allocation Range	Percentage of Plan Assets by Strategy at December 31 2018	2017
Asset Category			
Domestic Equity	20 – 40%	27%	30%
International Equity	10 – 25%	22%	24%
Private Equity	0 – 15%	11%	9%
Total Equity	40 – 70%	60%	63%
Domestic Fixed Income	10 – 40%	18%	16%
High Yield Fixed Income	0 – 25%	9%	10%
Total Fixed Income	10 – 65%	27%	26%
Real estate	0 – 10%	5%	5%
Other	0 – 15%	8%	6%
Total	100%	100%	100%

The asset category represents the allocation of Plan assets in accordance with the investment objective of each of the Plan's investment managers. Certain domestic equity investment managers utilize derivatives and fixed income securities as described in their Investment Management Agreements to achieve their investment objective under the Investment Policy Statement. Other investment managers may invest in eligible securities outside of their assigned asset category to meet their investment objectives. The actual percentage of the fair value of total Plan assets held as of December 31, 2018 for equity securities, fixed income securities, real estate and all other assets are 66%, 25%, 5% and 4%, respectively.

We believe that, over the long term, asset allocation is the single greatest determinant of risk. Asset allocation will deviate from the target percentages due to market movement, cash flows, investment manager performance and implementation of shifts under the dynamic asset allocation policy. Material deviations from the asset allocation targets can alter the expected return and risk of the Trust. On the other hand, frequent rebalancing of the asset allocation targets may result in significant transaction costs, which can impair the Trust's ability to meet its investment objective. Accordingly, the Trust portfolio is periodically rebalanced to maintain asset allocation within the target ranges described above.

In addition to being diversified across asset classes, the Trust is diversified within each asset class. Secondary diversification provides a reasonable basis for the expectation that no single security or class of securities will have a disproportionate impact on the total risk and return of the Trust.

Where investment strategies permit the use of derivatives and/or currency management, language is incorporated in the managers' guidelines to define allowable and prohibited transactions and/or strategies. Derivatives are typically employed by investment managers to modify risk/return characteristics of their portfolio(s), implement asset allocation changes in a cost effective manner, or reduce transaction costs. Under the managers' investment guidelines, derivatives may not be used solely for speculation or leverage. Derivatives are to be used only in circumstances where they offer the most efficient economic means of improving the risk/reward profile of the portfolio.

Fair Value Measurements

As further described in Note 6 Fair Value, GAAP establishes the framework for measuring fair value, including a hierarchy used to classify the inputs used in measuring fair value.

A description of the valuation methodologies used for assets measured at fair value at both December 31, 2018 and 2017 follows:

Asset	Valuation Methodology
Money market funds	• Valued at the net asset value of the shares held by the pension plan at year end.
U.S. government and agency securities **Corporate debt** **Common stock**	• Valued at the closing price reported on the active market on which the individual securities are traded. • If quoted market prices are not available for the specific security, then fair values are estimated by using pricing models or quoted prices of securities with similar characteristics. Such securities are generally classified within Level 2 of the valuation hierarchy but may be a Level 3 depending on the level of liquidity and activity in the market for the security.
Mutual funds	• Valued based on third-party pricing of the fund which is not actively traded.
Other investments Derivative financial instruments Group annuity contracts Preferred stock	• Derivative financial instruments - recorded at estimated fair value as determined by third-party appraisals and pricing models. • Group annuity contracts - measured at fair value by discounting the related cash flows based on current yields of similar instruments with comparable durations considering the credit-worthiness of the issuer. • Preferred stock - Valued at the closing price reported on an active market on which the securities are traded.
Investments measured at NAV Collective trust fund investments Limited partnerships	• Collective trust fund investments - Valued based upon the units of such collective trust fund held by the Plan at year end multiplied by the respective unit value. The unit value of the collective trust fund is based upon significant observable inputs, although it is not based upon quoted marked prices in an active market. The underlying investments of the collective trust funds consist primarily of equity securities, debt obligations, short-term investments, and other marketable securities. Due to the nature of these securities, there are no unfunded commitments or redemption restrictions. • Limited partnerships - Valued by investment managers based on recent financial information used to estimate fair value. The unit value of limited partnerships is based upon significant observable inputs, although it is not based upon quoted marked prices in an active market.

These methods may result in fair value calculations that may not be indicative of net realizable values or future fair values. Furthermore, while the pension plan believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different fair value measurement at the reporting date.

The following table sets forth by level, within the fair value hierarchy, the Plan's assets at fair value as of December 31, 2018 and 2017.

Table 70: Pension Plan Assets - Fair Value Hierarchy

	December 31, 2018				December 31, 2017			
In millions	Level 1	Level 2	Level 3	Total Fair Value	Level 1	Level 2	Level 3	Total Fair Value
Interest bearing cash	$ 7	$ 2		$ 9	$ 10	$ 1		$ 11
Money market funds	149			149	339			339
U.S. government and agency securities	512	130		642	233	105		338
Corporate debt		580	$ 6	586		578	$ 5	583
Common stock	623	6		629	791	13		804
Mutual funds		236		236		271		271
Other	4	42	4	50	1	69	7	77
Investments measured at net asset value (a)				2,662				2,830
Total	$ 1,295	$ 996	$ 10	$ 4,963	$ 1,374	$ 1,037	$ 12	$ 5,253

(a) In accordance with ASC 820-10, collective trust fund investments and limited partnerships are measured at fair value using the NAV per share (or its equivalent) practical expedient and have not been classified in the fair value hierarchy. The fair value amounts presented in this table are intended to permit reconciliation of the fair value hierarchy to the amounts presented in Table 68: Reconciliation of Changes in Projected Benefit Obligation and Change in Plan Assets.

The following table provides information regarding our estimated future cash flows related to our various plans.

Table 71: Estimated Cash Flows

	Pension Plans		Postretirement Benefits
In millions	Qualified Pension	Nonqualified Pension	Gross PNC Benefit Payments
Estimated 2019 employer contributions		$ 26	$ 28
Estimated future benefit payments			
2019	$ 293	$ 26	$ 28
2020	$ 308	$ 26	$ 27
2021	$ 322	$ 25	$ 27
2022	$ 322	$ 22	$ 26
2023	$ 314	$ 21	$ 25
2024-2028	$ 1,555	$ 94	$ 117

The qualified pension plan contributions are deposited into the Trust, and the qualified pension plan benefit payments are paid from the Trust. We do not expect to be required to make a contribution to the qualified plan for 2019 based on the funding calculations under the Pension Protection Act of 2006. For the other plans, total contributions and the benefit payments are the same and represent expected benefit amounts, which are paid from general assets. Postretirement benefits are net of participant contributions. Estimated cash flows reflect the partial funding of postretirement medical and life insurance obligations in the VEBA.

The components of net periodic benefit cost/(income) and other amounts recognized in Other comprehensive income (OCI) were as follows.

Table 72: Components of Net Periodic Benefit Cost (a)

	Qualified Pension Plan			Nonqualified Pension Plan			Postretirement Benefits		
Year ended December 31 – in millions	2018	2017	2016	2018	2017	2016	2018	2017	2016
Net periodic cost consists of:									
Service cost (b)	$ 116	$ 160	$ 102	$ 3	$ 3	$ 3	$ 5	5	$ 6
Interest cost	171	179	186	9	10	12	12	14	15
Expected return on plan assets	(306)	(285)	(281)				(6)	(5)	(6)
Amortization of prior service cost/(credit)	1	(3)	(7)					(1)	(1)
Amortization of actuarial (gain)/loss		43	45	5	4	5			
Net periodic cost (benefit)	(18)	94	45	17	17	20	11	13	14
Other changes in plan assets and benefit obligations recognized in OCI:									
Current year prior service cost/(credit)		17						2	
Amortization of prior service (cost)/credit	(1)	3	7					1	1
Current year actuarial loss/(gain)	75	(264)	91	(16)	7	7	(25)	(22)	17
Amortization of actuarial gain/(loss)		(43)	(45)	(5)	(4)	(5)			
Total recognized in OCI	74	(287)	53	(21)	3	2	(25)	(19)	18
Total amounts recognized in net periodic cost and OCI	$ 56	$ (193)	$ 98	$ (4)	$ 20	$ 22	$ (14)	$ (6)	$ 32

(a) The service cost component is included in Personnel expense on the Consolidated Income Statement. All other components are included in Other noninterest expense on the Consolidated Income Statement.
(b) 2017 Qualified Pension service cost includes $57 million of additional service cost due to the special, one-time cash balance credit announced at the end of 2017.

The weighted-average assumptions used (as of the beginning of each year) to determine the net periodic costs shown in Table 72 were as follows.

Table 73: Net Period Costs - Assumptions

	Net Periodic Cost Determination		
As of January 1	2018	2017	2016
Discount rate			
Qualified pension	3.60%	4.00%	4.25%
Nonqualified pension	3.45%	3.80%	3.95%
Postretirement benefits	3.55%	3.90%	4.15%
Rate of compensation increase (average)	3.50%	3.50%	3.50%
Assumed health care cost trend rate			
Initial trend	6.75%	7.00%	7.25%
Ultimate trend	5.00%	5.00%	5.00%
Year ultimate trend reached	2025	2025	2025
Expected long-term return on plan assets	6.00%	6.38%	6.75%

The weighted-average assumptions used (as of the end of each year) to determine year end obligations for pension and postretirement benefits were as follows.

Table 74: Other Pension Assumptions

Year ended December 31	2018	2017
Discount rate		
Qualified pension	4.30%	3.60%
Nonqualified pension	4.15%	3.45%
Postretirement benefits	4.20%	3.55%
Rate of compensation increase (average)	3.50%	3.50%
Assumed health care cost trend rate		
Initial trend	6.50%	6.75%
Ultimate trend	5.00%	5.00%
Year ultimate trend reached	2025	2025

The discount rates are determined independently for each plan by comparing the expected future benefits that will be paid under each plan with yields available on high quality corporate bonds of similar duration. For this analysis, 10% of bonds with the highest yields and 40% with the lowest yields were removed from the bond universe.

The expected return on plan assets is a long-term assumption established by considering historical and anticipated returns of the asset classes invested in by the pension plan and the allocation strategy currently in place among those classes. For purposes of setting and reviewing this assumption, "long- term" refers to the period over which the plan's projected benefit obligations will be disbursed. We review this assumption at each measurement date and adjust it if warranted. Our selection process references certain historical data and the current environment, but primarily utilizes qualitative judgment regarding future return expectations. We also examine the assumption used by other companies with similar pension investment strategies. Taking into account all of these factors, the expected long-term return on plan assets for determining net periodic pension cost for 2018 was 6.00%. We are reducing our expected long-term return on assets to 5.75% for determining pension cost for 2019. This decision was made after considering the views of both internal and external capital market advisors, particularly with regard to the effects of the recent economic environment on long-term prospective equity and fixed income returns.

PNC's net periodic benefit cost recognized for the plans is sensitive to the discount rate and expected long-term return on plan assets. With all other assumptions held constant, a .5% decline in the discount rate would have resulted in an immaterial increase in net periodic benefit cost for the qualified pension plan in 2018, and to be recognized in 2019. For the nonqualified pension plan and postretirement benefits, a .5% decline in the discount rate would also have resulted in an immaterial increase in net periodic benefit cost.

The health care cost trend rate assumptions shown in Tables 73 and 74 relate only to the postretirement benefit plans. The effect of a one-percentage-point increase or decrease in assumed health care cost trend rates would be insignificant.

Defined Contribution Plans

The PNC Incentive Savings Plan (ISP) is a qualified defined contribution plan that covers all of our eligible employees. Effective January 1, 2015, newly-hired full time employees and part-time employees who became eligible to participate in the ISP after that date are automatically enrolled in the ISP with a deferral rate equal to 4% of eligible compensation in the absence of an affirmative election otherwise. Employee benefits expense related to the ISP was $139 million in 2018, $125 million in 2017 and $122 million in 2016, representing cash contributed to the ISP by PNC.

The ISP is a 401(k) Plan and includes an employee stock ownership (ESOP) feature. Employee contributions are invested in a number of investment options, including pre mixed portfolios and individual core funds, available under the ISP at the direction of the employee.

NOTE 12 STOCK BASED COMPENSATION PLANS

We have long-term incentive award plans (Incentive Plans) that provide for the granting of incentive stock options, nonqualified stock options, stock appreciation rights, incentive shares/performance units, restricted shares, restricted share units, other share-based awards and dollar-denominated awards to executives and, other than incentive stock options, to non-employee directors. Certain Incentive Plan awards may be paid in stock, cash or a combination of stock and cash. We typically grant a substantial portion of our stock-based compensation awards during the first quarter of each year.

Incentive/Performance Unit Awards and Restricted Share/Restricted Share Unit Awards

The fair value of nonvested incentive/performance unit awards and restricted share/restricted share unit awards is initially determined based on prices not less than the market value of our common stock on the date of grant with a reduction for estimated forfeitures. The value of certain incentive/performance unit awards is subsequently remeasured based on the achievement of one or more financial and other performance goals. Additionally, certain incentive/performance unit awards require subsequent adjustment to their current market value due to certain discretionary risk review triggers.

The weighted-average grant date fair value of incentive/performance unit awards and restricted share/restricted share unit awards granted in 2018, 2017 and 2016 was $149.38, $122.10 and $78.37 per share, respectively. The total intrinsic value of incentive/performance unit and restricted share/restricted share unit awards vested during 2018, 2017 and 2016 was approximately $254 million, $235 million and $147 million, respectively. We recognize compensation expense for such awards ratably over the corresponding vesting and/or performance periods for each type of program.

Table 75: Nonvested Incentive/Performance Unit Awards and Restricted Share/Restricted Share Unit Awards Rollforward (a)

Shares in millions	Nonvested Incentive/Performance Units Shares	Weighted-Average Grant Date Fair Value	Nonvested Restricted Share/Restricted Share Units	Weighted-Average Grant Date Fair Value
December 31, 2017	2	$ 94.29	3	$ 95.64
Granted (b)	—	$ 133.74	1	$ 152.25
Vested/Released (b)	(1)	$ 89.56	(1)	$ 92.28
December 31, 2018	1	$ 104.02	3	$ 115.57

(a) Forfeited awards during 2018 were insignificant.
(b) Includes adjustments for achieving specific performance goals for Incentive/Performance Unit Share Awards granted in prior periods.

In Table 75, the units and related weighted-average grant date fair value of the incentive/performance unit share awards exclude the effect of dividends on the underlying shares, as those dividends will be paid in cash if and when the underlying shares are issued to the participants.

BlackRock Long-term Incentive Plans (LTIP)

BlackRock adopted the 2002 LTIP program to help attract and retain qualified professionals. At that time, we agreed to transfer up to four million shares of BlackRock common stock to fund a portion of the 2002 LTIP program and future LTIP programs approved by BlackRock's Board of Directors.

In 2009, our obligation to deliver any remaining BlackRock common shares was replaced with an obligation to deliver shares of BlackRock's Series C Preferred Stock held by us.

In 2018, we transferred 103,064 shares of BlackRock Series C Preferred Stock to BlackRock in connection with our obligation. At December 31, 2018, we held 143,458 shares of BlackRock Series C Preferred Stock which were available to fund our obligation.

See Note 24 Subsequent Events in Item 8 of this Report for information on our January 31, 2019 transfer of our remaining shares of Series C Preferred Stock to BlackRock to satisfy our obligation under the Share Surrender Agreement.

NOTE 13 FINANCIAL DERIVATIVES

We use a variety of financial derivatives as part of our overall asset and liability risk management process to help manage exposure to market (primarily interest rate) and credit risk inherent in our business activities.We also enter into derivatives with customers to facilitate their risk management activities. Derivatives represent contracts between parties that usually require little or no initial net investment and result in one party delivering cash or another type of asset to the other party based on a notional amount and an underlying as specified in the contract.

Derivative transactions are often measured in terms of notional amount, but this amount is generally not exchanged and it is not recorded on the balance sheet. The notional amount is the basis to which the underlying is applied to determine required payments under the derivative contract. The underlying is a referenced interest rate (commonly LIBOR), security price, credit spread or other index. Residential and commercial real estate loan commitments associated with loans to be sold also qualify as derivative instruments.

The following table presents the notional amounts and gross fair values of all derivative assets and liabilities held by us.

Table 76: Total Gross Derivatives

	December 31, 2018			December 31, 2017		
In millions	Notional /Contract Amount	Asset Fair Value (a)	Liability Fair Value (b)	Notional /Contract Amount	Asset Fair Value (a)	Liability Fair Value (b)
Derivatives used for hedging under GAAP						
Interest rate contracts (c):						
Fair value hedges	$ 30,919	$ 7		$ 34,059	$ 114	$ 94
Cash flow hedges	17,337	1		23,875	60	6
Foreign exchange contracts:						
Net investment hedges	1,012		$ 10	1,060		11
Total derivatives designated for hedging	$ 49,268	$ 8	$ 10	$ 58,994	$ 174	$ 111
Derivatives not used for hedging under GAAP						
Derivatives used for mortgage banking activities (d):						
Interest rate contracts:						
Swaps	$ 43,084		$ 3	$ 48,335	$ 162	$ 42
Futures (e) (f)	10,658			47,494		
Mortgage-backed commitments	5,771	$ 47	39	8,999	19	9
Other	6,509	10	3	2,530	11	2
Subtotal	66,022	57	45	107,358	192	53
Derivatives used for customer-related activities:						
Interest rate contracts:						
Swaps	218,496	1,352	1,432	194,042	2,079	1,772
Futures (e) (f)	914			3,453		
Mortgage-backed commitments	2,246	7	10	2,228	2	2
Other	20,109	77	33	17,775	75	36
Subtotal	241,765	1,436	1,475	217,498	2,156	1,810
Commodity contracts:						
Swaps	4,813	244	238	3,339	108	104
Other	1,418	67	67	868	22	22
Subtotal	6,231	311	305	4,207	130	126
Foreign exchange contracts and other	23,253	194	192	23,123	219	206
Subtotal	271,249	1,941	1,972	244,828	2,505	2,142
Derivatives used for other risk management activities:						
Foreign exchange contracts and other (g)	7,908	75	263	7,445	3	550
Total derivatives not designated for hedging	$ 345,179	$ 2,073	$ 2,280	$ 359,631	$ 2,700	$ 2,745
Total gross derivatives	$ 394,447	$ 2,081	$ 2,290	$ 418,625	$ 2,874	$ 2,856
Less: Impact of legally enforceable master netting agreements		688	688		1,054	1,054
Less: Cash collateral received/paid		341	539		636	763
Total derivatives		$ 1,052	$ 1,063		$ 1,184	$ 1,039

(a) Included in Other assets on our Consolidated Balance Sheet.
(b) Included in Other liabilities on our Consolidated Balance Sheet.
(c) Represents primarily swaps.
(d) Includes both residential and commercial mortgage banking activities.
(e) Futures contracts settle in cash daily and, therefore, no derivative asset or derivative liability is recognized on our Consolidated Balance Sheet.
(f) As a result of administrative changes made by a certain clearing house to its rules governing futures contracts, effective for the fourth quarter of 2018, the unit of measure for calculating notional values decreased. The changes had no impact on the valuation of the contracts.
(g) Includes our obligation to fund a portion of certain BlackRock LTIP programs and the swaps entered into in connection with sales of a portion of Visa Class B common shares.

All derivatives are carried on our Consolidated Balance Sheet at fair value. Derivative balances are presented on the Consolidated Balance Sheet on a net basis taking into consideration the effects of legally enforceable master netting agreements and, when appropriate, any related cash collateral exchanged with counterparties. Further discussion regarding the offsetting rights associated with these legally enforceable master netting agreements is included in the Offsetting, Counterparty Credit Risk, and Contingent Features section below. Any nonperformance risk, including credit risk, is included in the determination of the estimated net fair value of the derivatives. Exchange-traded and over-the-counter cleared derivative instruments are typically settled in cash each day based on the prior day value. In the first quarter of 2018, we changed our presentation for variation margin related to derivative instruments cleared through a central clearinghouse as a result of changes made by that clearinghouse to its rules governing such instruments with its counterparties. This variation margin is now recorded as a settlement payment instead of collateral. The impact at December 31, 2018 was a reduction of gross derivative assets and gross derivative liabilities of $1.5 billion and $.7 billion, respectively. The accounting change had no impact on the net fair value of the derivative assets and liabilities that otherwise would have been reported on our Consolidated Balance Sheet. See Table 80 for more information.

Further discussion on how derivatives are accounted for is included in Note 1 Accounting Policies.

Derivatives Designated As Hedging Instruments under GAAP

Certain derivatives used to manage interest rate and foreign exchange risk as part of our asset and liability risk management activities are designated as accounting hedges under GAAP. Derivatives hedging the risks associated with changes in the fair value of assets or liabilities are considered fair value hedges, derivatives hedging the variability of expected future cash flows are considered cash flow hedges, and derivatives hedging a net investment in a foreign subsidiary are considered net investment hedges. Designating derivatives as accounting hedges allows for gains and losses on those derivatives to be recognized in the same period and in the same income statement line item as the earnings impact of the hedged items.

Fair Value Hedges

We enter into receive-fixed, pay-variable interest rate swaps to hedge changes in the fair value of outstanding fixed-rate debt caused by fluctuations in market interest rates. We also enter into pay-fixed, receive-variable interest rate swaps and zero-coupon swaps to hedge changes in the fair value of fixed rate and zero-coupon investment securities caused by fluctuations in market interest rates. Gains and losses on the interest rate swaps designated in these hedge relationships, along with the offsetting gains and losses on the hedged items attributable to the hedged risk, are recognized in current earnings within the same income statement line item.

Cash Flow Hedges

We enter into receive-fixed, pay-variable interest rate swaps to modify the interest rate characteristics of designated commercial loans from variable to fixed in order to reduce the impact of changes in future cash flows due to market interest rate changes. We also periodically enter into forward purchase and sale contracts to hedge the variability of the consideration that will be paid or received related to the purchase or sale of investment securities. The forecasted purchase or sale is consummated upon gross settlement of the forward contract itself. For these cash flow hedges, gains and losses on the interest rate swaps and forward contracts are recorded in AOCI and are then reclassified into earnings in the same period the hedged cash flows affect earnings and within the same income statement line as the hedged cash flows.

In the 12 months that follow December 31, 2018, we expect to reclassify net derivative losses of $35 million pretax, or $27 million after-tax, from AOCI to interest income for both cash flow hedge strategies. This reclassified amount could differ from amounts actually recognized due to changes in interest rates, hedge de-designations, and the addition of other hedges subsequent to December 31, 2018. As of December 31, 2018, the maximum length of time over which forecasted transactions are hedged is ten years.

The amount of cash flow hedge ineffectiveness recognized in income was not significant for the 2017 and 2016 periods presented.

Further detail regarding gains (losses) on fair value hedge derivatives and related hedged items is presented in the following table:

Table 77: Gains (Losses) Recognized on Fair Value and Cash Flow Hedges in the Consolidated Income Statement (a) (b)

	Location and Amount of Gains (Losses) Recognized in Income			
	Interest Income		Interest Expense	Noninterest Income
In millions	Loans	Investment Securities	Borrowed Funds	Other
Year ended December 31, 2018				
Total amounts on the Consolidated Income Statement	$ 9,580	$ 2,261	$ 1,632	$ 1,205
Gains (losses) on fair value hedges recognized on:				
Hedged items (c)		$ (53)	$ 151	
Derivatives		$ 60	$ (262)	
Amounts related to interest settlements on derivatives		$ 3	$ 80	
Gains (losses) on cash flow hedges (d):				
Amount of derivative gains (losses) reclassified from AOCI	$ 41	$ 11		$ 8
Year ended December 31, 2017				
Total amounts on the Consolidated Income Statement	$ 8,238	$ 1,998	$ 1,083	$ 1,077
Gains (losses) on fair value hedges recognized on (e):				
Hedged items		$ (50)	$ 268	
Derivatives		$ 48	$ (284)	
Amounts related to interest settlements on derivatives		$ (41)	$ 234	
Gains (losses) on cash flow hedges (d):				
Amount of derivative gains (losses) reclassified from AOCI	$ 159	$ 21		$ 17
Year ended December 31, 2016				
Total amounts on the Consolidated Income Statement	$ 7,414	$ 1,826	$ 831	$ 1,039
Gains (losses) on fair value hedges recognized on (e):				
Hedged items		$ (141)	$ 299	
Derivatives		$ 142	$ (332)	
Amounts related to interest settlements on derivatives		$ (84)	$ 401	
Gains (losses) on cash flow hedges (d):				
Amount of derivative gains (losses) reclassified from AOCI	$ 219	$ 34		

(a) For all periods presented, there were no components of derivative gains or losses excluded from the assessment of hedge effectiveness for any of the fair value or cash flow hedge strategies.
(b) All cash flow and fair value hedge derivatives were interest rate contracts for the periods presented.
(c) Includes an insignificant amount of fair value hedge adjustments related to discontinued hedge relationships.
(d) For all periods presented, there were no gains or losses from cash flow hedge derivatives reclassified to income because it became probable that the original forecasted transaction would not occur.
(e) The difference between the gains (losses) recognized in income on derivatives and their related hedged items represents the ineffective portion of the change in value of our fair value hedged derivatives.

Further detail regarding gains (losses) on derivatives and related cash flows is presented in the following table:

Table 78: Hedged Items - Fair Value Hedges

	December 31, 2018	
In millions	Carrying Value of the Hedged Items	Cumulative Fair Value Hedge Adjustment included in the Carrying Value of Hedged Items (a)
Investment securities - Available for Sale (b)	$ 6,216	$ (103)
Borrowed funds	$ 27,121	$ (260)

(a) Includes $(.5) billion of fair value hedge adjustments primarily related to discontinued borrowed funds hedge relationships.
(b) Carrying value shown represents amortized cost.

Net Investment Hedges

We enter into foreign currency forward contracts to hedge non-U.S. Dollar net investments in foreign subsidiaries against adverse changes in foreign exchange rates. We assess whether the hedging relationship is highly effective in achieving offsetting changes in the value of the hedge and hedged item by qualitatively verifying that the critical terms of the hedge and hedged item match at the inception of the hedging relationship and on an ongoing basis. Net investment hedge derivatives are classified as foreign exchange contracts. There were no components of derivative gains or losses excluded from the assessment of the hedge effectiveness for all periods presented. For 2017 and 2016, there was no net investment hedge ineffectiveness. Net gains (losses) on net investment hedge derivatives recognized in OCI were $76 million in 2018, $(81) million in 2017 and $186 million in 2016.

Derivatives Not Designated As Hedging Instruments under GAAP

Residential mortgage loans that will be sold in the secondary market, and the related loan commitments, which are considered derivatives, are accounted for at fair value. Changes in the fair value of the loans and commitments due to interest rate risk are hedged with forward contracts to sell mortgage-backed securities, as well as U.S. Treasury and Eurodollar futures and options. Gains and losses on the loans and commitments held for sale and the derivatives used to economically hedge them are included in Residential mortgage noninterest income on the Consolidated Income Statement.

Residential mortgage servicing rights are accounted for at fair value with changes in fair value influenced primarily by changes in interest rates. Derivatives used to hedge the fair value of residential mortgage servicing rights include interest rate futures, swaps, options, and forward contracts to purchase mortgage-backed securities. Gains and losses on residential mortgage servicing rights and the related derivatives used for hedging are included in Residential mortgage noninterest income.

Commercial mortgage loans held for sale and the related loan commitments, which are considered derivatives, are accounted for at fair value. Derivatives used to economically hedge these loans and commitments from changes in fair value due to interest rate risk and credit risk include forward loan sale contracts, interest rate swaps, and credit default swaps. Gains and losses on the commitments, loans and derivatives are included in Other noninterest income. Derivatives used to economically hedge the change in value of commercial mortgage servicing rights include interest rate futures, swaps and options. Gains or losses on these derivatives are included in Corporate services noninterest income.

The residential and commercial mortgage loan commitments associated with loans to be sold which are accounted for as derivatives are valued based on the estimated fair value of the underlying loan and the probability that the loan will fund within the terms of the commitment. The fair value also takes into account the fair value of the embedded servicing right.

We offer derivatives to our customers in connection with their risk management needs. These derivatives primarily consist of interest rate and commodity swaps, interest rate and commodity caps and floors, swaptions and foreign exchange contracts. We primarily manage our market risk exposure from customer transactions by entering into a variety of hedging transactions with third-party dealers. Gains and losses on customer-related derivatives are included in Other noninterest income.

Included in the customer, mortgage banking risk management, and other risk management portfolios are written interest-rate caps and floors entered into with customers and for risk management purposes. We receive an upfront premium from the counterparty and are obligated to make payments to the counterparty if the underlying market interest rate rises above or falls below a certain level designated in the contract. Our ultimate obligation under written options is based on future market conditions.

We have entered into risk participation agreements to share some of the credit exposure with other counterparties related to interest rate derivative contracts or to take on credit exposure to generate revenue. The notional amount of risk participation agreements sold was $6.0 billion at December 31, 2018 and $3.6 billion at December 31, 2017. Assuming all underlying third party customers referenced in the swap contracts defaulted, the exposure from these agreements would be $.2 billion at December 31, 2018 and $.1 billion at December 31, 2017 based on the fair value of the underlying swaps.

Further detail regarding the gains (losses) on derivatives not designated in hedging relationships is presented in the following table:

Table 79: Gains (Losses) on Derivatives Not Designated for Hedging under GAAP

	Year ended December 31		
In millions	2018	2017	2016
Derivatives used for mortgage banking activities:			
Interest rate contracts (a)	$ (56)	$ 75	$ 152
Derivatives used for customer-related activities:			
Interest rate contracts	99	95	78
Foreign exchange contracts and other (b)	104	146	84
Gains (losses) from customer-related activities (c)	203	241	162
Derivatives used for other risk management activities:			
Foreign exchange contracts and other (c) (d)	268	(525)	(7)
Total gains (losses) from derivatives not designated as hedging instruments	$ 415	$ (209)	$ 307

(a) Included in Residential mortgage, Corporate services and Other noninterest income.
(b) Includes an insignificant amount of gains (losses) on commodity contracts for all periods presented.
(c) Included in Other noninterest income.
(d) Includes BlackRock LTIP funding obligation and the swaps entered into in connection with sales of a portion of Visa Class B common shares.

Offsetting, Counterparty Credit Risk, and Contingent Features

We generally utilize a net presentation on the Consolidated Balance Sheet for those derivative financial instruments entered into with counterparties under legally enforceable master netting agreements. The master netting agreements reduce credit risk by permitting the closeout netting of all outstanding derivative instruments under the master netting agreement with the same counterparty upon the occurrence of an event of default. The master netting agreement also may require the exchange of cash or marketable securities to collateralize either party's net position. In certain cases, minimum thresholds must be exceeded before any collateral is exchanged. Collateral is typically exchanged daily on unsettled positions based on the net fair value of the positions with the counterparty as of the preceding day. Collateral representing initial margin, which is based on potential future exposure, is also required to be pledged by us in relation to derivative instruments with central clearing house counterparties. Any cash collateral exchanged with counterparties under these master netting agreements is also netted, when appropriate, against the applicable derivative fair values on the Consolidated Balance Sheet. However, the fair value of any securities held or pledged is not included in the net presentation on the balance sheet. In order for derivative instruments under a master netting agreement to be eligible for closeout netting under GAAP, we must conduct sufficient legal review to conclude with a well-founded basis that the offsetting rights included in the master netting agreement would be legally enforceable upon an event of default, including upon an event of bankruptcy, insolvency, or a similar proceeding of the counterparty. Enforceability is evidenced by a legal opinion that supports, with sufficient confidence, the enforceability of the master netting agreement in such circumstances.

Table 80 shows the impact legally enforceable master netting agreements had on our derivative assets and derivative liabilities as of December 31, 2018 and 2017. The table includes cash collateral held or pledged under legally enforceable master netting agreements. The table also includes the fair value of any securities collateral held or pledged under legally enforceable master netting agreements. Cash and securities collateral amounts are included in the table only to the extent of the related net derivative fair values.

Table 80: Derivative Assets and Liabilities Offsetting

		Amounts Offset on the Consolidated Balance Sheet				
In millions	Gross Fair Value	Fair Value Offset Amount	Cash Collateral	Net Fair Value	Securities Collateral Held /Pledged Under Master Netting Agreements	Net Amounts
December 31, 2018						
Derivative assets						
Interest rate contracts:						
Over-the-counter cleared (a)	$ 29			$ 29		$ 29
Over-the-counter	1,472	$ 450	$ 117	905	$ 25	880
Commodity contracts	311	76	210	25		25
Foreign exchange and other contracts	269	162	14	93		93
Total derivative assets	$ 2,081	$ 688	$ 341	$ 1,052 (b)	$ 25	$ 1,027
Derivative liabilities						
Interest rate contracts:						
Over-the-counter cleared (a)	$ 24			$ 24		$ 24
Over-the-counter	1,496	$ 557	$ 489	450	$ 11	439
Commodity contracts	305	56	17	232		232
Foreign exchange and other contracts	465	75	33	357		357
Total derivative liabilities	$ 2,290	$ 688	$ 539	$ 1,063 (c)	$ 11	$ 1,052
December 31, 2017						
Derivative assets						
Interest rate contracts:						
Over-the-counter cleared	$ 827	$ 251	$ 567	$ 9		$ 9
Over-the-counter	1,695	668	67	960	$ 32	928
Commodity contracts	130	38		92		92
Foreign exchange and other contracts	222	97	2	123		123
Total derivative assets	$ 2,874	$ 1,054	$ 636	$ 1,184 (b)	$ 32	$ 1,152
Derivative liabilities						
Interest rate contracts:						
Over-the-counter cleared	$ 260	$ 251		$ 9		$ 9
Over-the-counter	1,703	662	$ 669	372		372
Commodity contracts	126	38		88		88
Foreign exchange and other contracts	767	103	94	570		570
Total derivative liabilities	$ 2,856	$ 1,054	$ 763	$ 1,039 (c)		$ 1,039

(a) Reflects our first quarter 2018 change in accounting treatment for variation margin for certain derivative instruments cleared through a central clearing house. The accounting change reduced the asset and liability gross fair values with corresponding reductions to the fair value and cash collateral offsets, resulting in no changes to the net fair value amounts.
(b) Represents the net amount of derivative assets included in Other assets on our Consolidated Balance Sheet.
(c) Represents the net amount of derivative liabilities included in Other liabilities on our Consolidated Balance Sheet.

Table 80 includes over-the-counter (OTC) derivatives, OTC cleared derivatives, and exchange-traded derivatives. OTC derivatives represent contracts executed bilaterally with counterparties that are not settled through an organized exchange or cleared through a central clearing house. The majority of OTC derivatives are governed by the International Swaps and Derivatives Association (ISDA) documentation or other legally enforceable industry standard master netting agreements. OTC cleared derivatives represent contracts executed bilaterally with counterparties in the OTC market that are novated to a central clearing house who then becomes our counterparty. Exchange-traded derivatives represent standardized futures and options contracts executed directly on an organized exchange.

In addition to using master netting agreements and other collateral agreements to reduce credit risk associated with derivative instruments, we also seek to manage credit risk by evaluating credit ratings of counterparties and by using internal credit analysis, limits, and monitoring procedures.

At December 31, 2018, we held cash, U.S. government securities and mortgage-backed securities totaling $.4 billion under master netting agreements and other collateral agreements to collateralize net derivative assets due from counterparties, and we pledged cash totaling $1.2 billion under these agreements to collateralize net derivative liabilities owed to counterparties and to meet initial margin requirements. These totals may differ from the amounts presented in the preceding offsetting table because these totals may include collateral exchanged under an agreement that does not qualify as a master netting agreement or because the total amount of collateral held or pledged exceeds the net derivative fair values with the counterparty as of the balance sheet date due to timing or other factors, such as initial margin. To the extent not netted against the derivative fair values under a master netting agreement, the receivable for cash pledged is included in Other assets and the obligation for cash held is included in Other liabilities on our Consolidated Balance Sheet. Securities held from counterparties are not recognized on our balance sheet. Likewise, securities we have pledged to counterparties remain on our balance sheet.

Certain derivative agreements contain various credit-risk related contingent provisions, such as those that require our debt to maintain a specified credit rating from one or more of the major credit rating agencies. If our debt ratings were to fall below such specified ratings, the counterparties to the derivative instruments could request immediate payment or demand immediate and ongoing full collateralization on derivative instruments in net liability positions. The aggregate fair value of all derivative instruments with credit-risk-related contingent features that were in a net liability position on December 31, 2018 was $1.5 billion for which we had posted collateral of $1.0 billion in the normal course of business. The maximum additional amount of collateral we would have been required to post if the credit-risk related contingent features underlying these agreements had been triggered on December 31, 2018 would be $.5 billion.

NOTE 14 EARNINGS PER SHARE

Table 81: Basic and Diluted Earnings Per Common Share

In millions, except per share data	2018	2017	2016
Basic			
Net income	$ 5,346	$ 5,388	$ 3,985
Less:			
Net income attributable to noncontrolling interests	45	50	82
Preferred stock dividends	236	236	209
Preferred discount accretion and redemptions	4	26	6
Net income attributable to common shares	5,061	5,076	3,688
Less: Dividends and undistributed earnings allocated to participating securities	21	23	26
Net income attributable to basic common shares	$ 5,040	$ 5,053	$ 3,662
Basic weighted-average common shares outstanding	467	481	494
Basic earnings per common share (a)	$ 10.79	$ 10.49	$ 7.42
Diluted			
Net income attributable to basic common shares	$ 5,040	$ 5,053	$ 3,662
Less: Impact of BlackRock earnings per share dilution	9	16	12
Net income attributable to diluted common shares	$ 5,031	$ 5,037	$ 3,650
Basic weighted-average common shares outstanding	467	481	494
Dilutive potential common shares	3	5	6
Diluted weighted-average common shares outstanding	470	486	500
Diluted earnings per common share (a)	$ 10.71	$ 10.36	$ 7.30

(a) Basic and diluted earnings per share under the two-class method are determined on net income reported on the income statement less earnings allocated to nonvested restricted shares and restricted share units with nonforfeitable dividends and dividend rights (participating securities).

NOTE 15 EQUITY

Preferred Stock

The following table provides the number of preferred shares issued and outstanding, the liquidation value per share and the number of authorized preferred shares that are available for future use.

Table 82: Preferred Stock – Authorized, Issued and Outstanding

December 31 Shares in thousands	Liquidation value per share	Preferred Shares 2018	Preferred Shares 2017
Authorized			
$1 par value		20,000	20,000
Issued and outstanding			
Series B	$ 40	1	1
Series O	$ 100,000	10	10
Series P	$ 100,000	15	15
Series Q	$ 100,000	5	5
Series R	$ 100,000	5	5
Series S	$ 100,000	5	5
Total issued and outstanding		41	41

The following table discloses information related to the preferred stock outstanding as of December 31, 2018.

Table 83: Terms of Outstanding Preferred Stock

Preferred Stock	Issue Date	Number of Depositary Shares Issued and Outstanding	Fractional Interest in a share of preferred stock represented by each Depositary Share	Dividend Dates (a)	Annual Per Share Dividend Rate	Optional Redemption Date (b)
Series B (c)	(c)	N/A	N/A	Quarterly from March 10th	$ 1.80	None
Series O (d)	July 27, 2011	1 million	1/100th	Semi-annually beginning on February 1, 2012 until August 1, 2021 Quarterly beginning on November 1, 2021	6.75% until August 1, 2021 3 Mo. LIBOR plus 3.678% per annum beginning on August 1, 2021	August 1, 2021
Series P (d)	April 24, 2012	60 million	1/4,000th	Quarterly beginning on August 1, 2012	6.125% until May 1, 2022 3 Mo. LIBOR plus 4.0675% per annum beginning on May 1, 2022	May 1, 2022
Series Q (d)	September 21, 2012 October 9, 2012	18 million 1.2 million	1/4,000th	Quarterly beginning on December 1, 2012	5.375%	December 1, 2017
Series R (d)	May 7, 2013	500,000	1/100th	Semi-annually beginning on December 1, 2013 until June 1, 2023 Quarterly beginning on September 1, 2023	4.85% until June 1, 2023 3 Mo. LIBOR plus 3.04% per annum beginning June 1, 2023	June 1, 2023
Series S (d)	November 1, 2016	525,000	1/100th	Semi-annually beginning on May 1, 2017 until November 1, 2026 Quarterly beginning on February 1, 2027	5.00% until November 1, 2026 3 Mo. LIBOR plus 3.30% per annum beginning November 1, 2026	November 1, 2026

(a) Dividends are payable when, as, and if declared by our Board of Directors or an authorized committee of our Board of Directors.
(b) Redeemable at our option on or after the date stated. With the exception of the Series B preferred stock, redeemable at our option within 90 days of a regulatory capital treatment event as defined in the designations.
(c) Cumulative preferred stock. Holders of Series B preferred stock are entitled to 8 votes per share, which is equal to the number of full shares of common stock into which the Series B preferred stock is convertible. The Series B preferred stock was issued in connection with the consolidation of Pittsburgh National Corporation and Provident National Corporation in 1983.
(d) Non-Cumulative preferred stock.

