

Section 1: 8-K (8-K)

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 8-K

CURRENT REPORT

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

Date of Report (Date of earliest event reported): May 2, 2019

State Street Corporation

(Exact Name of Registrant as Specified in Charter)

Massachusetts
(State or Other Jurisdiction of Incorporation)

001-07511
(Commission File Number)

04-2456637
(IRS Employer Identification Number)

One Lincoln Street
Boston, Massachusetts, 02111
(Address of principal executive offices, and Zip Code)

Registrant's telephone number, including area code: (617) 786-3000

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

- Written communication pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communication pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communication pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (17 CFR §230.405) or Rule 12b-2 of the Securities Exchange Act of 1934 (17 CFR §240.12b-2).

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.

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

(Title of each class)	(Trading Symbol)	(Name of each exchange on which registered)
Common stock, \$1 par value per share	STT	New York Stock Exchange
Depository Shares, each representing a 1/4,000th ownership interest in a share of Non-Cumulative Perpetual Preferred Stock, Series C, without par value per share	STT.PRC	New York Stock Exchange
Depository Shares, each representing a 1/4,000th ownership interest in a share of Fixed-to-Floating Rate Non-Cumulative Perpetual Preferred Stock, Series D, without par value per share	STT.PRD	New York Stock Exchange
Depository Shares, each representing a 1/4,000th ownership interest in a share of Non-Cumulative Perpetual Preferred Stock, Series E, without par value per share	STT.PRE	New York Stock Exchange
Depository Shares, each representing a 1/4,000th ownership interest in a share of Fixed-to-Floating Rate Non-Cumulative Perpetual Preferred Stock, Series G, without par value per share	STT.PRG	New York Stock Exchange

Item 8.01. Other Events.

On March 5, 2019, State Street Corporation announced that during the first quarter of 2019 it voluntarily changed its accounting method under the Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) 323, Investments – Equity Method and Joint Ventures, for investments in low income housing tax credit from the equity method of accounting to the proportional amortization method of accounting. This change in accounting method has been applied retrospectively to all prior periods presented herein. Under the applicable bank regulatory rules, State Street Corporation is not required to and, accordingly, did not revise previously-filed reported capital metrics and ratios.

State Street Corporation is filing this Current Report on Form 8-K for the purpose of updating its audited financial statements and other disclosures included in the Annual Report on Form 10-K for the fiscal year ended December 31, 2018 (2018 Form 10-K). The information included in Exhibit 99.1 and Exhibit 99.2 to this Form 8-K presents the updated financial statements following this change in accounting method.

State Street Corporation has revised the following portions of the 2018 Form 10-K to reflect the retrospective revisions described above:

Part I

- Item 1. Business (up to and not including the subsection entitled “Business Description” therein);

Part II

- Item 6. Selected Financial Data;
- Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations (up to and not including the subsection entitled “Financial Condition” therein); and
- Item 8. Financial Statements and Supplementary Data, except for Statistical Disclosures by Bank Holding Companies.

The information included in Exhibit 99.1 and Exhibit 99.2 to this Form 8-K is presented in connection with the voluntary change in accounting described above and does not otherwise amend or restate State Street Corporation’s audited consolidated financial statements that were included in the 2018 Form 10-K. Unaffected items and unaffected portions of the 2018 Form 10-K have not been repeated in, and are not amended or modified by, Exhibit 99.1 and Exhibit 99.2 to this Form 8-K. Exhibit 99.1 and Exhibit 99.2 to this Form 8-K do not reflect events occurring after State Street Corporation filed the 2018 Form 10-K, and do not modify or update the disclosures therein in any way, other than to reflect the voluntary change in accounting as described above. Therefore, this Form 8-K and Exhibit 99.1 and Exhibit 99.2 hereto should be read in conjunction with the 2018 Form 10-K and State Street Corporation’s other filings made with the Securities and Exchange Commission subsequent to the date of the 2018 Form 10-K.

Item 9.01. Financial Statements and Exhibits.

(d) Exhibits.