Each outstanding series of preferred stock other than the Series B contains restrictions on our ability to pay dividends and make other shareholder payments. Subject to limited exceptions, if dividends are not paid on any such series of preferred stock, we cannot declare dividends on or repurchase shares of our common stock. In addition, if we would like to repurchase shares of preferred stock, such repurchases must be on a pro rata basis with respect to all such series of preferred stock.

In February 2018, we redeemed the Series A preferred stock of PNC REIT Corp. which had been exchangeable into shares of PNC Series H preferred stock under certain conditions relating to the capitalization or the financial condition of PNC Bank.

The following table provides the dividends per share for PNC's common and preferred stock.

Table 84: Dividends Per Share

December 31	2018	2017	2016
Common Stock	$ 3.40	$ 2.60	$ 2.12
Preferred Stock			
Series B	$ 1.80	$ 1.80	$ 1.80
Series O	$ 6,750	$ 6,750	$ 6,750
Series P	$ 6,125	$ 6,125	$ 6,125
Series Q	$ 5,375	$ 5,375	$ 5,375
Series R	$ 4,850	$ 4,850	$ 4,850
Series S	$ 5,000	$ 5,000	$ —

On January 3, 2019, we declared a quarterly common stock cash dividend of $.95 per share payable on February 5, 2019.

Warrants

Warrants were sold by the U.S. Treasury in a secondary public offering that closed on May 5, 2010 after the U.S. Treasury exchanged its Troubled Asset Relief Program (TARP) Warrant (issued on December 31, 2008 under the TARP Capital Purchase Program) for 16.9 million warrants. In accordance with the terms of the warrants, warrants were exercised on a non-cash net basis with the warrant holder receiving PNC common shares determined based on the excess of the market price of PNC common stock on the exercise date over the exercise price of the warrant. At December 31, 2017, there were 3.5 million warrants outstanding. In 2018, we issued 1.7 million common shares resulting from the exercise of these warrants. The issuance of these shares resulted in a reclassification within Capital surplus with no impact on our Shareholders' equity. Upon expiration of the warrants on December 31, 2018, approximately 95,000 warrants were unexercised.

Other Shareholders' Equity Matters

At December 31, 2018, we had reserved approximately 86 million common shares to be issued in connection with certain stock plans.

Effective April 1, 2015, the Board of Directors established a stock repurchase program authorization in the amount of up to 100 million shares of PNC common stock which may be purchased on the open market or in privately negotiated transactions. Under this program authorization, we repurchased 19.9 million shares in 2018 and 18.6 million shares in 2017. A maximum amount of 20.7 million shares remained available for repurchase under this program authorization at December 31, 2018. This program authorization will remain in effect until fully utilized or until modified, superseded or terminated.

NOTE 16 OTHER COMPREHENSIVE INCOME

Details of other comprehensive income (loss) are as follows:

Table 85: Other Comprehensive Income (Loss)

In millions	2018	2017	2016
Net unrealized gains (losses) on non-OTTI securities			
Increase in net unrealized gains (losses) on non-OTTI securities	$ (522)	$ 29	$ (329)
Less: Net gains (losses) realized as a yield adjustment reclassified to investment securities interest income	12	25	24
Less: Net gains (losses) realized on sales of securities reclassified to noninterest income	(8)	(12)	16
Net increase (decrease), pre-tax	(526)	16	(369)
Effect of income taxes	121	(6)	135
Net increase (decrease), after-tax	(405)	10	(234)
Net unrealized gains (losses) on OTTI securities			
Increase in net unrealized gains (losses) on OTTI securities	(14)	173	61
Less: Net gains (losses) realized on sales of securities reclassified to noninterest income		2	
Less: OTTI losses realized on securities reclassified to noninterest income		(1)	(2)
Net increase (decrease), pre-tax	(14)	172	63
Effect of income taxes	3	(63)	(23)
Net increase (decrease), after-tax	(11)	109	40
Net unrealized gains (losses) on cash flow hedge derivatives			
Increase in net unrealized gains (losses) on cash flow hedge derivatives	(118)	(90)	100
Less: Net gains (losses) realized as a yield adjustment reclassified to loan interest income	41	159	219
Less: Net gains (losses) realized as a yield adjustment reclassified to investment securities interest income	11	21	34
Less: Net gains (losses) realized on sales of securities reclassified to noninterest income	8	17	
Net increase (decrease), pre-tax	(178)	(287)	(153)
Effect of income taxes	41	105	56
Net increase (decrease), after-tax	(137)	(182)	(97)
Pension and other postretirement benefit plan adjustments			
Net pension and other postretirement benefit activity	10	126	(41)
Amortization of actuarial loss (gain) reclassified to other noninterest expense	5	47	50
Amortization of prior service cost (credit) reclassified to other noninterest expense	1	(4)	(8)
Net increase (decrease), pre-tax	16	169	1
Effect of income taxes	(4)	(62)	
Net increase (decrease), after-tax	12	107	1
Other			
PNC's portion of BlackRock's OCI	(55)	52	(63)
Net investment hedge derivatives	76	(81)	186
Foreign currency translation adjustments	(58)	90	(182)
Net increase (decrease), pre-tax	(37)	61	(59)
Effect of income taxes	(5)	12	(46)
Net increase (decrease), after-tax	(42)	73	(105)
Total other comprehensive income (loss), pre-tax	(739)	131	(517)
Total other comprehensive income, tax effect	156	(14)	122
Total other comprehensive income (loss), after-tax	$ (583)	$ 117	$ (395)

Table 86: Accumulated Other Comprehensive Income (Loss) Components

In millions, after-tax	Net unrealized gains (losses) on non-OTTI securities	Net unrealized gains (losses) on OTTI securities	Net unrealized gains (losses) on cash flow hedge derivatives	Pension and other postretirement benefit plan adjustments	Other	Total
Balance at December 31, 2015	$ 286	$ 66	$ 430	$ (554)	$ (98)	$ 130
Net activity	(234)	40	(97)	1	(105)	(395)
Balance at December 31, 2016	$ 52	$ 106	$ 333	$ (553)	$ (203)	$ (265)
Net activity	10	109	(182)	107	73	117
Balance at December 31, 2017	$ 62	$ 215	$ 151	$ (446)	$ (130)	$ (148)
Cumulative effect of adopting ASU 2018-02 (a)	59		33	(96)	10	6
Balance at January 1, 2018	121	215	184	(542)	(120)	(142)
Net activity	(405)	(11)	(137)	12	(42)	(583)
Balance at December 31, 2018	$ (284)	$ 204	$ 47	$ (530)	$ (162)	$ (725)

(a) Represents the cumulative impact of adopting ASU 2018-02 which permits the reclassification to retained earnings of the income tax effects stranded within AOCI. See the Recently Adopted Accounting Standards portion of Note 1 Accounting Policies in this Report for additional detail on this adoption.

NOTE 17 INCOME TAXES

The components of income tax expense are as follows:

Table 87: Components of Income Tax Expense

Year ended December 31 In millions	2018	2017 (a)	2016
Current			
Federal	$ 773	$ 454	$ 871
State	176	51	71
Total current	949	505	942
Deferred			
Federal	123	(474)	301
State	10	71	25
Total deferred	133	(403)	326
Total	$ 1,082	$ 102	$ 1,268

(a) The 2017 results benefited from the federal tax legislation that was enacted on December 22, 2017.

Significant components of deferred tax assets and liabilities are as follows:

Table 88: Deferred Tax Assets and Liabilities

December 31 – in millions	2018	2017
Deferred tax assets		
Allowance for loan and lease losses	$ 637	$ 631
Compensation and benefits	279	223
Partnership investments	184	173
Loss and credit carryforward	366	301
Accrued expenses	207	284
Other	193	131
Total gross deferred tax assets	1,866	1,743
Valuation allowance	(37)	(40)
Total deferred tax assets	1,829	1,703
Deferred tax liabilities		
Leasing	1,169	1,034
Goodwill and intangibles	196	197
Fixed assets	379	206
Mortgage servicing rights	179	146
Net unrealized gains on securities and financial instruments		155
BlackRock basis difference	1,726	1,594
Other	119	345
Total deferred tax liabilities	3,768	3,677
Net deferred tax liability	$ 1,939	$ 1,974

As the result of the Tax Cuts and Jobs Act signed into law on December 22, 2017, we recognized a benefit of $1.2 billion primarily attributable to the revaluation of net deferred tax liabilities at December 31, 2017. To the extent our accounting of certain income tax effects was complete, these tax effects had been included in the 2017 financial statements. However, to the extent our accounting for certain income tax effects was incomplete, but was reasonably estimated, the estimated effects were included as provisional amounts in the 2017 financial statements. Additional data and analysis was collected during the preparation of our 2017 income tax returns along with additional clarification through legislative amendments, governmental agency regulations and interpretations of the Tax Cuts and Jobs Act. During the one-year measurement period, which ended in December 2018, no changes were made to the provisional amounts after obtaining, preparing and analyzing additional information about facts and circumstances that existed at the enactment date.

A reconciliation between the statutory and effective tax rates follows:

Table 89: Reconciliation of Statutory and Effective Tax Rates

Year ended December 31	2018	2017	2016
Statutory tax rate	21.0 %	35.0 %	35.0 %
Increases (decreases) resulting from:			
State taxes net of federal benefit	2.3	1.5	1.2
Tax-exempt interest	(1.4)	(2.5)	(2.4)
Life insurance	(.9)	(1.8)	(1.9)
Dividend received deduction	(.9)	(1.8)	(1.8)
Tax credits	(3.4)	(4.2)	(4.4)
Federal deferred tax revaluation (a)	(1.7)	(21.7)	
Unrecognized tax benefits	1.1	(.1)	(.1)
Other	.7	(2.5)	(1.5)
Effective tax rate (b)	16.8 %	1.9 %	24.1 %

(a) Reflects the impact of tax planning activities during the third quarter of 2018.
(b) The effective tax rates are generally lower than the statutory rate due to the relationship of pretax income to tax credits and earnings that are not subject to tax. The 2017 and 2018 results benefited from the federal tax legislation.

The net operating loss carryforwards at December 31, 2018 and 2017 follow:

Table 90: Net Operating Loss Carryforwards

Dollars in millions	December 31, 2018	December 31, 2017	Expiration
Net Operating Loss Carryforwards:			
Federal	$ 521	$ 640	2032
State	$ 1,577	$ 1,776	2019-2036

The majority of the tax credit carryforwards expire in 2038 and were $323 million at December 31, 2018 and were insignificant at December 31, 2017. Some federal and state net operating loss and credit carryforwards are from acquired entities and utilization is subject to various statutory limitations. We anticipate that we will be able to fully utilize our carryforwards for federal tax purposes, but we have recorded an insignificant valuation allowance against certain state tax carryforwards as of December 31, 2018.

Retained earnings included $.1 billion at both December 31, 2018 and 2017 in allocations for bad debt deductions of former thrift subsidiaries for which no income tax has been provided. Under current law, if certain subsidiaries use these bad debt reserves for purposes other than to absorb bad debt losses, they will be subject to Federal income tax at the current corporate tax rate.

A reconciliation of the beginning and ending balance of unrecognized tax benefits is as follows:

Table 91: Change in Unrecognized Tax Benefits

In millions	2018	2017	2016
Balance of gross unrecognized tax benefits at January 1	$ 18	$ 22	$ 26
Increases:			
Positions taken during a prior period	212	4	14
Decreases:			
Positions taken during a prior period	(16)	(3)	(14)
Settlements with taxing authorities	(7)	(4)	
Reductions resulting from lapse of statute of limitations		(1)	(4)
Balance of gross unrecognized tax benefits at December 31	$ 207	$ 18	$ 22
Favorable (unfavorable) impact if recognized	$ 76	$ 17	$ 18

It is reasonably possible that the balance of unrecognized tax benefits could increase or decrease in the next twelve months due to ongoing or completion of examinations by various tax authorities or the expiration of statutes of limitations.

We are subject to U.S. federal income tax as well as income tax in most states and some foreign jurisdictions. Table 92 summarizes the status of significant IRS examinations.

Table 92: IRS Tax Examination Status

	Years under examination	Status at December 31
Federal	2014 – 2015	Completed
	2016 – 2017	Under Exam

In addition, we are under continuous examinations by various state taxing authorities. With few exceptions, we are no longer subject to state and local and foreign income tax examinations by taxing authorities for periods before 2013. For all open audits, any potential adjustments have been considered in establishing our unrecognized tax benefits as of December 31, 2018.

Our policy is to classify interest and penalties associated with income taxes as income tax expense. For 2018 and 2017, the amount of gross interest and penalties was insignificant. At December 31, 2018 and 2017, the related amounts of accrued interest and penalties were also insignificant.

NOTE 18 REGULATORY MATTERS

We are subject to the regulations of certain federal, state and foreign agencies and undergo periodic examinations by such regulatory authorities.

The ability to undertake new business initiatives (including acquisitions), the access to and cost of funding for new business initiatives, the ability to pay dividends, the ability to repurchase shares or other capital instruments, the level of deposit insurance costs, and the level and nature of regulatory oversight depend, in large part, on a financial institution's capital strength.

At December 31, 2018 and 2017, PNC and PNC Bank, our domestic banking subsidiary, were both considered "well capitalized," based on applicable U.S. regulatory capital ratio requirements.

The following table sets forth the 2018 Basel III and 2017 Transitional Basel III regulatory capital ratios at December 31, 2018 and 2017, respectively for PNC and PNC Bank.

Table 93: Basel Regulatory Capital (a)

	Amount		Ratios		
December 31 Dollars in millions	2018 Basel III	2017 Transitional Basel III	2018 Basel III	2017 Transitional Basel III	"Well Capitalized" Requirements
Risk-based capital					
Common equity Tier 1					
PNC	$ 30,905	$ 32,146	9.6%	10.4%	N/A
PNC Bank	$ 30,046	$ 28,771	9.8%	9.7%	6.5%
Tier 1					
PNC	$ 34,735	$ 36,007	10.8%	11.6%	6.0%
PNC Bank	$ 30,046	$ 28,942	9.8%	9.7%	8.0%
Total					
PNC	$ 41,606	$ 42,496	13.0%	13.7%	10.0%
PNC Bank	$ 36,510	$ 34,756	11.9%	11.7%	10.0%
Leverage					
PNC	$ 34,735	$ 36,007	9.4%	9.9%	N/A
PNC Bank	$ 30,046	$ 28,942	8.3%	8.2%	5.0%

(a) Calculated using the regulatory capital methodology applicable to us during both 2018 and 2017.

The principal source of parent company cash flow is the dividends it receives from PNC Bank, which may be impacted by the following:

- Capital needs;
- Laws and regulations;
- Corporate policies;
- Contractual restrictions; and
- Other factors.

Also, there are statutory and regulatory limitations on the ability of national banks to pay dividends or make other capital distributions. The amount available for dividend payments to the parent company by PNC Bank without prior regulatory approval was approximately $2.9 billion at December 31, 2018.

Under federal law, a bank subsidiary generally may not extend credit to, or engage in other types of covered transactions (including the purchase of assets) with, the parent company or its non-bank subsidiaries on terms and under circumstances that are not substantially the same as comparable transactions with nonaffiliates. A bank subsidiary may not extend credit to, or engage in a covered transaction with, the parent company or a non-bank subsidiary if the aggregate amount of the bank's extensions of credit and other covered transactions with the parent company or non-bank subsidiary exceeds 10% of the capital stock and surplus of such bank subsidiary or the aggregate amount of the bank's extensions of credit and other covered transactions with the parent company and all non-bank subsidiaries exceeds 20% of the capital stock and surplus of such bank subsidiary. Such extensions of credit, with limited exceptions, must be at least fully collateralized in accordance with specified collateralization thresholds, with the thresholds varying based on the type of assets serving as collateral. In certain circumstances, federal regulatory authorities may impose more restrictive limitations.

Federal Reserve Board regulations require depository institutions to maintain cash reserves with a Federal Reserve Bank. At December 31, 2018, the balance outstanding at the Federal Reserve Bank was $10.5 billion.

NOTE 19 LEGAL PROCEEDINGS

We establish accruals for legal proceedings, including litigation and regulatory and governmental investigations and inquiries, when information related to the loss contingencies represented by those matters indicates both that a loss is probable and that the amount of loss can be reasonably estimated. Any such accruals are adjusted thereafter as appropriate to reflect changed circumstances. When we are able to do so, we also determine estimates of possible losses or ranges of possible losses, whether in excess of any related accrued liability or where there is no accrued liability, for disclosed legal proceedings ("Disclosed Matters," which are those matters disclosed in this Note 19). For Disclosed Matters where we are able to estimate such possible losses or ranges of possible losses, as of December 31, 2018, we estimate that it is reasonably possible that we could incur losses in excess of related accrued liabilities, if any, in an aggregate amount of up to approximately $125 million. The estimates included in this amount are based on our analysis of currently available information and are subject to significant judgment and a variety of assumptions and uncertainties. As new information is obtained we may change our estimates. Due to the inherent subjectivity of the assessments and unpredictability of outcomes of legal proceedings, any amounts accrued or included in this aggregate amount may not represent the ultimate loss to us from the legal proceedings in question. Thus, our exposure and ultimate losses may be higher, and possibly significantly so, than the amounts accrued or this aggregate amount.

In our experience, legal proceedings are inherently unpredictable. One or more of the following factors frequently contribute to this inherent unpredictability: the proceeding is in its early stages; the damages sought are unspecified, unsupported or uncertain; it is unclear whether a case brought as a class action will be allowed to proceed on that basis or, if permitted to proceed as a class action, how the class will be defined; the other party is seeking relief other than or in addition to compensatory damages (including, in the case of regulatory and governmental investigations and inquiries, the possibility of fines and penalties); the matter presents meaningful legal uncertainties, including novel issues of law; we have not engaged in meaningful settlement discussions; discovery has not started or is not complete; there are significant facts in dispute; the possible outcomes may not be amenable to the use of statistical or quantitative analytical tools; predicting possible outcomes depends on making assumptions about future decisions of courts or regulatory bodies or the behavior of other parties; and there are a large number of parties named as defendants (including where it is uncertain how damages or liability, if any, will be shared among multiple defendants). Generally, the less progress that has been made in the proceedings or the broader the range of potential results, the harder it is for us to estimate losses or ranges of losses that it is reasonably possible we could incur.

As a result of these types of factors, we are unable, at this time, to estimate the losses that are reasonably possible to be incurred or ranges of such losses with respect to some of the matters disclosed, and the aggregate estimated amount provided above does not include an estimate for every Disclosed Matter. Therefore, as the estimated aggregate amount disclosed above does not include all of the Disclosed Matters, the amount disclosed above does not represent our maximum reasonably possible loss exposure for all of the Disclosed Matters. The estimated aggregate amount also does not reflect any of our exposure to matters not so disclosed, as discussed below under "Other."

We include in some of the descriptions of individual Disclosed Matters certain quantitative information related to the plaintiff's claim against us as alleged in the plaintiff's pleadings or other public filings or otherwise publicly available information. While information of this type may provide insight into the potential magnitude of a matter, it does not necessarily represent our estimate of reasonably possible loss or our judgment as to any currently appropriate accrual.

Some of our exposure in Disclosed Matters may be offset by applicable insurance coverage. We do not consider the possible availability of insurance coverage in determining the amounts of any accruals (although we record the amount of related insurance recoveries that are deemed probable up to the amount of the accrual) or in determining any estimates of possible losses or ranges of possible losses.

Interchange Litigation

Beginning in June 2005, a series of antitrust lawsuits were filed against Visa®, MasterCard®, and several major financial institutions, including cases naming National City (since merged into The PNC Financial Services Group, Inc.) and its subsidiary, National City Bank of Kentucky (since merged into National City Bank which in turn was merged into PNC Bank). The plaintiffs in these cases are merchants operating commercial businesses throughout the U.S., as well as trade associations. Some of these cases (including those naming National City entities) were brought as class actions on behalf of all persons or business entities that have accepted Visa® or MasterCard®. The cases have been consolidated for pre-trial proceedings in the U.S. District Court for the Eastern District of New York under the caption *In re Payment Card Interchange Fee and Merchant-Discount Antitrust Litigation* (Master File No. 1:05-md-1720-MKB-JO).

In July 2012, the parties entered into a memorandum of understanding with the class plaintiffs and an agreement in principle with certain individual plaintiffs with respect to a settlement of these cases, under which the defendants agreed to pay approximately $6.6 billion collectively to the class and individual settling plaintiffs and agreed to changes in the terms applicable to their respective card networks (including an eight-month reduction in default credit interchange rates). The parties entered into a definitive agreement with respect to this settlement in October 2012. The court granted final approval of the settlement in December 2013. Several objectors appealed the order of approval to the U.S. Court of Appeals for the Second Circuit, which issued an order in June 2016, reversing approval of the settlement and remanding for further proceedings. In November 2016, the plaintiffs filed a petition for a writ of certiorari with the U.S. Supreme Court to challenge the court of appeal's decision. The Supreme Court denied the petition in March 2017.

As a result of the reversal of the approval of the settlement, the class actions have resumed in the district court. In November 2016, the district court appointed separate interim class counsel for a proposed class seeking damages and a proposed class seeking equitable (injunctive) relief. In February 2017, each of these counsel filed a proposed amended and supplemental complaint on behalf of its respective proposed class. These complaints make similar allegations, including that the defendants conspired to monopolize and to fix the prices for general purpose card network services, that the restructuring of Visa and MasterCard, each of which included an initial public offering, violated the antitrust laws, and that the defendants otherwise imposed unreasonable restraints on trade, resulting in the payment of inflated interchange fees and other fees, which also violated the antitrust laws. In their complaints, collectively the plaintiffs seek, among other things, injunctive relief, unspecified damages (trebled under the antitrust laws) and attorneys' fees. PNC is named as a defendant in the complaint seeking damages but is not named as a defendant in the complaint that seeks equitable relief.

In September 2017, the magistrate judge at the district court granted in part and denied in part the plaintiffs' motions to file their proposed amended complaints. The dispute over amendment arose in part from the decision in *United States v. American Express, Co.,* 838 F.3d 179 (2d Cir. 2016), in which the court held that the relevant market in a similar complaint against American Express is "two-sided," *i.e*., requires consideration of effects on consumers as well as merchants. In June 2018, the U.S. Supreme Court affirmed (under the caption *Ohio v. American Express Co*.) the court of appeals decision. Previously, the plaintiffs in this litigation had alleged a one-sided market, and, as a result of the court's decision in *American Express*, they sought leave to add claims based on a two-sided market. The order allowed the complaint to be amended to include allegations pertaining to a two-sided market only to the extent those claims are not time-barred, but held that the two-sided market allegations do not relate back to the time of the original complaint and are not subject to tolling. In October 2017, the plaintiffs appealed this order to the presiding district court judge. In August 2018, the judge overruled this decision, finding that the two-sided market allegations do relate back.

In September 2018, the relevant parties entered an amended definitive agreement to resolve the claims of the class seeking damages. In this amended settlement agreement, the parties agreed, among other things, to the following terms:

- An additional settlement payment from all defendants of $900 million, with Visa's share of the additional settlement payment being $600 million. The additional settlement payment will be added to the approximately $5.3 billion previously paid by the defendants pursuant to the original 2012 settlement agreement.
- Up to $700 million may be returned to the defendants (with up to $467 million to Visa) if more than 15% of class members (by payment volume) opt out of the class. The amount that may be returned to defendants is calculated using a formula based on the payment volume attributable to class members that opt out of the class. If more than 25% of class members (by payment volume) opt out of the class, the defendants may terminate the Amended Settlement Agreement.

This amended settlement agreement is subject to court approval. In January 2019, the district court granted preliminary approval of the settlement, under which notice will be provided to the settlement class, with an opportunity to opt out from the settlement or file objections to it. A final approval hearing is scheduled for November 2019.

National City and National City Bank entered into judgment and loss sharing agreements with Visa and certain other banks with respect to all of the above referenced litigation. We were not originally named as defendants in any of the Visa or MasterCard related antitrust litigation nor were we initially parties to the judgment or loss sharing agreements. However, we became responsible for National City's and National City Bank's position in the litigation and responsibilities under the agreements through our acquisition of National City. In addition, following Visa's reorganization in 2007 in contemplation of its initial public offering, U.S. Visa members received shares of Class B Visa common stock, convertible upon resolution of specified litigation, including the remaining litigation described above, into shares of Class A Visa common stock, with the conversion rate adjusted to reflect amounts paid or escrowed to resolve the specified litigation, and also remained responsible for indemnifying Visa against the specified litigation. Our Class B Visa common stock is all subject to this conversion adjustment provision, and we are now responsible for the indemnification obligations of our predecessors as well as ourselves. We have also entered into a MasterCard Settlement and Judgment Sharing Agreement with MasterCard and other financial institution defendants and an Omnibus Agreement Regarding Interchange Litigation Sharing and Settlement Sharing with Visa, MasterCard and other financial institution defendants. The Omnibus Agreement, in substance, apportions resolution of the claims in this litigation into a Visa portion and a MasterCard portion, with the Visa portion being two-thirds and the MasterCard portion being one-third. This apportionment only applies in the case of either a global settlement involving all defendants or an adverse judgment against the defendants, to the extent that damages either are related to the merchants' inter-network conspiracy claims or are otherwise not attributed to specific MasterCard or Visa conduct or damages. The MasterCard portion (or any MasterCard-related liability not subject to the Omnibus Agreement) will then be apportioned under the MasterCard Settlement and Judgment Sharing Agreement among MasterCard and PNC and the other financial institution defendants that are parties to this agreement. The responsibility for the Visa portion (or any Visa-related liability not subject to the Omnibus Agreement) will be apportioned under the pre-existing indemnification responsibilities and judgment and loss sharing agreements.

Residential Mortgage-Backed Securities Indemnification Demands

We have received indemnification demands from several entities sponsoring residential mortgage-backed securities and their affiliates where purchasers of the securities, trustees for the securitization trusts, or monoline insurers have asserted claims against the sponsors and other parties involved in the securitization transactions. National City Mortgage and its predecessors had sold whole loans to the sponsors or their affiliates that were allegedly included in certain of these securitization transactions. According to the indemnification demands, the claims for which indemnity is being sought are based on alleged misstatements and omissions in the offering documents for these transactions or breaches of representations and warranties relating to the loans made in connection with the transactions. The indemnification demands assert that agreements governing the sale of these loans or the securitization transactions to which National City Mortgage was a party require us to indemnify the sponsors and their affiliates for losses suffered in connection with these claims. The parties have settled several of these disputes. In March 2018, one of the entities asserting a right to indemnification submitted a demand for our purported share of the settlement amount of claims asserted against it and its affiliates. There has not been any determination that the parties seeking indemnification have any liability to the plaintiffs in connection with the other claims and the amount, if any, for which we are responsible in the settled cases has not been determined.

Patent Infringement Litigation

In June 2013, a lawsuit (*Intellectual Ventures I LLC and Intellectual Ventures II LLC vs. PNC Financial Services Group, Inc., and PNC Bank, NA*, (Case No. 2:13-cv-00740-AJS)(*IV 1*)) was filed in the U.S. District Court for the Western District of Pennsylvania against PNC and PNC Bank for patent infringement. The plaintiffs alleged that multiple systems by which PNC and PNC Bank provide online banking services and other services via electronic means infringe five patents owned by the plaintiffs. The plaintiffs sought, among other things, a declaration that PNC and PNC Bank were infringing each of the patents, damages for past and future infringement, and attorneys' fees. In July 2013, we filed an answer with counterclaims, denying liability and seeking declarations that the asserted patents were invalid and that PNC had not infringed them. In November 2013, PNC filed Covered Business Method/Post Grant Review petitions in the U.S. Patent & Trademark Office (PTO) seeking to invalidate all five of the patents. In December 2013, the court dismissed the plaintiffs' claims as to two of the patents and entered a stay of the lawsuit pending the PTO's consideration of PNC's review petitions, including any appeals from decisions of the PTO. The PTO instituted review proceedings in May 2014 on four of the five patents at issue, finding that the subject matter of those patents was "more likely than not" unpatentable. The court had previously dismissed the plaintiffs' claims with respect to the one patent not selected for review by the PTO. In separate decisions issued in April and May 2015, the PTO invalidated all claims with respect to the patents that were still at issue in *IV 1*. In July 2015, in an appeal arising out of proceedings against a different defendant relating to some of the same patents, the U.S. Court of Appeals for the Federal Circuit affirmed the invalidity of the two patents at issue in both *IV 1* and the Federal Circuit appeal. As a result, all of the patents at issue in *IV 1* not subject to the prior dismissal were invalidated. In October 2015, the plaintiffs moved to dismiss with prejudice their claims arising from the patents that had not been subject to prior dismissal in *IV 1*, which the court granted.

In June 2014, Intellectual Ventures filed a second lawsuit (*Intellectual Ventures I LLC and Intellectual Ventures II LLC v. PNC Bank Financial Services Group, Inc., PNC Bank NA, and PNC Merchant Services Company, LP* (Case No. 2:14-cv-00832-AKS)(*IV 2*)) in the same court as *IV 1*. This lawsuit alleged that the PNC defendants had infringed five patents, including the patent dismissed in *IV 1* that was not subject to PTO review, and related generally to the same technology and subject matter as the first lawsuit. The court stayed this case, which was consolidated with *IV 1* in August 2014, pending the PTO's consideration of various review petitions of the patents at issue in this case, as well as the review of the patents at issue in *IV 1* and the appeals from any PTO decisions. In April 2015, the PTO, in a proceeding brought by another defendant, upheld the patentability of one of the patents at issue in *IV 2*. That decision was appealed to the Federal Circuit, which affirmed it in February 2016. After decisions adverse to the patent holder in the PTO and several U.S. District Courts on three of the remaining patents, in October 2015, the plaintiffs voluntarily dismissed without prejudice their claims with respect to those three patents, leaving two patents at issue in this lawsuit. The plaintiffs moved to deconsolidate *IV 1* and *IV 2* and to lift the stay. The court denied this motion in October 2015, continuing the stay until certain court proceedings against other defendants related to the same patents are resolved. In February 2019, the plaintiffs voluntarily dismissed without prejudice the remaining claims in the lawsuit.

Pre-need Funeral Arrangements

National City Bank and PNC Bank are defendants in a lawsuit filed in the U.S. District Court for the Eastern District of Missouri under the caption *Jo Ann Howard and Associates, P.C., et al. v. Cassity, et al.* (No. 4:09-CV-1252-ERW) arising out of trustee services provided by Allegiant Bank, a National City Bank and PNC Bank predecessor, with respect to Missouri trusts that held pre-need funeral contract assets. Under a pre-need funeral contract, a customer pays an amount up front in exchange for payment of funeral expenses following the customer's death. In a number of states, including Missouri, pre-need funeral contract sellers are required to deposit a portion of the proceeds of the sale of pre-need funeral contracts in a trust account.

The lawsuit was filed in August 2009 by the Special Deputy Receiver for three insolvent affiliated companies, National Prearranged Services, Inc. a seller of pre-need funeral contracts (NPS), Lincoln Memorial Life Insurance Company (Lincoln), and Memorial Service Life Insurance Company (Memorial). Seven individual state life and health insurance guaranty associations, who claim they are liable under state law for payment of certain benefits under life insurance policies sold by Lincoln and Memorial, and the National Organization of Life & Health Guaranty Associations have also joined the action as plaintiffs. In addition to National City Bank and PNC Bank (added following filing of the lawsuit as successor-in-interest to National City Bank) (the PNC defendants), other defendants included members of the Cassity family, who controlled NPS, Lincoln, and Memorial; officers and directors of NPS, Lincoln, and Memorial; auditors and attorneys for NPS, Lincoln, and Memorial; the trustees of each of the trusts that held pre-need funeral contract assets; and the investment advisor to the Pre-need Trusts. NPS retained several banks to act as trustees for the trusts holding NPS pre-need funeral contract assets (the NPS Trusts), with Allegiant Bank acting as one of these trustees with respect to seven Missouri NPS Trusts. All of the other defendants have settled with the plaintiffs, are otherwise no longer a party to the lawsuit, or are insolvent.

In their Third Amended Complaint, filed in 2012 following the granting by the court in part of motions to dismiss made by the PNC defendants and the other NPS Trust trustees, the plaintiffs allege that Allegiant Bank breached its fiduciary duties and acted negligently as the trustee for the Missouri NPS Trusts. In part as a result of these breaches, the plaintiffs allege, members of the Cassity family, acting in concert with other defendants, were able to improperly remove millions of dollars from the NPS Trusts, which in turn caused NPS, Lincoln, and Memorial to become insolvent. The complaint alleges $600 million in present and future losses to the plaintiffs due to the insolvency of NPS, Lincoln, and Memorial. The lawsuit seeks, among other things, unspecified actual and punitive damages, various equitable remedies including restitution, attorneys' fees, costs of suit and interest.

In July 2013, five of the six defendants in a parallel federal criminal action, including two members of the Cassity family, entered into plea agreements with the U.S. to resolve criminal charges arising out of their conduct at NPS, Lincoln and Memorial. In August 2013, after a jury trial, the sixth defendant, the investment advisor to the NPS Trusts, was convicted on all criminal counts against him. The criminal charges against the defendants alleged, among other thing, a scheme to defraud Allegiant Bank and the other trustees of the NPS Trusts.

In May 2014, the court granted the plaintiffs' motion to disallow the PNC defendants' affirmative defense relating to the plaintiffs' alleged failure to mitigate damages. In July 2014, the PNC defendants' motion for reconsideration was denied. In September 2014, the plaintiffs filed a motion seeking leave to amend their complaint to reassert aiding and abetting claims, previously dismissed by the court in 2012. The court denied this motion in December 2014. Also in December 2014, the court granted in part and denied in part the PNC defendants' motion for summary judgment.

In March 2015, following a jury trial, the court entered a judgment against the PNC defendants in the amount of $356 million in compensatory damages and $36 million in punitive damages. In April 2015, the plaintiffs filed motions with the court seeking $179 million in pre-judgment interest. Also, in April 2015, the PNC defendants filed motions with the court to reduce the compensatory damages by the amounts paid in settlement by other defendants, to strike the punitive damages award, for judgment as a matter of law, and for a new trial. In November 2015, the court granted the motion to reduce the compensatory damages by amounts paid in settlement by other defendants and denied the other motions by the PNC defendants, with the judgment being reduced as a result to a total of $289 million, and also denied the plaintiffs' motion for pre-judgment interest.

In December 2015, the PNC defendants appealed the judgment to the U.S. Court of Appeals for the Eighth Circuit**.** Also in December 2015, the plaintiffs cross-appealed from the court's orders reducing the judgment by amounts paid in settlement by other defendants, denying plaintiffs' motion for pre-judgment interest, and dismissing the plaintiffs' aiding and abetting claims. In August 2017, the court of appeals reversed the judgment to the extent that it was based on tort rather than trust law. The court accordingly held that any damages awarded to the plaintiff will be limited to losses to the trusts in Missouri caused by Allegiant's breaches during the time it acted as trustee; plaintiffs cannot recover for damages to the Missouri trusts after Allegiant's trusteeship or outside of the Missouri trusts, which had been included in the judgment under appeal. The court of appeals otherwise affirmed the judgment, including the dismissal of the aiding and abetting claims, and remanded the case to the district court for further proceedings in light of its decision. In September 2017, plaintiffs filed a motion for rehearing by the panel solely seeking to remove the prohibition on damages being sought for the period following Allegiant's trusteeship. In December 2017, the court denied the petition for rehearing. Proceedings resumed in the district court, with a new trial in accordance with the court of appeal's decision completed in January 2019, except for closing arguments, to be made (following the parties' filing of written submissions) in March 2019. The district court will issue a decision based on the new trial sometime thereafter.

DD Growth Premium Master Fund

In June 2014, the liquidators of the DD Growth Premium Master Fund (DD Growth) issued a Plenary Summons in the High Court, Dublin, Ireland, in connection with the provision of administration services to DD Growth by a European subsidiary (GIS Europe) of PNC Global Investment Servicing (PNC GIS), a former subsidiary of PNC. The Plenary Summons was served on GIS Europe in June 2015.

In July 2010, we completed the sale of PNC GIS to The Bank of New York Mellon Corporation (BNY Mellon). Beginning in February 2014, BNY Mellon has provided notice to us of three indemnification claims pursuant to the stock purchase agreement related to DD Growth. Our responsibility for this litigation is subject to the terms and limitations included in the indemnification provisions of the stock purchase agreement.

In its Statement of Claim, which the liquidator served in July 2015, the liquidator alleges, among other things, that GIS Europe breached its contractual duties to DD Growth as well as an alleged duty of care to DD Growth, and to investors in DD Growth, and makes claims of breach of the administration and accounting services agreement, breach of the middle office agreement, negligence, gross negligence, and breach of duty. The statement of claim further alleges claims for loss in the net asset value of the fund and loss of certain subscriptions paid into the fund in the amounts of $283 million and $134 million respectively. The statement of claim seeks, among other things, damages, costs, and interest.

Regulatory and Governmental Inquiries

We are the subject of investigations, audits, examinations and other forms of regulatory and governmental inquiry covering a broad range of issues in our consumer, mortgage, brokerage, securities and other financial services businesses, as well as other aspects of our operations. In some cases, these inquiries are part of reviews of specified activities at multiple industry participants; in others, they are directed at PNC individually. From time to time, these inquiries involve or lead to regulatory enforcement actions and other administrative proceedings, and may lead to civil or criminal judicial proceedings. Some of these inquiries result in remedies including fines, penalties, restitution, or alterations in our business practices, and in additional expenses and collateral costs and other consequences. Such remedies and other consequences are not typically material to us from a financial standpoint, but may be and, even if not, may result in significant reputational harm or other adverse consequences.

As has been publicly reported, the U.S. Department of Justice is conducting an inquiry relating to the federal Low Income Housing Tax Credit (LIHTC) program directed at program participants. In connection with that inquiry, the Department of Justice has requested information from PNC Bank. We are cooperating with the inquiry.

Our practice is to cooperate fully with regulatory and governmental investigations, audits and other inquiries, including that described in this Note 19.

Other

In addition to the proceedings or other matters described above, PNC and persons to whom we may have indemnification obligations, in the normal course of business, are subject to various other pending and threatened legal proceedings in which claims for monetary damages and other relief are asserted. We do not anticipate, at the present time, that the ultimate aggregate liability, if any, arising out of such other legal proceedings will have a material adverse effect on our financial position. However, we cannot now determine whether or not any claims asserted against us or others to whom we may have indemnification obligations, whether in the proceedings or other matters described above or otherwise, will have a material adverse effect on our results of operations in any future reporting period, which will depend on, among other things, the amount of the loss resulting from the claim and the amount of income otherwise reported for the reporting period.

NOTE 20 COMMITMENTS

In the normal course of business, we have various commitments outstanding, certain of which are not included on our Consolidated Balance Sheet. The following table presents our outstanding commitments to extend credit along with significant other commitments as of December 31, 2018 and 2017, respectively.