<u>Exhibit No.</u>	<u>Description</u>
23.1	Consent of Independent Registered Public Accounting Firm
99.1	2018 Form 10-K Item 1. Business (up to and not including the subsection entitled "Business description" therein)
99.2	2018 Form 10-K Item 6. Selected Financial Data, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations (up to and not including the subsection entitled "Financial Condition" therein), and Item 8. Financial Statements and Supplementary Data, except for Statistical Disclosures by Bank Holding Companies
* 101.INS	XBRL Instance Document
* 101.SCH	XBRL Taxonomy Extension Schema Document
* 101.CAL	XBRL Taxonomy Calculation Linkbase Document
* 101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
* 101.LAB	XBRL Taxonomy Label Linkbase Document
* 101.PRE	XBRL Taxonomy Presentation Linkbase Document

* Submitted electronically herewith

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

STATE STREET CORPORATION

By: /s/ IAN W. APPELYARD

Name: Ian W. Appleyard,

Title: Executive Vice President, Global Controller and Chief Accounting Officer

Date: May 2, 2019

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Section 2: EX-23.1 (EXHIBIT 23.1)

Consent of Ernst & Young LLP, Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the Registration Statement (Form S-3 No. 333-221293, and Form S-8: Nos. 333-100001, 333-99989, 333-46678, 333-36793, 333-36409, 333-135696, 333-160171, 333-183656 and 333-218048) of State Street Corporation of our report dated February 21, 2019 (except for Note 1, as to which the date is May 2, 2019), with respect to the consolidated financial statements of State Street Corporation included in this Current Report on Form 8-K.

/s/ Ernst & Young LLP

Boston, Massachusetts
May 2, 2019

Section 3: EX-99.1 (EXHIBIT 99.1)

Exhibit 99.1

PART I

ITEM 1. BUSINESS

EXHIBIT 99.1

GENERAL

State Street Corporation, referred to as the Parent Company, is a financial holding company organized in 1969 under the laws of the Commonwealth of Massachusetts. Our executive offices are located at One Lincoln Street, Boston, Massachusetts 02111 (telephone (617) 786-3000). For purposes of this Form 10-K, unless the context requires otherwise, references to "State Street," "we," "us," "our" or similar terms mean State Street Corporation and its subsidiaries on a consolidated basis. The Parent Company is a source of financial and managerial strength to our subsidiaries. Through our subsidiaries, including our principal banking subsidiary, State Street Bank and Trust Company, referred to as State Street Bank, we provide a broad range of financial products and services to institutional investors worldwide, with \$31.62 trillion of AUC/A and \$2.51 trillion of AUM as of December 31, 2018.

As of December 31, 2018, we had consolidated total assets of \$244.60 billion, consolidated total deposits of \$180.36 billion, consolidated total shareholders' equity of \$24.74 billion and over 40,000 employees. We operate in more than 100 geographic markets worldwide, including the U.S., Canada, Europe, the Middle East and Asia.

On the "Investor Relations" section of our corporate website at www.statestreet.com, we make available, free of charge, all reports we electronically file with, or furnish to, the SEC including our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, as well as any amendments to those reports, as soon as reasonably practicable after those documents have been filed with, or furnished to, the SEC. These documents are also accessible on the SEC's website at www.sec.gov. We have included the website addresses of State Street and the SEC in this report as inactive textual references only. Information on those websites is not incorporated by reference in this Form 10-K.

We have Corporate Governance Guidelines, as well as written charters for the Examining and Audit Committee, the Executive Committee, the Executive Compensation Committee, the Nominating and Corporate Governance Committee, the Risk Committee and the Technology and Operations Committee of our Board of Directors, or Board, and a Code of Ethics for senior financial officers, a Standard of Conduct for Directors and a Standard of Conduct for our employees. Each of these documents is posted on the "Investor Relations" section of our website under "Corporate Governance."

We provide additional disclosures required by applicable bank regulatory standards, including supplemental qualitative and quantitative information with respect to regulatory capital (including market risk associated with our trading activities) and the liquidity coverage ratio, summary results of semi-annual State Street-run stress tests which we conduct under the Dodd-Frank Act and resolution plan disclosures required under the Dodd-Frank Act. These additional disclosures are available on the "Investor Relations" section of our website under "Filings and Reports."

We use acronyms and other defined terms for certain business terms and abbreviations, as defined on the acronyms list and glossary under Item 8 in this Form 10-K.