Table 94: Commitments to Extend Credit and Other Commitments

In millions	December 31 2018	December 31 2017
Commitments to extend credit		
Total commercial lending	$ 120,165	$ 112,125
Home equity lines of credit	16,944	17,852
Credit card	27,100	24,911
Other	5,069	4,753
Total commitments to extend credit	169,278	159,641
Net outstanding standby letters of credit (a)	8,655	8,651
Reinsurance agreements (b)	1,549	1,654
Standby bond purchase agreements (c)	1,000	843
Other commitments (d)	1,130	1,732
Total commitments to extend credit and other commitments	$ 181,612	$ 172,521

(a) Net outstanding standby letters of credit include $3.7 billion and $3.5 billion at December 31, 2018 and 2017, respectively, which support remarketing programs.
(b) Represents aggregate maximum exposure up to the specified limits of the reinsurance contracts provided by our wholly-owned captive insurance subsidiary. These amounts reflect estimates based on availability of financial information from insurance carriers. As of December 31, 2018, the aggregate maximum exposure amount comprised $1.3 billion for accidental death & dismemberment contracts and $.2 billion for credit life, accident & health contracts. Comparable amounts at December 31, 2017 were $1.5 billion and $.2 billion, respectively.
(c) We enter into standby bond purchase agreements to support municipal bond obligations.
(d) Includes $.5 billion related to investments in qualified affordable housing projects at both December 31, 2018 and 2017, respectively.

Commitments to Extend Credit

Commitments to extend credit, or net unfunded loan commitments, represent arrangements to lend funds or provide liquidity subject to specified contractual conditions. These commitments generally have fixed expiration dates, may require payment of a fee, and generally contain termination clauses in the event the customer's credit quality deteriorates.

Net Outstanding Standby Letters of Credit

We issue standby letters of credit and share in the risk of standby letters of credit issued by other financial institutions, in each case to support obligations of our customers to third parties, such as insurance requirements and the facilitation of transactions involving capital markets product execution. Approximately 91% of our net outstanding standby letters of credit were rated as Pass at both December 31, 2018 and 2017, with the remainder rated as Criticized. An internal credit rating of Pass indicates the expected risk of loss is currently low, while a rating of Criticized indicates a higher degree of risk.

If the customer fails to meet its financial or performance obligation to the third party under the terms of the contract or there is a need to support a remarketing program, then upon a draw by a beneficiary, subject to the terms of the letter of credit, we would be obligated to make payment to them. The standby letters of credit outstanding on December 31, 2018 had terms ranging from less than one year to six years.

As of December 31, 2018, assets of $1.1 billion secured certain specifically identified standby letters of credit. In addition, a portion of the remaining standby letters of credit issued on behalf of specific customers is also secured by collateral or guarantees that secure the customers' other obligations to us. The carrying amount of the liability for our obligations related to standby letters of credit and participations in standby letters of credit was $.2 billion at December 31, 2018 and is included in Other liabilities on our Consolidated Balance Sheet.

NOTE 21 PARENT COMPANY

Summarized financial information of the parent company is as follows:

Table 95: Parent Company – Income Statement

Year ended December 31 – in millions	2018	2017	2016
Operating Revenue			
Dividends from:			
Bank subsidiaries and bank holding company	$ 3,057	$ 3,278	$ 2,906
Non-bank subsidiaries	157	376	130
Interest income	147	109	93
Noninterest income	(1)	37	13
Total operating revenue	3,360	3,800	3,142
Operating Expense			
Interest expense	281	215	197
Other expense	139	175	109
Total operating expense	420	390	306
Income before income taxes and equity in undistributed net income of subsidiaries	2,940	3,410	2,836
Income tax benefits	(54)	(52)	(96)
Income before equity in undistributed net income of subsidiaries	2,994	3,462	2,932
Equity in undistributed net income of subsidiaries:			
Bank subsidiaries and bank holding company	2,126	1,974	818
Non-bank subsidiaries	181	(98)	153
Net income	$ 5,301	$ 5,338	$ 3,903
Other comprehensive income, net of tax:			
Net pension and other postretirement benefit plan activity arising during the period	1	1	13
Other comprehensive income (loss)	1	1	13
Comprehensive income	$ 5,302	$ 5,339	$ 3,916

Table 96: Parent Company – Balance Sheet

December 31 – in millions	2018	2017
Assets		
Cash held at banking subsidiary	$ 6	$ 1
Restricted deposits with banking subsidiary	175	175
Nonrestricted interest-earning deposits	4,655	5,800
Investments in:		
Bank subsidiaries and bank holding company	45,863	44,360
Non-bank subsidiaries	1,886	2,398
Loans with affiliates	1,397	1,244
Other assets	1,159	1,243
Total assets	$ 55,141	$ 55,221
Liabilities		
Subordinated debt (a)	$ 1,652	$ 1,645
Senior debt (a)	5,061	5,203
Commercial paper		100
Other borrowed funds from affiliates	79	108
Accrued expenses and other liabilities	619	652
Total liabilities	7,411	7,708
Equity		
Shareholders' equity	47,730	47,513
Total liabilities and equity	$ 55,141	$ 55,221

(a) See Note 10 Borrowed Funds for additional information on contractual rates and maturity dates of senior debt and subordinated debt for parent company.

In connection with certain affiliates' commercial and residential mortgage servicing operations, the parent company has committed to maintain such affiliates' net worth above minimum requirements.

Table 97: Parent Company – Interest Paid and Income Tax Refunds (Payments)

Year ended December 31 – in millions	Interest Paid	Income Tax Refunds/(Payments)
2018	$ 288	$ 88
2017	$ 287	$ 40
2016	$ 317	$ 183

Table 98: Parent Company – Statement of Cash Flows

Year ended December 31 – in millions	2018	2017	2016
Operating Activities			
Net income	$ 5,301	$ 5,338	$ 3,903
Adjustments to reconcile net income to net cash provided by operating activities:			
Equity in undistributed net earnings of subsidiaries	(2,307)	(1,974)	(971)
Return on investment in subsidiary		98	
Other	155	194	143
Net cash provided (used) by operating activities	$ 3,149	$ 3,656	$ 3,075
Investing Activities			
Net change in loans and securities from affiliates	$ 540	$ 114	$ 2,161
Net change in nonrestricted interest-earning deposits	1,145	(1,116)	(1,607)
Net change in restricted interest-earning deposits			300
Other	2		266
Net cash provided (used) by investing activities	$ 1,687	$ (1,002)	$ 1,120
Financing Activities			
Net change in other borrowed funds from affiliates	$ (29)	$ 316	$ (124)
Net change in senior debt	498	1,325	(1,252)
Net change in subordinated debt	(553)	(580)	17
Net change in commercial paper	(100)	100	
Preferred stock issuances			519
Common and treasury stock issuances	69	132	151
Acquisition of treasury stock	(2,877)	(2,447)	(2,062)
Preferred stock cash dividends paid	(236)	(236)	(209)
Common stock cash dividends paid	(1,603)	(1,264)	(1,060)
Net cash provided (used) by financing activities	$ (4,831)	$ (2,654)	$ (4,020)
Net increase (decrease) in cash and due from banks	$ 5	$ —	$ 175
Cash and restricted deposits held at banking subsidiary at beginning of year	176	176	1
Cash and restricted deposits held at banking subsidiary at end of year	$ 181	$ 176	$ 176

NOTE 22 SEGMENT REPORTING

We have four reportable business segments:

- Retail Banking
- Corporate & Institutional Banking
- Asset Management Group
- BlackRock

Results of individual businesses are presented based on our internal management reporting practices. There is no comprehensive, authoritative body of guidance for management accounting equivalent to GAAP; therefore, the financial results of our individual businesses are not necessarily comparable with similar information for any other company. We periodically refine our internal methodologies as management reporting practices are enhanced. To the extent significant and practicable, retrospective application of new methodologies is made to prior period reportable business segment results and disclosures to create comparability with the current period.

Total business segment financial results differ from total consolidated net income. The impact of these differences is reflected in the "Other" category in the business segment tables. "Other" includes residual activities that do not meet the criteria for disclosure as a separate reportable business, such as asset and liability management activities including net securities gains or losses, other-than-temporary impairment of investment securities, certain trading activities, certain non-strategic runoff consumer loan portfolios, private equity investments, intercompany eliminations, certain corporate overhead, tax adjustments that are not allocated to business segments, gains or losses related to BlackRock transactions, integration costs, exited businesses, and differences between business segment performance reporting and financial statement reporting (GAAP), including the presentation of net income attributable to noncontrolling interests as the segments' results exclude their portion of net income attributable to noncontrolling interests. Assets, revenue and earnings attributable to foreign activities were not material in the periods presented for comparative purposes.

Financial results are presented, to the extent practicable, as if each business operated on a stand-alone basis. Additionally, we have aggregated the results for corporate support functions within "Other" for financial reporting purposes.

In the fourth quarter of 2018, we updated our internal management reporting processes relating to our segment reporting disclosures. Certain expenses that were previously recorded within "Other" were reclassified to our reportable segments. These expenses largely related to items that were previously considered corporate expenses, but were either closely aligned to processes and revenue functions within our business segments or were an allocation of expenses that the business segment would have incurred if it operated on a standalone basis. These reclassifications were retrospectively applied to the periods presented in this Note 22. Additionally, certain fourth quarter 2017 net income tax benefits that were previously reported in "Other" in the fourth quarter of 2017 were reclassified within that period, in order to align the accounting of certain tax positions with the business segments that recorded the underlying activity.

Net interest income in business segment results reflects our internal funds transfer pricing methodology. Assets receive a funding charge and liabilities and capital receive a funding credit based on a transfer pricing methodology that incorporates product repricing characteristics, tenor and other factors.

A portion of capital is intended to cover unexpected losses and is assigned to our business segments using our risk-based economic capital model, including consideration of the goodwill at those business segments as well as the diversification of risk among the business segments, ultimately reflecting our portfolio risk adjusted capital allocation.

We have allocated the allowances for loan and lease losses and for unfunded loan commitments and letters of credit based on the loan exposures within each business segment's portfolio. Key reserve assumptions and estimation processes react to and are influenced by observed changes in loan portfolio performance experience, the financial strength of the borrower and economic conditions. Key reserve assumptions are periodically updated.

Business Segment Products and Services

Retail Banking provides deposit, lending, brokerage, insurance services, investment management and cash management products and services to consumer and small business customers. Our customers are serviced through our branch network, ATMs, call centers, online banking and mobile channels. The branch network is located in markets across the Mid-Atlantic, Midwest and Southeast. In 2018, Retail Banking launched its national retail digital strategy designed to grow customers with digitally-led banking and an ultra-thin branch network in markets outside of our existing retail branch network. Deposit products include checking, savings and money market accounts and certificates of deposit. Lending products include residential mortgages, home equity loans and lines of credit, auto loans, credit cards, education loans and personal and small business loans and lines of credit. The residential mortgage loans are directly originated within our branch network and nationwide, and are typically underwritten to government agency and/or third-party standards, and either sold, servicing retained, or held on our balance sheet. Brokerage, investment management and cash management products and services include managed, education, retirement and trust accounts.

Corporate & Institutional Banking provides lending, treasury management, and capital markets-related products and services to mid-sized and large corporations, and government and not-for-profit entities. Lending products include secured and unsecured loans, letters of credit and equipment leases. Treasury management services include cash and investment management, receivables management, disbursement services, funds transfer services, information reporting and global trade services. Capital markets-related products and services include foreign exchange, derivatives, securities underwriting, loan syndications, mergers and acquisitions advisory and equity capital markets advisory related services. We also provide commercial loan servicing and technology solutions for the commercial real estate finance industry. Products and services are provided nationally.

Asset Management Group provides personal wealth management for high net worth and ultra high net worth clients and institutional asset management. Wealth management products and services include investment and retirement planning, customized investment management, private banking, tailored credit solutions, and trust management and administration for individuals and their families. Our Hawthorn unit provides multi-generational family planning including estate, financial, tax planning, fiduciary, investment management and consulting, private banking, personal administrative services, asset custody and customized performance reporting to ultra high net worth families. Institutional asset management provides outsourced chief investment officer, custody, private real estate, cash and fixed income client solutions, and retirement administration services to institutional clients such as corporations, healthcare systems, insurance companies, unions, municipalities and non-profits. The business also offers PNC proprietary mutual funds and investment strategies.

BlackRock, in which we hold an equity investment, is a leading publicly-traded investment management firm providing a broad range of investment and technology services to institutional and retail clients worldwide. Using a diverse platform of alpha-seeking active, index and cash management investment strategies across asset classes, BlackRock tailors investment outcomes and asset allocation solutions for clients. Product offerings include single- and multi-asset class portfolios investing in equities, fixed income, alternatives and money market instruments. BlackRock also offers technology services, including an investment and risk management technology platform, as well as advisory services and solutions to a broad base of institutional and wealth management clients.

Our equity investment in BlackRock provides us with an additional source of noninterest income and increases our overall revenue diversification. BlackRock is a publicly-traded company, and additional information regarding its business is available in its filings with the Securities and Exchange Commission (SEC). At December 31, 2018, our economic interest in BlackRock was 22%. We received cash dividends from BlackRock of $420 million, $354 million, and $331 million during 2018, 2017 and 2016, respectively.

Table 99: Results of Businesses

Year ended December 31 In millions	Retail Banking	Corporate & Institutional Banking	Asset Management Group	BlackRock	Other	Consolidated (a)
2018						
Income Statement						
Net interest income	$ 5,119	$ 3,551	$ 287		$ 764	$ 9,721
Noninterest income	2,631	2,406	892	$ 935	547	7,411
Total revenue	7,750	5,957	1,179	935	1,311	17,132
Provision for credit losses (benefit)	373	85	2		(52)	408
Depreciation and amortization	206	186	52		496	940
Other noninterest expense	5,772	2,520	861		203	9,356
Income (loss) before income taxes (benefit) and noncontrolling interests	1,399	3,166	264	935	664	6,428
Income taxes (benefit)	335	658	62	154	(127)	1,082
Net income	$ 1,064	$ 2,508	$ 202	$ 781	$ 791	$ 5,346
Average Assets (b)	$ 89,739	$ 154,119	$ 7,423	$ 8,061	$ 118,893	$ 378,235
2017						
Income Statement						
Net interest income	$ 4,625	$ 3,396	$ 287		$ 800	$ 9,108
Noninterest income	2,236	2,271	881	$ 1,078	755	7,221
Total revenue	6,861	5,667	1,168	1,078	1,555	16,329
Provision for credit losses (benefit)	347	160	1		(67)	441
Depreciation and amortization	177	184	50		510	921
Other noninterest expense	5,569	2,370	855		683	9,477
Income (loss) before income taxes (benefit) and noncontrolling interests	768	2,953	262	1,078	429	5,490
Income taxes (benefit)	321	520	75	(686)	(128)	102
Net income	$ 447	$ 2,433	$ 187	$ 1,764	$ 557	$ 5,388
Average Assets (b)	$ 88,663	$ 148,414	$ 7,511	$ 7,677	$ 119,504	$ 371,769
2016						
Income Statement						
Net interest income	$ 4,509	$ 3,181	$ 300		$ 401	$ 8,391
Noninterest income	2,693	2,035	851	$ 685	507	6,771
Total revenue	7,202	5,216	1,151	685	908	15,162
Provision for credit losses (benefit)	297	177	(6)		(35)	433
Depreciation and amortization	175	153	45		470	843
Other noninterest expense	5,347	2,174	813		299	8,633
Income (loss) before income taxes (benefit) and noncontrolling interests	1,383	2,712	299	685	174	5,253
Income taxes (benefit)	510	871	110	153	(376)	1,268
Net income	$ 873	$ 1,841	$ 189	$ 532	$ 550	$ 3,985
Average Assets (b)	$ 85,871	$ 140,309	$ 7,707	$ 7,118	$ 120,255	$ 361,260

(a) There were no material intersegment revenues for 2018, 2017 and 2016.
(b) Period-end balances for BlackRock.

NOTE 23 FEE-BASED REVENUE FROM CONTRACTS WITH CUSTOMERS

A subset of our noninterest income relates to certain fee-based revenue within the scope of ASC Topic 606 - *Revenue from Contracts with Customers* (Topic 606). The objective of the standard is to clarify the principles for recognizing revenue from contracts with customers across all industries and to develop a common revenue standard under GAAP. The standard requires the application of a five-step recognition model to contracts, allocating the amount of consideration we expect to be entitled to across distinct promises in the contract, called performance obligations, and recognizing revenue when or as those services are transferred to the customer.

Fee-based revenue within the scope of Topic 606 is recognized within three of our reportable business segments, Retail Banking, Corporate & Institutional Banking (C&IB) and Asset Management Group. Income recognized from our investment in BlackRock, also a reportable segment, is outside of the scope of the standard. Topic 606 also excludes interest income, income from lease contracts, fair value gains from financial instruments (including derivatives), income from mortgage servicing rights and guarantee products, letter of credit fees, non-refundable fees associated with acquiring or originating a loan and gains from the sale of financial assets.

The following tables present noninterest income within the scope of Topic 606 disaggregated by segment. A description of the fee-based revenue and how it is recognized for each reportable segment's principal services and products follows each table.

Retail Banking

Table 100: Retail Banking Noninterest Income Disaggregation

In millions	Year Ended December 31, 2018
Product	
Deposit account fees	$ 618
Debit card fees	505
Brokerage fees	350
Merchant services	212
Net credit card fees (a)	189
Other	284
Total in-scope noninterest income by product	$ 2,158
Reconciliation to total Retail Banking noninterest income	
Total in-scope noninterest income	$ 2,158
Total out-of-scope noninterest income (b)	473
Total Retail Banking noninterest income	$ 2,631

(a) Net credit card fees consists of interchange fees of $452 million and credit card reward costs of $263 million for the year ended December 31, 2018.
(b) Out-of-scope noninterest income includes revenue streams that fall under the scope of other accounting and disclosure requirements outside of Topic 606.

Deposit Account Fees
Retail Banking provides demand deposit, money market and savings account products for consumer and small business customers. Services include online and branch banking, overdraft and wire transfer services, imaging services and cash alternative services, such as money orders and cashier's checks. We recognize fee income at the time these services are performed for the customer.

Debit Card and Net Credit Card Fees
As an issuing bank, Retail Banking earns interchange fee revenue from debit and credit card transactions. By offering card products, we maintain and administer card-related services, such as credit card reward programs, account data and statement information, card activation, card renewals, and card suspension and blockage. Interchange fees are earned when cardholders make purchases and are presented net of credit card reward costs.

Brokerage Fees
Retail Banking earns fee revenue by providing its customers a wide range of investment options through its brokerage services including mutual funds, annuities, stocks, bonds, long-term care and insurance products, and managed accounts. We earn fee revenue for transaction-based brokerage services, such as the execution of market trades, once the transaction has been completed as of the trade date. In other cases, such as investment management services, we earn fee revenue over the term of the customer contract.

Merchant Services
Retail Banking earns fee revenue for debit and credit card processing services. We provide these services to merchant businesses including point-of-sale payment acceptance capabilities and customized payment processing built around the merchant's specific requirements. We earn fee revenue as the merchant's customers make purchases.

Other
Other noninterest income primarily includes ATM fees earned from our customers and non-PNC customers. These fees are recognized as transactions occur.

Corporate & Institutional Banking

Table 101: Corporate & Institutional Banking Noninterest Income Disaggregation

In millions	Year Ended December 31, 2018
Product	
Treasury management fees	$ 776
Capital markets fees	510
Commercial mortgage banking activities	87
Other	81
Total in-scope noninterest income by product	$ 1,454
Reconciliation to total Corporate & Institutional Banking noninterest income	
Total in-scope noninterest income	$ 1,454
Total out-of-scope noninterest income (a)	952
Total Corporate & Institutional Banking noninterest income	$ 2,406

(a) Out-of-scope noninterest income includes revenue streams that fall under the scope of other accounting and disclosure requirements outside of Topic 606.

Treasury Management Fees
C&IB provides corporations with cash and investment management services, receivables and disbursement management services, funds transfer services and access to online/mobile information management and reporting services. Treasury management fees are recognized over time as we perform these services.

Capital Markets Fees
Capital markets fees include securities underwriting fees, merger and acquisition advisory fees and other advisory related fees. We recognize these fees when the related transaction closes.

Commercial Mortgage Banking Activities
Commercial mortgage banking activities include servicing responsibilities where we do not own the servicing rights. Servicing responsibilities typically consist of collecting and remitting monthly borrower principal and interest payments, maintaining escrow deposits, performing loss mitigation and foreclosure activities, and, in certain instances, funding of servicing advances. We recognize servicing fees over time as we perform these activities.

Other
Other noninterest income within C&IB primarily comprised fees from collateral management and asset management services. We earn these fees over time as we perform these services.

Asset Management Group

Table 102: Asset Management Group Noninterest Income Disaggregation

In millions	Year Ended December 31, 2018
Customer Type	
Personal	$ 611
Institutional	272
Total in-scope noninterest income by customer type	$ 883
Reconciliation to Asset Management Group noninterest income	
Total in-scope noninterest income	$ 883
Total out-of-scope noninterest income (a)	9
Total Asset Management Group noninterest income	$ 892

(a) Out-of-scope noninterest income includes revenue streams that fall under the scope of other accounting and disclosure requirements outside of Topic 606.

Asset Management Services
Asset Management Group provides both personal wealth and institutional asset management services including investment management, custody services, retirement planning, family planning, trust management and retirement administration services. We recognize fee revenue over the term of the customer contract based on the value of assets under management at a point in time.

NOTE 24 SUBSEQUENT EVENTS

On January 23, 2019, the parent company issued $750 million of senior notes with a maturity date of January 23, 2024. Interest is payable semi-annually at a fixed rate of 3.50% per annum, on January 23 and July 23 of each year, beginning on July 23, 2019. On February 15, 2019, the parent company issued an additional $300 million of these notes bringing the aggregate outstanding principal amount of the series to $1.05 billion.

On January 31, 2019, we transferred our remaining 143,458 shares of BlackRock Series C Preferred Stock to BlackRock to satisfy our LTIP obligation. Upon transfer, Other assets and Other liabilities on our Consolidated Balance Sheet were each reduced by $45 million, representing the fair value of the shares transferred. After this transfer, we no longer hold any shares of BlackRock Series C Preferred Stock and have satisfied our Series C Preferred Stock share delivery obligation in connection with the Share Surrender Agreement.

STATISTICAL INFORMATION (UNAUDITED)

THE PNC FINANCIAL SERVICES GROUP, INC.

SELECTED QUARTERLY FINANCIAL DATA

	2018				2017			
Dollars in millions, except per share data	Fourth	Third	Second	First	Fourth	Third	Second	First
Summary of Operations								
Interest income	$ 3,359	$ 3,223	$ 3,082	$ 2,918	$ 2,825	$ 2,795	$ 2,674	$ 2,520
Interest expense	878	757	669	557	480	450	416	360
Net interest income	2,481	2,466	2,413	2,361	2,345	2,345	2,258	2,160
Noninterest income	1,859	1,891	1,911	1,750	1,915	1,780	1,802	1,724
Total revenue	4,340	4,357	4,324	4,111	4,260	4,125	4,060	3,884
Provision for credit losses	148	88	80	92	125	130	98	88
Noninterest expense	2,577	2,608	2,584	2,527	3,061	2,456	2,479	2,402
Income before income taxes (benefit) and noncontrolling interests	1,615	1,661	1,660	1,492	1,074	1,539	1,483	1,394
Income taxes (benefit) (a)	264	261	304	253	(1,017)	413	386	320
Net income	1,351	1,400	1,356	1,239	2,091	1,126	1,097	1,074
Less: Net income attributable to noncontrolling interests	14	11	10	10	11	12	10	17
Preferred stock dividends and discount accretion and redemptions	56	64	56	64	57	64	57	84
Net income attributable to common shareholders	$ 1,281	$ 1,325	$ 1,290	$ 1,165	$ 2,023	$ 1,050	$ 1,030	$ 973
Per Common Share								
Book value	$ 95.72	$ 93.22	$ 92.26	$ 91.39	$ 91.94	$ 89.05	$ 87.78	$ 86.14
Cash dividends declared (b)	$ .95	$ .95	$ .75	$ .75	$ .75	$ .75	$ .55	$ .55
Basic earnings from net income	$ 2.77	$ 2.84	$ 2.74	$ 2.45	$ 4.23	$ 2.18	$ 2.12	$ 1.99
Diluted earnings from net income	$ 2.75	$ 2.82	$ 2.72	$ 2.43	$ 4.18	$ 2.16	$ 2.10	$ 1.96

(a) The fourth quarter 2017 results benefited from the new federal tax legislation primarily attributable to revaluation of deferred tax liabilities at the lower statutory rate.
(b) On January 3, 2019, we declared a quarterly common stock cash dividend of $.95 per share payable on February 5, 2019.

AVERAGE CONSOLIDATED BALANCE SHEET AND NET INTEREST ANALYSIS (a) (b) (c)

Taxable-equivalent basis Dollars in millions	2018 Average Balances	2018 Interest Income/ Expense	2018 Average Yields/ Rates	2017 Average Balances	2017 Interest Income/ Expense	2017 Average Yields/ Rates	2016 Average Balances	2016 Interest Income/ Expense	2016 Average Yields/ Rates
Assets									
Interest-earning assets:									
Investment securities									
Securities available for sale									
Residential mortgage-backed									
Agency	$ 27,156	$ 740	2.72%	$ 25,766	$ 662	2.57%	$ 25,442	$ 617	2.43%
Non-agency	2,196	146	6.65%	2,851	153	5.37%	3,613	175	4.84%
Commercial mortgage-backed	4,545	128	2.82%	5,193	156	3.00%	6,369	167	2.62%
Asset-backed	5,242	165	3.15%	5,681	147	2.59%	5,741	132	2.30%
U.S. Treasury and government agencies	16,319	373	2.29%	13,178	235	1.78%	10,590	155	1.46%
Other	4,064	142	3.49%	5,083	158	3.11%	5,064	152	3.00%
Total securities available for sale	59,522	1,694	2.85%	57,752	1,511	2.62%	56,819	1,398	2.46%
Securities held to maturity									
Residential mortgage-backed	15,670	456	2.91%	13,049	364	2.79%	10,529	290	2.75%
Commercial mortgage-backed	767	29	3.78%	1,255	51	4.06%	1,693	62	3.66%
Asset-backed	192	7	3.65%	405	10	2.47%	677	14	2.07%
U.S. Treasury and government agencies	749	21	2.80%	591	18	3.05%	308	11	3.57%
Other	1,884	82	4.35%	2,005	105	5.24%	2,020	114	5.64%
Total securities held to maturity	19,262	595	3.09%	17,305	548	3.17%	15,227	491	3.22%
Total investment securities	78,784	2,289	2.91%	75,057	2,059	2.74%	72,046	1,889	2.62%
Loans									
Commercial	113,837	4,606	4.05%	107,752	3,778	3.51%	100,319	3,141	3.13%
Commercial real estate	28,756	1,193	4.15%	29,487	1,054	3.57%	28,729	964	3.36%
Equipment lease financing	7,437	267	3.59%	7,618	248	3.26%	7,463	266	3.56%
Consumer	55,438	2,817	5.08%	56,262	2,585	4.59%	57,499	2,476	4.31%
Residential real estate	17,810	784	4.40%	16,152	725	4.49%	14,807	696	4.70%
Total loans	223,278	9,667	4.33%	217,271	8,390	3.86%	208,817	7,543	3.61%
Interest-earning deposits with banks	20,603	379	1.84%	24,043	267	1.11%	26,328	136	.52%
Other interest-earning assets	8,093	362	4.47%	8,983	313	3.48%	7,843	279	3.56%
Total interest-earning assets/interest income	330,758	12,697	3.84%	325,354	11,029	3.39%	315,034	9,847	3.13%
Noninterest-earning assets	47,477			46,415			46,226		
Total assets	$ 378,235			$ 371,769			$ 361,260		
Liabilities and Equity									
Interest-bearing liabilities:									
Interest-bearing deposits									
Money market	$ 56,353	416	.74%	$ 62,331	217	.35%	$ 71,530	146	.20%
Demand	60,599	190	.31%	57,045	76	.13%	52,701	40	.08%
Savings	51,908	428	.82%	42,749	197	.46%	29,643	119	.40%
Time deposits	17,501	195	1.11%	17,322	133	.77%	18,890	125	.66%
Total interest-bearing deposits	186,361	1,229	.66%	179,447	623	.35%	172,764	430	.25%
Borrowed funds									
Federal Home Loan Bank borrowings	20,970	478	2.28%	19,890	261	1.31%	18,385	155	.84%
Bank notes and senior debt	27,855	818	2.94%	25,564	517	2.02%	21,906	352	1.61%
Subordinated debt	5,292	224	4.23%	6,273	222	3.54%	8,324	264	3.17%
Other	5,189	112	2.16%	5,162	83	1.61%	4,324	60	1.39%
Total borrowed funds	59,306	1,632	2.75%	56,889	1,083	1.90%	52,939	831	1.57%
Total interest-bearing liabilities/interest expense	245,667	2,861	1.16%	236,336	1,706	.72%	225,703	1,261	.56%
Noninterest-bearing liabilities and equity:									
Noninterest-bearing deposits	76,303			78,634			78,085		
Accrued expenses and other liabilities	9,440			10,518			11,083		
Equity	46,825			46,281			46,389		
Total liabilities and equity	$ 378,235			$ 371,769			$ 361,260		

Interest rate spread		2.68%			2.67%		2.57%
Benefit from use of noninterest bearing sources		.29			.20		.16
Net interest income/margin	$ 9,836	2.97%	$ 9,323		2.87%	$ 8,586	2.73%

(a) Nonaccrual loans are included in loans, net of unearned income. The impact of financial derivatives used in interest rate risk management is included in the interest income/expense and average yields/rates of the related assets and liabilities. Basis adjustments related to hedged items are included in noninterest-earning assets and noninterest-bearing liabilities. Average balances of securities are based on amortized historical cost (excluding adjustments to fair value, which are included in other assets). Average balances for certain loans and borrowed funds accounted for at fair value are included in noninterest-earning assets and noninterest-bearing liabilities, with changes in fair value recorded in Noninterest income.

(b) Loan fees for the years ended December 31, 2018, 2017 and 2016 were $139 million, $126 million and $137 million, respectively.

(c) Interest income calculated as taxable-equivalent interest income. To provide more meaningful comparisons of interest income and yields for all interest-earning assets, as well as net interest margins, we use interest income on a taxable-equivalent basis in calculating average yields and net interest margin by increasing the interest income earned on tax-exempt assets to make it fully equivalent to interest income earned on taxable investments. This adjustment is not permitted under GAAP. See Reconciliation of Taxable-Equivalent Net Interest Income in this Statistical Information section for more information.

ANALYSIS OF YEAR-TO-YEAR CHANGES IN NET INTEREST INCOME (a) (b)

Taxable-equivalent basis In millions	2018/2017 Increase/(Decrease) in Income/Expense Due to Changes in: Volume	Rate	Total	2017/2016 Increase/(Decrease) in Income/Expense Due to Changes in: Volume	Rate	Total
Interest-Earning Assets						
Investment securities						
Securities available for sale						
Residential mortgage-backed						
Agency	$ 37	$ 41	$ 78	$ 8	$ 37	$ 45
Non-agency	$ (39)	$ 32	(7)	$ (40)	$ 18	(22)
Commercial mortgage-backed	$ (18)	$ (10)	(28)	$ (33)	$ 22	(11)
Asset-backed	$ (12)	$ 30	18	$ (1)	$ 16	15
U.S. Treasury and government agencies	$ 63	$ 75	138	$ 42	$ 38	80
Other	$ (34)	$ 18	(16)	$ 1	$ 5	6
Total securities available for sale	$ 48	$ 135	183	$ 23	$ 90	113
Securities held to maturity						
Residential mortgage-backed	$ 75	$ 17	92	$ 70	$ 4	74
Commercial mortgage-backed	$ (18)	$ (4)	(22)	$ (17)	$ 6	(11)
Asset-backed	$ (7)	$ 4	(3)	$ (7)	$ 3	(4)
U.S. Treasury and government agencies	$ 4	$ (1)	3	$ 9	$ (2)	7
Other	$ (6)	$ (17)	(23)	$ (1)	$ (8)	(9)
Total securities held to maturity	$ 61	$ (14)	47	$ 65	$ (8)	57
Total investment securities	$ 104	$ 126	230	$ 81	$ 89	170
Loans						
Commercial	$ 224	$ 604	828	$ 242	$ 395	637
Commercial real estate	$ (27)	$ 166	139	$ 26	$ 64	90
Equipment lease financing	$ (6)	$ 25	19	$ 6	$ (24)	(18)
Consumer	$ (39)	$ 271	232	$ (53)	$ 162	109
Residential real estate	$ 73	$ (14)	59	$ 61	$ (32)	29
Total loans	$ 237	$ 1,040	1,277	$ 312	$ 535	847
Interest-earning deposits with banks	$ (42)	$ 154	112	$ (13)	$ 144	131
Other interest-earning assets	$ (33)	$ 82	49	$ 40	$ (6)	34
Total interest-earning assets	$ 185	$ 1,483	$ 1,668	$ 334	$ 848	$ 1,182
Interest-Bearing Liabilities						
Interest-bearing deposits						
Money market	$ (23)	$ 222	$ 199	$ (21)	$ 92	$ 71
Demand	$ 5	$ 109	114	$ 4	$ 32	36
Savings	$ 49	$ 182	231	$ 58	$ 20	78
Time deposits	$ 1	$ 61	62	$ (11)	$ 19	8
Total interest-bearing deposits	$ 25	$ 581	606	$ 17	$ 176	193
Borrowed funds						
Federal Home Loan Bank borrowings	$ 15	$ 202	217	$ 14	$ 92	106
Bank notes and senior debt	$ 49	$ 252	301	$ 65	$ 100	165
Subordinated debt	$ (38)	$ 40	2	$ (70)	$ 28	(42)
Other		$ 29	29	$ 13	$ 10	23
Total borrowed funds	$ 48	$ 501	549	$ 66	$ 186	252
Total interest-bearing liabilities	$ 70	$ 1,085	1,155	$ 63	$ 382	445
Change in net interest income	$ 166	$ 347	$ 513	$ 287	$ 450	$ 737

(a) Changes attributable to rate/volume are prorated into rate and volume components.

(b) Interest income calculated as taxable-equivalent interest income. To provide more meaningful comparisons of interest income, we use interest income on a taxable-equivalent basis by increasing the interest income earned on tax-exempt assets to make it fully equivalent to interest income earned on taxable investments. This adjustment is not permitted under GAAP. See Reconciliation of Taxable-Equivalent Net Interest Income in this Statistical Information section for more information.

RECONCILIATION OF TAXABLE-EQUIVALENT NET INTEREST INCOME (NON-GAAP) (a)

Year ended December 31 In millions	2018	2017	2016	2015	2014
Net interest income (GAAP)	$ 9,721	$ 9,108	$ 8,391	$ 8,278	$ 8,525
Taxable-equivalent adjustments	115	215	195	196	189
Net interest income (Non-GAAP)	$ 9,836	$ 9,323	$ 8,586	$ 8,474	$ 8,714

(a) The interest income earned on certain earning assets is completely or partially exempt from federal income tax. As such, these tax-exempt instruments typically yield lower returns than taxable investments. To provide more meaningful comparisons of net interest income, we use interest income on a taxable-equivalent basis by increasing the interest income earned on tax-exempt assets to make it fully equivalent to interest income earned on taxable investments. This adjustment is not permitted under GAAP. As a result of the Tax Cuts and Jobs Act, which was enacted into law during the fourth quarter of 2017, the statutory tax rate for corporations was lowered to 21% from 35%, effective January 1, 2018. Amounts for the 2014 through 2017 periods were calculated using the previously applicable statutory federal income tax rate of 35%.

RECONCILIATION OF FEE INCOME (NON-GAAP)

Year ended December 31 In millions	2018	2017	2016
Noninterest income			
Asset management	$ 1,825	$ 1,942	$ 1,521
Consumer services	1,502	1,415	1,388
Corporate services	1,849	1,742	1,589
Residential mortgage	316	350	567
Service charges on deposits	714	695	667
Total fee income	6,206	6,144	5,732
Other	1,205	1,077	1,039
Total noninterest income	$ 7,411	$ 7,221	$ 6,771

RECONCILIATION OF TANGIBLE BOOK VALUE PER COMMON SHARE (NON-GAAP)

December 31 Dollars in millions, except per share data	2018	2017	2016	2015	2014
Book value per common share	$ 95.72	$ 91.94	$ 85.94	$ 81.84	$ 77.61
Tangible book value per common share					
Common shareholders' equity	$ 43,742	$ 43,530	$ 41,723	$ 41,258	$ 40,605
Goodwill and other intangible assets	(9,467)	(9,498)	(9,376)	(9,482)	(9,595)
Deferred tax liabilities on Goodwill and other intangible assets	190	191	304	310	320
Tangible common shareholders' equity	$ 34,465	$ 34,223	$ 32,651	$ 32,086	$ 31,330
Period-end common shares outstanding (in millions)	457	473	485	504	523
Tangible book value per common share (Non-GAAP) (a)	$ 75.42	$ 72.28	$ 67.26	$ 63.65	$ 59.88

(a) We believe this non-GAAP financial measure serves as a useful tool to help evaluate the strength and discipline of a company's capital management strategies and as an additional conservative measure of total company value.

LOANS SUMMARY

December 31 – in millions	2018	2017	2016	2015	2014
Commercial lending					
Commercial	$ 116,834	$ 110,527	$ 101,364	$ 98,608	$ 97,420
Commercial real estate	28,140	28,978	29,010	27,468	23,262
Equipment lease financing	7,308	7,934	7,581	7,468	7,686
Total commercial lending	152,282	147,439	137,955	133,544	128,368
Consumer lending					
Home equity	26,123	28,364	29,949	32,133	34,677
Residential real estate	18,657	17,212	15,598	14,411	14,407
Automobile	14,419	12,880	12,380	11,157	11,616
Credit card	6,357	5,699	5,282	4,862	4,612
Education	3,822	4,454	5,159	5,881	6,626
Other consumer	4,585	4,410	4,510	4,708	4,511
Total consumer lending	73,963	73,019	72,878	73,152	76,449
Total loans	$ 226,245	$ 220,458	$ 210,833	$ 206,696	$ 204,817

SELECTED LOAN MATURITIES AND INTEREST SENSITIVITY

December 31, 2018 In millions	1 Year or Less	1 Through 5 Years	After 5 Years	Gross Loans
Commercial	$ 33,884	$ 75,302	$ 7,648	$ 116,834
Commercial real estate	6,661	14,800	6,679	28,140
Total	$ 40,545	$ 90,102	$ 14,327	$ 144,974
Loans with:				
Predetermined rate	$ 5,885	$ 13,930	$ 5,905	$ 25,720
Floating or adjustable rate	34,660	76,172	8,422	119,254
Total	$ 40,545	$ 90,102	$ 14,327	$ 144,974

At December 31, 2018, $17.2 billion notional amount of receive-fixed interest rate swaps were designated as part of cash flow hedging strategies that converted the floating rate (LIBOR) on the underlying commercial loans to a fixed rate as part of risk management strategies.