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Section 4: EX-99.2 (EXHIBIT 99.2)

Exhibit 99.2

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ITEM 6. SELECTED FINANCIAL DATA

(Dollars in millions, except per share amounts or where otherwise noted)

YEARS ENDED DECEMBER 31:	2018	2017	2016	2015	2014
Total fee revenue	\$ 9,454	\$ 9,001	\$ 8,200	\$ 8,351	\$ 8,227
Net interest income	2,671	2,304	2,084	2,088	2,260
Gains (losses) related to investment securities, net	6	(39)	7	(6)	4
Total revenue	12,131	11,266	10,291	10,433	10,491
Provision for loan losses	15	2	10	12	10
Total expenses	9,015	8,269	8,077	8,050	7,827
Income before income tax expense	3,101	2,995	2,204	2,371	2,654
Income tax expense (benefit)	508	839	67	398	646
Net income from non-controlling interest	—	—	1	—	—
Net income	\$ 2,593	\$ 2,156	\$ 2,138	\$ 1,973	\$ 2,008
Adjustments to net income ⁽¹⁾	(189)	(184)	(175)	(132)	(64)
Net income available to common shareholders	\$ 2,404	\$ 1,972	\$ 1,963	\$ 1,841	\$ 1,944
PER COMMON SHARE:					
Earnings per common share:					
Basic	\$ 6.46	\$ 5.26	\$ 5.01	\$ 4.51	\$ 4.59
Diluted	6.39	5.19	4.96	4.45	4.50
Cash dividends declared	1.78	1.60	1.44	1.32	1.16
Closing market price (at year end)	63.07	97.61	77.72	66.36	78.50
AS OF DECEMBER 31:					
Investment securities	\$ 87,062	\$ 97,579	\$ 97,167	\$ 100,022	\$ 112,636
Average total interest-earning assets	185,637	191,235	199,184	220,456	209,054
Total assets	244,596	238,392	242,689	245,149	274,084
Deposits	180,360	184,896	187,163	191,627	209,040
Long-term debt	11,093	11,620	11,430	11,497	10,012
Total shareholders' equity	24,737	22,270	21,193	21,082	21,314
Assets under custody and/or administration (in billions)	31,620	33,119	28,771	27,508	28,188
Assets under management (in billions)	2,511	2,782	2,468	2,245	2,448
Number of employees	40,142	36,643	33,783	32,356	29,970
RATIOS:					
Return on average common shareholders' equity	12.1%	10.5%	10.4%	9.7%	9.7%
Return on average assets	1.2	1.0	0.9	0.8	0.8
Common dividend payout	27.6	30.2	28.5	29.1	25.2
Average common equity to average total assets	8.9	8.6	8.2	7.6	8.4
Net interest margin, fully taxable-equivalent basis	1.47	1.29	1.13	1.03	1.16
Common equity tier 1 ratio ⁽²⁾	12.1	12.3	11.7	12.5	12.4
Tier 1 capital ratio ⁽²⁾	16.0	15.5	14.8	15.3	14.5
Total capital ratio ⁽²⁾	16.9	16.5	16.0	17.4	16.4
Tier 1 leverage ratio ⁽³⁾	7.2	7.3	6.5	6.9	6.3
Supplementary leverage ratio ⁽⁴⁾	6.3	6.5	5.9	6.2	5.6

⁽¹⁾ Amounts represent preferred stock dividends and the allocation of earnings to participating securities using the two-class method.⁽²⁾ Ratios were calculated in conformity with the advanced approaches provisions of the Basel III final rule. Refer to Note 16 to the consolidated financial statements in this Form 10-K.⁽³⁾ The tier 1 leverage ratio was calculated in conformity with the Basel III final rule.⁽⁴⁾ The supplementary leverage ratio was calculated using the tier 1 capital as calculated under the supplementary leverage ratio provisions of the Basel III final rule.

**MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION
AND RESULTS OF OPERATIONS**

**ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION
AND RESULTS OF OPERATIONS**

GENERAL

As of December 31, 2018, we had consolidated total assets of \$244.60 billion, consolidated total deposits of \$180.36 billion, consolidated total shareholders' equity of \$24.74 billion and over 40,000 employees. We operate in more than 100 geographic markets worldwide, including the U.S., Canada, Europe, the Middle East and Asia.

Our operations are organized into two lines of business, Investment Servicing and Investment Management, which are defined based on products and services provided.