NONPERFORMING ASSETS AND RELATED INFORMATION

December 31 – dollars in millions	2018	2017	2016	2015	2014
Nonperforming loans					
Commercial	$ 346	$ 429	$ 496	$ 351	$ 290
Commercial real estate	75	123	143	187	334
Equipment lease financing	11	2	16	7	2
Total commercial lending	432	554	655	545	626
Consumer lending (a)					
Home equity	797	818	914	977	1,112
Residential real estate	350	400	501	549	706
Automobile	100	76	55	35	39
Credit card	7	6	4	3	3
Other consumer	8	11	15	17	24
Total consumer lending	1,262	1,311	1,489	1,581	1,884
Total nonperforming loans (b)	1,694	1,865	2,144	2,126	2,510
OREO and foreclosed assets	114	170	230	299	370
Total nonperforming assets	$ 1,808	$ 2,035	$ 2,374	$ 2,425	$ 2,880
Nonperforming loans to total loans	.75%	.85%	1.02%	1.03%	1.23%
Nonperforming assets to total loans, OREO and foreclosed assets	.80%	.92%	1.12%	1.17%	1.40%
Nonperforming assets to total assets	.47%	.53%	.65%	.68%	.83%
Interest on nonperforming loans (c)					
Computed on original terms	$ 123	$ 114	$ 111	$ 115	$ 125
Recognized prior to nonperforming status	$ 17	$ 19	$ 21	$ 22	$ 25
Troubled Debt Restructurings					
Nonperforming	$ 863	$ 964	$ 1,112	$ 1,119	$ 1,370
Performing	$ 988	$ 1,097	$ 1,109	$ 1,232	$ 1,213
Past due loans					
Accruing loans past due 90 days or more (d)	$ 629	$ 737	$ 782	$ 881	$ 1,105
As a percentage of total loans	.28%	.33%	.37%	.43%	.54%
Past due loans held for sale					
Accruing loans held for sale past due 90 days or more	$ 4	$ 3	$ 4	$ 4	$ 9
As a percentage of total loans held for sale	.40%	.11%	.16%	.29%	.40%

(a) Excludes most consumer loans and lines of credit not secured by residential real estate, which are charged off after 120 to 180 days past due and are not placed on nonperforming status.
(b) Nonperforming loans exclude certain government insured or guaranteed loans, loans held for sale, loans accounted for under the fair value option and purchased impaired loans.
(c) Amounts are for the year ended.
(d) Past due loan amounts include government insured or guaranteed consumer loans of $.5 billion, $.6 billion, $.7 billion, $.8 billion and $1.0 billion at December 31, 2018, 2017, 2016, 2015 and 2014, respectively.

SUMMARY OF LOAN LOSS EXPERIENCE

Year ended December 31 – dollars in millions	2018	2017	2016	2015	2014
Allowance for loan and lease losses – January 1	$ 2,611	$ 2,589	$ 2,727	$ 3,331	$ 3,609
Gross charge-offs					
Commercial	(108)	(186)	(332)	(206)	(276)
Commercial real estate	(8)	(24)	(26)	(44)	(70)
Equipment lease financing	(8)	(11)	(5)	(5)	(14)
Home equity	(110)	(123)	(143)	(181)	(275)
Residential real estate	(6)	(9)	(14)	(24)	(40)
Credit card	(217)	(182)	(161)	(160)	(163)
Other consumer (a)	(307)	(251)	(205)	(185)	(183)
Total gross charge-offs	(764)	(786)	(886)	(805)	(1,021)
Recoveries					
Commercial	67	81	117	170	207
Commercial real estate	24	28	51	66	84
Equipment lease financing	8	7	10	4	14
Home equity	98	91	84	93	78
Residential real estate	21	18	9	13	26
Credit card	24	21	19	21	21
Other consumer (a)	102	83	53	52	60
Total recoveries	344	329	343	419	490
Net (charge-offs)	(420)	(457)	(543)	(386)	(531)
Provision for credit losses	408	441	433	255	273
Net decrease / (increase) in allowance for unfunded loan commitments and letters of credit	12	4	(40)	(2)	(17)
Other (b)	18	34	12	(471)	(3)
Allowance for loan and lease losses – December 31	$ 2,629	$ 2,611	$ 2,589	$ 2,727	$ 3,331
Allowance as a percentage of December 31:					
Loans (b)	1.16%	1.18%	1.23%	1.32%	1.63%
Nonperforming loans	155%	140%	121%	128%	133%
As a percentage of average loans:					
Net charge-offs	.19%	.21%	.26%	.19%	.27%
Provision for credit losses	.18%	.20%	.21%	.12%	.14%
Allowance for loan and lease losses (b)	1.18%	1.20%	1.24%	1.33%	1.67%
Allowance as a multiple of net charge-offs	6.26x	5.71x	4.77x	7.06x	6.27x

(a) Includes automobile, education and other consumer.
(b) Includes $468 million in write-offs of purchased impaired loans in 2015 due to the change in derecognition policy effective December 31, 2016 for certain consumer purchased impaired loans. See Note 1 Accounting Policies in our 2015 Form 10-K for additional information.

The following table presents the assignment of the allowance for loan and lease losses and the categories of loans as a percentage of total loans. Changes in the allocation over time reflect the changes in loan portfolio composition, risk profile and refinements to reserve methodologies.

ALLOCATION OF ALLOWANCE FOR LOAN AND LEASE LOSSES

	2018		2017		2016		2015		2014	
December 31 dollars in millions	Allowance	Loans to Total Loans	Allowance	Loans to Total Loans	Allowance	Loans to Total Loans	Allowance	Loans to Total Loans	Allowance	Loans to Total Loans
Commercial	$ 1,350	51.6%	$ 1,302	50.1%	$ 1,179	48.1%	$ 1,286	47.7%	$ 1,209	47.6%
Commercial real estate	271	12.4	244	13.1	320	13.8	281	13.3	318	11.4
Equipment lease financing	42	3.2	36	3.6	35	3.6	38	3.6	44	3.7
Home equity	204	11.6	284	12.9	357	14.2	484	15.5	872	16.9
Residential real estate	297	8.3	300	7.8	332	7.4	307	7.0	561	7.0
Credit card	239	2.8	220	2.6	181	2.5	167	2.4	173	2.3
Other consumer (a)	226	10.1	225	9.9	185	10.4	164	10.5	154	11.1
Total	$ 2,629	100.0%	$ 2,611	100.0%	$ 2,589	100.0%	$ 2,727	100.0%	$ 3,331	100.0%

(a) Includes automobile, education and other consumer.

TIME DEPOSITS

The aggregate amount of time deposits with a denomination of $100,000 or more was $10.2 billion at December 31, 2018 and $8.5 billion at December 31, 2017. Time deposits of $100,000 or more included time deposits in foreign offices of $3.8 billion at December 31, 2018. Domestic time deposits of $100,000 or more were $6.4 billion at December 31, 2018 with the following maturities:

December 31, 2018 - in billions	Domestic Time Deposits
Three months or less	$ 1.2
Over three through six months	.8
Over six through twelve months	1.8
Over twelve months	2.6
Total	$ 6.4

TRANSITIONAL BASEL III AND FULLY PHASED-IN BASEL III COMMON EQUITY TIER 1 CAPITAL RATIOS (NON-GAAP)

Our regulatory risk-based ratios for 2014 through 2016 were calculated using the standardized approach for determining risk-weighted assets, and the definitions of, and deductions from, regulatory capital under the Basel III rules (as such definitions and deductions were phased-in for 2014 through 2016). We refer to the capital ratios calculated using the phased-in Basel III provisions in effect for those periods and, for the risk-based ratios, standardized approach risk-weighted assets as the Transitional Basel III ratios.

	Transitional Basel III			Fully Phased-In Basel III (Non-GAAP) (estimated) (a) (b)		
Dollars in millions	December 31 2016	December 31 2015	December 31 2014	December 31 2016	December 31 2015	December 31 2014
Common stock, related surplus and retained earnings, net of treasury stock	$ 41,987	$ 41,128	$ 40,103	$ 41,987	$ 41,128	$ 40,103
Less regulatory capital adjustments:						
Goodwill and disallowed intangibles, net of deferred tax liabilities	(8,974)	(8,972)	(8,939)	(9,073)	(9,172)	(9,276)
Basel III total threshold deductions	(762)	(470)	(212)	(1,469)	(1,294)	(1,081)
Accumulated other comprehensive income (c)	(238)	(81)	40	(396)	(201)	201
All other adjustments	(214)	(112)	(63)	(221)	(182)	(121)
Basel III Common equity Tier 1 capital	$ 31,799	$ 31,493	$ 30,929	$ 30,828	$ 30,279	$ 29,826
Basel III standardized approach risk-weighted assets (d)	$ 300,533	$ 295,905	$ 284,018	$ 308,517	$ 303,707	$ 298,786
Basel III advanced approaches risk-weighted assets (e)	N/A	N/A	N/A	$ 277,896	$ 264,931	$ 285,870
Basel III Common equity Tier 1 capital ratio	10.6%	10.6%	10.9%	10.0%	10.0%	10.0%
Risk weight and associated rules utilized	Standardized (with 2016 transition adjustments)	Standardized (with 2015 transition adjustments)	Standardized (with 2014 transition adjustments)	Standardized		

(a) We utilize the pro forma fully phased-in Basel III capital ratios to assess our capital position (without the benefit of phase-ins), as these ratios represent the regulatory capital standards that may ultimately be applicable to us under the final Basel III rules.
(b) Basel III capital ratios and estimates may be impacted by additional regulatory guidance or analysis, and, in the case of those ratios calculated using the advanced approaches, may be subject to variability based on the ongoing evolution, validation and regulatory approval of our models that are integral to the calculation of advanced approaches risk-weighted assets.
(c) Represents net adjustments related to accumulated other comprehensive income for securities currently, and those transferred from, available for sale, as well as pension and other postretirement plans.
(d) Basel III standardized approach risk-weighted assets are based on the Basel III standardized approach rules and include credit and market risk-weighted assets.
(e) Basel III advanced approaches risk-weighted assets are based on the Basel III advanced approaches rules, and include credit, market and operational risk-weighted assets. During the parallel run qualification phase we have refined the data, models and internal processes used as part of the advanced approaches for determining risk-weighted assets. Refinements implemented in the fourth quarter of 2015 reduced estimated Basel III advanced approaches risk-weighted assets. We anticipate additional refinements to this estimate through the parallel run qualification phase.

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

None.

ITEM 9A – CONTROLS AND PROCEDURES

MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

The management of The PNC Financial Services Group, Inc. and subsidiaries (PNC) is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in the Exchange Act Rule 13a-15(f).

Because of inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

We performed an evaluation under the supervision and with the participation of our management, including the Chairman, President and Chief Executive Officer and the Executive Vice President and Chief Financial Officer, of the effectiveness of PNC's internal control over financial reporting as of December 31, 2018. This assessment was based on criteria for effective internal control over financial reporting described in *Internal Control-Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this assessment, management concluded that PNC maintained effective internal control over financial reporting as of December 31, 2018.

PricewaterhouseCoopers LLP, the independent registered public accounting firm that audited our consolidated financial statements as of and for the year ended December 31, 2018 included in this Report, has also audited the effectiveness of PNC's internal control over financial reporting as of December 31, 2018. The report of PricewaterhouseCoopers LLP is included under Item 8 of this Report.

DISCLOSURE CONTROLS AND PROCEDURES AND CHANGES IN INTERNAL CONTROL OVER FINANCIAL REPORTING

As of December 31, 2018, we performed an evaluation under the supervision and with the participation of our management, including the Chairman, President and Chief Executive Officer and the Executive Vice President and Chief Financial Officer, of the effectiveness of the design and operation of our disclosure controls and procedures and of changes in our internal control over financial reporting.

Based on that evaluation, our Chairman, President and Chief Executive Officer and our Executive Vice President and Chief Financial Officer concluded that our disclosure controls and procedures (as defined in Rule 13a-15(e) under the Securities and Exchange Act of 1934, as amended) were effective as of December 31, 2018, and that there has been no change in PNC's internal control over financial reporting that occurred during the fourth quarter of 2018 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B – OTHER INFORMATION

None.

PART III

ITEM 10 – DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

Certain of the information regarding our directors (or nominees for director), executive officers and Audit Committee (and Audit Committee financial experts), required by this item is included under the captions "Election of Directors (Item 1)," and "Corporate Governance – Board committees – Audit Committee," in our Proxy Statement to be filed for the 2019 annual meeting of shareholders and is incorporated herein by reference.

Additional information regarding our executive officers is included in Part I of this Report under the captions "Executive Officers of the Registrant."

Information regarding our compliance with Section 16(a) of the Securities Exchange Act of 1934 is included under the caption "Section 16(a) Beneficial Ownership Reporting Compliance" in our Proxy Statement to be filed for the 2019 annual meeting of shareholders and is incorporated herein by reference.

Certain information regarding our PNC Code of Business Conduct and Ethics required by this item is included under the caption "Corporate Governance – Our Code of Business Conduct and Ethics" and "Director and Executive Officer Relationships - Code of Business Conduct and Ethics" in our Proxy Statement to be filed for the 2019 annual meeting of shareholders and is incorporated herein by reference. Our PNC Code of Business Conduct and Ethics is available on our corporate website at www.pnc.com/corporategovernance. In addition, any future amendments to, or waivers from, a provision of the PNC Code of Business Conduct and Ethics that applies to our directors or executive officers (including our principal executive officer, principal financial officer, and principal accounting officer or controller) will be posted at this internet address.

ITEM 11 – EXECUTIVE COMPENSATION

The information required by this item is included under the captions “Corporate Governance – Board committees –Personnel and Compensation Committee – Compensation committee interlocks and insider participation,” “Director Compensation,” “Compensation Discussion and Analysis,” “Compensation Committee Report,” “Compensation and Risk,” “Compensation Tables,” “Change in Control and Termination of Employment” and "CEO Pay Ratio" in our Proxy Statement to be filed for the 2019 annual meeting of shareholders and is incorporated herein by reference. In accordance with Item 407(e)(5) of Regulation S-K, the information set forth under the caption “Compensation Committee Report” in such Proxy Statement will be deemed to be furnished in this Report and will not be deemed to be incorporated by reference into any filing under the Securities Act or the Exchange Act as a result of furnishing the disclosure in this manner.

ITEM 12 – SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by this item regarding security ownership of certain beneficial owners and management is included under the caption “Security Ownership of Management and Certain Beneficial Owners” in our Proxy Statement to be filed for the 2019 annual meeting of shareholders and is incorporated herein by reference.

Information regarding our compensation plans under which PNC equity securities are authorized for issuance as of December 31, 2018 is included in the table which follows. Additional information regarding these plans is included in Note 12 Stock Based Compensation Plans in the Notes To Consolidated Financial Statements in Item 8 of this Report.

Equity Compensation Plan Information
At December 31, 2018

	(a)			(b)	(c)	
	Number of securities to be issued upon exercise of outstanding options, warrants and rights			Weighted-average exercise price of outstanding options, warrants and rights (1)	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))	
Plan Category						
Equity compensation plans approved by security holders	5,350,388	(2)	$	58.61	34,295,085	(3)
Equity compensation plans not approved by security holders	—		$	—	—	
Total	**5,350,388**		**$**	**58.61**	**34,295,085**	

(1) – The weighted-average exercise price does not take into account restricted stock units or incentive performance units because they have no exercise price.

(2) – Of this total, the following amounts relate to the 2016 Incentive Award Plan (2016 Incentive Plan), approved by shareholders on April 26, 2016: 2,212,878 are stock-payable restricted stock units (at a maximum share award level), 219,911 are performance share units (at maximum share award level), 20,000 are deferred stock units (at a maximum share award level), and 108,176 are incentive performance unit awards (at a maximum share award level). Also included in this total are the following amounts that relate to the 2006 Incentive Award Plan, as amended and restated (2006 Incentive Plan): 961,200 are stock options, 1,639,638 are stock-payable restricted stock units (at a maximum award level), and 188,585 are incentive performance unit awards (at a maximum share award level).

Under both the 2016 Incentive Plan and the 2006 Incentive Plan (for incentive performance unit awards under each) upon achievement of performance goals and other conditions above target level, payment is made in cash share equivalents, up to a maximum of 25% of the target number of share units.

Following shareholder approval of the 2016 Incentive Plan, no further grants were permitted under the 2006 Incentive Plan.

(3) – Includes 936,618 shares available for issuance under the Employee Stock Purchase Plan, of which 87,597 shares are subject to purchase during the purchase period ending December 31, 2018. The amount available for awards under the 2016 Incentive Plan is 33,358,467.

ITEM 13 – CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by this item is included under the captions “Director and Executive Officer Relationships –Director independence, – Transactions with directors, – Family relationships, and – Indemnification and advancement of costs” and “Related Person Transactions” in our Proxy Statement to be filed for the 2019 annual meeting of shareholders and is incorporated herein by reference.

ITEM 14 – PRINCIPAL ACCOUNTING FEES AND SERVICES

The information required by this item is included under the caption "Ratification of Independent Registered Public Accounting Firm (Item 2) – Audit, audit-related and permitted non-audit fees and – Procedures for pre-approving audit services, audit-related services and permitted non-audit services" in our Proxy Statement to be filed for the 2019 annual meeting of shareholders and is incorporated herein by reference.

PART IV

ITEM 15 – EXHIBITS, FINANCIAL STATEMENT SCHEDULES

FINANCIAL STATEMENTS, FINANCIAL STATEMENT SCHEDULES

Our consolidated financial statements required in response to this Item are incorporated by reference from Item 8 of this Report.
Audited consolidated financial statements of BlackRock, Inc. as of December 31, 2018 and 2017 and for each of the three years in the period ended December 31, 2018 are filed with this Report as Exhibit 99.1 and incorporated herein by reference.

EXHIBIT INDEX

Exhibit No.	Description	Method of Filing +
3.1.1	Amended and Restated Articles of Incorporation of the Corporation, effective January 2, 2009	Incorporated herein by reference to Exhibit 3.1 of the Corporation's Annual Report on Form 10-K for the year ended December 31, 2008 (2008 Form 10-K)
3.1.2	Statement with Respect to Shares of Fixed-to-Floating Rate Non-Cumulative Perpetual Preferred Stock, Series O dated July 21, 2011	Incorporated herein by reference to Exhibit 3.1 of the Corporation's Current Report on Form 8-K filed July 27, 2011
3.1.3	Statement with Respect to Shares of Fixed-to-Floating Rate Non-Cumulative Perpetual Preferred Stock, Series P dated April 19, 2012	Incorporated herein by reference to Exhibit 3.1 of the Corporation's Current Report on Form 8-K filed April 24, 2012
3.1.4	Statement with Respect to Shares of 5.375% Non-Cumulative Perpetual Preferred Stock, Series Q dated September 14, 2012	Incorporated herein by reference to Exhibit 3.1 of the Corporation's Current Report on Form 8-K filed September 21, 2012
3.1.5	Statement with Respect to Shares of Fixed-to-Floating Rate Non-Cumulative Perpetual Preferred Stock, Series R dated May 2, 2013	Incorporated herein by reference to Exhibit 3.1 of the Corporation's Current Report on Form 8-K filed May 7, 2013
3.1.6	Amendment to Amended and Restated Articles of Incorporation of the Corporation, effective November 19, 2015	Incorporated herein by reference to Exhibit 3.1.6 of the Corporation's Current Report on Form 8-K filed November 20, 2015
3.1.7	Statement with Respect to Shares of Fixed-to-Floating Rate Non-Cumulative Perpetual Preferred Stock, Series S dated October 27, 2016	Incorporated herein by reference to Exhibit 3.1 of the Corporation's Current Report on Form 8-K filed November 1, 2016
3.2	By-Laws of the Corporation, as amended and restated, effective August 11, 2016	Incorporated herein by reference to Exhibit 3.2 of the Corporation's Current Report on Form 8-K filed August 11, 2016
4.1	There are no instruments with respect to long-term debt of the Corporation and its subsidiaries that involve a total amount of securities authorized thereunder that exceed 10 percent of the total assets of the Corporation and its subsidiaries on a consolidated basis. The Corporation agrees to provide the SEC with a copy of instruments defining the rights of holders of long-term debt of the Corporation and its subsidiaries on request.	
4.2	Deposit Agreement dated July 27, 2011, between the Corporation, Computershare Trust Company, N.A., Computershare Inc. and the holders from time to time of the Depositary Receipts representing interests in the Series O preferred stock	Incorporated herein by reference to Exhibit 4.2 of the Corporation's Current Report on Form 8-K filed July 27, 2011

4.3	Deposit Agreement, dated April 24, 2012, between the Corporation, Computershare Trust Company, N.A., Computershare Inc. and the holders from time to time of the Depositary Receipts representing interests in the Series P preferred stock	Incorporated herein by reference to Exhibit 4.2 of the Corporation's Current Report on Form 8-K filed April 24, 2012
4.4	Deposit Agreement, dated September 21, 2012, between the Corporation, Computershare Trust Company, N.A., Computershare Inc. and the holders from time to time of the Depositary Receipts representing interests in the Series Q preferred stock	Incorporated herein by reference to Exhibit 4.2 of the Corporation's Current Report on Form 8-K filed September 21, 2012
4.5	Deposit Agreement, dated May 7, 2013, between the Corporation, Computershare Trust Company, N.A., Computershare Inc. and the holders from time to time of the Depositary Receipts representing interests in the Series R preferred stock	Incorporated herein by reference to Exhibit 4.2 of the Corporation's Current Report on Form 8-K filed May 7, 2013
4.6	Deposit Agreement, dated November 1, 2016, between the Corporation, Computershare Trust Company, N.A., Computershare Inc. and the holders from time to time of the Depositary Receipts representing interests in the Series S preferred stock	Incorporated herein by reference to Exhibit 4.2 of the Corporation's Current Report on Form 8-K filed November 1, 2016
4.7	Form of PNC Bank, National Association Subordinated Fixed Rate Global Bank Note issued prior to January 16, 2014	Incorporated herein by reference to Exhibit 4.11 of the Corporation's 3rd Quarter 2004 Form 10-Q
4.8.1	Issuing and Paying Agency Agreement, dated January 16, 2014, between PNC Bank, National Association and PNC Bank, National Association, relating to the $25 billion Global Bank Note Program for the Issue of Senior and Subordinated Bank Notes	Incorporated herein by reference to Exhibit 4.25 of the Corporation's Annual Report on Form 10-K for the year ended December 31, 2013 (2013 Form 10-K)
4.8.2	Amendment No. 1 to Issuing and Paying Agency Agreement, dated May 22, 2015, between PNC Bank, National Association and PNC Bank, National Association, relating to the $30 billion Global Bank Note Program for the Issue of Senior and Subordinated Bank Notes	Incorporated herein by reference to Exhibit 4.21.2 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended June 30, 2015 (2nd Quarter 2015 Form 10-Q)
4.8.3	Amendment No. 2 to Issuing and Paying Agency Agreement, dated May 27, 2016, between PNC Bank, National Association and PNC Bank, National Association, relating to the $40 billion Global Bank Note Program for the Issue of Senior and Subordinated Bank Notes	Incorporated herein by reference to Exhibit 4.20.3 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended June 30, 2016 (2nd Quarter 2016 Form 10-Q)
4.9	Forms of PNC Bank, National Association Senior Global Bank Notes issued after January 16, 2014 (included in Exhibit 4.9.1)	Incorporated herein by reference to Exhibit 4.25 of the Corporation's 2013 Form 10-K
4.10	Forms of PNC Bank, National Association Subordinated Global Bank Notes issued on or after May 22, 2015 (included in Exhibit 4.9.2)	Incorporated herein by reference to Exhibit 4.21.2 of the Corporation's 2nd Quarter 2015 Form 10-Q
10.1.1	The Corporation's Supplemental Executive Retirement Plan, as amended and restated effective January 1, 2009	Incorporated herein by reference to Exhibit 10.2 of the Corporation's 2008 Form 10-K*
10.1.2	Amendment 2009-1 to the Corporation's Supplemental Executive Retirement Plan, as amended and restated effective January 1, 2009	Incorporated herein by reference to Exhibit 10.3 of the Corporation's Annual Report on Form 10-K for the year ended December 31, 2009 (2009 Form 10-K)*
10.1.3	Amendment 2013-1 to the Corporation's Supplemental Executive Retirement Plan, as amended and restated effective January 1, 2009	Incorporated herein by reference to Exhibit 10.1.3 of the Corporation's 2013 Form 10-K*
10.2.1	The Corporation's ERISA Excess Pension Plan, as amended and restated effective January 1, 2009	Incorporated herein by reference to Exhibit 10.4 of the Corporation's 2008 Form 10-K*
10.2.2	Amendment 2009-1 to the Corporation's ERISA Excess Plan, as amended and restated effective January 1, 2009	Incorporated herein by reference to Exhibit 10.6 of the Corporation's 2009 Form 10-K*

10.2.3	Amendment 2011-1 to the Corporation's ERISA Excess Pension Plan, as amended and restated effective January 1, 2009	Incorporated herein by reference to Exhibit 10.8 of the Corporation's Annual Report on Form 10-K for the year ended December 31, 2011 (2011 Form 10-K)*
10.2.4	Amendment 2013-1 to the Corporation's ERISA Excess Pension Plan, as amended and restated effective January 1, 2009	Incorporated herein by reference to Exhibit 10.2.4 of the Corporation's 2013 Form 10-K*
10.3.1	The Corporation's Key Executive Equity Program, as amended and restated effective January 1, 2009	Incorporated herein by reference to Exhibit 10.6 of the Corporation's 2008 Form 10-K*
10.3.2	Amendment 2009-1 to the Corporation's Key Executive Equity Program, as amended and restated as of January 1, 2009	Incorporated herein by reference to Exhibit 10.9 of the Corporation's 2009 Form 10-K*
10.4.1	The Corporation's Supplemental Incentive Savings Plan, as amended and restated effective January 1, 2010	Incorporated herein by reference to Exhibit 10.17 of the Corporation's 2011 Form 10-K*
10.4.2	Amendment 2013-1 to the Corporation's Supplemental Incentive Savings Plan, as amended and restated effective January 1, 2010	Incorporated herein by reference to Exhibit 10.4.2 of the Corporation's 2013 Form 10-K*
10.5.1	The Corporation and Affiliates Deferred Compensation Plan, as amended and restated May 5, 2009	Incorporated herein by reference to Exhibit 10.62 of the Corporation's 2nd Quarter 2009 Form 10-Q*
10.5.2	Amendment 2009-1 to the Corporation and Affiliates Deferred Compensation Plan, as amended and restated May 5, 2009	Incorporated herein by reference to Exhibit 10.17 of the Corporation's 2009 Form 10-K*
10.5.3	Amendment 2010-1 to the Corporation and Affiliates Deferred Compensation Plan, as amended and restated May 5, 2009	Incorporated herein by reference to Exhibit 10.20 of the Corporation's Annual Report on Form 10-K for the year ended December 31, 2010 (2010 Form 10-K)*
10.5.4	Amendment 2011-1 to the Corporation and Affiliates Deferred Compensation Plan, as amended and restated May 5, 2009	Incorporated herein by reference to Exhibit 10.23 of the Corporation's 2011 Form 10-K*
10.5.5	Amendment 2012-1 to the Corporation and Affiliates Deferred Compensation Plan, as amended and restated May 5, 2009	Incorporated herein by reference to Exhibit 10.24 of the Corporation's Annual Report on Form 10-K for the year ended December 31, 2012 (2012 Form 10-K)*
10.5.6	Amendment 2013-1 to the Corporation and Affiliates Deferred Compensation Plan, as amended and restated May 5, 2009	Incorporated herein by reference to Exhibit 10.5.6 of the Corporation's 2013 Form 10-K*
10.6.1	The Corporation and Affiliates Deferred Compensation and Incentive Plan, as amended and restated effective January 1, 2017	Incorporated herein by reference to Exhibit 10.7 of the Corporation's Form 10-K for the year ended December 31, 2016 (2016 Form 10-K)*
10.6.2	Amendment 2018-1 to the Corporation and Affiliates Deferred Compensation and Incentive Plan, as amended and restated effective January 1, 2017	Filed herewith*
10.7	The PNC Financial Services Group, Inc. 2016 Incentive Award Plan	Incorporated herein by reference to Exhibit 99.1 of the Corporation's Form S-8 (File No. 333-210995) filed April 29, 2016*
10.8.1	The Corporation's 2006 Incentive Award Plan, as amended and restated effective as of March 11, 2011	Incorporated herein by reference to Exhibit 10.70 of the Corporation's Quarterly Report on Form 1O-Q for the quarter ended March 31, 2011 (1st Quarter 2011 Form 10-Q)*
10.8.2	Addendum to the Corporation's 2006 Incentive Award Plan, effective as of January 26, 2012	Incorporated herein by reference to Exhibit 10.28 of the Corporation's 2011 Form 10-K*
10.9	The Corporation's Directors Deferred Compensation Plan, as amended and restated effective January 1, 2015	Incorporated herein by reference to Exhibit 10.52 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2014 (3rd Quarter 2014 10-Q)*
10.10	The Corporation's 2016 Incentive Award Plan Directors Deferred Stock Unit Program effective January 1, 2017	Incorporated herein by reference to Exhibit 10.16 of the Corporation's 2016 Form 10-K*

10.11	Trust Agreement between the Corporation, as settlor, and Matrix Trust Company, as trustee	Incorporated herein by reference to Exhibit 10.15 of the Corporation's Form 10-K for the year ended December 31, 2017*
10.12	Trust Agreement between PNC Investment Corp., as settlor, and PNC Bank, National Association, as trustee	Incorporated herein by reference to Exhibit 10.34 of the Corporation's 3rd Quarter 2005 Form 10-Q*
10.13	Certificate of Corporate Action for Grantor Trusts effective January 1, 2012	Incorporated herein by reference to Exhibit 10.37 of the Corporation's 2011 Form 10-K*
10.14	The Corporation's Employee Stock Purchase Plan, as amended and restated as of January 1, 2019	Incorporated herein by reference to Exhibit 10.53 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2018
10.15	2009 forms of employee stock option, restricted stock and restricted share unit agreements	Incorporated by reference to the employee stock option, restricted stock and restricted share unit agreements portions of Exhibit 10.61 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2009*
10.16	2010 forms of employee stock option, restricted stock, and restricted share unit agreements	Incorporated herein by reference to Exhibit 10.48 of the Corporation's 2009 Form 10-K*
10.17	2011 forms of employee stock option, restricted stock, restricted share unit and performance unit agreements	Incorporated herein by reference to Exhibit 10.71 of the Corporation's 1st Quarter 2011 Form 10-Q*
10.18	2012 forms of employee stock option, restricted stock and restricted share unit agreements	Incorporated herein by reference to Exhibit 10.77 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2012 (1st Quarter 2012 Form 10-Q)*
10.19	Forms of employee stock option, restricted stock and restricted share unit agreements with varied vesting, payment and other circumstances	Incorporated herein by reference to Exhibit 10.78 of the Corporation's 1st Quarter 2012 Form 10-Q*
10.20	2013 forms of employee stock option and restricted share unit agreements	Incorporated herein by reference to Exhibit 10.64 of the Corporation's 2012 Form 10-K*
10.21	Additional 2013 forms of employee stock option, performance unit, restricted stock and restricted share unit agreements	Incorporated herein by reference to Exhibit 10.82 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended June 30, 2013*
10.22	Additional 2013 and 2014 forms of employee restricted share unit and performance unit agreements	Incorporated by reference to Exhibit 10.36 of the Corporation's 2013 Form 10-K*
10.23	Additional 2014 Forms of Employee Performance Unit and Restricted Share Unit Agreements	Incorporated herein by reference to Exhibit 10.50 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended June 30, 2014*
10.24	Additional 2014 Forms of Employee Restricted Share Unit Agreements	Incorporated herein by reference to Exhibit 10.51 of the Corporation's 3rd Quarter 2014 10-Q*
10.25	2015 Forms of Performance Restricted Share Unit Award Agreements	Incorporated herein by reference to Exhibit 10.50 of the Corporation's 2nd Quarter 2015 Form 10-Q*
10.26	2016 Form of Performance Restricted Share Units Award Agreement	Incorporated herein by reference to Exhibit 10.52 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2016 (3rd Quarter 2016 Form 10-Q)*
10.27	2016 Form of Incentive Performance Units Award Agreement	Incorporated herein by reference to Exhibit 10.53 of the Corporation's 3rd Quarter 2016 Form 10-Q*
10.28	2016 Form of Senior Leader Performance Restricted Share Units Award Agreement	Incorporated herein by reference to Exhibit 10.54 of the Corporation's 3rd Quarter 2016 Form 10-Q*
10.29	2016 Form of ALM Incentive Performance Units Award Agreement	Incorporated herein by reference to Exhibit 10.55 of the Corporation's 3rd Quarter 2016 Form 10-Q*
10.30	2017 Form of Performance Restricted Share Units Award Agreement	Incorporated herein by reference to Exhibit 10.56 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended June 30, 2017 (2nd Quarter 2017 Form 10-Q)*

10.31	2017 Form of Incentive Performance Units Award Agreement	Incorporated herein by reference to Exhibit 10.57 of the Corporation's 2nd Quarter 2017 Form 10-Q*
10.32	2017 Form of Performance Restricted Share Units Award Agreement - Senior Leaders Program (Section 16 Executives)	Incorporated herein by reference to Exhibit 10.58 of the Corporation's 2nd Quarter 2017 Form 10-Q*
10.33	2017 Form of Cash-Payable Incentive Performance Units Award Agreement	Incorporated herein by reference to Exhibit 10.59 of the Corporation's 2nd Quarter 2017 Form 10-Q*
10.34	2018 Form of Performance Share Units Award Agreement	Incorporated herein by reference to Exhibit 10.50 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended June 30, 2018 (2nd Quarter 2018 Form 10-Q)*
10.35	2018 Form of Restricted Share Units Award Agreement	Incorporated herein by reference to Exhibit 10.51 of the Corporation's 2nd Quarter 2018 Form 10-Q*
10.36	2018 Form of Restricted Share Units Award Agreement - Senior Leader Program	Incorporated herein by reference to Exhibit 10.52 of the Corporation's 2nd Quarter 2018 Form 10-Q*
10.37	Form of Time-Sharing Agreement between the Corporation and certain executives	Incorporated by reference to Exhibit 10.49 of the Corporation's Current Report on Form 8-K filed April 4, 2014*
10.38	Form of change of control employment agreements	Incorporated herein by reference to Exhibit 10.51 of the Corporation's Current Report on Form 8-K filed August 16, 2016*
10.39.1	The National City Corporation 2004 Deferred Compensation Plan, as amended and restated effective January 1, 2005	Incorporated herein by reference to Exhibit 10.35 of National City Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2006*
10.39.2	Amendment to The National City Corporation 2004 Deferred Compensation Plan, as amended and restated effective January 1, 2005	Incorporated herein by reference to Exhibit 10.56 of the Corporation's 2010 Form 10-K*
10.40.1	Share Surrender Agreement, dated October 10, 2002, among Old BlackRock, PNC Asset Management, Inc., and the Corporation	Incorporated herein by reference to Exhibit 10.22 of the Quarterly Report on Form 10-Q of BlackRock Holdco 2, Inc. (Commission File No. 001-15305) (referred to herein as Old BlackRock) for the quarter ended September 30, 2002 (Old BlackRock 3rd Quarter 2002 Form 10-Q)
10.40.2	First Amendment, dated as of February 15, 2006, to the Share Surrender Agreement among Old BlackRock, PNC Bancorp, Inc. and the Corporation	Incorporated herein by reference to Exhibit 10.3 of the Current Report on Form 8-K of Old BlackRock (Commission File No. 001-15305) filed February 22, 2006 (Old BlackRock February 22, 2006 Form 8-K)
10.40.3	Second Amendment to Share Surrender Agreement made and entered into as of June 11, 2007 by and between the Corporation, BlackRock, Inc., and PNC Bancorp, Inc.	Incorporated herein by reference to Exhibit 10.50 of the Corporation's Current Report on Form 8-K filed June 14, 2007
10.40.4	Third Amendment to Share Surrender Agreement, dated as of February 27, 2009, between the Corporation and BlackRock, Inc.	Incorporated herein by reference to Exhibit 10.3 of BlackRock, Inc.'s Current Report on Form 8-K filed February 27, 2009
10.40.5	Fourth Amendment to Share Surrender Agreement, dated as of August 7, 2012, among BlackRock, Inc., the Corporation and PNC Bancorp, Inc.	Incorporated herein by reference to Exhibit 10.1 of BlackRock, Inc.'s Form 10-Q for the quarter ended June 30, 2012
10.41.1	Amended and Restated Implementation and Stockholder Agreement, dated as of February 27, 2009, between the Corporation and BlackRock, Inc.	Incorporated herein by reference to Exhibit 10.2 of BlackRock, Inc.'s Current Report on Form 8-K filed February 27, 2009

10.41.2	Amendment No. 1, dated as of June 11, 2009, to the Amended and Restated Implementation and Stockholder Agreement between the Corporation and BlackRock, Inc.	Incorporated herein by reference to Exhibit 10.2 of BlackRock, Inc.'s Current Report on Form 8-K filed June 17, 2009
10.42	Exchange Agreement dated as of May 21, 2012 by and among PNC Bancorp, Inc., the Corporation and BlackRock, Inc.	Incorporated herein by reference to Exhibit 10.3 of BlackRock, Inc.'s Current Report on Form 8-K filed May 23, 2012
10.43.1	Distribution Agreement, dated January 16, 2014, between PNC Bank, National Association and the Dealers named therein, relating to the $25 billion Global Bank Note Program for the Issue of Senior and Subordinated Bank Notes	Incorporated by reference to Exhibit 10.47 of the Corporation's Annual Report on Form 10-K for the year ended December 31, 2014
10.43.2	Amendment No. 1 to Distribution Agreement, dated May 22, 2015, between PNC Bank, National Association and the Dealers named therein, relating to the $30 billion Global Bank Note Program for the Issue of Senior and Subordinated Bank Notes	Incorporated herein by reference to Exhibit 10.47.2 of the Corporation's 2nd Quarter 2015 Form 10-Q
10.43.3	Amendment No. 2 to Distribution Agreement, dated May 27, 2016, between PNC Bank, National Association and the Dealers named therein, relating to the $40 billion Global Bank Note Program for the Issue of Senior and Subordinated Bank Notes	Incorporated herein by reference to Exhibit 10.48.3 of the Corporation's 2nd Quarter 2016 Form 10-Q
10.44	Stock Purchase Agreement, dated as of February 1, 2010, by and between the Corporation and The Bank of New York Mellon Corporation	Incorporated herein by reference to Exhibit 2.1 of the Corporation's Current Report on Form 8-K filed February 3, 2010
21	Schedule of Certain Subsidiaries of the Corporation	Filed herewith
23.1	Consent of PricewaterhouseCoopers LLP, the Corporation's Independent Registered Public Accounting Firm	Filed herewith
23.2	Consent of Deloitte & Touche LLP, Independent Registered Public Accounting Firm of BlackRock, Inc.	Filed herewith
24	Powers of Attorney	Filed herewith
31.1	Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002	Filed herewith
31.2	Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002	Filed herewith
32.1	Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350	Filed herewith
32.2	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350	Filed herewith
99.1	Audited consolidated financial statements of BlackRock, Inc. as of December 31, 2018 and 2017 and for each of the three years ended December 31, 2018	Filed herewith
101	Interactive Data File (XBRL)	Filed herewith

\+ Incorporated document references to filings by the Corporation are to SEC File No. 001-09718, to filings by National City Corporation are to SEC File No. 001-10074, to filings by BlackRock through its second quarter 2006 Form 10-Q (referred to herein as Old BlackRock) are to BlackRock Holdco 2, Inc. SEC File No. 001-15305, and to filings by BlackRock, Inc. are to SEC File No. 001-33099.

* Denotes management contract or compensatory plan.

You can obtain copies of these Exhibits electronically at the SEC's website at www.sec.gov. The Exhibits are also available as part of this Form 10-K on PNC's corporate website at www.pnc.com/secfilings. Shareholders and bondholders may also obtain copies of Exhibits without charge via e-mail to investor.relations@pnc.com. The Interactive Data File (XBRL) exhibit is only available electronically.

ITEM 16 – FORM 10-K SUMMARY

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

The PNC Financial Services Group, Inc.
(Registrant)

By: /s/ Robert Q. Reilly
Robert Q. Reilly
Executive Vice President and Chief Financial Officer
March 1, 2019

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of The PNC Financial Services Group, Inc. and in the capacities indicated on March 1, 2019.