Investment Servicing provides services for institutional clients, including mutual funds, collective investment funds and other investment pools, corporate and public retirement plans, insurance companies, investment managers, foundations and endowments worldwide. Products include: custody; product and participant level accounting; daily pricing and administration; master trust and master custody; depotbank services (a fund oversight role created by regulation); record-keeping; cash management; foreign exchange, brokerage and other trading services; securities finance; our enhanced custody product, which integrates principal securities lending and custody; deposit and short-term investment facilities; loans and lease financing; investment manager and alternative investment manager operations outsourcing; performance, risk and compliance analytics; and financial data management to support institutional investors. New products and services resulting from our acquisition of Charles River Development on October 1, 2018 include: portfolio modeling and construction; trade order management; investment risk and compliance; and wealth management solutions.

Investment Management, through State Street Global Advisors, provides a broad range of investment management strategies and products for our clients. Our investment management strategies and products span the risk/reward spectrum, including core and enhanced indexing, multi-asset strategies, active quantitative and fundamental active capabilities and alternative investment strategies. Our AUM is currently primarily weighted to indexed strategies. In addition, we provide a breadth of services and solutions, including environmental, social and governance investing, defined benefit and defined contribution and OCIO. State Street Global Advisors is also a provider of ETFs, including the SPDR[®] ETF brand. While management fees are primarily determined by the values of AUM and the investment strategies employed, management fees reflect other factors as well, including the benchmarks

specified in the respective management agreements related to performance fees.

For financial and other information about our lines of business, refer to "Line of Business Information" in this Management's Discussion and Analysis and Note 24 to the consolidated financial statements in this Form 10-K.

This Management's Discussion and Analysis should be read in conjunction with the consolidated financial statements and accompanying notes to consolidated financial statements in this Form 10-K. Certain previously reported amounts presented in this Form 10-K have been reclassified to conform to current-period presentation.

We prepare our consolidated financial statements in conformity with U.S. GAAP. The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions in its application of certain accounting policies that materially affect the reported amounts of assets, liabilities, equity, revenue and expenses.

The significant accounting policies that require us to make judgments, estimates and assumptions that are difficult, subjective or complex about matters that are uncertain and may change in subsequent periods include:

- accounting for fair value measurements;
- impairment of goodwill and other intangible assets; and
- contingencies.

These significant accounting policies require the most subjective or complex judgments, and underlying estimates and assumptions could be subject to revision as new information becomes available. Additional information about these significant accounting policies is included under "Significant Accounting Estimates" in this Management's Discussion and Analysis.

Certain financial information provided in this Form 10-K, including this Management's Discussion and Analysis, is prepared on both a U.S. GAAP, or reported basis, and a non-GAAP basis, including certain non-GAAP measures used in the calculation of identified regulatory ratios. We measure and compare certain financial information on a non-GAAP basis, including information (such as capital ratios calculated under regulatory standards scheduled to be effective in the future) that management uses in evaluating our business and activities.

Non-GAAP financial information should be considered in addition to, and not as a substitute for or superior to, financial information prepared in conformity with U.S. GAAP. Any non-GAAP financial information presented in this Form 10-K, including this Management's Discussion and Analysis, is reconciled

**MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION
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to its most directly comparable currently applicable regulatory ratio or U.S. GAAP-basis measure.

We further believe that our presentation of fully taxable-equivalent NII, a non-GAAP measure, which reports non-taxable revenue, such as interest income associated with tax-exempt investment securities, on a fully taxable-equivalent basis, facilitates an investor's understanding and analysis of our underlying financial performance and trends.

This Management's Discussion and Analysis contains statements that are considered "forward-looking statements" within the meaning of U.S. securities laws. Forward-looking statements include statements about our goals and expectations regarding our business, financial and capital condition, results of operations, strategies, financial portfolio performance, dividend and stock purchase programs, expected outcomes of legal proceedings, market growth, acquisitions, joint ventures and divestitures and new technologies, services and opportunities, as well as industry, regulatory, economic and market trends, initiatives and developments, the business environment and other matters that do not relate strictly to historical facts. These forward-looking statements involve certain risks and uncertainties which could cause actual results to differ materially. We undertake no obligation to revise the forward-looking statements contained in this Management's Discussion and Analysis to reflect events after the time we file this Form 10-K with the SEC. Additional information about forward-looking statements and related risks and uncertainties is provided in "Risk Factors" in this Form 10-K.

We provide additional disclosures required by applicable bank regulatory standards, including supplemental qualitative and quantitative information with respect to regulatory capital (including market risk associated with our trading activities) and the liquidity coverage ratio, summary results of semi-annual State Street-run stress tests which we conduct under the Dodd-Frank Act and resolution plan disclosures required under the Dodd-Frank Act. These additional disclosures are accessible on the "Investor Relations" section of our corporate website at www.statestreet.com.

We have included our website address in this report as an inactive textual reference only. Information on our website is not incorporated by reference in this Form 10-K.

We use acronyms and other defined terms for certain business terms and abbreviations, as defined on the acronyms list and glossary in this Form 10-K.

OVERVIEW OF FINANCIAL RESULTS

TABLE 1: OVERVIEW OF FINANCIAL RESULTS

(Dollars in millions, except per share amounts)	Years Ended December 31,		
	2018	2017	2016
Total fee revenue ⁽¹⁾⁽²⁾⁽³⁾	\$ 9,454	\$ 9,001	\$ 8,200
Net interest income ⁽²⁾	2,671	2,304	2,084
Gains (losses) related to investment securities, net	6	(39)	7
Total revenue ⁽¹⁾⁽³⁾	12,131	11,266	10,291
Provision for loan losses	15	2	10
Total expenses ⁽¹⁾⁽³⁾	9,015	8,269	8,077
Income before income tax expense	3,101	2,995	2,204
Income tax expense (benefit)	508	839	67
Net income from non-controlling interest	—	—	1
Net income	\$ 2,593	\$ 2,156	\$ 2,138
Adjustments to net income:			
Dividends on preferred stock ⁽⁴⁾	\$ (188)	\$ (182)	\$ (173)
Earnings allocated to participating securities ⁽⁵⁾	(1)	(2)	(2)
Net income available to common shareholders	\$ 2,404	\$ 1,972	\$ 1,963
Earnings per common share:			
Basic	\$ 6.46	\$ 5.26	\$ 5.01
Diluted	6.39	5.19	4.96
Average common shares outstanding (in thousands):			
Basic	371,983	374,793	391,485
Diluted	376,476	380,213	396,090
Cash dividends declared per common share	\$ 1.78	\$ 1.60	\$ 1.44
Return on average common equity	12.1%	10.5%	10.4%

⁽¹⁾ The new revenue recognition standard contributed approximately \$319 million in total revenue and total expenses for 2018, compared to 2017, including approximately \$190 million in management fees, \$58 million in foreign exchange trading services and \$71 million across other revenue lines, and expenses contributed approximately \$183 million in other expenses, \$106 million in transaction processing and \$30 million across other expense line items.

⁽²⁾ Approximately \$15 million of swap costs in 1Q18 were reclassified from processing fees and other revenue within fee revenue to net interest income to conform to current presentation.

⁽³⁾ Charles River Development contributed approximately \$121 million and \$57 million in total revenue and total expenses, respectively, in the fourth quarter of 2018, including approximately \$116 million in processing fees and other revenue and \$5 million in other revenue lines, and expenses contributed approximately \$28 million in compensation and employee benefits, \$18 million in amortization of other intangible assets and \$11 million in other expense lines.

⁽⁴⁾ Additional information about our preferred stock dividends is provided in Note 15 to the consolidated financial statements in this Form 10-K.

⁽⁵⁾ Represents the portion of net income available to common equity allocated to participating securities, composed of unvested and fully vested SERP shares and fully vested deferred director stock awards, which are equity-based awards that contain non-forfeitable rights to dividends, and are considered to participate with the common stock in undistributed earnings.

The following "Financial Results and Highlights" section provides information related to significant events, as well as highlights of our consolidated financial results for the year ended December 31, 2018 presented in Table 1: Overview of Financial Results. More detailed information about our consolidated financial results, including comparisons of our financial results for the year ended December 31, 2018 to those for the year ended December 31, 2017, is provided under "Consolidated Results of Operations," "Line of Business Information" and "Capital" which follows these sections, as well as in our consolidated financial statements in this Form 10-K. In this Management's

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Discussion and Analysis, where we describe the effects of changes in foreign exchange rates, those effects are determined by applying applicable weighted average foreign exchange rates from the relevant 2017 period to the relevant 2018 period results.