Signature	Capacities
/s/ William S. Demchak William S. Demchak	Chairman, President, Chief Executive Officer and Director (Principal Executive Officer)
/s/ Robert Q. Reilly Robert Q. Reilly	Executive Vice President and Chief Financial Officer (Principal Financial Officer)
/s/ Gregory H. Kozich Gregory H. Kozich	Senior Vice President and Controller (Principal Accounting Officer)
* Joseph Alvarado; Charles E. Bunch; Debra A. Cafaro; Marjorie Rodgers Cheshire; Andrew T. Feldstein; Richard J. Harshman; Daniel R. Hesse; Richard B. Kelson; Linda R. Medler, Martin Pfinsgraff; Donald J. Shepard; Toni Townes-Whitley; Michael J. Ward	Directors

*By: /s/ Alicia Powell
Alicia Powell, Attorney-in-Fact,
pursuant to Powers of Attorney filed herewith

EXHIBIT 10.6.2

AMENDMENT 2018-1

THE PNC FINANCIAL SERVICES GROUP, INC. AND AFFILIATES DEFERRED COMPENSATION AND INCENTIVE PLAN (as amended and restated as of January 1, 2017)

WHEREAS, The PNC Financial Services Group, Inc. ("PNC") sponsors The PNC Financial Services Group, Inc. and Affiliates Deferred Compensation and Incentive Plan (the "Plan");

WHEREAS, Section 10 of the Plan authorizes PNC to amend the Plan; and

WHEREAS, PNC wishes to amend the Plan to eliminate the cancellation of a deferral election following a hardship withdrawal from The PNC Financial Services Group, Inc. Incentive Savings Plan.

NOW, THEREFORE, IT IS RESOLVED, that, effective as of January 1, 2019, the Plan is hereby amended as follows:

1. Section 3.3 of the Plan ("Cancellation or Revocation of Deferral Elections") is amended in its entirety to read as follows:

"3.3 Cancellation or Revocation of Deferral Elections.

A Participant's Deferral Election for a Plan Year may be cancelled by the Committee or its delegate for the remainder of such Plan Year upon (i) the Participant's taking a hardship withdrawal under the DCP or the SISP (as applicable); (ii) the Participant's Disability, provided that the suspension occurs by the later of the end of the Participant's taxable year and the 15th day of the third month following the date the Participant incurs the Disability; and (iii) the Participant's receipt of a distribution from the Plan on account of an Unforeseeable Emergency. Any such cancellation shall apply to any Base Salary and Eligible Short-Term Incentive Pay subject to such Deferral Election that would otherwise have been payable after the date of such suspension and before the end of such Plan Year. In addition, all of a Participant's existing Deferral Elections will be deemed to have been revoked upon (A) a termination of the Plan or the portion thereof covering the Participant, to the extent permitted under Internal Revenue Code Section 409A; or (B) the Participant's Severance From Service (except with respect to any Base Salary and/or Eligible Short-Term Incentive Pay earned before the Severance From Service)."

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Executed and adopted by the Chief Human Resources Officer of The PNC Financial Services Group, Inc. this 18th day of December, 2018 pursuant to the authority delegated by the PNC's Personnel and Compensation Committee.

/s/ Vicki C. Henn
Vicki C. Henn
Executive Vice President
Chief Human Resources Officer

[Signature Page to Amendment 2018-1 to
The PNC Financial Services Group, Inc. and Affiliates Deferred Compensation and Incentive Plan]

EXHIBIT 21

THE PNC FINANCIAL SERVICES GROUP, INC.
SCHEDULE OF CERTAIN SUBSIDIARIES
(As of December 31, 2018)

Name	State or Other Jurisdiction of Incorporation or Organization
PNC Bancorp, Inc. (1)	Delaware
PNC Bank, National Association (1)	United States
PNC REIT Corp.	Delaware
PNC Equipment Finance, LLC	Delaware
PNC Merchant Services Company	Delaware
PNC NCNVINV, Inc.	Delaware
PNC Holding, LLC (1)	Delaware
PNC Investment Company, LLC	Delaware
PNC Capital Markets, LLC	Pennsylvania
PNC Capital Finance, LLC	Delaware

(1) The names of the subsidiaries of the indicated entities are omitted because such subsidiaries, considered in the aggregate as a single subsidiary, would not constitute a significant subsidiary.

EXHIBIT 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-3 (No. 333-210994, and No. 333-228804), Form S-4 (No. 333-155248) and Form S-8 (No. 333-156540, No. 333-18069, No. 333-65040, No. 333-136808, No. 333-172931, No. 333-156886, No. 333-177896, No. 333-134169, No. 333-139345, No. 333-143182, No. 333-177898, No. 333-156527, No. 333-198461, No. 333-210995, and No. 333-229874) of The PNC Financial Services Group, Inc. of our report dated February 28, 2019 relating to the financial statements and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP

Pittsburgh, Pennsylvania
February 28, 2019

EXHIBIT 23.2

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference of our report dated February 28, 2019, relating to the consolidated financial statements of BlackRock, Inc. appearing in Exhibit 99.1 to this Annual Report on Form 10-K of The PNC Financial Services Group, Inc. (the "Corporation") for the year ended December 31, 2018, in the following Registration Statements of the Corporation:

- Forms S-3 relating to the Corporation's Dividend Reinvestment and Stock Purchase Plan (No. 333-210994)
- Forms S-8 relating to the Corporation's Employee Stock Purchase Plan (No 333-156540)
- Forms S-8 relating to the Corporation's Supplemental Incentive Savings Plan and the Corporation and Affiliates' Deferred Compensation Plan (Nos. 333-18069, 333-65040, 333-136808, and 333-172931)
- Form S-8 relating to the Corporation's Supplemental Incentive Savings Plan and the Corporation and Affiliates' Deferred Compensation Plan (No. 333-156886)
- Form S-8 relating to the Corporation's Deferred Compensation and Incentive Plan (Nos. 333-177896 and 333-198461)
- Forms S-8 relating to the Corporation's 2006 Incentive Award Plan (Nos. 333-134169, 333-139345, 333-143182 and 333-177898)
- Form S-4 relating to the Corporation's acquisition of National City Corporation (No. 333-155248)
- Form S-8 relating to various National City plans (No. 333-156527)
- Form S-8 relating to the Corporation's 2016 Incentive Award Plan (No. 333-210995)
- Form S-8 relating to the Corporation's Deferred Compensation and Incentive Plan and the Corporation's Directors Deferred Compensation Plan (No. 333-229874)
- Form S-3 relating to the shelf registration statement of debt securities, common stock, preferred stock, purchase contracts, units, warrants and depositary shares to be issued by the Corporation (No. 333-228804)

/s/ Deloitte and Touche LLP

New York, New York

February 28, 2019

EXHIBIT 24

POWER OF ATTORNEY

The PNC Financial Services Group, Inc.

KNOW ALL PERSONS BY THESE PRESENTS, that each of the undersigned Directors and/or Officers of The PNC Financial Services Group, Inc. (the "Corporation"), a Pennsylvania corporation, hereby names, constitutes and appoints Robert Q. Reilly, Gregory H. Kozich, Edward S. Rosenthal and Alicia G. Powell, and each of them, as such person's true and lawful attorney-in-fact with power of substitution and resubstitution to sign in his or her name, place and stead, in any and all capacities, and to do any and all things and execute any and all instruments that such attorney may deem necessary or advisable under the Securities Exchange Act of 1934, as amended, and any rules, regulations and requirements of the Securities and Exchange Commission (the "Commission"), in connection with the filing with the Commission of an Annual Report on Form 10-K of the Corporation for the fiscal year ended December 31, 2018 (the "2018 Form 10-K"); including specifically, but without limiting the generality of the foregoing, the power and authority to sign his or her name in his or her capacity as a member of the Board of Directors of the Corporation and/or as an Officer of the Corporation to the 2018 Form 10-K and such other form or forms as may be appropriate to be filed with the Commission as he or she may deem appropriate, together with all exhibits thereto, and to any and all amendments or supplements thereto and to any other documents filed with the Commission, as fully for all intents and purposes as he or she might or could do in person, and hereby ratifies and confirms all that said attorney-in-fact and agent, acting alone may lawfully do or cause to be done by virtue hereof.

This Power of Attorney will be governed by and construed in accordance with the laws of the Commonwealth of Pennsylvania. The execution of this Power of Attorney is not intended to, and does not, revoke any prior powers of attorney other than the revocation, in accordance with applicable laws, of any power of attorney previously granted specifically in connection with the filing of the 2018 Form 10-K (and any and all related documents, including any amendments or supplements to the 2018 Form 10-K).

IN WITNESS WHEREOF, the following persons have duly signed this Power of Attorney in the capacities indicated as of this 19th day of February, 2019.

Name/Signature	Capacity
/s/ William S. Demchak William S. Demchak	Chairman, Chief Executive Officer and President (Principal Executive Officer) and Director
/s/ Robert Q. Reilly Robert Q. Reilly	Executive Vice President and Chief Financial Officer (Principal Financial Officer)
/s/ Gregory H. Kozich Gregory H. Kozich	Senior Vice President and Controller (Principal Accounting Officer)

/s/ Joseph Alvarado Joseph Alvarado	Director
/s/ Charles E. Bunch Charles E. Bunch	Director
/s/ Debra A. Cafaro Debra A. Cafaro	Director
/s/ Marjorie Rodgers Cheshire Marjorie Rodgers Cheshire	Director
/s/ Andrew T. Feldstein Andrew T. Feldstein	Director
/s/ Richard J. Harshman Richard J. Harshman	Director
/s/ Daniel R. Hesse Daniel R. Hesse	Director
/s/ Richard B. Kelson Richard B. Kelson	Director
/s/ Linda R. Medler Linda R. Medler	Director
/s/ Martin Pfinsgraff Martin Pfinsgraff	Director
/s/ Donald J. Shepard Donald J. Shepard	Director
/s/ Toni Townes-Whitley Toni Townes-Whitley	Director
/s/ Michael J. Ward Michael J. Ward	Director

EXHIBIT 31.1

In accordance with Exchange Act Rules 13a-14(f) and 15d-14(f), this certification does not relate to Interactive Data Files as defined in Rule 11 of Regulation S-T.

CERTIFICATION OF CHIEF EXECUTIVE OFFICER

I, William S. Demchak, certify that:

1. I have reviewed this Annual Report on Form 10-K for the year ended December 31, 2018 of The PNC Financial Services Group, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

    a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

    b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

    c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

    d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

    a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

    b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 1, 2019

/s/ William S. Demchak

William S. Demchak

Chairman, President and Chief Executive Officer

EXHIBIT 31.2

In accordance with Exchange Act Rules 13a-14(f) and 15d-14(f), this certification does not relate to Interactive Data Files as defined in Rule 11 of Regulation S-T.

CERTIFICATION OF CHIEF FINANCIAL OFFICER

I, Robert Q. Reilly, certify that:

1. I have reviewed this Annual Report on Form 10-K for the year ended December 31, 2018 of The PNC Financial Services Group, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 1, 2019

/s/ Robert Q. Reilly

Robert Q. Reilly
Executive Vice President and Chief Financial Officer

EXHIBIT 32.1

In accordance with Exchange Act Rules 13a-14(f) and 15d-14(f), this certification does not relate to Interactive Data Files as defined in Rule 11 of Regulation S-T.

CERTIFICATION BY CHIEF EXECUTIVE OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K for the year ended December 31, 2018 of The PNC Financial Services Group, Inc. (Corporation) as filed with the Securities and Exchange Commission on the date hereof (Report), I, William S. Demchak, Chairman, President and Chief Executive Officer of the Corporation, hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, to the best of my knowledge, that:

(1) The Report fully complies with the requirements of Section 13(a) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Corporation for the dates and periods covered by the Report.

This certificate is being made for the exclusive purpose of compliance by the Chief Executive Officer of the Corporation with the requirements of Section 906 of the Sarbanes-Oxley Act of 2002, and may not be used by any person or for any reason other than as specifically required by law.

/s/ William S. Demchak

William S. Demchak
Chairman, President and Chief Executive Officer

March 1, 2019

EXHIBIT 32.2

In accordance with Exchange Act Rules 13a-14(f) and 15d-14(f), this certification does not relate to Interactive Data Files as defined in Rule 11 of Regulation S-T.

CERTIFICATION BY CHIEF FINANCIAL OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K for the year ended December 31, 2018 of The PNC Financial Services Group, Inc. (Corporation) as filed with the Securities and Exchange Commission on the date hereof (Report), I, Robert Q. Reilly, Executive Vice President and Chief Financial Officer of the Corporation, hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, to the best of my knowledge, that:

(1) The Report fully complies with the requirements of Section 13(a) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Corporation for the dates and periods covered by the Report.

This certificate is being made for the exclusive purpose of compliance by the Chief Financial Officer of the Corporation with the requirements of Section 906 of the Sarbanes-Oxley Act of 2002, and may not be used by any person or for any reason other than as specifically required by law.

/s/ Robert Q. Reilly

Robert Q. Reilly
Executive Vice President and Chief Financial Officer

March 1, 2019

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of BlackRock, Inc.:

Opinion on the Financial Statements

We have audited the accompanying consolidated statements of financial condition of BlackRock, Inc. and subsidiaries (the "Company") as of December 31, 2018 and 2017, the related consolidated statements of income, comprehensive income, changes in equity, and cash flows for each of the three years in the period ended December 31, 2018, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018, in conformity with accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 28, 2019, expressed an unqualified opinion on the Company's internal control over financial reporting.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the US federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Deloitte & Touche LLP

New York, New York
February 28, 2019

We have served as the Company's auditor since 2002.

BlackRock, Inc.
Consolidated Statements of Financial Condition

(in millions, except shares and per share data)	December 31, 2018	December 31, 2017
Assets		
Cash and cash equivalents	$ 6,302	$ 6,894
Accounts receivable	2,657	2,699
Investments	1,796	1,981
Assets of consolidated variable interest entities:		
Cash and cash equivalents	186	144
Investments	2,680	1,493
Other assets	876	66
Separate account assets	90,285	149,937
Separate account collateral held under securities lending agreements	20,655	24,190
Property and equipment (net of accumulated depreciation of $750 and $658 at December 31, 2018 and 2017, respectively)	643	592
Intangible assets (net of accumulated amortization of $244 and $219 at December 31, 2018 and 2017, respectively)	17,839	17,389
Goodwill	13,526	13,220
Other assets	2,128	1,636
Total assets	$ 159,573	$ 220,241
Liabilities		
Accrued compensation and benefits	$ 1,988	$ 2,153
Accounts payable and accrued liabilities	1,292	1,161
Liabilities of consolidated variable interest entities:		
Borrowings	84	—
Other liabilities	1,290	369
Borrowings	4,979	5,014
Separate account liabilities	90,285	149,937
Separate account collateral liabilities under securities lending agreements	20,655	24,190
Deferred income tax liabilities	3,571	3,527
Other liabilities	1,889	1,626
Total liabilities	126,033	187,977
Commitments and contingencies (Note 14)		
Temporary equity		
Redeemable noncontrolling interests	1,107	416
Permanent Equity		
BlackRock, Inc. stockholders' equity		
Common stock, $0.01 par value;	2	2
Shares authorized: 500,000,000 at December 31, 2018 and 2017;		
Shares issued: 171,252,185 at December 31, 2018 and 2017;		
Shares outstanding: 157,553,501 and 159,977,115 at December 31, 2018 and 2017, respectively		
Series B nonvoting participating preferred stock, $0.01 par value;	—	—
Shares authorized: 150,000,000 at December 31, 2018 and 2017; Shares issued and outstanding: 823,188 at December 31, 2018 and 2017;		
Series C nonvoting participating preferred stock, $0.01 par value;	—	—
Shares authorized: 6,000,000 at December 31, 2018 and 2017; Shares issued and outstanding: 143,458 at December 31, 2018 and 246,522 at December 31, 2017		
Additional paid-in capital	19,168	19,256
Retained earnings	19,282	16,939
Accumulated other comprehensive loss	(691)	(432)
Treasury stock, common, at cost (13,698,684 and 11,275,070 shares held at December 31, 2018 and 2017, respectively)	(5,387)	(3,967)
Total BlackRock, Inc. stockholders' equity	32,374	31,798
Nonredeemable noncontrolling interests	59	50
Total permanent equity	32,433	31,848
Total liabilities, temporary equity and permanent equity	$ 159,573	$ 220,241

See accompanying notes to consolidated financial statements.

BlackRock, Inc.
Consolidated Statements of Income

(in millions, except shares and per share data)	2018	2017	2016
Revenue			
Investment advisory, administration fees and securities lending revenue:			
Related parties	$ 8,226	$ 7,692	$ 6,785
Other third parties	3,327	3,176	3,063
Total investment advisory, administration fees and securities lending revenue	11,553	10,868	9,848
Investment advisory performance fees	412	594	295
Technology services revenue	785	657	588
Distribution fees	1,155	1,183	1,198
Advisory and other revenue	293	298	332
Total revenue	14,198	13,600	12,261
Expense			
Employee compensation and benefits	4,320	4,253	3,878
Distribution and servicing costs	1,675	1,663	1,608
Direct fund expense	998	895	757
General and administration	1,638	1,446	1,278
Restructuring charge	60	—	76
Amortization of intangible assets	50	89	99
Total expense	8,741	8,346	7,696
Operating income	5,457	5,254	4,565
Nonoperating income (expense)			
Net gain (loss) on investments	1	161	55
Interest and dividend income	104	49	40
Interest expense	(184)	(205)	(205)
Total nonoperating income (expense)	(79)	5	(110)
Income before income taxes	5,378	5,259	4,455
Income tax expense	1,076	270	1,289
Net income	4,302	4,989	3,166
Less:			
Net income (loss) attributable to noncontrolling interests	(3)	37	(2)
Net income attributable to BlackRock, Inc.	$ 4,305	$ 4,952	$ 3,168
Earnings per share attributable to BlackRock, Inc. common stockholders:			
Basic	$ 26.86	$ 30.54	$ 19.27
Diluted	$ 26.58	$ 30.12	$ 19.02
Cash dividends declared and paid per share	$ 12.02	$ 10.00	$ 9.16
Weighted-average common shares outstanding:			
Basic	160,301,116	162,160,601	164,425,858
Diluted	161,948,732	164,415,035	166,579,752

See accompanying notes to consolidated financial statements.

BlackRock, Inc.
Consolidated Statements of Comprehensive Income

(in millions)	2018	2017	2016
Net income	$ 4,302	$ 4,989	$ 3,166
Other comprehensive income:			
Foreign currency translation adjustments[(1)]	(253)	285	(269)
Other	—	(1)	1
Other comprehensive income (loss)	(253)	284	(268)
Comprehensive income	4,049	5,273	2,898
Less: Comprehensive income (loss) attributable to noncontrolling interests	(3)	37	(2)
Comprehensive income attributable to BlackRock, Inc.	$ 4,052	$ 5,236	$ 2,900

(1) Amount for 2018 included a gain from a net investment hedge of $30 million (net of tax of $10 million). Amounts for 2017 and 2016 included a loss of $64 million (net of tax benefit of $38 million) and a gain from a net investment hedge of $14 million (net of tax of $8 million), respectively.

See accompanying notes to consolidated financial statements.

BlackRock, Inc.
Consolidated Statements of Changes in Equity

(in millions)	Additional Paid-in Capital[1]	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Treasury Stock Common	Total BlackRock Stockholders' Equity	Nonredeemable Noncontrolling Interests	Total Permanent Equity	Redeemable Noncontrolling Interests / Temporary Equity
December 31, 2015	$ 19,407	$ 12,033	$ (448)	$ (2,489)	$ 28,503	$ 77	$ 28,580	$ 464
Net income	—	3,168	—	—	3,168	(2)	3,166	—
Dividends paid	—	(1,545)	—	—	(1,545)	—	(1,545)	—
Stock-based compensation	521	—	—	—	521	—	521	—
PNC preferred stock capital contribution	172	—	—	—	172		172	—
Retirement of preferred stock	(172)	—	—	—	(172)		(172)	—
Issuance of common shares related to employee stock transactions	(667)	—	—	703	36	—	36	—
Employee tax withholdings related to employee stock transactions	—	—	—	(274)	(274)	—	(274)	—
Shares repurchased	—	—	—	(1,125)	(1,125)	—	(1,125)	—
Net tax benefit (shortfall) from stock-based compensation	78	—	—	—	78	—	78	—
Subscriptions (redemptions/distributions) — noncontrolling interest holders	—	—	—	—	—	(23)	(23)	1,169
Net consolidations (deconsolidations) of sponsored investment funds	—	—	—	—	—	—	—	(1,439)
Other comprehensive income (loss)	—	—	(268)	—	(268)	—	(268)	—
Adoption of new accounting pronouncement	—	(6)	—	—	(6)	—	(6)	—
December 31, 2016	$ 19,339	$ 13,650	$ (716)	$ (3,185)	$ 29,088	$ 52	$ 29,140	$ 194
Net income	—	4,952	—	—	4,952	2	4,954	35
Dividends paid	—	(1,662)	—	—	(1,662)	—	(1,662)	—
Stock-based compensation	542	—	—	—	542	—	542	—
PNC preferred stock capital contribution	193	—	—	—	193	—	193	—
Retirement of preferred stock	(193)	—	—	—	(193)	—	(193)	—
Issuance of common shares related to employee stock transactions	(626)	—	—	639	13	—	13	—
Employee tax withholdings related to employee stock transactions	—	—	—	(321)	(321)	—	(321)	—
Shares repurchased	—	—	—	(1,100)	(1,100)	—	(1,100)	—
Subscriptions (redemptions/distributions) — noncontrolling interest holders	—	—	—	—	—	(18)	(18)	482
Net consolidations (deconsolidations) of sponsored investment funds	—	—	—	—	—	14	14	(295)
Other comprehensive income (loss)	—	—	284	—	284	—	284	—
Adoption of new accounting pronouncement	3	(1)	—	—	2	—	2	—
December 31, 2017	$ 19,258	$ 16,939	$ (432)	$ (3,967)	$ 31,798	$ 50	$ 31,848	$ 416

(1) Amounts include $2 million of common stock at December 31, 2017, 2016 and 2015.

See accompanying notes to consolidated financial statements.

BlackRock, Inc.
Consolidated Statements of Changes in Equity

(in millions)	Additional Paid-in Capital[(1)]	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Treasury Stock Common	Total BlackRock Stockholders' Equity	Nonredeemable Noncontrolling Interests	Total Permanent Equity	Redeemable Noncontrolling Interests / Temporary Equity
December 31, 2017	$ 19,258	$ 16,939	$ (432)	$ (3,967)	$ 31,798	$ 50	$ 31,848	$ 416
Net income	—	4,305	—	—	4,305	—	4,305	(3)
Dividends paid	—	(1,968)	—	—	(1,968)	—	(1,968)	—
Stock-based compensation	564	—	—	—	564	—	564	—
PNC preferred stock capital contribution	58	—	—	—	58	—	58	—
Retirement of preferred stock	(58)	—	—	—	(58)	—	(58)	—
Issuance of common shares related to employee stock transactions	(652)	—	—	667	15	—	15	—
Employee tax withholdings related to employee stock transactions	—	—	—	(427)	(427)	—	(427)	—
Shares repurchased	—	—	—	(1,660)	(1,660)	—	(1,660)	—
Subscriptions (redemptions/distributions) — noncontrolling interest holders	—	—	—	—	—	9	9	1,254
Net consolidations (deconsolidations) of sponsored investment funds	—	—	—	—	—	—	—	(560)
Other comprehensive income (loss)	—	—	(253)	—	(253)	—	(253)	—
Adoption of new accounting pronouncement	—	6	(6)	—	—	—	—	—
December 31, 2018	$ 19,170	$ 19,282	$ (691)	$ (5,387)	$ 32,374	$ 59	$ 32,433	$ 1,107

(1) Amounts include $2 million of common stock at both December 31, 2018 and 2017.

See accompanying notes to consolidated financial statements.

BlackRock, Inc.
Consolidated Statements of Cash Flows

(in millions)	2018	2017	2016
Operating activities			
Net income	$ 4,302	$ 4,989	$ 3,166
Adjustments to reconcile net income to cash flows from operating activities:			
Depreciation and amortization	220	240	263
Stock-based compensation	564	542	521
Deferred income tax expense (benefit)	(226)	(1,221)	(15)
Contingent consideration fair value adjustments	65	8	(2)
Other gains	(50)	—	—
Assets and liabilities of consolidated VIEs:			
Net (gains) losses within consolidated VIEs	105	(118)	(16)
Net (purchases) proceeds within consolidated VIEs	(1,683)	(302)	(816)
(Earnings) losses from equity method investees	(94)	(122)	(113)
Distributions of earnings from equity method investees	30	35	31
Changes in operating assets and liabilities:			
Accounts receivable	4	(521)	(65)
Investments, trading	(32)	(222)	(449)
Other assets	(223)	(173)	(153)
Accrued compensation and benefits	(230)	276	(86)
Accounts payable and accrued liabilities	43	308	26
Other liabilities	280	231	(19)
Net cash provided by/(used in) operating activities	3,075	3,950	2,273
Investing activities			
Purchases of investments	(327)	(489)	(377)
Proceeds from sales and maturities of investments	449	166	378
Distributions of capital from equity method investees	24	32	34
Net consolidations (deconsolidations) of sponsored investment funds	(51)	(60)	(257)
Acquisitions, net of cash acquired	(699)	(102)	(30)
Purchases of property and equipment	(204)	(155)	(119)
Net cash provided by/(used in) investing activities	(808)	(608)	(371)
Financing activities			
Proceeds from long-term borrowings	—	697	—
Repayments of long-term borrowings	—	(700)	—
Cash dividends paid	(1,968)	(1,662)	(1,545)
Proceeds from stock options exercised	—	—	26
Repurchases of common stock	(2,087)	(1,421)	(1,399)
Net proceeds from (repayments of) borrowings by consolidated VIEs	40	—	—
Net (redemptions/distributions paid)/subscriptions received from noncontrolling interest holders	1,263	464	1,146
Excess tax benefit from stock-based compensation	—	—	82
Other financing activities	(13)	(8)	5
Net cash provided by/(used in) financing activities	(2,765)	(2,630)	(1,685)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(93)	192	(273)
Net increase (decrease) in cash, cash equivalents and restricted cash	(591)	904	(56)
Cash, cash equivalents and restricted cash, beginning of year	7,096	6,192	6,248
Cash, cash equivalents and restricted cash, end of year	$ 6,505	$ 7,096	$ 6,192
Supplemental disclosure of cash flow information:			
Cash paid for:			
Interest	$ 177	$ 205	$ 198
Income taxes (net of refunds)	$ 1,159	$ 1,124	$ 1,365
Supplemental schedule of noncash investing and financing transactions:			
Issuance of common stock	$ 652	$ 626	$ 667
PNC preferred stock capital contribution	$ 58	$ 193	$ 172
Increase (decrease) in noncontrolling interests due to net consolidation (deconsolidation) of sponsored investment funds	$ (560)	$ (281)	$ (1,439)

See accompanying notes to consolidated financial statements.

BlackRock, Inc.
Notes to the Consolidated Financial Statements

1. Introduction and Basis of Presentation

Business. BlackRock, Inc. (together, with its subsidiaries, unless the context otherwise indicates, "BlackRock" or the "Company") is a leading publicly traded investment management firm providing a broad range of investment and technology services to institutional and retail clients worldwide.

BlackRock's diverse platform of alpha-seeking active, index and cash management investment strategies across asset classes enables the Company to tailor investment outcomes and asset allocation solutions for clients. Product offerings include single- and multi-asset portfolios investing in equities, fixed income, alternatives and money market instruments. Products are offered directly and through intermediaries in a variety of vehicles, including open-end and closed-end mutual funds, iShares® exchange-traded funds ("ETFs"), separate accounts, collective investment trusts and other pooled investment vehicles. BlackRock also offers technology services, including the investment and risk management technology platform, Aladdin®, Aladdin Wealth, Cachematrix and FutureAdvisor, as well as advisory services and solutions to a broad base of institutional and wealth management clients.

At December 31, 2018, The PNC Financial Services Group, Inc. ("PNC") held 21.6% of the Company's voting common stock and 22.0% of the Company's capital stock, which includes outstanding common and nonvoting preferred stock.

Basis of Presentation. These consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States ("GAAP") and include the accounts of the Company and its controlled subsidiaries. Noncontrolling interests on the consolidated statements of financial condition represents the portion of consolidated sponsored investment funds in which the Company does not have direct equity ownership. Accounts and transactions between consolidated entities have been eliminated.

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expense during the reporting periods. Actual results could differ from those estimates.

Certain prior period presentations and disclosures, while not required to be recast, were reclassified to ensure comparability with current period classifications.

2. Significant Accounting Policies

Accounting Pronouncements Adopted in 2018

Revenue from Contracts with Customers. The Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2014-09, Revenue from Contracts with Customers, and several amendments (collectively, "ASU 2014-09"). ASU 2014-09 outlines a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers and supersedes most previous revenue recognition guidance, including industry-specific guidance. The guidance also changes the accounting for certain contract costs and revises the criteria for determining if an entity is acting as a principal or agent in certain arrangements.

The Company adopted ASU 2014-09 effective January 1, 2018 on a full retrospective basis, which required the Company to recast 2016 and 2017 previously reported amounts. The most significant impact to the Company relates to the presentation of certain distribution costs, which were previously presented net against revenue (contra-revenue) and are now presented as an expense on a gross basis. Revenue recognition related to investment advisory, administration fees and securities lending revenue as well as performance fees remained unchanged, which represents a substantial portion of the Company's revenue. However, under ASU 2014-09, the Company may recognize certain performance fees, including carried interest, earlier than under the prior revenue recognition guidance. The impact to the consolidated statement of financial condition upon adoption was related to a change in timing of recognition for certain technology services revenue and related costs that resulted in an increase to other assets and other liabilities of $19 million and $25 million, respectively. The cumulative adjustment to retained earnings as of January 1, 2016 was a net decrease of $6 million.

The following table presents the impact of the adoption to the consolidated statements of income for 2017 and 2016, respectively.

	2017			2016		
(in millions, except shares and per share data)	Previously Reported	Adoption of the New Revenue Standard Adjustment	Recast	Previously Reported	Adoption of the New Revenue Standard Adjustment	Recast
Total revenue	$ 12,491	$ 1,109	$ 13,600	$ 11,155	$ 1,106	$ 12,261
Total expense	7,219	1,127	8,346	6,585	1,111	7,696
Operating income	$ 5,272	$ (18)	$ 5,254	$ 4,570	$ (5)	$ 4,565
Income tax expense	$ 270	$ —	$ 270	$ 1,290	$ (1)	$ 1,289
Net income	$ 5,007	$ (18)	$ 4,989	$ 3,170	$ (4)	$ 3,166
Net income attributable to BlackRock, Inc.	$ 4,970	$ (18)	$ 4,952	$ 3,172	$ (4)	$ 3,168
Earnings per share attributable to BlackRock, Inc. common stockholders:						
Basic	$ 30.65	$ (0.11)	$ 30.54	$ 19.29	$ (0.02)	$ 19.27
Diluted	$ 30.23	$ (0.11)	$ 30.12	$ 19.04	$ (0.02)	$ 19.02

Recognition and Measurement of Financial Instruments. In January 2016, the FASB issued ASU 2016-01, Recognition and Measurement of Financial Assets and Financial Liabilities ("ASU 2016-01"). ASU 2016-01 amends guidance on the classification and measurement of financial instruments, including requiring an entity to measure substantially all equity securities (other than those accounted for under the equity method of accounting) at fair value through earnings. ASU 2016-01 also amends certain disclosures associated with the fair value of financial instruments. The Company adopted ASU 2016-01 using a modified retrospective approach on January 1, 2018. The reclassification of unrealized gains (losses) on equity securities within accumulated other comprehensive income ("AOCI") to retained earnings was not material upon adoption.

Cash Flow Classification. In August 2016, the FASB issued ASU 2016-15, Classification of Certain Cash Receipts and Cash Payments ("ASU 2016-15"), which amends and clarifies the current guidance to reduce diversity in practice of the classification of certain cash receipts and payments in the consolidated statement of cash flows. The Company adopted ASU 2016-15 on January 1, 2018 retrospectively to all periods presented. The adoption of ASU 2016-15 did not have a material impact on the consolidated statements of cash flows.

Restricted Cash. In November 2016, the FASB issued 2016-18, Restricted Cash ("ASU 2016-18"), which clarifies the classification and presentation of restricted cash in the consolidated statement of cash flows. The Company adopted ASU 2016-18 on January 1, 2018 retrospectively to all periods presented. The adoption of ASU 2016-18 did not have a material impact on the consolidated statements of cash flows. See Note 3, Cash, Cash Equivalents and Restricted Cash, for additional disclosures related to restricted cash.

Reclassifications from Accumulated Other Comprehensive Income. In February 2018, the FASB issued ASU 2018-02, Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income ("ASU 2018-02"). ASU 2018-02 allows reclassification from AOCI to retained earnings for stranded tax effects resulting from the Tax Cuts and Jobs Act. The Company adopted ASU 2018-02 prospectively on January 1, 2018. The adoption of ASU 2018-02 did not have a material impact on the consolidated statement of financial condition.

Fair Value Disclosure Requirements. In August 2018, the FASB issued ASU 2018-13, Changes to the Disclosure Requirements for Fair Value Measurement ("ASU 2018-13"), which adds, modifies and removes certain disclosure requirements for fair value measurements. The Company early adopted the provisions of ASU 2018-13 that remove and modify disclosure requirements effective July 1, 2018, which included the removal of the estimated liquidation periods for investments measured at net asset value on a retrospective basis and removal of the valuation processes discussion for Level 3 fair value measurements.

The additional disclosure requirements under ASU 2018-13 are required to be applied prospectively and are effective for the Company on January 1, 2020. The Company does not expect the additional disclosure requirements to have a material impact on its consolidated financial statements.

Cash and Cash Equivalents. Cash and cash equivalents primarily consists of cash, money market funds and short-term, highly liquid investments with original maturities of three months or less in which the Company is exposed to market and credit risk. Cash and cash equivalent balances that are legally restricted from use by the Company are recorded in other assets on the consolidated statements of financial condition. Cash balances maintained by consolidated voting rights entities ("VREs") are not considered legally restricted and are included in cash and cash equivalents on the consolidated statements of financial condition. Cash balances maintained by consolidated variable interest entities ("VIEs") are included in assets of consolidated VIE on the consolidated statements of financial condition.

Investments

Investments in Debt Securities. The Company classifies debt investments as available-for-sale, held-to-maturity or trading based on the Company's intent to sell the security or, its intent and ability to hold the debt security to maturity.

Available-for-sale securities are those securities that are not classified as trading or held-to-maturity. Available-for-sale securities include certain investments in collateralized loan obligations ("CLOs") and are carried at fair value on the consolidated statements of financial condition with changes in fair value recorded in AOCI within stockholders' equity in the period of the change. Upon the disposition of an available-for-sale security, the Company reclassifies the gain or loss on the security from AOCI to nonoperating income (expense) on the consolidated statements of income.

Held-to-maturity securities are purchased with the positive intent and ability to be held to maturity and are recorded at amortized cost on the consolidated statements of financial condition.

Trading securities are those investments that are purchased principally for the purpose of selling them in the near term. Trading securities are carried at fair value on the consolidated statements of financial condition with changes in fair value recorded in nonoperating income (expense) on the consolidated statements of income. Trading securities include certain investments in CLOs for which the fair value option is elected in order to reduce operational complexity of bifurcating embedded derivatives.

Investments in Equity Securities. Equity securities are generally carried at fair value on the consolidated statements of financial condition with changes in the fair value recorded through net income ("FVTNI") within nonoperating income (expense). For nonmarketable equity securities, the Company generally elects to apply the practicality exception to fair value measurement, under which such securities will be measured at cost, less impairment, plus or minus observable price changes for identical or similar securities of the same issuer with such changes recorded in the consolidated statements of income. Dividends received are recorded as dividend income within nonoperating income (expense).

Equity Method. The Company applies the equity method of accounting for equity investments where the Company does not consolidate the investee, but can exert significant influence over the financial and operating policies of the investee. The Company's share of the investee's underlying net income or loss is recorded as net gain (loss) on investments within nonoperating income (expense) and as other revenue for certain strategic investments since such companies are considered to be an extension of the Company's core business. The Company's share of net income of the investee is recorded based upon the most current information available at the time, which may precede the date of the consolidated statement of financial condition. Distributions received reduce the Company's carrying value of the investee and the cost basis if deemed to be a return of capital.

Impairments of Investments. Management periodically assesses equity method, available-for-sale and held-to-maturity investments for other-than-temporary impairment ("OTTI"). If an OTTI exists, an impairment charge would be recorded for the excess of the carrying amount of the investment over its estimated fair value in the consolidated statements of income.

For equity method investments and held-to-maturity investments, if circumstances indicate that an OTTI may exist, the investments are evaluated using market values, where available, or the expected future cash flows of the investment.

For the Company's investments in CLOs, the Company reviews cash flow estimates over the life of each CLO investment. On a quarterly basis, if the present value of the estimated future cash flows is lower than the carrying value of the investment and there is an adverse change in estimated cash flows, an impairment is considered to be other-than-temporary.

In addition, for nonmarketable equity securities that are accounted for under the measurement alternative to fair value, the Company applies the impairment model that does not require the Company to consider whether the impairment is other-than-temporary.

Consolidation. The Company performs an analysis for investment products to determine if the product is a VIE or a VRE. Assessing whether an entity is a VIE or a VRE involves judgment and analysis. Factors considered in this assessment include the entity's legal organization, the entity's capital structure and equity ownership, and any related party or de facto agent implications of the Company's involvement with the entity. Investments that are determined to be VIEs are consolidated if the Company is the primary beneficiary ("PB") of the entity. VREs are typically consolidated if the Company holds the majority voting interest. Upon the occurrence of certain events (such as contributions and redemptions, either by the Company, or third parties, or amendments to the governing documents of the Company's investment products), management reviews and reconsiders its previous conclusion regarding the status of an entity as a VIE or a VRE. Additionally, management continually reconsiders whether the Company is deemed to be a VIE's PB that consolidates such entity.

Consolidation of Variable Interest Entities. Certain investment products for which a controlling financial interest is achieved through arrangements that do not involve or are not directly linked to voting interests are deemed VIEs. BlackRock reviews factors, including whether or not i) the entity has equity that is sufficient to permit the entity to finance its activities without additional subordinated support from other parties and ii) the equity holders at risk have the obligation to absorb losses, the right to receive residual returns, and the right to direct the activities of the entity that most significantly impact the entity's economic performance, to determine if the investment product is a VIE. BlackRock re-evaluates such factors as facts and circumstances change.

The PB of a VIE is defined as the variable interest holder that has a controlling financial interest in the VIE. A controlling financial interest is defined as (i) the power to direct the activities of the VIE that most significantly impact its economic performance and (ii) the obligation to absorb losses of the entity or the right to receive benefits from the entity that potentially could be significant to the VIE. The Company generally consolidates VIEs in which it holds an equity ownership interest of 10% or greater and deconsolidates such VIEs once equity ownership falls below 10%.

Consolidation of Voting Rights Entities. BlackRock is required to consolidate an investee to the extent that BlackRock can exert control over the financial and operating policies of the investee, which generally exists if there is a greater than 50% voting equity interest.

Retention of Specialized Investment Company Accounting Principles. Upon consolidation of sponsored investment funds, the Company retains the specialized investment company accounting principles of the underlying funds. All of the underlying investments held by such consolidated sponsored investment funds are carried at fair value with corresponding changes in the investments' fair values reflected in nonoperating income (expense) on the consolidated statements of income. When the Company no longer controls these funds due to reduced ownership percentage or other reasons, the funds are deconsolidated and accounted for as an equity method investment or equity securities FVTNI if the Company still maintains an investment.

Money Market Fee Waivers. The Company may voluntarily waive a portion of its management fees on certain money market funds to ensure that they maintain a targeted level of daily net investment income (the "Yield Support waivers"). During 2018, 2017 and 2016, these waivers resulted in a reduction of management fees of approximately $0 million, $6 million and $56 million, respectively. Approximately 0% and 35% of Yield Support waivers for 2017 and 2016, respectively, were offset by a reduction of BlackRock's distribution and servicing costs paid to a financial intermediary. BlackRock may increase or decrease the level of fee waivers in future periods.