Financial Results and Highlights

- EPS of \$6.39 in 2018 increased 23% compared to \$5.19 in 2017. Both years include the impact of notable items.
 - 2018 notable items included:
 - Repositioning charges of approximately \$300 million;
 - Legal and related expenses of approximately \$50 million; and
 - Acquisition and restructuring costs primarily related to Charles River Development of approximately \$24 million.
 - 2017 notable items included:
 - One-time estimated net impact of \$270 million associated with the TCJA, including a one-time estimated tax expense of approximately \$250 million and a one-time reduction in revenue of approximately \$20 million; and
 - Acquisition and restructuring costs related to GEAM and Beacon of approximately \$266 million.
- 2018 revenues were impacted by unfavorable market conditions and fee compression. In light of challenging market and industry headwinds, we have launched a new expense program designed to reduce costs.
- 2018 ROE of 12.1% increased from 10.5% in 2017. Pre-tax margin of 25.6% in 2018 decreased from 26.6% in 2017.
- Operating leverage was (1.2)% for 2018. Operating leverage represents the difference between the percentage change in total revenue and the percentage change in total expenses, in each case relative to the prior year period.
- Fee operating leverage was (4.0)% for 2018. Fee operating leverage represents the difference between the percentage change in total fee revenue and the percentage change in total expenses, in each case relative to the prior year period. The negative fee operating leverage is primarily due to higher expenses, in part due to the aforementioned notable items.
- On October 1, 2018, we completed our acquisition of Charles River Development, a provider of investment management front office

tools and solutions, for an all cash purchase price of approximately \$2.6 billion. We funded the acquisition with a July 2018 issuance of common stock of approximately \$1.15 billion, a September 2018 issuance of preferred stock of approximately \$500 million and the suspension of approximately \$950 million of share repurchases in 2018.

- Total revenues contributed by Charles River Development in the fourth quarter of 2018 were approximately \$121 million, including \$116 million in processing fees and other revenue and \$5 million in other revenue lines.
- Total expenses contributed by Charles River Development in the fourth quarter of 2018 were approximately \$57 million, including \$28 million in compensation and employee benefits, \$18 million in amortization of other intangible assets and \$11 million in other expense lines.
- We have resumed our common stock purchase program in the first quarter of 2019 and may repurchase up to \$600 million through June 30, 2019 under the 2018 Program.

Revenue

- Total revenue and fee revenue increased 8% and 5%, respectively, in 2018 compared to 2017, primarily driven by higher management fees and foreign exchange trading services and, in the case of total revenue, higher NII, partially offset by lower securities finance revenue.
 - The new revenue recognition standard, effective January 1, 2018, contributed approximately \$319 million to total revenue in 2018 compared to 2017.
 - Charles River Development contributed approximately \$121 million to total revenue in 2018.
- Servicing fee revenue increased 1% in 2018 compared to 2017, primarily due to market appreciation and net new business, largely offset by challenging industry conditions, including fee pressure.
- Management fee revenue increased 15%, or \$235 million, in 2018 compared to 2017, reflecting higher average global equity markets during 2018. The new revenue recognition standard contributed \$190 million to management fee revenue in 2018, compared to 2017.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

- Securities finance revenue decreased 10% in 2018 compared to 2017, primarily due to certain balance sheet repositioning efforts in 2018.
- Processing fees and other revenue increased 28% in 2018 compared to 2017, and reflects approximately \$116 million from Charles River Development in 2018.
- NII increased 16% in 2018 compared to 2017, primarily due to higher U.S. interest rates and disciplined liability pricing, partially offset by a mix shift to HQLA. In 2018, we sold approximately \$26 billion of non-HQLA, of which a significant portion has been reinvested in HQLA.

Expenses

- Total expenses increased 9% in 2018 compared to 2017, primarily due to repositioning charges taken in 2018, the adoption of the new revenue recognition standard in 2018 and higher technology costs, partially offset by net Beacon savings.
 - In 2018, we initiated a new expense savings program and expect to realize \$350 million in gross expense savings by the end of 2019. As part of that program, we recorded a repositioning charge in the fourth quarter of 2018 of approximately \$223 million, consisting of \$198 million of compensation and employee benefits expenses and \$25 million of occupancy expenses. Including a charge taken in the second quarter of 2018, total repositioning charges were \$300 million in 2018.
 - In 2018, we achieved approximately \$245 million of Beacon pre-tax year-over-year savings, net of Beacon investments.
 - Total expenses in 2018 include approximately \$319 million and \$57 million related to the adoption of the new revenue recognition standard and our acquisition of Charles River Development, respectively.