Separate Account Assets and Liabilities. Separate account assets are maintained by BlackRock Life Limited, a wholly owned subsidiary of the Company, which is a registered life insurance company in the United Kingdom, and represent segregated assets held for purposes of funding individual and group pension contracts. The life insurance company does not underwrite any insurance contracts that involve any insurance risk transfer from the insured to the life insurance company. The separate account assets primarily include equity securities, debt securities, money market funds and derivatives. The separate account assets are not subject to general claims of the creditors of BlackRock. These separate account assets and the related equal and offsetting liabilities are recorded as separate account assets and separate account liabilities on the consolidated statements of financial condition.

The net investment income attributable to separate account assets supporting individual and group pension contracts accrues directly to the contract owner and is not reported on the consolidated statements of income. While BlackRock has no economic interest in these separate account assets and liabilities, BlackRock earns policy administration and management fees associated with these products, which are included in investment advisory, administration fees and securities lending revenue on the consolidated statements of income.

Separate Account Collateral Assets Held and Liabilities Under Securities Lending Agreements. The Company facilitates securities lending arrangements whereby securities held by separate accounts maintained by BlackRock Life Limited are lent to third parties under global master securities lending agreements. In exchange, the Company receives legal title to the collateral with minimum values generally ranging from approximately 102% to 112% of the value of the securities lent in order to reduce counterparty risk. The required collateral value is calculated on a daily basis. The global master securities lending agreements provide the Company the right to request additional collateral or, in the event of borrower default, the right to liquidate collateral. The securities lending transactions entered into by the Company are accompanied by an agreement that entitles the Company to request the borrower to return the securities at any time; therefore, these transactions are not reported as sales.

The Company records on the consolidated statements of financial condition the cash and noncash collateral received under these BlackRock Life Limited securities lending arrangements as its own asset in addition to an equal and offsetting collateral liability for the obligation to return the collateral. The securities lending revenue earned from lending securities held by the separate accounts is included in investment advisory, administration fees and securities lending revenue on the consolidated statements of income. During 2018 and 2017, the Company had not resold or repledged any of the collateral received under these arrangements. At December 31, 2018 and 2017, the fair value of loaned securities held by separate accounts was approximately $18.9 billion and $22.3 billion, respectively, and the fair value of the collateral held under these securities lending agreements was approximately $20.7 billion and $24.2 billion, respectively.

Property and Equipment. Property and equipment are recorded at cost less accumulated depreciation. Depreciation is generally determined by cost less any estimated residual value using the straight-line method over the estimated useful lives of the various classes of property and equipment. Leasehold improvements are amortized using the straight-line method over the shorter of the estimated useful life or the remaining lease term.

BlackRock develops a variety of risk management, investment analytic and investment system services for internal use, utilizing proprietary software that is hosted and maintained by BlackRock. The Company capitalizes certain costs incurred in connection with developing or obtaining software for internal use. Capitalized software costs are included within property and equipment on the consolidated statements of financial condition and are amortized, beginning when the software project is ready for its intended use, over the estimated useful life of the software of approximately three years.

Goodwill and Intangible Assets. Goodwill represents the cost of a business acquisition in excess of the fair value of the net assets acquired. The Company has determined that it has one reporting unit for goodwill impairment testing purposes, the consolidated BlackRock single operating segment, which is consistent with internal management reporting and management's oversight of operations. In its assessment of goodwill for impairment, the Company considers such factors as the book value and market capitalization of the Company.

On a quarterly basis, the Company considers if triggering events have occurred that may indicate a potential goodwill impairment. If a triggering event has occurred, the Company performs assessments, which may include reviews of significant valuation assumptions, to determine if goodwill may be impaired. The Company performs an impairment assessment of its goodwill at least annually as of July 31st.

Intangible assets are comprised of indefinite-lived intangible assets and finite-lived intangible assets acquired in a business acquisition. The value of contracts to manage assets in proprietary open-end funds and collective trust funds and certain other commingled products without a specified termination date is generally classified as indefinite-lived intangible assets. The assignment of indefinite lives to such contracts primarily is based upon the following: (i) the assumption that there is no foreseeable limit on the contract period to manage these products; (ii) the Company expects to, and has the ability to, continue to operate these products indefinitely; (iii) the products have multiple investors and are not reliant on a single investor or small group of investors for their continued operation; (iv) current competitive factors and economic conditions do not indicate a finite life; and (v) there is a high likelihood of continued renewal based on historical experience. In addition, trade names/trademarks are considered indefinite-lived intangible assets when they are expected to generate cash flows indefinitely.

Indefinite-lived intangible assets and goodwill are not amortized. Finite-lived management contracts, which relate to acquired separate accounts and funds and investor/customer relationships with a specified termination date, are amortized over their remaining useful lives.

The Company performs assessments to determine if any intangible assets are potentially impaired and whether the indefinite-lived and finite-lived classifications are still appropriate. The carrying value of finite-lived assets and their remaining useful lives are reviewed at least annually to determine if circumstances exist which may indicate a potential impairment or revisions to the amortization period. The Company performs impairment assessments of all of its intangible assets at least annually, as of July 31st.

In evaluating whether it is more likely than not that the fair value of indefinite-lived intangibles is less than its carrying value, BlackRock assesses various significant qualitative factors, including assets under management ("AUM"), revenue basis points, projected AUM growth rates, operating margins, tax rates and discount rates. In addition, the Company considers other factors, including (i) macroeconomic conditions such as a deterioration in general economic conditions, limitations on accessing capital, fluctuations in foreign exchange rates, or other developments in equity and credit markets; (ii) industry and market considerations such as a deterioration in the environment in which the entity operates, an increased competitive environment, a decline in market-dependent multiples or metrics, a change in the market for an entity's services, or regulatory, legal or political developments; and (iii) entity-specific events, such as a change in management or key personnel, overall financial performance and litigation that could affect significant inputs used to determine the fair value of the indefinite-lived intangible asset. If an indefinite-lived intangible is determined to be more likely than not impaired, then the fair value of the asset is compared with its carrying value and any excess of the carrying value over the fair value would be recognized as an expense in the period in which the impairment occurs.

For finite-lived intangible assets, if potential impairment circumstances are considered to exist, the Company will perform a recoverability test using an undiscounted cash flow analysis. Actual results could differ from these cash flow estimates, which could materially impact the impairment conclusion. If the carrying value of the asset is determined not to be recoverable based on the undiscounted cash flow test, the difference between the carrying value of the asset and its current fair value would be recognized as an expense in the period in which the impairment occurs.

Noncontrolling Interests. The Company reports noncontrolling interests as equity, separate from the parent's equity, on the consolidated statements of financial condition. In addition, the Company's consolidated net income on the consolidated statements of income includes the income (loss) attributable to noncontrolling interest holders of the Company's consolidated investment products. Income (loss) attributable to noncontrolling interests is not adjusted for income taxes for consolidated investment products that are treated as pass-through entities for tax purposes.

Classification and Measurement of Redeemable Securities. The Company includes redeemable noncontrolling interests related to certain consolidated investment products in temporary equity on the consolidated statements of financial condition.

Treasury Stock. The Company records common stock purchased for treasury at cost. At the date of subsequent reissuance, the treasury stock account is reduced by the cost of such stock using the average cost method.

Revenue Recognition. Revenue is recognized upon transfer of control of promised services to customers in an amount to which the Company expects to be entitled in exchange for those services. The Company enters into contracts that can include multiple services, which are accounted for separately if they are determined to be distinct. Consideration for the Company's services is generally in the form of variable consideration because the amount of fees is subject to market conditions that are outside of the Company's influence. The Company includes variable consideration in revenue when it is no longer probable of significant reversal, i.e. when the associated uncertainty is resolved. For some contracts with customers, the Company has discretion to involve a third party in providing services to the customer. Generally, the Company is deemed to be the principal in these arrangements because the Company controls the promised services before they are transferred to customers, and accordingly presents the revenue gross of related costs.

Investment Advisory, Administration Fees and Securities Lending Revenue. Investment advisory and administration fees are recognized as the services are performed over time because the customer is receiving and consuming the benefits as they are provided by the Company. Fees are primarily based on agreed-upon percentages of AUM and recognized for services provided during the period, which are distinct from services provided in other periods. Such fees are affected by changes in AUM, including market appreciation or depreciation, foreign exchange translation and net inflows or outflows. Investment advisory and administration fees for investment funds are shown net of fee waivers. In addition, the Company may contract with third parties to provide sub-advisory services on its behalf. The Company presents the investment advisory fees and associated costs to such third-party advisors on a gross basis where it is deemed to be the principal and on a net basis where it is deemed to be the agent. Management judgment involved in making these assessments is focused on ascertaining whether the Company is primarily responsible for fulfilling the promised service.

The Company earns revenue by lending securities on behalf of clients, primarily to highly rated banks and broker-dealers. Revenue is recognized over time as services are performed. Generally, the securities lending fees are shared between the Company and the funds or other third-party accounts managed by the Company from which the securities are borrowed.

Investment Advisory Performance Fees / Carried Interest. The Company receives investment advisory performance fees, including incentive allocations (carried interest) from certain actively managed investment funds and certain separately managed accounts. These performance fees are dependent upon exceeding specified relative or absolute investment return thresholds, which may vary by product or account, and include monthly, quarterly, annual or longer measurement periods.

Performance fees, including carried interest, are recognized when it is determined that they are no longer probable of significant reversal (such as upon the sale of a fund's investment or when the amount of AUM becomes known as of the end of a specified measurement period). Given the unique nature of each fee arrangement, contracts with customers are evaluated on an individual basis to determine the timing of revenue recognition. Significant judgement is involved in making such determination. Performance fees typically arise from investment management services that began in prior reporting periods. Consequently, a portion of the fees the Company recognizes may be partially related to the services performed in prior periods that meet the recognition criteria in the current period. At each reporting date, the Company considers various factors in estimating performance fees to be recognized, including carried interest. These factors include but are not limited to whether: (1) the fees are dependent on the market and thus are highly susceptible to factors outside the Company's influence; (2) the fees have a large number and a broad range of possible amounts; and (3) the funds or separately managed accounts have the ability to invest or reinvest their sales proceeds.

The Company is allocated carried interest from certain alternative investment products upon exceeding performance thresholds. The Company may be required to reverse/return all, or part, of such carried interest allocations/distributions depending upon future performance of these funds. Therefore, carried interest subject to such clawback provisions is recorded in investments/investments of consolidated VIEs or cash/cash of consolidated VIEs to the extent that it is distributed, on its consolidated statements of financial condition.

The Company records a liability for deferred carried interest to the extent it receives cash or capital allocations related to carried interest prior to meeting the revenue recognition criteria. A portion of the deferred carried interest may also be paid to certain employees. The ultimate timing of the recognition of performance fee revenue and related compensation expense, if any, for these products is unknown.

Technology services revenue. The Company offers investment management technology systems, risk management services, wealth management and digital distribution tools on a fee basis. Clients include banks, insurance companies, official institutions, pension funds, asset managers, retail distributors and other investors. Fees earned for technology services are recorded as services are performed over time and are generally determined using the value of positions on the Aladdin platform or on a fixed-rate basis.

Distribution Fees. The Company accounts for fund distribution services and shareholder servicing as distinct services, separate from fund management services, because customers can benefit from each of the services on their own and because the services are separately identifiable (that is, the nature of the promised services is to transfer each service individually). The Company records upfront and ongoing sales commissions as distribution fee revenue for serving as the principal underwriter and/or distributor for certain managed mutual funds. Fund distribution services are satisfied at the point in time when an investor makes an investment in a share class of the managed mutual funds. Accordingly, the Company recognizes the upfront fees for front-end load funds on a trade date basis when the services are performed and the amount is known. However, the on-going distribution fees (e.g., 12b-1 fees) from the back-end load funds are based on net asset values over the investment period and are recognized when the amount is known. Consequently, a portion of the on-going distribution fees the Company recognized may be related to the services performed in prior periods that meet the recognition criteria in the current period. Generally, retail products offered outside of the United States do not generate a separate distribution fee as the quoted management fee rate is inclusive of these services. The Company recognizes ongoing shareholder servicing fee revenue as shareholder services are performed over time. On-going distribution fees are largely passed through as a distribution expense to third-party client intermediaries who distribute the funds. The Company contracts with third parties for various fund distribution services and shareholder servicing of certain funds to be performed on its behalf. These arrangements are generally priced as a portion of the fee paid to the Company by the fund or as an agreed-upon percentage of net asset value. The Company presents its distribution fees and distribution and servicing costs incurred on a gross basis in the consolidated statements of income because it has primary responsibility for fulfilling the promise to provide the specified services.

Advisory and other revenue. Advisory and other revenue primarily includes fees earned for advisory services, fees earned for transition management services primarily comprised of commissions recognized in connection with buying and selling securities on behalf of customers, and equity method investment earnings related to certain strategic investments.

Advisory services fees are determined using fixed-rate fees and are recognized over time as the related services are completed.

Commissions related to transition management services are recorded on a trade-date basis as securities transactions occur.

Stock-based Compensation. In March 2016, the FASB issued ASU 2016-09, Improvements to Employee Share-Based Payment Accounting ("ASU 2016-09"). ASU 2016-09 simplifies accounting for employee share-based payment transactions, including the accounting for income taxes, forfeitures, and statutory tax withholding requirements, as well as classification in the consolidated statements of cash flows. The Company adopted ASU 2016-09 as of January 1, 2017. ASU 2016-09 requires all excess tax benefits and deficiencies to be recognized in income tax expense on the consolidated statements of income. Accordingly, the Company recorded a discrete income tax benefit of $64 million and $151 million during 2018 and 2017, respectively, for vested restricted stock units ("RSUs") where the grant date stock price was lower than the vesting date stock price. The new guidance could result in more volatility of income tax expense as a result of fluctuations in the Company's stock price. Upon adoption, the Company elected to account for forfeitures as they occur, which did not have a material impact on the consolidated financial statements. In addition, the Company elected to present excess tax benefits and deficiencies prospectively in operating activities on the consolidated statements of cash flows.

The Company recognizes compensation cost for equity classified awards based on the grant-date fair value of the award. The compensation cost is recognized over the period during which an employee is required to provide service (usually the vesting period) in exchange for the stock-based award.

The Company measures the grant-date fair value of RSUs using the Company's share price on the date of grant. For employee share options and instruments with market conditions, the Company uses pricing models. Stock option awards may have performance, market and/or service conditions. If an equity award is modified after the grant-date, incremental compensation cost is recognized for an amount equal to the excess of the fair value of the modified award over the fair value of the original award immediately before the modification. Awards under the Company's stock-based compensation plans vest over various periods. Compensation cost is recorded by the Company on a straight-line basis over the requisite service period for each separate vesting portion of the award as if the award is, in-substance, multiple awards and is adjusted for actual forfeitures as they occur during 2018 and 2017. For 2016, forfeitures were estimated prior to vesting.

The Company amortizes the grant-date fair value of stock-based compensation awards made to retirement-eligible employees over the requisite service period. Upon notification of retirement, the Company accelerates the unamortized portion of the award over the contractually required retirement notification period.

Distribution and Servicing Costs. Distribution and servicing costs include payments to third parties, primarily associated with distribution and servicing of client investments in certain BlackRock products. Distribution and servicing costs are expensed when incurred.

Direct Fund Expense. Direct fund expense, which is expensed as incurred, primarily consists of third-party nonadvisory expense incurred by BlackRock related to certain funds for the use of certain index trademarks, reference data for certain indices, custodial services, fund administration, fund accounting, transfer agent services, shareholder reporting services, audit and tax services as well as other fund-related expense directly attributable to the nonadvisory operations of the fund.

Leases. The Company accounts for its office facilities leases as operating leases, which may include escalation clauses. The Company expenses the lease payments associated with operating leases evenly during the lease term (including rent-free periods) commencing when the Company obtains the right to control the use of the leased property.

Foreign Exchange. Foreign currency transactions are recorded at the exchange rates prevailing on the dates of the transactions. Monetary assets and liabilities that are denominated in foreign currencies are subsequently remeasured into the functional currencies of the Company's subsidiaries at the rates prevailing at each balance sheet date. Gains and losses arising on remeasurement are included in general and administration expense on the consolidated statements of income. Revenue and expenses are translated at average exchange rates during the period. Gains or losses resulting from translating foreign currency financial statements into US dollars are included in AOCI, a separate component of stockholders' equity, on the consolidated statements of financial condition.

Income Taxes. Deferred income tax assets and liabilities are recognized for the future tax consequences attributable to temporary differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases using currently enacted tax rates in effect for the year in which the differences are expected to reverse. The effect of a change in tax rates on deferred income tax assets and liabilities is recognized on the consolidated statements of income in the period that includes the enactment date.

Management periodically assesses the recoverability of its deferred income tax assets based upon expected future earnings, taxable income in prior carryback years, future deductibility of the asset, changes in applicable tax laws and other factors. If management determines that it is not more likely than not that the deferred tax asset will be fully recoverable in the future, a valuation allowance will be established for the difference between the asset balance and the amount expected to be recoverable in the future. This allowance will result in additional income tax expense. Further, the Company records its income taxes receivable and payable based upon its estimated income tax position.

In 2018 and 2017, excess tax benefits related to stock-based compensation were recognized as an income tax benefit on the consolidated statements of income and are reflected as operating cash flows on the consolidated statements of cash flows. For 2016, excess tax benefits were recognized as additional paid-in capital and financing cash flows.

Earnings per Share ("EPS"). Basic EPS is calculated by dividing net income applicable to common shareholders by the weighted-average number of shares outstanding during the period. Diluted EPS includes the determinants of basic EPS and common stock equivalents outstanding during the period. Diluted EPS is computed using the treasury stock method.

Due to the similarities in terms between BlackRock's nonvoting participating preferred stock and the Company's common stock, the Company considers its nonvoting participating preferred stock to be a common stock equivalent for purposes of EPS calculations. As such, the Company has included the outstanding nonvoting participating preferred stock in the calculation of average basic and diluted shares outstanding.

Business Segments. The Company's management directs BlackRock's operations as one business, the asset management business. The Company utilizes a consolidated approach to assess performance and allocate resources. As such, the Company operates in one business segment.

Fair Value Measurements

Hierarchy of Fair Value Inputs. The Company uses a fair value hierarchy that prioritizes inputs to valuation approaches used to measure fair value. The fair value hierarchy gives the highest priority to quoted prices (unadjusted) in active markets for identical assets or liabilities and the lowest priority to unobservable inputs. Assets and liabilities measured and reported at fair value are classified and disclosed in one of the following categories:

Level 1 Inputs:

Quoted prices (unadjusted) in active markets for identical assets or liabilities at the reporting date.

- Level 1 assets may include listed mutual funds, ETFs, listed equities and certain exchange-traded derivatives.

Level 2 Inputs:

Quoted prices for similar assets or liabilities in active markets; quoted prices for identical or similar assets or liabilities that are not active; quotes from pricing services or brokers for which the Company can determine that orderly transactions took place at the quoted price or that the inputs used to arrive at the price are observable; and inputs other than quoted prices that are observable, such as models or other valuation methodologies.

- Level 2 assets may include debt securities, investments in CLOs, bank loans, short-term floating-rate notes, asset-backed securities, securities held within consolidated hedge funds, restricted public securities valued at a discount, as well as over-the-counter derivatives, including interest and inflation rate swaps and foreign currency exchange contracts that have inputs to the valuations that generally can be corroborated by observable market data.

Level 3 Inputs:

Unobservable inputs for the valuation of the asset or liability, which may include nonbinding broker quotes. Level 3 assets include investments for which there is little, if any, market activity. These inputs require significant management judgment or estimation.

- Level 3 assets may include direct private equity investments held within consolidated funds, investments in CLOs and bank loans of consolidated CLOs.
- Level 3 liabilities include contingent liabilities related to acquisitions valued based upon discounted cash flow analyses using unobservable market data and borrowings of a consolidated CLO.

Significance of Inputs. The Company's assessment of the significance of a particular input to the fair value measurement in its entirety requires judgment and considers factors specific to the financial instrument.

Valuation Approaches. The fair values of certain Level 3 assets and liabilities were determined using various valuation approaches as appropriate, including third-party pricing vendors, broker quotes and market and income approaches.

A significant number of inputs used to value equity, debt securities, investments in CLOs and bank loans is sourced from third-party pricing vendors. Generally, prices obtained from pricing vendors are categorized as Level 1 inputs for identical securities traded in active markets and as Level 2 for other similar securities if the vendor uses observable inputs in determining the price.

In addition, quotes obtained from brokers generally are nonbinding and categorized as Level 3 inputs. However, if the Company is able to determine that market participants have transacted for the asset in an orderly manner near the quoted price or if the Company can determine that the inputs used by the broker are observable, the quote is classified as a Level 2 input.

Investments Measured at Net Asset Values. As a practical expedient, the Company uses net asset value ("NAV") as the fair value for certain investments. The inputs to value these investments may include the Company's capital accounts for its partnership interests in various alternative investments, including hedge funds, real assets and private equity funds, which may be adjusted by using the returns of certain market indices. The various partnerships generally are investment companies, which record their underlying investments at fair value based on fair value policies established by management of the underlying fund. Fair value policies at the underlying fund generally require the fund to utilize pricing/valuation information from third-party sources, including independent appraisals. However, in some instances, current valuation information for illiquid securities or securities in markets that are not active may not be available from any third-party source or fund management may conclude that the valuations that are available from third-party sources are not reliable. In these instances, fund management may perform model-based analytical valuations that could be used as an input to value these investments.

Fair Value of Asset and Liabilities of Consolidated CLO. The Company applies the fair value option provisions for eligible assets, including bank loans, held by a consolidated CLO. As the fair value of the financial assets of the consolidated CLO is more observable than the fair value of the borrowings of the consolidated CLO, the Company measures the fair value of the borrowings of the consolidated CLO as the fair value of the assets of the consolidated CLO less the fair value of the Company's economic interest in the CLO.

Derivative Instruments and Hedging Activities. The Company does not use derivative financial instruments for trading or speculative purposes. The Company uses derivative financial instruments primarily for purposes of hedging exposures to fluctuations in foreign currency exchange rates of certain assets and liabilities, and market exposures for certain seed investments. However, certain consolidated sponsored investment funds may also utilize derivatives as a part of their investment strategy.

Changes in the fair value of the Company's derivative financial instruments are recognized in earnings and, where applicable, are offset by the corresponding gain or loss on the related foreign-denominated assets or liabilities or hedged investments, on the consolidated statements of income.

The Company may also use financial instruments designated as net investment hedges for accounting purposes to hedge net investments in international subsidiaries whose functional currency is not US dollars. The gain or loss from revaluing accounting hedges of net investments in foreign operations at the spot rate is deferred and reported within AOCI on the consolidated statements of financial condition. The Company reassesses the effectiveness of its net investment hedge on a quarterly basis.

Recent Accounting Pronouncements Not Yet Adopted in 2018

Leases. In February 2016, the FASB issued ASU 2016-02, Leases, and several amendments (collectively, "ASU 2016-02"), which requires lessees to recognize assets and liabilities arising from most operating leases on the consolidated statements of financial condition. In July 2018, the FASB issued ASU 2018-11, Targeted Improvements ("ASU 2018-11"), which provides entities a transition option to not apply the new lease standard to the comparative periods presented in financial statements. Under this transition option, an entity applies the new leases standard at the adoption date and recognizes any cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption.

The Company adopted ASU 2016-02 on its effective date of January 1, 2019 on a modified retrospective basis applying the transition option permitted by ASU 2018-11. The Company elected the package of practical expedients to alleviate certain operational complexities related to the adoption. The Company recorded a net increase of approximately $0.7 billion in its assets and liabilities related to the right-of-use asset and lease liability for its current operating leases upon adoption of ASU 2016-02 and does not expect the adoption to have a material impact on its results of operations or cash flows. See Note 14, Commitments and Contingencies, for information on the Company's operating lease commitments.

3. Cash, Cash Equivalents and Restricted Cash

The following table provides a reconciliation of cash and cash equivalents reported within the consolidated statements of financial condition to the cash, cash equivalents, and restricted cash reported within the consolidated statements of cash flows.

(in millions)	December 31, 2018	December 31, 2017
Cash and cash equivalents	$ 6,302	$ 6,894
Cash and cash equivalents of consolidated VIEs	186	144
Restricted cash included in other assets	17	58
Total cash, cash equivalents and restricted cash	$ 6,505	$ 7,096

4. Investments

A summary of the carrying value of total investments is as follows:

(in millions)	December 31, 2018[1]
Debt securities:	
Held-to-maturity investments	$ 188
Trading securities ($233 debt securities of consolidated sponsored investment funds)	265
Total debt securities	453
Equity securities at FVTNI ($291 equity securities of consolidated sponsored investment funds)	452
Equity method investments[2]	781
Federal Reserve Bank stock[3]	92
Carried interest[4]	18
Total investments	$ 1,796

(in millions)	December 31, 2017[1]
Available-for-sale investments	$ 103
Held-to-maturity investments	102
Trading investments:	
Consolidated sponsored investment funds:	
Debt securities	267
Equity securities	245
Other equity and debt securities	267
Deferred compensation plan mutual funds	56
Total trading investments	835
Other investments:	
Equity method investments[2]	816
Cost method investments[3]	93
Carried interest[4]	32
Total other investments	941
Total investments	$ 1,981

[1] Amounts at December 31, 2018 reflect the adoption of ASU 2016-01. See Note 2, Significant Accounting Policies, for further information. Amounts at December 31, 2017 reflect accounting guidance prior to ASU 2016-01.
[2] Equity method investments primarily include BlackRock's direct investments in certain BlackRock sponsored investment funds.
[3] Amounts include Federal Reserve Bank stock, which is held for regulatory purposes and is restricted from sale. At December 31, 2017, amount also includes other nonmarketable securities, which were immaterial. At December 31, 2018 and December 31, 2017, there were no indicators of impairment on these investments.
[4] Carried interest of consolidated sponsored investment funds accounted for as VREs represents allocations to BlackRock's general partner capital accounts from certain funds. These balances are subject to change upon cash distributions, additional allocations or reallocations back to limited partners within the respective funds.

Available-for-Sale Investments

A summary of sale activity of available-for-sale securities during 2018, 2017 and 2016 is shown below.

(in millions)	Year ended December 31, 2018	2017	2016
Sales proceeds	$ 173	$ —	$ 40
Net realized gain (loss):			
Gross realized gains	$ —	$ —	$ 2
Gross realized losses	—	—	(1)
Net realized gain (loss)	$ —	$ —	$ 1

At December 31, 2017, available-for-sale investments primarily included certain investments in CLOs. The cost of these investments approximated carrying value.

Held-to-Maturity Investments

The carrying value of held-to-maturity investments was $188 million and $102 million at December 31, 2018 and 2017, respectively. Held-to-maturity investments included foreign government debt held primarily for regulatory purposes and certain investments in BlackRock sponsored CLOs. The amortized cost (carrying value) of these investments approximated fair value (primarily a Level 2 input). At December 31, 2018, $19 million of these investments mature between five years to ten years and $169 million mature after ten years.

Equity and Trading Debt Securities

A summary of the cost and carrying value of equity and trading debt securities is as follows:

(in millions)	December 31, 2018[(1)] Cost	Carrying Value
Trading debt securities:		
Corporate debt	$ 144	$ 140
Government debt	69	67
Asset/mortgage backed debt	67	58
Total trading debt securities	$ 280	$ 265
Equity securities at FVTNI:		
Deferred compensation plan mutual funds	$ 21	$ 34
Equity securities/multi-asset mutual funds	420	418
Total equity securities at FVTNI	$ 441	$ 452

(in millions)	December 31, 2017[(1)] Cost	Carrying Value
Trading investments:		
Deferred compensation plan mutual funds	$ 34	$ 56
Equity securities/multi-asset mutual funds	446	493
Debt securities		
Corporate debt	152	157
Government debt	72	73
Asset/mortgage backed debt	56	56
Total trading investments	$ 760	$ 835

(1) Amounts at December 31, 2018 reflect the adoption of ASU 2016-01. See Note 2, Significant Accounting Policies, for further information. Amounts at December 31, 2017 reflect accounting guidance prior to ASU 2016-01.

5. Consolidated Voting Rights Entities

The Company consolidates certain sponsored investment funds accounted for as VREs because it is deemed to control such funds. The investments owned by these consolidated VREs are classified as trading investments. The following table presents the balances related to these consolidated VREs that were recorded on the consolidated statements of financial condition, including BlackRock's net interest in these funds:

(in millions)	December 31, 2018	December 31, 2017
Cash and cash equivalents	$ 59	$ 63
Investments:		
Trading debt securities	233	267
Equity securities at FVTNI	291	245
Total investments	524	512
Other assets	8	13
Other liabilities	(53)	(37)
Noncontrolling interests	(90)	(91)
BlackRock's net interests in consolidated VREs	$ 448	$ 460

BlackRock's total exposure to consolidated VREs represents the value of its economic ownership interest in these sponsored investment funds. Valuation changes associated with investments held at fair value by these consolidated VREs are reflected in nonoperating income (expense) and partially offset in net income (loss) attributable to noncontrolling interests for the portion not attributable to BlackRock.

The Company cannot readily access cash and cash equivalents held by consolidated VREs to use in its operating activities.

6. Variable Interest Entities

In the normal course of business, the Company is the manager of various types of sponsored investment vehicles, which may be considered VIEs. The Company may from time to time own equity or debt securities or enter into derivatives with the vehicles, each of which are considered variable interests. The Company's involvement in financing the operations of the VIEs is generally limited to its investments in the entity. The Company consolidates entities when it is determined to be the PB. See Note 2, Significant Accounting Policies, for further information on the Company's accounting policy on consolidation.

Consolidated VIEs. The Company's consolidated VIEs include certain sponsored investment products in which BlackRock has an investment and as the investment manager, is deemed to have both the power to direct the most significant activities of the products and the right to receive benefits (or the obligation to absorb losses) that could potentially be significant to these sponsored investment products. The assets of these VIEs are not available to creditors of the Company. In addition, the investors in these VIEs have no recourse to the credit of the Company.

Consolidated VIE assets and liabilities are presented after intercompany eliminations at December 31, 2018 and 2017 in the following table:

(in millions)	December 31, 2018	December 31, 2017
Assets of consolidated VIEs:		
Cash and cash equivalents	$ 186	$ 144
Investments:		
Trading debt securities	1,395	475
Equity securities at FVTNI	569	440
Bank loans	84	—
Other investments	263	312
Carried interest	369	266
Total investments	2,680	1,493
Other assets	876	66
Total assets of consolidated VIEs	3,742	1,703
Liabilities of consolidated VIEs:		
Borrowings	(84)	—
Other liabilities	(1,290)	(369)
Noncontrolling interests	(1,076)	(375)
BlackRock's net interests in consolidated VIEs	$ 1,292	$ 959

Net gain (loss) related to consolidated VIEs is presented in the following table:

(in millions)	2018	2017	2016
Nonoperating net gain (loss) on consolidated VIEs	$ (105)	$ 118	$ 16
Net income (loss) attributable to NCI on consolidated VIEs	$ (6)	$ 33	$ (2)

Nonconsolidated VIEs. At December 31, 2018 and 2017, the Company's carrying value of assets and liabilities included on the consolidated statements of financial condition pertaining to nonconsolidated VIEs and its maximum risk of loss related to VIEs for which it held a variable interest, but for which it was not the PB, was as follows:

(in millions)	Investments	Advisory Fee Receivables	Other Net Assets (Liabilities)	Maximum Risk of Loss[1]
At December 31, 2018				
Sponsored investment products	$ 348	$ 43	$ (6)	$ 408
At December 31, 2017				
Sponsored investment products	$ 263	$ 15	$ (7)	$ 295

(1) At December 31, 2018 and 2017, BlackRock's maximum risk of loss associated with these VIEs primarily related to BlackRock's investments and the collection of advisory fee receivables.

The net assets of sponsored investment products that are nonconsolidated VIEs approximated $9 billion and $5 billion at December 31, 2018 and 2017, respectively.

7. Fair Value Disclosures

Fair Value Hierarchy

Assets and liabilities measured at fair value on a recurring basis and other assets not held at fair value

December 31, 2018[1] (in millions)	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Investments Measured at NAV[2]	Other Assets Not Held at Fair Value[3]	December 31, 2018
Assets:						
Investments						
Debt securities:						
Held-to-maturity investments	$ —	$ —	$ —	$ —	$ 188	$ 188
Trading securities	—	261	4	—	—	265
Total debt securities	—	261	4	—	188	453
Equity securities at FVTNI:						
Deferred compensation plan mutual funds	34	—	—	—	—	34
Equity securities/Multi-asset mutual funds	418	—	—	—	—	418
Total equity securities at FVTNI	452	—	—	—	—	452
Equity method:						
Equity and fixed income mutual funds	122	—	—	14	—	136
Other	—	—	—	642	3	645
Total equity method	122	—	—	656	3	781
Federal Reserve Bank Stock	—	—	—	—	92	92
Carried interest	—	—	—	—	18	18
Total investments	574	261	4	656	301	1,796
Investments of consolidated VIEs:						
Trading debt securities	—	1,395	—	—	—	1,395
Equity securities at FVTNI	569	—	—	—	—	569
Bank loans	—	14	70	—	—	84
Private equity[4]	—	—	82	48	75	205
Other	—	—	—	58	—	58
Carried interest	—	—	—	—	369	369
Total investments of consolidated VIEs	569	1,409	152	106	444	2,680
Other assets[5]	122	—	—	—	—	122
Separate account assets	63,610	25,810	—	—	865	90,285
Separate account collateral held under securities lending agreements:						
Equity securities	15,066	—	—	—	—	15,066
Debt securities	—	5,589	—	—	—	5,589
Total separate account collateral held under securities lending agreements	15,066	5,589	—	—	—	20,655
Total	$ 79,941	$ 33,069	$ 156	$ 762	$ 1,610	$ 115,538
Liabilities:						
Borrowings on consolidated VIEs[6]	$ —	$ —	$ 84	$ —	$ —	$ 84
Separate account collateral liabilities under securities lending agreements	15,066	5,589	—	—	—	20,655
Other liabilities[7]	—	6	287	—	—	293
Total	$ 15,066	$ 5,595	$ 371	$ —	$ —	$ 21,032

[1] Amounts at December 31, 2018 reflect the adoption of ASU 2016-01. See Note 2, Significant Accounting Policies, for further information.
[2] Amounts are comprised of certain investments measured at fair value using NAV (or its equivalent) as a practical expedient.
[3] Amounts are comprised of investments held at cost or amortized cost, carried interest and certain equity method investments, which include sponsored investment funds and other assets, which are not accounted for under a fair value measure. In accordance with GAAP, certain equity method investees do not account for both their financial assets and liabilities under fair value measures; therefore, the Company's investment in such equity method investees may not represent fair value.
[4] Level 3 amounts primarily include direct investments in private equity companies held by private equity funds.
[5] Amount includes investment in a certain publicly traded strategic investment.
[6] Borrowings of consolidated VIEs are classified based on the more significant inputs, which are unobservable, used for calculating the fair value of consolidated CLO assets.
[7] Amounts primarily include contingent liabilities related to certain acquisitions (see Note 14, Commitments and Contingencies, for more information).

Assets and liabilities measured at fair value on a recurring basis and other assets not held at fair value

December 31, 2017[1] (in millions)	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Investments Measured at NAV[2]	Other Assets Not Held at Fair Value[3]	December 31, 2017
Assets:						
Investments						
Available-for-sale	$ 7	$ 96	$ —	$ —	$ —	$ 103
Held-to-maturity debt securities	—	—	—	—	102	102
Trading:						
Deferred compensation plan mutual funds	56	—	—	—	—	56
Equity/Multi-asset mutual funds	493	—	—	—	—	493
Debt securities / fixed income mutual funds	2	284	—	—	—	286
Total trading	551	284	—	—	—	835
Equity method:						
Equity and fixed income mutual funds	183	—	—	12	—	195
Other	—	—	—	609	12	621
Total equity method	183	—	—	621	12	816
Cost method investments	—	—	—	—	93	93
Carried interest	—	—	—	—	32	32
Total investments	741	380	—	621	239	1,981
Separate account assets	114,422	34,582	—	—	933	149,937
Separate account collateral held under securities lending agreements:						
Equity securities	18,778	—	—	—	—	18,778
Debt securities	—	5,412	—	—	—	5,412
Total separate account collateral held under securities lending agreements	18,778	5,412	—	—	—	24,190
Investments of consolidated VIEs:						
Trading:						
Equity securities	440	—	—	—	—	440
Debt securities	—	475	—	—	—	475
Private / public equity[4]	6	2	116	59	76	259
Other	—	—	—	53	—	53
Carried interest	—	—	—	—	266	266
Total investments of consolidated VIEs	446	477	116	112	342	1,493
Total	$ 134,387	$ 40,851	$ 116	$ 733	$ 1,514	$ 177,601
Liabilities:						
Separate account collateral liabilities under securities lending agreements	$ 18,778	$ 5,412	$ —	$ —	$ —	$ 24,190
Other liabilities[5]	—	7	236	—	—	243
Total	$ 18,778	$ 5,419	$ 236	$ —	$ —	$ 24,433

(1) Amounts at December 31, 2017 reflect accounting guidance prior to ASU 2016-01.
(2) Amounts are comprised of certain investments measured at fair value using NAV (or its equivalent) as a practical expedient.
(3) Amounts are comprised of investments held at cost or amortized cost, carried interest and certain equity method investments, which include sponsored investment funds and other assets, which are not accounted for under a fair value measure. In accordance with GAAP, certain equity method investees do not account for both their financial assets and liabilities under fair value measures; therefore, the Company's investment in such equity method investees may not represent fair value.
(4) Level 3 amounts include direct investments in private equity companies held by private equity funds.
(5) Amounts primarily include contingent liabilities related to certain acquisitions (see Note 14, Commitments and Contingencies, for more information).

Level 3 Assets. Level 3 assets may include investments in CLOs and bank loans of a consolidated CLO valued based on single-broker nonbinding quotes, and direct private equity investments valued using the market approach or the income approach as described below.

Level 3 investments of consolidated VIEs of $152 million and $116 million at December 31, 2018 and 2017, respectively, related to direct investments in private equity companies held by consolidated private equity funds. At December 31, 2018, level 3 investments of consolidated VIEs also included bank loans of a consolidated CLO valued based on single-broker nonbinding quotes.

Direct investments in private equity companies may be valued using the market approach or the income approach, or a combination thereof, and were valued based on an assessment of each underlying investment, incorporating evaluation of additional significant third-party financing, changes in valuations of comparable peer companies, the business environment of the companies, market indices, assumptions relating to appropriate risk adjustments for nonperformance and legal restrictions on disposition, among other factors. The fair value derived from the methods used is evaluated and weighted, as appropriate, considering the reasonableness of the range of values indicated. Under the market approach, fair value may be determined by reference to multiples of market-comparable companies or transactions, including earnings before interest, taxes, depreciation and amortization ("EBITDA") multiples. Under the income approach, fair value may be determined by discounting the expected cash flows to a single present value amount using current expectations about those future amounts. Unobservable inputs used in a discounted cash flow model may include projections of operating performance generally covering a five-year period and a terminal value of the private equity direct investment. For investments utilizing a discounted cash flow valuation technique, a significant increase (decrease) in the discount rate, risk premium or discount for lack of marketability in isolation could have resulted in a significantly lower (higher) fair value measurement as of December 31, 2018. For investments utilizing the market-comparable valuation technique, a significant increase (decrease) in a valuation multiple in isolation could have resulted in a significantly higher (lower) fair value measurement as of December 31, 2018.

Level 3 Liabilities. Level 3 other liabilities primarily include recorded contingent liabilities related to certain acquisitions, which were valued based upon discounted cash flow analyses using unobservable market data inputs and borrowings of consolidated VIEs, which were valued based on the fair value of the assets of the consolidated CLO less fair value of the Company's economic interest in the CLO.