AUC/A and AUM

- AUC/A decreased 5% in 2018 compared to 2017, primarily due to lower market levels. In 2018, newly announced asset servicing mandates totaled approximately \$1.9 trillion. Servicing assets remaining to be installed in future periods totaled approximately \$385 billion as of December 31, 2018.

- AUM decreased 10% in 2018 compared to 2017, primarily driven by weaker period end equity markets as well as institutional and cash outflows, partially offset by ETF net inflows.

Capital

- We declared aggregate common stock dividends of \$1.78 per share, totaling \$665 million in 2018, compared to \$1.60 per share, totaling \$596 million in 2017, representing an increase of approximately 12% on a per share basis.
- In the first quarter of 2018, we acquired 3.3 million shares of common stock at an average per share cost of \$105.31 and an aggregate cost of approximately \$350 million under our prior common stock purchase program (the 2017 Program) approved by our Board.
- In connection with our acquisition of Charles River Development, we did not repurchase any common stock under the common stock purchase plan approved by our Board in June 2018 (the 2018 Program), nor did we repurchase any common stock under the 2017 Program in the quarter ended June 30, 2018. We have resumed our common stock purchase program in the first quarter of 2019 and may repurchase up to \$600 million through June 30, 2019 under the 2018 Program.
- In July 2018, we completed a public offering of approximately 13.24 million shares of our common stock. The offering price was \$86.93 per share and net proceeds totaled approximately \$1.15 billion.
- In September 2018, we issued 500,000 depository shares each representing a 1/100th ownership interest in a share of our Fixed-to-Floating Rate Non-Cumulative Perpetual Preferred Stock, Series H, without par value per share, with a liquidation preference of \$100,000 per share (equivalent to \$1,000 per depository share) and an initial dividend rate of 5.625% per annum. The net proceeds were approximately \$500 million.
- Our standardized CET1 capital ratio decreased to 11.7% as of December 31, 2018 compared to 11.9% as of December 31, 2017, and Tier 1 leverage ratio decreased to 7.2% as of December 31, 2018 compared to 7.3% as of December 31, 2017. The decreases are primarily driven by higher deduction of goodwill of \$1.5 billion and intangible assets of \$1.0 billion as a result of our acquisition of Charles River Development, as well as the phase in of the intangible assets of \$0.3 billion (100% in 2018 compared to 80% in 2017).

**MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION
AND RESULTS OF OPERATIONS**

CONSOLIDATED RESULTS OF OPERATIONS

This section discusses our consolidated results of operations for 2018 compared to 2017, as well as 2017 compared to 2016, and should be read in conjunction with the consolidated financial statements and accompanying condensed notes to the consolidated financial statements in this Form 10-K.

Total Revenue

TABLE 2: TOTAL REVENUE

(Dollars in millions)	Years Ended December 31,			% Change 2018 vs. 2017	% Change 2017 vs. 2016
	2018	2017	2016		
Fee revenue:					
Servicing fees	\$ 5,421	\$ 5,365	\$ 5,073	1 %	6 %
Management fees ⁽¹⁾	1,851	1,616	1,292	15	25
Foreign exchange trading services ⁽¹⁾	1,201	1,071	1,099	12	(3)
Securities finance	543	606	562	(10)	8
Processing fees and other ⁽²⁾	438	343	174	28	97
Total fee revenue ⁽²⁾	9,454	9,001	8,200	5	10
Net interest income:					
Interest income	3,662	2,908	2,512	26	16
Interest expense	991	604	428	64	41
Net interest income	2,671	2,304	2,084	16	11
Gains (losses) related to investment securities, net	6	(39)	7	nm	nm
Total revenue ⁽¹⁾⁽²⁾	\$ 12,131	\$ 11,266	\$ 10,291	8	9

⁽¹⁾ The new revenue recognition standard contributed approximately \$319 million in total revenue for 2018, compared to 2017, including approximately \$190 million in management fees, \$58 million in foreign exchange trading services and \$71 million across other revenue lines.

⁽²⁾ Charles River Development contributed approximately \$121 million in total revenue for the fourth quarter of 2018, including approximately \$116 million in processing fees and other revenue and \$5 million in other revenue lines.

⁽³⁾ Not meaningful

Fee Revenue

Table 2: Total Revenue, provides the breakout of fee revenue for the years ended December 31, 2018, 2017 and 2016.

Servicing and management fees collectively made up approximately 77% of the total fee revenue in 2018, and 78% in both 2017 and 2016.