Changes in Level 3 Assets and Liabilities Measured at Fair Value on a Recurring Basis for 2018

(in millions)	December 31, 2017	Realized and Unrealized Gains (Losses)	Purchases	Sales and Maturities	Issuances and Other Settlements[1]	Transfers into Level 3	Transfers out of Level 3	December 31, 2018[2]	Total Net Unrealized Gains (Losses) Included in Earnings[3]
Assets:									
Investments:									
Debt securities									
Available-for-sale securities[4]	$ —	$ —	$ 26	$ —	$ —	$ —	$ (26)	$ —	$ —
Trading	—	—	9	—	—	—	(5)	4	—
Total debt securities	—	—	35	—	—	—	(31)	4	—
Total investments	—	—	35	—	—	—	(31)	4	—
Assets of consolidated VIEs:									
Bank loans[5]	—	—	—	—	70	—	—	70	—
Private equity	116	(20)	—	(14)	—	—	—	82	(20)
Assets of consolidated VIEs	116	(20)	—	(14)	70	—	—	152	(20)
Total Level 3 assets	$ 116	$ (20)	$ 35	$ (14)	$ 70	$ —	$ (31)	$ 156	$ (20)
Liabilities:									
Borrowings of consolidated VIEs[5]	$ —	$ —	$ —	$ —	$ 84	$ —	$ —	$ 84	$ —
Other liabilities[6]	236	(65)	—	—	(14)	—	—	287	(65)
Total Level 3 liabilities	$ 236	$ (65)	$ —	$ —	$ 70	$ —	$ —	$ 371	$ (65)

(1) Issuances and other settlements amount includes contingent liability payments in connection with certain prior acquisitions, partially offset by a $15 million of contingent liability in connection with the acquisition of the asset management business of Citibanamex, a subsidiary of Citigroup, Inc. in September 2018 ("Citibanamex Transaction").
(2) Amounts reflect the adoption of ASU 2016-01. See Note 2, Significant Accounting Policies, for further information.
(3) Earnings attributable to the change in unrealized gains (losses) relating to assets and liabilities still held at the reporting date.
(4) Amounts include investments in CLOs.
(5) Bank loans and borrowings on consolidated VIEs amounts are related to the consolidation of one additional CLO.
(6) Other liabilities amount includes contingent liabilities in connection with certain acquisitions.

Changes in Level 3 Assets and Liabilities Measured at Fair Value on a Recurring Basis for 2017[(1)]

(in millions)	December 31, 2016	Realized and Unrealized Gains (Losses)	Purchases	Sales and Maturities	Issuances and Other Settlements[(2)]	Transfers into Level 3	Transfers out of Level 3[(3)]	December 31, 2017	Total Net Unrealized Gains (Losses) Included in Earnings[(4)]
Assets:									
Investments:									
Available-for-sale securities[(5)]	$ 24	$ —	$ 23	$ —	$ —	$ —	$ (47)	$ —	$ —
Trading	7	—	7	—	—	—	(14)	—	—
Total investments	31	—	30	—	—	—	(61)	—	—
Assets of consolidated VIEs - Private equity	112	4	—	—	—	—	—	116	4
Total Level 3 assets	$ 143	$ 4	$ 30	$ —	$ —	$ —	$ (61)	$ 116	$ 4
Liabilities:									
Other liabilities[(6)]	$ 115	$ (10)	$ —	$ —	$ 111	$ —	$ —	$ 236	$ (10)

(1) Amounts reflect accounting guidance prior to ASU 2016-01.
(2) Issuance and other settlements amount includes $120 million and $9 million of contingent liabilities in connection with the acquisition of the equity infrastructure franchise of First Reserve in June 2017 ("First Reserve Transaction") and the acquisition of Cachematrix in July 2017 ("Cachematrix Transaction"), respectively, partially offset by contingent liability payments in connection with certain prior acquisitions.
(3) Amounts include transfers out of Level 3 due to availability of observable market inputs from pricing vendors.
(4) Earnings attributable to the change in unrealized gains (losses) relating to assets and liabilities still held at the reporting date.
(5) Amounts include investments in CLOs.
(6) Other liabilities amount includes contingent liabilities in connection with certain acquisitions.

Realized and Unrealized Gains (Losses) for Level 3 Assets and Liabilities. Realized and unrealized gains (losses) recorded for Level 3 assets and liabilities are reported in nonoperating income (expense) on the consolidated statements of income. A portion of net income (loss) for consolidated sponsored investment funds are allocated to noncontrolling interests to reflect net income (loss) not attributable to the Company.

Transfers in and/or out of Levels. Transfers in and/or out of levels are reflected when significant inputs, including market inputs or performance attributes, used for the fair value measurement become observable/unobservable, or when the carrying value of certain equity method investments no longer represents fair value as determined under valuation methodologies.

Disclosures of Fair Value for Financial Instruments Not Held at Fair Value. At December 31, 2018 and 2017, the fair value of the Company's financial instruments not held at fair value are categorized in the table below.

	December 31, 2018		December 31, 2017		
(in millions)	Carrying Amount	Estimated Fair Value	Carrying Amount	Estimated Fair Value	Fair Value Hierarchy
Financial Assets[1]:					
Cash and cash equivalents	$ 6,302	$ 6,302	$ 6,894	$ 6,894	Level 1[2][3]
Cash and cash equivalents of consolidated VIEs	186	186	144	144	Level 1[2][3]
Other assets	18	18	70	70	Level 1[2][4]
Financial Liabilities:					
Long-term borrowings	4,979	5,034	5,014	5,225	Level 2[5]

(1) See Note 4, Investments, for further information on investments not held at fair value.
(2) Cash and cash equivalents are carried at either cost or amortized cost, which approximates fair value due to their short-term maturities.
(3) At December 31, 2018 and 2017, approximately $173 million and $163 million of money market funds were recorded within cash and cash equivalents on the consolidated statements of financial condition. In addition, at December 31, 2018 and 2017, approximately $7 million and $14 million, respectively, of money market funds were recorded within cash and cash equivalents of consolidated VIEs. Money market funds are valued based on quoted market prices, or $1.00 per share, which generally is the NAV of the fund.
(4) Other assets primarily include restricted cash.
(5) Long-term borrowings are recorded at amortized cost, net of debt issuance costs. The fair value of the long-term borrowings, including the current portion of long-term borrowings, is determined using market prices at the end of December 2018 and 2017, respectively. See Note 13, Borrowings, for the fair value of each of the Company's long-term borrowings.

Investments in Certain Entities that Calculate Net Asset Value Per Share

As a practical expedient to value certain investments that do not have a readily determinable fair value and have attributes of an investment company, the Company uses NAV as the fair value. The following tables list information regarding all investments that use a fair value measurement to account for both their financial assets and financial liabilities in their calculation of a NAV per share (or equivalent).

December 31, 2018

(in millions)	Ref	Fair Value	Total Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Equity method:[1]					
Hedge funds/funds of hedge funds	(a)	$ 173	$ 96	Daily/Monthly (30%) Quarterly (18%) N/R (52%)	1 – 90 days
Private equity funds	(b)	116	83	N/R	N/R
Real assets funds	(c)	353	93	Quarterly (68%) N/R (32%)	60 days
Other		14	16	Daily (80%) N/R (20%)	5 days
Consolidated VIEs:					
Private equity funds of funds	(d)	48	18	N/R	N/R
Hedge fund	(a)	3	—	Quarterly	90 days
Real assets funds	(c)	55	37	NR	NR
Total		$ 762	$ 343		

December 31, 2017

(in millions)	Ref	Fair Value	Total Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Equity method:[1]					
Hedge funds/funds of hedge funds	(a)	$ 230	$ 48	Daily/Monthly (21%) Quarterly (49%) N/R (30%)	1 – 90 days
Private equity funds	(b)	94	86	N/R	N/R
Real assets funds	(c)	282	69	Quarterly (83%) N/R (17%)	60 days
Other		15	14	Daily (80%) N/R (20%)	5 days
Consolidated VIEs:					
Private equity funds of funds	(d)	59	20	N/R	N/R
Hedge fund	(a)	19	—	Quarterly	90 days
Real assets funds	(c)	34	49	NR	NR
Total		$ 733	$ 286		

N/R – not redeemable

(1) Comprised of equity method investments, which include investment companies that account for their financial assets and most financial liabilities under fair value measures; therefore, the Company's investment in such equity method investees approximates fair value.

(a) This category includes hedge funds and funds of hedge funds that invest primarily in equities, fixed income securities, distressed credit, opportunistic and mortgage instruments and other third-party hedge funds. The fair values of the investments have been estimated using the NAV of the Company's ownership interest in partners' capital. The liquidation period for the investments in the funds that are not subject to redemption is unknown at both December 31, 2018 and 2017.

(b) This category includes several private equity funds that initially invest in nonmarketable securities of private companies, which ultimately may become public in the future. The fair values of these investments have been estimated using capital accounts representing the Company's ownership interest in the funds as well as other performance inputs. The Company's investment in each fund is not subject to redemption and is normally returned through distributions as a result of the liquidation of the underlying assets of the private equity funds. The liquidation period for the investments in the funds that are not subject to redemption is unknown at both December 31, 2018 and 2017.

(c) This category includes several real assets funds that invest directly in real estate, real estate related assets and infrastructure. The fair values of the investments have been estimated using capital accounts representing the Company's ownership interest in the funds. The Company's investments that are not subject to redemption or are not currently redeemable are normally returned through distributions as a result of the liquidation of the underlying assets of the funds. The liquidation period for the investments in the funds that are not subject to redemption is unknown at both December 31, 2018 and December 31, 2017. The total remaining unfunded commitments to other third-party funds were $130 million and $117 million at December 31, 2018 and December 31, 2017, respectively. The Company had contractual obligations to the consolidated funds of $117 million at December 31, 2018 and $98 million at December 31, 2017.

(d) This category includes the underlying third-party private equity funds within consolidated BlackRock sponsored private equity funds of funds. The fair values of the investments in the third-party funds have been estimated using capital accounts representing the Company's ownership interest in each fund in the portfolio as well as other performance inputs. These investments are not subject to redemption; however, for certain funds, the Company may sell or transfer its interest, which may need approval by the general partner of the underlying funds. Due to the nature of the investments in this category, the Company reduces its investment by distributions that are received through the realization of the underlying assets of the funds. The liquidation period for the investments in the funds that are not subject to redemption is unknown at both December 31, 2018 and December 31, 2017. The total remaining unfunded commitments to other third-party funds were $18 million and $20 million at December 31, 2018 and 2017, respectively. The Company had contractual obligations to the consolidated funds of $22 million and $23 million at December 31, 2018 and 2017, respectively.

Fair Value Option

As of December 31, 2018, the Company elected the fair value option for certain investments in CLOs of approximately $32 million reported within investments.

The following table summarizes information at December 31, 2018 related to assets and liabilities of a consolidated CLO, recorded within investments and borrowings of consolidated VIEs, respectively, for which the fair value option was elected:

(in millions)	December 31, 2018
CLO Bank loans:	
Aggregate principal amounts outstanding	$ 84
Fair value	84
Aggregate unpaid principal balance in excess of (less than) fair value	$ —
CLO Borrowings:	
Aggregate principal amounts outstanding	$ 84
Fair value	$ 84

At December 31, 2018, the principal amounts outstanding of the borrowings issued by the CLOs mature in 2030.

During the year ended December 31, 2018, the net gains (losses) from the change in fair value of the bank loans and borrowings held by the consolidated CLO were not material and were recorded in net gain (loss) on consolidated VIEs on the consolidated statements of income. The change in fair value of the assets and liabilities included interest income and expense, respectively.

As of December 31, 2017, assets for which the fair value option was elected were not material to the consolidated financial statements.

8. Derivatives and Hedging

The Company maintains a program to enter into swaps to hedge against market price and interest rate exposures with respect to certain seed investments in sponsored investment products. At December 31, 2018 and 2017, the Company had outstanding total return swaps with aggregate notional values of approximately $483 million and $587 million, respectively.

At both December 31, 2018 and 2017, the Company had a derivative providing credit protection of approximately $17 million to a counterparty, representing the Company's maximum risk of loss with respect to the provision of credit protection. The Company carries the derivative at fair value based on the expected discounted future cash outflows under the arrangement.

The Company executes forward foreign currency exchange contracts to mitigate the risk of certain foreign exchange movements. At December 31, 2018 and 2017, the Company had outstanding forward foreign currency exchange contracts with aggregate notional values of approximately $2.2 billion and $1.5 billion, respectively.

The fair values of the outstanding total return swaps, forward foreign currency exchange contracts and the credit default swap were not material to the consolidated statement of financial condition at both December 31, 2018 and 2017.

The following table presents gains (losses) recognized in the consolidated statements of income on derivative instruments:

(in millions)		Gains (Losses)		
Derivative Instruments	Statement of Income Classification	2018	2017	2016
Total return swaps	Nonoperating income (expense)	$ 54	$ (118)	$ (31)
Interest rate swaps	Nonoperating income (expense)	—	(2)	6
Forward foreign currency exchange contracts	Other general and administration expense	(124)	63	4
Total gain (loss) from derivative instruments		$ (70)	$ (57)	$ (21)

The Company consolidates certain sponsored investment funds, which may utilize derivative instruments as a part of the funds' investment strategies. The change in fair value of such derivatives, which is recorded in nonoperating income (expense), was not material for 2018, 2017 and 2016.

See Note 13, Borrowings, for more information on the Company's net investment hedge.

9. Property and Equipment

Property and equipment consists of the following:

(in millions)	Estimated useful life-in years	December 31, 2018	2017
Property and equipment:			
Land	N/A	$ 6	$ 6
Building	39	33	33
Building improvements	15	30	29
Leasehold improvements	1-15	534	504
Equipment and computer software	3	541	444
Other transportation equipment	10	135	134
Furniture and fixtures	7	66	67
Construction in progress	N/A	48	33
Total		1,393	1,250
Less: accumulated depreciation and amortization		750	658
Property and equipment, net		$ 643	$ 592

N/A – Not Applicable

Qualifying software costs of approximately $77 million, $60 million and $50 million have been capitalized within equipment and computer software during 2018, 2017 and 2016, respectively, and are being amortized over an estimated useful life of three years.

Depreciation and amortization expense was $154 million, $132 million and $124 million for 2018, 2017 and 2016, respectively.

10. Goodwill

Goodwill activity during 2018 and 2017 was as follows:

(in millions)	2018	2017
Beginning of year balance	$ 13,220	$ 13,118
Acquisitions	316	121
Goodwill adjustments related to Quellos	(10)	(19)
End of year balance	$ 13,526	$ 13,220

In 2018, the $316 million increase in goodwill includes $184 million of goodwill related to the acquisition of Tennenbaum Capital Partners, LLC, a middle market credit and special situation credit opportunities manager, in August 2018 ("TCP Transaction"). The Company believes the acquisition will enhance its ability to provide clients with private credit solutions across a range of risk level, liquidity and geography. Total cash consideration paid at closing for the TCP Transaction was approximately $393 million. The amount also includes $132 million of goodwill related to the Citibanamex Transaction. The Company acquired AUM across local fixed income, equity and multi-asset products, enabling the Company to offer a full range of local and international investment solutions for clients in Mexico. Total consideration at closing for the Citibanamex Transaction was approximately $360 million, including estimated contingent consideration at close.

In 2017, the $121 million increase in goodwill includes $91 million of goodwill related to the First Reserve Transaction, which expanded the Company's energy and power infrastructure platform and $30 million of goodwill related to the Cachematrix Transaction, which enhanced the Company's technology and cash management capabilities. The total consideration paid for the First Reserve Transaction was approximately $193 million, including $120 million of contingent consideration at fair value at time of close. The total consideration paid for the Cachematrix Transaction was approximately $38 million, including $9 million of contingent consideration at fair value at time of close.

The decrease in goodwill during both 2018 and 2017 resulted from a decline related to tax benefits realized from tax-deductible goodwill in excess of book goodwill from the acquisition of the fund-of-funds business of Quellos Group, LLC in October 2007 (the "Quellos Transaction"). Goodwill related to the Quellos Transaction will continue to be reduced in future periods by the amount of tax benefits realized from tax-deductible goodwill in excess of book goodwill from the Quellos Transaction. The balance of the Quellos tax-deductible goodwill in excess of book goodwill was approximately $137 million and $168 million at December 31, 2018 and 2017, respectively.

BlackRock assessed its goodwill for impairment as of July 31, 2018, 2017 and 2016 and considered such factors as the book value and the market capitalization of the Company. The impairment assessment indicated no impairment charges were required. The Company continues to monitor its book value per share compared with closing prices of its common stock for potential indicators of impairment. At December 31, 2018, the Company's common stock closed at a market price of $392.82, which exceeded its book value of approximately $204.23 per share.

11. Intangible Assets

Intangible assets at December 31, 2018 and 2017 consisted of the following:

(in millions)	Remaining Weighted-Average Estimated Useful Life	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
At December 31, 2018				
Indefinite-lived intangible assets:				
Management contracts	N/A	$ 16,169	$ —	$ 16,169
Trade names / trademarks	N/A	1,403	—	1,403
License	N/A	6	—	6
Total indefinite-lived intangible assets		17,578	—	17,578
Finite-lived intangible assets:				
Management contracts	5.2	439	237	202
Investor/customer relationships	10.7	66	7	59
Total finite-lived intangible assets	6.5	505	244	261
Total intangible assets		$ 18,083	$ 244	$ 17,839
At December 31, 2017				
Indefinite-lived intangible assets:				
Management contracts	N/A	$ 15,769	$ —	$ 15,769
Trade names / trademarks	N/A	1,403	—	1,403
License	N/A	6	—	6
Total indefinite-lived intangible assets		17,178	—	17,178
Finite-lived intangible assets:				
Management contracts	5.3	379	212	167
Investor/customer relationships	11.2	45	2	43
Intellectual property	0.6	6	5	1
Total finite-lived intangible assets	6.5	430	219	211
Total intangible assets		$ 17,608	$ 219	$ 17,389

N/A – Not Applicable

The impairment tests performed for intangible assets as of July 31, 2018, 2017 and 2016 indicated no impairment charges were required.

Estimated amortization expense for finite-lived intangible assets for each of the five succeeding years is as follows:

(in millions) Year	Amount
2019	$ 58
2020	44
2021	41
2022	33
2023	25

In 2018, in connection with the TCP and Citibanamex transactions, the Company acquired $145 million and $255 million of indefinite-lived management contracts, respectively, and $48 million and $31 million of finite-lived management contracts, respectively, with a weighted-average estimated life of approximately six and eight years, respectively.

In 2017, in connection with the First Reserve Transaction, the Company acquired $70 million of finite-lived management contracts with a weighted-average estimated life of approximately eight years. In addition, in 2017 in connection with the First Reserve and Cachematrix transactions, the Company acquired $45 million of investor/customer relationships with a weighted-average estimated life of approximately 10 to 12 years.

12. Other Assets

The Company accounts for its interest in PennyMac as an equity method investment. At December 31, 2018 and 2017, the Company's investment in PennyMac is included in other assets on the consolidated statements of financial condition. The carrying value and market value of the Company's interest (approximately 20% or 16 million shares) were approximately $397 million and $331 million, respectively, at December 31, 2018 and approximately $342 million and $348 million, respectively, at December 31, 2017. The market value of the Company's interest reflected the PennyMac stock price at December 31, 2018 and 2017, respectively (a Level 1 input). The Company performed an other-than-temporary impairment analysis as of December 31, 2018 and believes the shortfall of market value versus book value is temporary.

13. Borrowings

Short-Term Borrowings

2018 Revolving Credit Facility. The Company's credit facility has an aggregate commitment amount of $4.0 billion and was amended in April 2018 to extend the maturity date to March 2023 (the "2018 credit facility"). The 2018 credit facility permits the Company to request up to an additional $1.0 billion of borrowing capacity, subject to lender credit approval, increasing the overall size of the 2018 credit facility to an aggregate principal amount not to exceed $5.0 billion. Interest on borrowings outstanding accrues at a rate based on the applicable London Interbank Offered Rate plus a spread. The 2018 credit facility requires the Company not to exceed a maximum leverage ratio (ratio of net debt to earnings before interest, taxes, depreciation and amortization, where net debt equals total debt less unrestricted cash) of 3 to 1, which was satisfied with a ratio of less than 1 to 1 at December 31, 2018. The 2018 credit facility provides back-up liquidity to fund ongoing working capital for general corporate purposes and various investment opportunities. At December 31, 2018, the Company had no amount outstanding under the 2018 credit facility.

Commercial Paper Program. The Company can issue unsecured commercial paper notes (the "CP Notes") on a private-placement basis up to a maximum aggregate amount outstanding at any time of $4.0 billion. The commercial paper program is currently supported by the 2018 credit facility. At December 31, 2018, BlackRock had no CP Notes outstanding.

Long-Term Borrowings

The carrying value and fair value of long-term borrowings determined using market prices and EUR/USD foreign exchange rates at December 31, 2018 included the following:

(in millions)	Maturity Amount	Unamortized Discount and Debt Issuance Costs	Carrying Value	Fair Value
5.00% Notes due 2019	$ 1,000	$ —	$ 1,000	$ 1,020
4.25% Notes due 2021	750	(1)	749	771
3.375% Notes due 2022	750	(3)	747	752
3.50% Notes due 2024	1,000	(5)	995	1,001
1.25% Notes due 2025	800	(5)	795	811
3.20% Notes due 2027	700	(7)	693	679
Total Long-term Borrowings	$ 5,000	$ (21)	$ 4,979	$ 5,034

Long-term borrowings at December 31, 2017 had a carrying value of $5.0 billion and a fair value of $5.2 billion determined using market prices at the end of December 2017.

2027 Notes. In March 2017, the Company issued $700 million in aggregate principal amount of 3.20% senior unsecured and unsubordinated notes maturing on March 15, 2027 (the "2027 Notes"). Interest is payable semi-annually on March 15 and September 15 of each year, commencing September 15, 2017, and is approximately $22 million per year. The 2027 Notes may be redeemed prior to maturity at any time in whole or in part at the option of the Company at a "make-whole" redemption price. The unamortized discount and debt issuance costs are being amortized over the remaining term of the 2027 Notes.

In April 2017, the net proceeds of the 2027 Notes were used to fully repay $700 million in aggregate principal amount outstanding of 6.25% notes prior to their maturity in September 2017.

2025 Notes. In May 2015, the Company issued €700 million of 1.25% senior unsecured notes maturing on May 6, 2025 (the "2025 Notes"). The notes are listed on the New York Stock Exchange. The net proceeds of the 2025 Notes were used for general corporate purposes, including refinancing of outstanding indebtedness. Interest of approximately $10 million per year based on current exchange rates is payable annually on May 6 of each year. The 2025 Notes may be redeemed in whole or in part prior to maturity at any time at the option of the Company at a "make-whole" redemption price. The unamortized discount and debt issuance costs are being amortized over the remaining term of the 2025 Notes.

Upon conversion to US dollars the Company designated the €700 million debt offering as a net investment hedge to offset its currency exposure relating to its net investment in certain euro functional currency operations. A gain of $30 million (net of tax of $10 million), a loss of $64 million (net of tax benefit of $38 million), and a gain of $14 million (net of tax of $8 million) were recognized in other comprehensive income for 2018, 2017 and 2016, respectively. No hedge ineffectiveness was recognized during 2018, 2017, and 2016.

2024 Notes. In March 2014, the Company issued $1.0 billion in aggregate principal amount of 3.50% senior unsecured and unsubordinated notes maturing on March 18, 2024 (the "2024 Notes"). The net proceeds of the 2024 Notes were used to refinance certain indebtedness which matured in the fourth quarter of 2014. Interest is payable semi-annually in arrears on March 18 and September 18 of each year, or approximately $35 million per year. The 2024 Notes may be redeemed prior to maturity at any time in whole or in part at the option of the Company at a "make-whole" redemption price. The unamortized discount and debt issuance costs are being amortized over the remaining term of the 2024 Notes.

2022 Notes. In May 2012, the Company issued $1.5 billion in aggregate principal amount of unsecured unsubordinated obligations. These notes were issued as two separate series of senior debt securities, including $750 million of 1.375% notes, which were repaid in June 2015 at maturity, and $750 million of 3.375% notes maturing in June 2022 (the "2022 Notes"). Net proceeds were used to fund the repurchase of BlackRock's common stock and Series B Preferred from Barclays and affiliates and for general corporate purposes. Interest on the 2022 Notes of approximately $25 million per year is payable semi-annually on June 1 and December 1 of each year. The 2022 Notes may be redeemed prior to maturity at any time in whole or in part at the option of the Company at a "make-whole" redemption price. The "make-whole" redemption price represents a price, subject to the specific terms of the 2022 Notes and related indenture, that is the greater of (a) par value and (b) the present value of future payments that will not be paid because of an early redemption, which is discounted at a fixed spread over a comparable Treasury security. The unamortized discount and debt issuance costs are being amortized over the remaining term of the 2022 Notes.

2021 Notes. In May 2011, the Company issued $1.5 billion in aggregate principal amount of unsecured unsubordinated obligations. These notes were issued as two separate series of senior debt securities, including $750 million of 4.25% notes maturing in May 2021 and $750 million of floating rate notes, which were repaid in May 2013 at maturity. Net proceeds of this offering were used to fund the repurchase of BlackRock's Series B Preferred from affiliates of Merrill Lynch & Co., Inc. Interest on the 4.25% notes due in 2021 ("2021 Notes") is payable semi-annually on May 24 and November 24 of each year, and is approximately $32 million per year. The 2021 Notes may be redeemed prior to maturity at any time in whole or in part at the option of the Company at a "make-whole" redemption price. The unamortized discount and debt issuance costs are being amortized over the remaining term of the 2021 Notes.

2019 Notes. In December 2009, the Company issued $2.5 billion in aggregate principal amount of unsecured and unsubordinated obligations. These notes were issued as three separate series of senior debt securities including $0.5 billion of 2.25% notes, which were repaid in December 2012, $1.0 billion of 3.50% notes, which were repaid in December 2014 at maturity, and $1.0 billion of 5.0% notes maturing in December 2019 (the "2019 Notes"). Net proceeds of this offering were used to repay borrowings under the CP Program, which was used to finance a portion of the acquisition of Barclays Global Investors from Barclays on December 1, 2009, and for general corporate purposes. Interest on the 2019 Notes of approximately $50 million per year is payable semi-annually in arrears on June 10 and December 10 of each year. These notes may be redeemed prior to maturity at any time in whole or in part at the option of the Company at a "make-whole" redemption price. The unamortized discount and debt issuance costs are being amortized over the remaining term of the 2019 Notes.

14. Commitments and Contingencies

Operating Lease Commitments

The Company leases its primary office spaces under agreements that expire through 2043. Future minimum commitments under these operating leases are as follows:

(in millions) Year		Amount
2019	$	145
2020		139
2021		130
2022		121
2023		106
Thereafter		1,516
Total	$	2,157

In May 2017, the Company entered into an agreement with 50 HYMC Owner LLC, for the lease of approximately 847,000 square feet of office space located at 50 Hudson Yards, New York, New York. The term of the lease is twenty years from the date that rental payments begin, expected to occur in May 2023, with the option to renew for a specified term. The lease requires annual base rental payments of approximately $51 million per year during the first five years of the lease term, increasing every five years to $58 million, $66 million and $74 million per year (or approximately $1.2 billion in base rent over its twenty-year term). This lease is classified as an operating lease and, as such, is currently not recorded as a liability on the consolidated statements of financial condition.

Rent expense and certain office equipment expense under lease agreements amounted to $135 million, $132 million and $134 million in 2018, 2017 and 2016, respectively.

Investment Commitments. At December 31, 2018, the Company had $352 million of various capital commitments to fund sponsored investment funds, including consolidated VIEs. These funds include private equity funds, real assets funds, and opportunistic funds. This amount excludes additional commitments made by consolidated funds of funds to underlying third-party funds as third-party noncontrolling interest holders have the legal obligation to fund the respective commitments of such funds of funds. Generally, the timing of the funding of these commitments is unknown and the commitments are callable on demand at any time prior to the expiration of the commitment. These unfunded commitments are not recorded on the consolidated statements of financial condition. These commitments do not include potential future commitments approved by the Company that are not yet legally binding. The Company intends to make additional capital commitments from time to time to fund additional investment products for, and with, its clients.

Contingencies

Contingent Payments Related to Business Acquisitions. In connection with certain acquisitions, BlackRock is required to make contingent payments, subject to achieving specified performance targets, which may include revenue related to acquired contracts or new capital commitments for certain products. The fair value of the remaining aggregate contingent payments at December 31, 2018 totaled $287 million, and is included in other liabilities on the consolidated statements of financial condition.

Other Contingent Payments. The Company acts as the portfolio manager in a series of derivative transactions and has a maximum potential exposure of $17 million between the Company and counterparty. See Note 8, Derivatives and Hedging, for further discussion.

Legal Proceedings. From time to time, BlackRock receives subpoenas or other requests for information from various US federal, state governmental and regulatory authorities and international regulatory authorities in connection with industry-wide or other investigations or proceedings. It is BlackRock's policy to cooperate fully with such inquiries. The Company, certain of its subsidiaries and employees have been named as defendants in various legal actions, including arbitrations and other litigation arising in connection with BlackRock's activities. Additionally, BlackRock-advised investment portfolios may be subject to lawsuits, any of which potentially could harm the investment returns of the applicable portfolio or result in the Company being liable to the portfolios for any resulting damages.

On May 27, 2014, certain investors in the BlackRock Global Allocation Fund, Inc. and the BlackRock Equity Dividend Fund (collectively, the "Funds") filed a consolidated complaint (the "Consolidated Complaint") in the US District Court for the District of New Jersey against BlackRock Advisors, LLC, BlackRock Investment Management, LLC and BlackRock International Limited under the caption In re BlackRock Mutual Funds Advisory Fee Litigation. In the lawsuit, which purports to be brought derivatively on behalf of the Funds, the plaintiffs allege that the defendants violated Section 36(b) of the Investment Company Act by receiving allegedly excessive investment advisory fees from the Funds. On June 13, 2018, the court granted in part and denied in part the defendants' motion for summary judgment. On July 25, 2018, the plaintiffs served a pleading that supplemented the time period of their alleged damages to run through the date of trial. The lawsuit seeks, among other things, to recover on behalf of the Funds all allegedly excessive advisory fees received by the defendants beginning twelve months preceding the start of the lawsuit with respect to each Fund and ending on the date of judgment, along with purported lost investment returns on those amounts, plus interest. The defendants believe the claims in the lawsuit are without merit. The trial on the remaining issues was completed on August 29, 2018. On February 8, 2019, the court issued an order dismissing the claims in their entirety. The plaintiffs have until March 11, 2019 to appeal.

On June 16, 2016, iShares Trust, BlackRock, Inc. and certain of its advisory subsidiaries, and the directors and certain officers of the iShares ETFs were named as defendants in a purported class action lawsuit filed in California state court. The lawsuit was filed by investors in certain iShares ETFs (the "ETFs"), and alleges the defendants violated the federal securities laws by failing to adequately disclose in prospectuses issued by the ETFs the risks to the ETFs' shareholders in the event of a "flash crash." Plaintiffs seek unspecified monetary and rescission damages. The plaintiffs' complaint was dismissed in December 2016 and on January 6, 2017, plaintiffs filed an amended complaint. On April 27, 2017, the court partially granted the defendants' motion for judgment on the pleadings, dismissing certain of the plaintiffs' claims. On September 18, 2017, the court issued a decision dismissing the remainder of the lawsuit after a one-day bench trial. On December 1, 2017, the plaintiffs appealed the dismissal of their lawsuit, which is pending. The defendants believe the claims in the lawsuit are without merit.

On April 5, 2017, BlackRock, Inc., BlackRock Institutional Trust Company, N.A. ("BTC"), the BlackRock, Inc. Retirement Committee and various sub-committees, and a BlackRock employee were named as defendants in a purported class action lawsuit brought in the US District Court for the Northern District of California by a former employee on behalf of all participants and beneficiaries in the BlackRock employee 401(k) Plan (the "Plan") from April 5, 2011 to the present. The lawsuit generally alleges that the defendants breached their duties towards Plan participants in violation of the Employee Retirement Income Security Act of 1974 by, among other things, offering investment options that were overly expensive, underperformed peer funds, focused disproportionately on active versus passive strategies, and were unduly concentrated in investment options managed by BlackRock. On October 18, 2017, the plaintiffs filed an Amended Complaint, which, among other things, added as defendants certain current and former members of the BlackRock Retirement and Investment Committees. The Amended Complaint also included a new purported class claim on behalf of investors in certain Collective Trust Funds ("CTFs") managed by BTC. Specifically, the plaintiffs allege that BTC, as fiduciary to the CTFs, engaged in self-dealing by, most significantly, selecting itself as the securities lending agent on terms that plaintiffs claim were excessive. The Amended Complaint also alleged that BlackRock took undue risks in its management of securities lending cash reinvestment vehicles during the financial crisis. On August 23, 2018, the court granted permission to plaintiffs to file a Second Amended Complaint ("SAC") which added as defendants the BlackRock, Inc. Management Development and Compensation Committee, the Plan's independent investment consultant and the Plan's Administrative Committee and its members. On October 22, 2018, BlackRock filed a motion to dismiss the SAC, which is pending. The defendants believe the claims in this lawsuit are without merit.

Management, after consultation with legal counsel, currently does not anticipate that the aggregate liability arising out of regulatory matters or lawsuits will have a material effect on BlackRock's results of operations, financial position, or cash flows. However, there is no assurance as to whether any such pending or threatened matters will have a material effect on BlackRock's results of operations, financial position or cash flows in any future reporting period. Due to uncertainties surrounding the outcome of these matters, management cannot reasonably estimate the possible loss or range of loss that may arise from these matters.

Indemnifications. In the ordinary course of business or in connection with certain acquisition agreements, BlackRock enters into contracts pursuant to which it may agree to indemnify third parties in certain circumstances. The terms of these indemnities vary from contract to contract and the amount of indemnification liability, if any, cannot be determined or the likelihood of any liability is considered remote. Consequently, no liability has been recorded on the consolidated statements of financial condition.

In connection with securities lending transactions, BlackRock has agreed to indemnify certain securities lending clients against potential loss resulting from a borrower's failure to fulfill its obligations under the securities lending agreement should the value of the collateral pledged by the borrower at the time of default be insufficient to cover the borrower's obligation under the securities lending agreement. The amount of securities on loan as of December 31, 2018 and subject to this type of indemnification was $201 billion. In the Company's capacity as lending agent, cash and securities totaling $214 billion was held as collateral for indemnified securities on loan at December 31, 2018. The fair value of these indemnifications was not material at December 31, 2018.

15. Revenue

The table below presents investment advisory, administration fees and securities lending revenue by product type and investment style, technology services revenue, distribution fees, and advisory and other revenue for 2018, 2017 and 2016.

(in millions)	2018	2017 (1)	2016 (1)
Investment advisory, administration fees and securities lending revenue:			
Equity:			
Active	$ 1,654	$ 1,654	$ 1,584
iShares ETFs	3,549	3,220	2,651
Non-ETF index	685	680	665
Equity subtotal	5,888	5,554	4,900
Fixed income:			
Active	1,840	1,717	1,647
iShares ETFs	825	808	696
Non-ETF index	387	344	297
Fixed income subtotal	3,052	2,869	2,640
Multi-asset	1,176	1,157	1,140
Alternatives:			
Core	732	639	633
Currency and commodities (2)	98	91	83
Alternatives subtotal	830	730	716
Long-term	10,946	10,310	9,396
Cash management	607	558	452
Total base fees	11,553	10,868	9,848
Investment advisory performance fees:			
Equity	91	152	102
Fixed income	8	34	13
Multi-asset	19	33	19
Alternatives	294	375	161
Total performance fees	412	594	295
Technology services revenue	785	657	588
Distribution fees:			
Retrocessions	709	675	623
12b-1 fees (US mutual funds distribution fees)	406	466	508
Other	40	42	67
Total distribution fees	1,155	1,183	1,198
Advisory and other revenue:			
Advisory	113	128	119
Other	180	170	213
Total advisory and other revenue	293	298	332
Total revenue	$ 14,198	$ 13,600	$ 12,261

(1) Results for 2017 and 2016 were recast to reflect the adoption of ASU 2014-09. See Note 2, Significant Accounting Policies, for further information on the Company's revenue recognition and the adoption of ASU 2014-09.

(2) Amount include commodity iShares ETFs.

The table below presents the investment advisory, administration fees and securities lending revenue by client type, investment style and product type, respectively:

(in millions)	2018	2017 (1)	2016 (1)
By client type:			
Retail	$ 3,413	$ 3,250	$ 3,158
iShares ETFs	4,468	4,113	3,423
Institutional:			
Active	2,044	1,955	1,872
Index	1,021	992	943
Total institutional	3,065	2,947	2,815
Long-term	10,946	10,310	9,396
Cash management	607	558	452
Total	$ 11,553	$ 10,868	$ 9,848
By investment style:			
Active	$ 5,391	$ 5,152	$ 4,992
Index and iShares ETFs	5,555	5,158	4,404
Long-term	10,946	10,310	9,396
Cash management	607	558	452
Total	$ 11,553	$ 10,868	$ 9,848
By product type:			
Equity	$ 5,888	$ 5,554	$ 4,900
Fixed income	3,052	2,869	2,640
Multi-asset	1,176	1,157	1,140
Alternatives	830	730	716
Long-term	10,946	10,310	9,396
Cash management	607	558	452
Total	$ 11,553	$ 10,868	$ 9,848

(1) Results for 2017 and 2016 were recast to reflect the adoption of the new revenue recognition standard. See Note 2, Significant Accounting Policies, for further information on the adoption of the new revenue recognition standard.

Investment advisory and administration fees. The table below presents estimated investment advisory and administration fees expected to be recognized in the future related to the unsatisfied portion of the performance obligations at December 31, 2018:

(in millions)	2019	2020	2021	Thereafter	Total
Investment advisory and administration fees:					
Alternatives(1)(2)	$ 61	$ 53	$ 42	$ 70	$ 226

(1) Investment advisory and administration fees include management fees related to certain alternative products, which are based on contractual committed capital outstanding at December 31, 2018. Actual management fees could be higher to the extent additional committed capital is raised. These fees are generally billed on a quarterly basis in arrears.
(2) The Company elected the following practical expedients and therefore does not include amounts related to (1) performance obligations with an original duration of one year or less, (2) variable consideration related to future service periods, and (3) the comparative prior period as of December 31, 2017.

Investment advisory performance fees / Carried interest. The table below presents changes in the deferred carried interest liability (including the portion related to consolidated VIEs) for the year ended December 31, 2018 and 2017:

(in millions)	2018	2017
Beginning balance	$ 219	$ 152
Net increase (decrease) in unrealized allocations	92	75
Performance fee revenue recognized	(18)	(21)
Acquisition	—	13
Ending balance	$ 293	$ 219

Technology services revenue. The table below presents estimated technology services revenue expected to be recognized in the future related to the unsatisfied portion of the performance obligations at December 31, 2018:

(in millions)	2019	2020	2021	Thereafter	Total
Technology services revenue[(1)(2)]	$ 28	$ 24	$ 18	$ 17	$ 87

(1) Technology services revenue primarily includes upfront payments from customers, which the Company generally recognizes as services are performed.
(2) The Company elected the following practical expedients and therefore does not include amounts related to (1) performance obligations with an original duration of one year or less, (2) variable consideration related to future service periods, and (3) the comparative prior period as of December 31, 2017.

In addition to amounts disclosed in the table above, certain technology services contracts require fixed minimum fees, which are billed on a monthly or quarterly basis in arrears. The Company recognizes such revenue as services are performed. As of December 31, 2018, the estimated fixed minimum fees for 2019 for currently outstanding contracts approximated $136 million. The term for these contracts, which are either in their initial or renewal period, ranges from one to five years.

The table below presents changes in the technology services deferred revenue liability for the year ended December 31, 2018 and 2017, which is included in other liabilities on the consolidated statements of financial condition:

(in millions)	2018	2017[(1)]
Beginning balance	$ 62	$ 42
Additions	44	46
Revenue recognized that was included in the beginning balance	(36)	(26)
Ending balance	$ 70	$ 62

(1) Results for 2017 were recast to reflect the adoption of the new revenue recognition standard. See Note 2, Significant Accounting Policies, for further information on the adoption of the new revenue recognition standard.

16. Stock-Based Compensation

The components of stock-based compensation expense are as follows:

(in millions)	2018	2017	2016
Stock-based compensation:			
Restricted stock and RSUs	$ 514	$ 524	$ 493
Long-term incentive plans to be funded by PNC	14	15	28
Stock options	36	3	—
Total stock-based compensation	$ 564	$ 542	$ 521

Stock Award and Incentive Plan. Pursuant to the BlackRock, Inc. Second Amended and Restated 1999 Stock Award and Incentive Plan (the "Award Plan"), options to purchase shares of the Company's common stock at an exercise price not less than the market value of BlackRock's common stock on the date of grant in the form of stock options, restricted stock or RSUs may be granted to employees and nonemployee directors. A maximum of 41,500,000 shares of common stock were authorized for issuance under the Award Plan. Of this amount, 8,434,420 shares remain available for future awards at December 31, 2018. Upon exercise of employee stock options, the issuance of restricted stock or the vesting of RSUs, the Company issues shares out of treasury to the extent available.

Restricted Stock and RSUs. Pursuant to the Award Plan, restricted stock grants and RSUs may be granted to certain employees. Substantially all restricted stock and RSUs vest over periods ranging from one to three years and are expensed using the straight-line method over the requisite service period for each separately vesting portion of the award as if the award was, in-substance, multiple awards. Restricted stock and RSUs are not considered participating securities for purposes of calculating EPS as the dividend equivalents are subject to forfeiture prior to vesting of the award.

Restricted stock and RSU activity for 2018 is summarized below.

Outstanding at	Restricted Stock and RSUs	Weighted-Average Grant Date Fair Value
December 31, 2017	2,608,668	$ 342.79
Granted	891,941	$ 551.62
Converted	(1,302,676)	$ 340.39
Forfeited	(58,043)	$ 424.09
December 31, 2018[(1)]	2,139,890	$ 429.19

(1) At December 31, 2018, approximately 2.0 million awards are expected to vest and 0.1 million awards have vested but have not been converted.

The Company values restricted stock and RSUs at their grant-date fair value as measured by BlackRock's common stock price. The total fair market value of RSUs/restricted stock granted to employees during 2018, 2017 and 2016 was $492 million, $421 million and $446 million, respectively. The total grant-date fair market value of RSUs/restricted stock converted to common stock during 2018, 2017 and 2016 was $443 million, $457 million and $413 million, respectively.

RSUs/restricted stock granted in connection with annual incentive compensation under the Award Plan primarily related to the following:

	2018	2017	2016
Awards granted that vest ratably over three years from the date of grant	527,337	699,991	1,030,964
Awards granted that cliff vest 100% on:			
January 31, 2019	—	—	303,587
January 31, 2020	—	277,313	—
January 31, 2021	209,201	—	—
	736,538	977,304	1,334,551

In addition, the Company also granted RSUs of 155,403, 126,906 and 146,574 during 2018, 2017 and 2016, respectively, with varying vesting periods.

At December 31, 2018, the intrinsic value of outstanding RSUs was $841 million, reflecting a closing stock price of $392.82.

At December 31, 2018, total unrecognized stock-based compensation expense related to unvested RSUs was $315 million. The unrecognized compensation cost is expected to be recognized over the remaining weighted-average period of less than one year.

In January 2019, the Company granted under the Award Plan

- 674,206 RSUs or shares of restricted stock to employees as part of annual incentive compensation that vest ratably over three years from the date of grant; and
- 377,291 RSUs or shares of restricted stock to employees that cliff vest 100% on January 31, 2022.

Performance-Based RSUs. Pursuant to the Award Plan, performance-based RSUs may be granted to certain employees. Each performance-based award consists of a "base" number of RSUs granted to the employee. The number of shares that an employee ultimately receives at vesting will be equal to the base number of performance-based RSUs granted, multiplied by a predetermined percentage determined in accordance with the level of attainment of Company performance measures during the performance period and could be higher or lower than the original RSU grant. Performance-based RSUs are not considered participating securities as the dividend equivalents are subject to forfeiture prior to vesting of the award.

In the first quarter of 2018, 2017 and 2016, the Company granted 199,068, 294,584, and 375,242, respectively, performance-based RSUs to certain employees that cliff vest 100% on January 31, 2021, 2020, and 2019 respectively. These awards are amortized over a service period of three years. The number of shares distributed at vesting could be higher or lower than the original grant based on the level of attainment of predetermined Company performance measures. In January 2018, the Company granted 23,376 additional RSUs to certain employees based on the attainment of Company performance measures during the performance period.

Performance-based RSU activity for 2018 is summarized below.

Outstanding at	Performance-Based RSUs	Weighted-Average Grant Date Fair Value
December 31, 2017	903,525	$ 335.12
Granted	199,068	$ 566.44
Additional shares granted due to attainment of performance measures	23,376	$ 343.86
Converted	(269,648)	$ 343.86
Forfeited	(11,036)	$ 405.47
December 31, 2018	845,285	$ 386.13

The Company initially values performance-based RSUs at their grant-date fair value as measured by BlackRock's common stock price. The total grant-date fair market value of performance-based RSUs granted to employees during 2018 was $121 million.

At December 31, 2018, the intrinsic value of outstanding performance-based RSUs was $332 million reflecting a closing stock price of $392.82.

At December 31, 2018, total unrecognized stock-based compensation expense related to unvested performance-based awards was $110 million. The unrecognized compensation cost is expected to be recognized over the remaining weighted-average period of less than one year.

In January 2019, the Company granted 283,014 performance-based RSUs to certain employees that cliff vest 100% on January 31, 2022. These awards are amortized over a service period of three years. The number of shares distributed at vesting could be higher or lower than the original grant based on the level of attainment of predetermined Company performance measures.

Market Performance-based RSUs. Pursuant to the Award Plan, market performance-based RSUs may be granted to certain employees. The market performance-based RSUs require that separate 15%, 25% and 35% share price appreciation targets be achieved during the six-year term of the awards. The awards are split into three tranches and each tranche may vest if the specified target increase in share price is met. Eligible vesting dates for each tranche are January 31 (or, if such date is not a business day, the next following business day) of the year in which the fourth, fifth or sixth anniversaries of the grant-date occurs. These awards are amortized over a service period of four years, which is the longer of the explicit service period or the period in which the market target is expected to be met. Market performance-based RSUs are not considered participating securities as the dividend equivalents are subject to forfeiture prior to vesting of the award. During 2018, 2017 and 2016 there were no market performance-based awards granted.

Market performance-based RSU activity for 2018 is summarized below.

Outstanding at	Market Performance-Based RSUs		Weighted-Average Grant Date Fair Value
December 31, 2017	286,336	$	195.33
Converted	(286,336)	$	195.33
December 31, 2018	—	$	—

Long-Term Incentive Plans Funded by PNC. Under a share surrender agreement, PNC committed to provide up to 4 million shares of BlackRock stock, held by PNC, to fund certain BlackRock long-term incentive plans ("LTIP"), including performance-based and market performance-based RSUs. The current share surrender agreement commits PNC to provide BlackRock Series C nonvoting participating preferred stock to fund the remaining committed shares. As of December 31, 2018, 3.9 million shares had been surrendered by PNC, including 103,064 in the first quarter of 2018.

At December 31, 2018, the available remaining shares committed by PNC were 143,458. On January 31, 2019, PNC surrendered its remaining 143,458 shares to BlackRock.

Performance-based Stock Options. Pursuant to the Award Plan, performance-based stock options may be granted to certain employees. Vesting of the performance-based stock options is contingent upon the achievement of obtaining 125% of BlackRock's grant-date stock price within five years from the grant date and the attainment of Company performance measures during the four-year performance period. If both hurdles are achieved, the award will vest in three equal installments at the end of years five, six and seven. Vested options can then be exercised up to nine years following the grant date. The awards are generally forfeited if the employee leaves the Company before the respective vesting date. The expense for each tranche is amortized over the respective requisite service period. The Company assumes the performance condition will be achieved. If such condition is not met, no compensation cost is recognized and any recognized compensation cost is reversed. Stock option activity for 2018 is summarized below.

Outstanding at	Shares Under Option		Weighted Average Exercise Price
December 31, 2017	2,147,562	$	513.50
Forfeited	(41,080)	$	513.50
December 31, 2018	2,106,482	$	513.50

The options have a strike price of $513.50, which was the closing price of the shares on the grant date. The grant-date fair value of the awards issued in 2017 was $208 million and was estimated using a Monte Carlo simulation with an embedded lattice model using the assumptions included in the following table:

Grant Year	Expected Term (Years)	Expected Stock Volatility	Expected Dividend Yield	Risk-Free Interest Rate
2017	6.56	22.23%	2.16%	2.33%

The expected term was derived using a Monte Carlo simulation with the embedded lattice model and represents the period of time that options granted are expected to be outstanding. The expected stock volatility was based upon an average of historical stock price fluctuations of BlackRock's common stock and an implied volatility at the grant date. The dividend yield was calculated as the most recent quarterly dividend divided by the average three-month stock price as of the grant date. The risk free interest rate is based on the US Treasury Constant Maturities yield curve at date of grant.

At December 31, 2018, total unrecognized stock-based compensation expense related to unvested performance-based stock options was $165 million. The unrecognized compensation cost is expected to be recognized over the remaining weighted-average period of 4.9 years.

Employee Stock Purchase Plan ("ESPP"). The ESPP allows eligible employees to purchase the Company's common stock at 95% of the fair market value on the last day of each three-month offering period. The Company does not record compensation expense related to employees purchasing shares under the ESPP.

17. Employee Benefit Plans

Deferred Compensation Plans

Voluntary Deferred Compensation Plan. The Company adopted a Voluntary Deferred Compensation Plan ("VDCP") that allows eligible employees in the United States to elect to defer between 1% and 100% of their annual cash incentive compensation. The participants must specify a deferral period of up to 10 years from the year of deferral and additionally, elect to receive distributions in the form of a lump sum or in up to 10 annual installments. The Company may fund the obligation through the rabbi trust on behalf of the plan's participants.

The rabbi trust established for the VDCP, with assets totaling $34 million and $56 million at December 31, 2018 and 2017, respectively, is reflected in investments on the consolidated statements of financial condition. Such investments are classified as trading investments. The liability balance of $71 million and $85 million at December 31, 2018 and 2017, respectively, is reflected on the consolidated statements of financial condition as accrued compensation and benefits. Earnings in the rabbi trust, including unrealized appreciation or depreciation, are reflected as nonoperating income (expense) and changes in the liability are reflected as employee compensation and benefits expense on the consolidated statements of income.

Other Deferred Compensation Plans. The Company has additional compensation plans for the purpose of providing deferred compensation and retention incentives to certain employees. For these plans, the final value of the deferred amount to be distributed in cash upon vesting is associated with investment returns of certain investment funds. The liabilities for these plans were $236 million and $262 million at December 31, 2018 and 2017, respectively, and are reflected in the consolidated statements of financial condition as accrued compensation and benefits. In January 2019, the Company granted approximately $140 million of additional deferred compensation that will fluctuate with investment returns and will vest ratably over three years from the date of grant.

Defined Contribution Plans

The Company has several defined contribution plans primarily in the United States and United Kingdom.

Certain of the Company's US employees participate in a defined contribution plan. Employee contributions of up to 8% of eligible compensation, as defined by the plan and subject to Internal Revenue Code limitations, are matched by the Company at 50% up to a maximum of $5,000 annually. In addition, the Company makes an annual retirement contribution to eligible participants equal to 3-5% of eligible compensation. The Company's contribution expense related to this plan was $63 million in 2018, $78 million in 2017, and $75 million in 2016.

Certain UK wholly owned subsidiaries of the Company contribute to defined contribution plans for their employees. The contributions range between 6% and 15% of each employee's eligible compensation. The Company's contribution expense related to these plans was $35 million in 2018, $29 million in 2017, and $30 million in 2016.

In addition, the contribution expense related to defined contribution plans in other regions was $22 million in 2018, $21 million in 2017 and $20 million in 2016.

Defined Benefit Plans. The Company has several defined benefit pension plans primarily in Japan and Germany. All accrued benefits under the Germany defined benefit plan are currently frozen and the plan is closed to new participants. The participant benefits under the Germany plan will not change with salary increases or additional years of service. At both December 31, 2018 and 2017, the plan assets for these plans were approximately $26 million. The underfunded obligations at December 31, 2018 and 2017 were not material. Benefit payments for the next five years and in aggregate for the five years thereafter are not expected to be material.

18. Related Party Transactions

Determination of Related Parties

PNC. The Company considers PNC, along with its affiliates, to be related parties based on the level of its ownership of BlackRock capital stock. At December 31, 2018, PNC owned approximately 21.6% of the Company's voting common stock and held approximately 22.0% of the total capital stock. Revenue for services provided by the Company to PNC was not material for 2018, 2017 and 2016.

Registered Investment Companies and Equity Method Investments. The Company considers the registered investment companies that it manages, which include mutual funds and exchange-traded funds, to be related parties as a result of the Company's advisory relationship. In addition, equity method investments are considered related parties, due to the Company's influence over the financial and operating policies of the investee.

Revenue from Related Parties

Revenue for services provided by the Company to these and other related parties are as follows:

(in millions)	2018	2017(1)	2016(1)
Investment advisory, administration fees and securities lending revenue(2)	$ 8,226	$ 7,692	$ 6,785
Investment advisory performance fees	112	143	125
Technology services revenue(3)	9	9	9
Advisory and other revenue(4)	65	59	91
Total revenue from related parties	$ 8,412	$ 7,903	$ 7,010

(1) Results for 2017 and 2016 were recast to reflect the adoption of the new revenue recognition standard. See Note 2, Significant Accounting Policies, for further information on the adoption of the new revenue recognition standard.
(2) Amount primarily includes revenue from registered investment companies/and equity method investees.
(3) Amount primarily includes revenue from PNC and affiliates.
(4) Amount primarily includes revenue from equity method investees.

The Company provides investment advisory and administration services to its open- and closed-end funds and other commingled or pooled funds and separate accounts in which related parties invest. In addition, the Company provides investment advisory and administration services to PNC and its affiliates for fees based on AUM. Further, the Company provides risk management services to PNC.

Expenses for Transactions with Related Parties

Expenses for transactions with related parties, which are included within general and administration expense, were $2 million, $10 million and $6 million for 2018, 2017, and 2016, respectively.

Certain Agreements and Arrangements with PNC

PNC. On February 27, 2009, BlackRock entered into an amended and restated implementation and stockholder agreement with PNC, and a fourth amendment to the share surrender agreement with PNC.

On January 31, 2019, PNC surrendered its remaining BlackRock Series C Preferred Stock to BlackRock and has completed its share delivery obligation in connection with the agreement.

Receivables and Payables with Related Parties. Due from related parties, which is included within other assets on the consolidated statements of financial condition was $179 million and $91 million at December 31, 2018 and 2017, respectively, and primarily represented receivables from certain investment products managed by BlackRock. Accounts receivable at December 31, 2018 and 2017 included $878 million and $850 million, respectively, related to receivables from BlackRock mutual funds, including iShares ETFs, for investment advisory and administration services.

Due to related parties, which is included within other liabilities on the consolidated statements of financial condition, was $11 million and $28 million at December 31, 2018 and 2017, respectively, and primarily represented payables to certain investment products managed by BlackRock.

19. Net Capital Requirements

The Company is required to maintain net capital in certain regulated subsidiaries within a number of jurisdictions, which is partially maintained by retaining cash and cash equivalent investments in those subsidiaries or jurisdictions. As a result, such subsidiaries of the Company may be restricted in their ability to transfer cash between different jurisdictions and to their parents. Additionally, transfers of cash between international jurisdictions may have adverse tax consequences that could discourage such transfers.

Banking Regulatory Requirements. BTC, a wholly owned subsidiary of the Company, is chartered as a national bank whose powers are limited to trust and other fiduciary activities and which is subject to regulatory capital requirements administered by the Office of the Comptroller of the Currency. Failure to meet minimum capital requirements can initiate certain mandatory and possibly additional discretionary actions by regulators that, if undertaken, could have a direct material effect on the consolidated financial statements. Under the capital adequacy guidelines and the regulatory framework for prompt corrective action, BTC must meet specific capital guidelines that invoke quantitative measures of BTC's assets, liabilities, and certain off-balance sheet items as calculated under the regulatory accounting practices. BTC's capital amounts and classification are also subject to qualitative judgments by the regulators about components, risk weightings and other factors.

Quantitative measures established by regulators to ensure capital adequacy require BTC to maintain a minimum Common Equity Tier 1 capital and Tier 1 leverage ratio, as well as Tier 1 and total risk-based capital ratios. Based on BTC's calculations as of December 31, 2018 and 2017, it exceeded the applicable capital adequacy requirements.

	Actual		For Capital Adequacy Purposes		To Be Well Capitalized Under Prompt Corrective Action Provisions	
(in millions)	Amount	Ratio	Amount	Ratio	Amount	Ratio
December 31, 2018						
Total capital (to risk weighted assets)	$ 572	131.1%	$ 35	8.0%	$ 44	10.0%
Common Equity Tier 1 capital (to risk weighted assets)	$ 572	131.1%	$ 20	4.5%	$ 28	6.5%
Tier 1 capital (to risk weighted assets)	$ 572	131.1%	$ 26	6.0%	$ 35	8.0%
Tier 1 capital (to average assets)	$ 572	58.0%	$ 39	4.0%	$ 49	5.0%
December 31, 2017						
Total capital (to risk weighted assets)	$ 1,124	111.7%	$ 81	8.0%	$ 101	10.0%
Common Equity Tier 1 capital (to risk weighted assets)	$ 1,124	111.7%	$ 45	4.5%	$ 65	6.5%
Tier 1 capital (to risk weighted assets)	$ 1,124	111.7%	$ 60	6.0%	$ 81	8.0%
Tier 1 capital (to average assets)	$ 1,124	70.5%	$ 64	4.0%	$ 80	5.0%

Broker-dealers. BlackRock Investments, LLC and BlackRock Execution Services are registered broker-dealers and wholly owned subsidiaries of BlackRock that are subject to the Uniform Net Capital requirements under the Securities Exchange Act of 1934, which requires maintenance of certain minimum net capital levels.

Capital Requirements. At both December 31, 2018 and 2017, the Company was required to maintain approximately $1.8 billion in net capital in certain regulated subsidiaries, including BTC, entities regulated by the Financial Conduct Authority and Prudential Regulation Authority in the United Kingdom, and the Company's broker-dealers. The Company was in compliance with all applicable regulatory net capital requirements.

20. Accumulated Other Comprehensive Income (Loss)

The following table presents changes in AOCI by component for 2018, 2017 and 2016:

(in millions)	Foreign currency translation adjustments[1]	Other[2]	Total
December 31, 2015	$ (452)	$ 4	$ (448)
Net other comprehensive income (loss) for 2016	(269)	1	(268)
December 31, 2016	$ (721)	$ 5	$ (716)
Net other comprehensive income (loss) for 2017	285	(1)	284
December 31, 2017	$ (436)	$ 4	$ (432)
Net other comprehensive income (loss) for 2018	(253)	—	(253)
Reclassification as a result of ASU 2018-02	(6)	—	(6)
December 31, 2018	$ (695)	$ 4	$ (691)

(1) Amount for 2018 includes a gain from a net investment hedge of $30 million (net of tax of $10 million). Amounts for 2017 and 2016 include a loss of $64 million (net of tax benefit of $38 million) and a gain from a net investment hedge of $14 million (net of tax of $8 million), respectively.
(2) Other includes amounts related to benefit plans and available-for-sale investments and are presented net of tax. Amounts reclassified to AOCI were not material for 2018, 2017, and 2016.

21. Capital Stock

The Company's authorized common stock and nonvoting participating preferred stock, $0.01 par value, ("Preferred") consisted of the following:

	December 31, 2018	December 31, 2017
Common Stock	500,000,000	500,000,000
Nonvoting Participating Preferred Stock		
Series A Preferred	20,000,000	20,000,000
Series B Preferred	150,000,000	150,000,000
Series C Preferred	6,000,000	6,000,000
Series D Preferred	20,000,000	20,000,000

PNC Capital Contribution. During 2018 and 2017, PNC surrendered to BlackRock 103,064 and 517,138 shares, respectively, of BlackRock Series C Preferred to fund certain LTIP awards.

Cash Dividends for Common and Preferred Shares / RSUs. During 2018, 2017 and 2016, the Company paid cash dividends of $12.02 per share (or $1,968 million), $10.00 per share (or $1,662 million) and $9.16 per share (or $1,545 million), respectively.

Share Repurchases. The Company repurchased 3.5 million common shares in open market transactions under its share repurchase program for $1.66 billion during 2018. At December 31, 2018, there were 2.9 million shares still authorized to be repurchased.

The Company's common and preferred shares issued and outstanding and related activity consist of the following:

	Shares Issued				Shares Outstanding		
	Common Shares	Treasury Common Shares	Series B Preferred	Series C Preferred	Common Shares	Series B Preferred	Series C Preferred
December 31, 2015	171,252,185	(7,791,121)	823,188	1,311,887	163,461,064	823,188	1,311,887
Shares repurchased	—	(3,264,935)	—	—	(3,264,935)	—	—
Net issuance of common shares related to employee stock transactions	—	1,338,314	—	—	1,338,314	—	—
PNC LTIP capital contribution	—	—	—	(548,227)	—	—	(548,227)
December 31, 2016	171,252,185	(9,717,742)	823,188	763,660	161,534,443	823,188	763,660
Shares repurchased	—	(2,647,670)	—	—	(2,647,670)	—	—
Net issuance of common shares related to employee stock transactions	—	1,090,342	—	—	1,090,342	—	—
PNC LTIP capital contribution	—	—	—	(517,138)	—	—	(517,138)
December 31, 2017	171,252,185	(11,275,070)	823,188	246,522	159,977,115	823,188	246,522
Shares repurchased	—	(3,511,603)	—	—	(3,511,603)	—	—
Net issuance of common shares related to employee stock transactions	—	1,087,989	—	—	1,087,989	—	—
PNC LTIP capital contribution	—	—	—	(103,064)	—	—	(103,064)
December 31, 2018	171,252,185	(13,698,684)	823,188	143,458	157,553,501	823,188	143,458

22. Restructuring Charge

A restructuring charge of $60 million ($47 million after-tax), comprised of $53 million of severance and $7 million of expense related to the accelerated amortization of previously granted equity compensation awards, was recorded in the fourth quarter of 2018 in connection with an initiative to modify the size and shape of the workforce.

The table below presents a rollforward of the Company's restructuring liability for the year ended December 31, 2018, which is included in other liabilities on the consolidated statements of financial condition:

(in millions)		
Liability as of December 31, 2017	$	—
Additions		60
Accelerated amortization expense of equity-based awards		(7)
Liability as of December 31, 2018	$	53

23. Income Taxes

US Tax Reform

On December 22, 2017, the US government enacted comprehensive tax legislation commonly referred to as the Tax Cuts and Jobs Act (the "2017 Tax Act"). The 2017 Tax Act makes broad and complex changes to the US tax code, including, but not limited to, (1) reducing the US federal corporate tax rate from 35 percent to 21 percent, (2) requiring companies to pay a one-time tax on certain unrepatriated earnings of foreign subsidiaries, (3) generally eliminating US federal income taxes on dividends from foreign subsidiaries, (4) creating new taxes on certain earnings of controlled foreign corporations, and (5) creating a new limitation on deductible net interest expense.

For 2017, the Company recorded a net tax benefit of $1,175 million, based on a reasonable estimate, related to the impact of the 2017 Tax Act. The tax benefit primarily consists of a $1,652 million tax benefit related to the revaluation of deferred tax assets and liabilities and $477 million tax expense related to the mandatory deemed repatriation tax. As of December 31, 2017, the Company recorded provisional adjustments as follows:

Reduction of US federal corporate tax rate: The 2017 Tax Act reduces the US corporate tax rate to 21 percent. As a result of revaluing deferred tax assets and liabilities based on the rates at which they are expected to reverse in the future, the Company recorded a $1,652 million tax benefit for the reduction in the net deferred tax liabilities for 2017.

Mandatory deemed repatriation tax: The mandatory deemed repatriation tax is a tax on previously untaxed accumulated and current earnings and profits of foreign subsidiaries. Based on a reasonable estimate, the Company recorded a tax expense of $477 million related to the mandatory deemed repatriation tax, which is payable over eight years.

Global intangible low taxed income ("GILTI"): The 2017 Tax Act creates a new requirement that the income (i.e., GILTI) earned by foreign subsidiaries must be included in the taxable income of the entity's US shareholder.

As of December 31, 2018, the Company completed the accounting for the tax effects of enactment of the 2017 Tax Act with immaterial impact to the provisional tax recognized during 2017.

The components of income tax expense for 2018, 2017 and 2016, are as follows:

(in millions)		2018		2017 [1]		2016 [1]
Current income tax expense:						
Federal	$	605	$	1,166	$	858
State and local		97		36		61
Foreign		600		289		385
Total net current income tax expense		1,302		1,491		1,304
Deferred income tax expense (benefit):						
Federal		(71)		(1,382)		30
State and local		(1)		81		14
Foreign		(154)		80		(59)
Total net deferred income tax expense (benefit)		(226)		(1,221)		(15)
Total income tax expense	$	1,076	$	270	$	1,289

(1) Results for 2017 and 2016 were recast to reflect the adoption of the new revenue recognition standard. See Note 2, Significant Accounting Policies, for further information on the adoption of the new revenue recognition standard.

Income tax expense has been based on the following components of income before taxes, less net income (loss) attributable to noncontrolling interests:

(in millions)	2018	2017 (1)	2016 (1)
Domestic	$ 3,536	$ 3,280	$ 2,832
Foreign	1,845	1,942	1,625
Total	$ 5,381	$ 5,222	$ 4,457

(1) Results for 2017 and 2016 were recast to reflect the adoption of the new revenue recognition standard. See Note 2, Significant Accounting Policies, for further information on the adoption of the new revenue recognition standard.

The foreign income before taxes includes countries that have statutory tax rates that are different than the US federal statutory tax rate of 21%, such as the United Kingdom, Germany, Canada and Switzerland.

A reconciliation of income tax expense with expected federal income tax expense computed at the applicable federal income tax rate of 21% for 2018 and 35% for 2017 and 2016 is as follows:

(in millions)	2018		2017 (1)		2016 (1)	
Statutory income tax expense	$ 1,130	21%	$ 1,834	35%	$ 1,561	35%
Increase (decrease) in income taxes resulting from:						
State and local taxes (net of federal benefit)	99	2	60	1	69	2
Impact of federal, foreign, state, and local tax rate changes on deferred taxes	—	—	(1,637)	(31)	(33)	(1)
Mandatory deemed repatriation tax	—	—	477	9		
Stock-based compensation awards	(64)	(1)	(159)	(3)		
Effect of foreign tax rates	(119)	(2)	(337)	(6)	(329)	(7)
Other	30	—	32	—	21	—
Income tax expense	$ 1,076	20%	$ 270	5%	$ 1,289	29%

(1) Results for 2017 and 2016 were recast to reflect the adoption of the new revenue recognition standard. See Note 2, Significant Accounting Policies, for further information on the adoption of the new revenue recognition standard.

Deferred income taxes are provided for the effects of temporary differences between the tax basis of an asset or liability and its reported amount in the consolidated financial statements. These temporary differences result in taxable or deductible amounts in future years.

The components of deferred income tax assets and liabilities are shown below:

	December 31,	
(in millions)	2018	2017 (1)
Deferred income tax assets:		
Compensation and benefits	$ 267	$ 187
Unrealized investment losses	—	28
Loss carryforwards	82	84
Other	362	127
Gross deferred tax assets	711	426
Less: deferred tax valuation allowances	(68)	(22)
Deferred tax assets net of valuation allowances	643	404
Deferred income tax liabilities:		
Goodwill and acquired indefinite-lived intangibles	3,939	3,810
Acquired finite-lived intangibles	48	40
Unrealized investment gains	30	—
Other	34	62
Gross deferred tax liabilities	4,051	3,912
Net deferred tax (liabilities)	$ (3,408)	$ (3,508)

(1) Results for 2017 were recast to reflect the adoption of the new revenue recognition standard. See Note 2, Significant Accounting Policies, for further information on the adoption of the new revenue recognition standard.

Deferred income tax assets and liabilities are recorded net when related to the same tax jurisdiction. At December 31, 2018, the Company recorded on the consolidated statement of financial condition deferred income tax assets, within other assets, and deferred income tax liabilities of $163 million and $3,571 million, respectively. At December 31, 2017, the Company recorded on the consolidated statement of financial condition deferred income tax assets, within other assets, and deferred income tax liabilities of $19 million and $3,527 million, respectively.

Income tax expense for 2018 reflected a reduced tax rate associated with the 2017 Tax Act and $81 million of discrete tax benefits, primarily related to changes in the Company's organizational entity structure and a $64 million discrete tax benefit, related to stock-based compensation awards that vested in 2018.

The 2017 Tax Act resulted in a $106 million tax expense related to the revaluation of certain deferred income tax assets and $1,758 million noncash tax benefit related to the revaluation of certain deferred income tax liabilities. In addition, mandatory deemed repatriation of undistributed foreign earnings and profits with respect to the 2017 Tax Act resulted in a $477 million tax expense.

Income tax expense for 2017 included a $16 million noncash tax expense related to the revaluation of certain deferred income tax liabilities as a result of domestic state and local tax changes and a $173 million discrete tax benefit, primarily related to stock-based compensation awards that vested in 2017.

At December 31, 2018 and 2017, the Company had available state net operating loss carryforwards of $2.9 billion and $1.7 billion, respectively, which will begin to expire in 2019. At December 31, 2018 and 2017, the Company had foreign net operating loss carryforwards of $76 million and $90 million, respectively, of which $3 million will begin to expire in 2021.

At December 31, 2018 and 2017, the Company had $68 million and $22 million of valuation allowances for deferred income tax assets, respectively, recorded on the consolidated statements of financial condition.

Goodwill recorded in connection with the Quellos Transaction has been reduced during the period by the amount of tax benefit realized from tax-deductible goodwill. See Note 10, Goodwill, for further discussion.

Current income taxes are recorded net on the consolidated statements of financial condition when related to the same tax jurisdiction. At December 31, 2018, the Company had current income taxes receivable and payable of $282 million and $341 million, respectively, recorded in other assets and accounts payable and accrued liabilities, respectively. At December 31, 2017, the Company had current income taxes receivable and payable of $142 million and $256 million, respectively, recorded in other assets and accounts payable and accrued liabilities, respectively.

As a result of the 2017 Tax Act and the one-time mandatory deemed repatriation tax, previously undistributed foreign earnings for which no US deferred tax liability had been recognized have now been subject to US income tax. No additional income or withholding taxes were provided for with respect to the financial statement basis in excess of tax basis of its foreign subsidiaries as these amounts remain indefinitely reinvested in foreign operations. The Company will continue to evaluate its indefinite reinvestment assertion based on additional guidance from the US Department of the Treasury and as further information and interpretations become available.

The following tabular reconciliation presents the total amounts of gross unrecognized tax benefits:

(in millions)	2018	2017	2016
Balance at January 1	$ 629	$ 410	$ 466
Additions for tax positions of prior years	82	161	3
Reductions for tax positions of prior years	(15)	(3)	(78)
Additions based on tax positions related to current year	102	67	37
Lapse of statute of limitations	(3)	(6)	—
Settlements	—	—	(18)
Balance at December 31	$ 795	$ 629	$ 410

Included in the balance of unrecognized tax benefits at December 31, 2018, 2017 and 2016, respectively, are $462 million, $316 million and $284 million of tax benefits that, if recognized, would affect the effective tax rate.

The Company recognizes interest and penalties related to income tax matters as a component of income tax expense. Related to the unrecognized tax benefits noted above, the Company accrued interest and penalties of $30 million during 2018 and in total, as of December 31, 2018, had recognized a liability for interest and penalties of $106 million. The Company accrued interest and penalties of $17 million during 2017 and in total, as of December 31, 2017, had recognized a liability for interest and penalties of $76 million. The Company accrued interest and penalties of $3 million during 2016 and in total, as of December 31, 2016, had recognized a liability for interest and penalties of $59 million.

BlackRock is subject to US federal income tax, state and local income tax, and foreign income tax in multiple jurisdictions. Tax years after 2009 remain open to US federal income tax examination.

In June 2014, the IRS commenced its examination of BlackRock's 2010 through 2012 tax years, and while the impact on the consolidated financial statements is undetermined, it is not expected to be material.

The Company is currently under audit in several state and local jurisdictions. The significant state and local income tax examinations are in New York City for tax years 2009 through 2011, and California for tax years 2013 through 2014. No state and local income tax audits cover years earlier than 2009. No state and local income tax audits are expected to result in an assessment material to BlackRock's consolidated financial statements.

Upon conclusion of its examination, Her Majesty's Revenue and Customs issued a closure notice during 2017 for various UK BlackRock subsidiaries for tax years 2009 and years after. The Company made a decision to pursue litigation for the tax matters included on such notice. BlackRock does not expect the ultimate resolution to result in a material impact to the consolidated financial statements.

From time to time, BlackRock may receive or be subject to tax authorities' assessments and challenges related to income taxes. BlackRock does not currently expect the ultimate resolution of any existing matters to be material to the consolidated financial statements.

At December 31, 2018, it is reasonably possible the total amounts of unrecognized tax benefits will change within the next twelve months due to completion of tax authorities' exams or the expiration of statues of limitations. Management estimates that the existing liability for uncertain tax positions could decrease by approximately $10 million to $50 million within the next twelve months.

24. Earnings Per Share

The following table sets forth the computation of basic and diluted EPS for 2018, 2017 and 2016 under the treasury stock method:

(in millions, except shares and per share data)		2018		2017 [1]		2016 [1]
Net income attributable to BlackRock	$	4,305	$	4,952	$	3,168
Basic weighted-average shares outstanding		160,301,116		162,160,601		164,425,858
Dilutive effect of nonparticipating RSUs and stock options		1,647,616		2,254,434		2,153,894
Total diluted weighted-average shares outstanding		161,948,732		164,415,035		166,579,752
Basic earnings per share	$	26.86	$	30.54	$	19.27
Diluted earnings per share	$	26.58	$	30.12	$	19.02

(1) Results for 2017 and 2016 were recast to reflect the adoption of the new revenue recognition standard. See Note 2, Significant Accounting Policies, for further information on the adoption of the new revenue recognition standard.

Anti-dilutive RSUs and stock options for 2018, 2017 and 2016 were immaterial.

25. Segment Information

The Company's management directs BlackRock's operations as one business, the asset management business. The Company utilizes a consolidated approach to assess performance and allocate resources. As such, the Company operates in one business segment.

The following table illustrates total revenue for 2018, 2017 and 2016 by geographic region. These amounts are aggregated on a legal entity basis and do not necessarily reflect where the customer resides or affiliated services are provided.

(in millions) Revenue		2018		2017 [1]		2016 [1]
Americas	$	9,303	$	8,798	$	7,976
Europe		4,217		4,126		3,726
Asia-Pacific		678		676		559
Total revenue	$	14,198	$	13,600	$	12,261

(1) Results for 2017 and 2016 were recast to reflect the adoption of the new revenue recognition standard. See Note 2, Significant Accounting Policies, for further information on the adoption of the new revenue recognition standard.

See Note 15, Revenue, for further information on the Company's sources of revenue.

The following table illustrates long-lived assets that consist of goodwill and property and equipment at December 31, 2018 and 2017 by geographic region. These amounts are aggregated on a legal entity basis and do not necessarily reflect where the asset is physically located.

(in millions) Long-lived Assets		2018		2017
Americas	$	13,780	$	13,560
Europe		303		168
Asia-Pacific		86		84
Total long-lived assets	$	14,169	$	13,812

Americas is primarily comprised of the United States and Canada, while Europe is primarily comprised of the United Kingdom, the Netherlands and Luxembourg. Asia-Pacific is primarily comprised of Hong Kong, Australia, Japan and Singapore.

26. Selected Quarterly Financial Data (unaudited)

(in millions, except shares and per share data)

2018[1]	1st Quarter[2]	2nd Quarter	3rd Quarter[3]	4th Quarter[4][5]
Revenue	$ 3,583	$ 3,605	$ 3,576	$ 3,434
Operating income	$ 1,375	$ 1,440	$ 1,396	$ 1,246
Net income	$ 1,094	$ 1,078	$ 1,203	$ 927
Net income attributable to BlackRock, Inc.	$ 1,089	$ 1,073	$ 1,216	$ 927
Earnings per share attributable to BlackRock, Inc. common stockholders:				
Basic	$ 6.75	$ 6.67	$ 7.59	$ 5.84
Diluted	$ 6.68	$ 6.62	$ 7.54	$ 5.78
Weighted-average common shares outstanding:				
Basic	161,250,018	160,980,960	160,141,506	158,859,998
Diluted	162,918,961	162,161,937	161,378,217	160,450,266
Dividend declared per share	$ 2.88	$ 2.88	$ 3.13	$ 3.13
Common stock price per share:				
High	$ 593.26	$ 551.86	$ 512.49	$ 477.21
Low	$ 508.97	$ 499.04	$ 468.98	$ 361.77
Close	$ 541.72	$ 499.04	$ 471.33	$ 392.82
2017[6]				
Revenue	$ 3,092	$ 3,236	$ 3,508	$ 3,764
Operating income	$ 1,143	$ 1,237	$ 1,389	$ 1,485
Net income	$ 868	$ 864	$ 956	$ 2,301
Net income attributable to BlackRock, Inc.	$ 859	$ 854	$ 944	$ 2,295
Earnings per share attributable to BlackRock, Inc. common stockholders:				
Basic	$ 5.27	$ 5.26	$ 5.83	$ 14.23
Diluted	$ 5.21	$ 5.20	$ 5.76	$ 14.01
Weighted-average common shares outstanding:				
Basic	163,016,599	162,502,465	161,872,716	161,272,950
Diluted	164,856,183	164,149,861	163,773,546	163,777,534
Dividend declared per share	$ 2.50	$ 2.50	$ 2.50	$ 2.50
Common stock price per share:				
High	$ 397.81	$ 428.38	$ 447.09	$ 518.86
Low	$ 371.64	$ 377.10	$ 412.19	$ 449.95
Close	$ 383.51	$ 422.41	$ 447.09	$ 513.71

(1) Results for all four quarters of 2018 reflected a reduced tax rate associated with the 2017 Tax Act.

(2) The first quarter of 2018 and 2017 included $56 million and $81 million, respectively, of discrete tax benefit related to stock-based compensation awards that vested in the first quarter of 2018 and 2017, respectively.

(3) The third quarter of 2018 benefited from $90 million of discrete tax items, primarily related to changes in the Company's organizational entity structure.

(4) The fourth quarter of 2018 included a pre-tax restructuring charge of $60 million.

(5) The fourth quarter of 2017 included a $1.2 billion net tax benefit related to the 2017 Tax Act and an $84 million of discrete tax benefits, primarily related to stock-based compensation awards.

(6) Results for 2017 were recast to reflect the adoption of the new revenue recognition standard. See Note 2, Significant Accounting Policies, for further information on the adoption of the new revenue recognition standard.

27. Subsequent Events

In January 2019, the Board of Directors authorized the repurchase of an additional seven million shares under the Company's existing share repurchase program for a total remaining capacity of up to approximately 9.9 million shares of BlackRock common stock.

On January 15, 2019, the Board of Directors approved BlackRock's quarterly dividend of $3.30 to be paid on March 21, 2019 to stockholders of record at the close of business on March 6, 2019.

The Company conducted a review for additional subsequent events and determined that no subsequent events had occurred that would require accrual or additional disclosures.