Servicing Fee Revenue

Generally, our servicing fee revenues are affected by several factors including changes in market valuations, client activity and asset flows, net new business and the manner in which we price our services. We provide a range of services to our clients, including core custody services, accounting, reporting and administration and middle office services, and the

nature and mix of services provided affects our servicing fees. The basis for fees will differ across regions and clients. In general, approximately 55% of our servicing fee revenues have been variable due to changes in asset valuations including changes in daily average valuations of AUC/A; another 15% of our servicing fees are impacted by the volume of activity in the funds we serve; and the remaining 30% of our servicing fees tend not to be variable in nature nor impacted by market fluctuations or values.

Changes in Market Valuations

Our servicing fee revenue is impacted by both our levels of and the geographic and product mix of our AUC/A. Increases or decreases in market valuations have a corresponding impact on the level of our AUC/A and servicing fee revenues, though the degree of impact will vary depending on asset types and classes and geography of assets held within our clients' portfolios.

Over the past five years, including the year ended December 31, 2018, we estimate that worldwide market valuations impacted our servicing fee revenues by approximately (2)% to 5% annually and approximately 2% in 2018. See Table 3: Daily, Month-End and Year-End Equity Indices for selected indices. While the specific indices presented are indicative of general market trends, the asset types and classes relevant to individual client portfolios can and do differ, and the performance of associated relevant indices and of client portfolios can therefore differ from the performance of the indices presented. In addition, our asset classifications may differ from those industry classifications presented.

We estimate, using relevant information as of December 31, 2018 and assuming that all other factors remain constant, that:

- A 10% increase or decrease in worldwide equity valuations, on a weighted average basis, over the relevant periods for which our servicing fees are calculated, would result in a corresponding change in our total servicing fee revenues, on average and over time, of approximately 3%; and
- A 10% increase or decrease in worldwide fixed income valuations, on a weighted average basis, over the relevant periods for which our servicing fees are calculated, would result in a corresponding change in our total servicing fee revenues, on average and over time, of approximately 1%.

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TABLE 3: DAILY, MONTH-END AND YEAR-END EQUITY INDICES⁽¹⁾

	Years Ended December 31,			Years Ended December 31,			Years Ended December 31,		
	2018	2017	% Change	2018	2017	% Change	2018	2017	% Change
	Daily Averages of Indices			Averages of Month-End Indices			Year-End Indices		
S&P 500 [®]	2,746	2,449	12%	2,738	2,465	11%	2,507	2,674	(6)%
MSCI EAFE [®]	1,965	1,886	4	1,957	1,900	3	1,720	2,051	(16)
MSCI [®] Emerging Markets	1,093	1,028	6	1,090	1,036	5	966	1,158	(17)
HFRI Asset Weighted Composite [®]	NA	NA	NA	1,404	1,352	4	1,380	1,389	(1)
Barclays Capital Global Aggregate Bond Index	NA	NA	NA	NA	NA	NA	479	485	(1)

⁽¹⁾ The index names listed in the table are service marks of their respective owners.

NA Not applicable

Client Activity and Asset Flows

Client activity and asset flows are impacted by the number of transactions we execute on behalf of our clients, including FX settlements, equity and derivative trades and wire transfer activity, as well as actions by our clients to change the asset class in which their assets are invested based on their risk acceptance tolerance. Industry trends, such as client redemptions out of hedge funds, can also impact our servicing fee revenues.

Over the past five years, including the year ended December 31, 2018, we estimate that client activity and asset flows, together, impacted our servicing fee revenues by approximately (1%) to 2% annually and approximately 1% in 2018. See Table 4: Industry Asset Flows for selected asset flow information. While the asset flows presented are indicative of general market trends, the asset types and classes relevant to individual client portfolios can and do differ, and our flows may differ from those market trends. In addition, our asset classifications may differ from those industry classifications presented.

TABLE 4: INDUSTRY ASSET FLOWS

(In billions)	Years Ended December 31,	
	2018	2017
North America - ICI Market Data⁽¹⁾⁽²⁾		
Long-Term Funds ⁽³⁾	\$ (349.6)	\$ 66.8
Money Market	119.8	81.2
ETF	310.9	470.8
Total ICI Flows	\$ 81.1	\$ 618.8
Europe - Broadridge Market Data⁽¹⁾⁽⁴⁾		
Long-Term Funds ⁽³⁾	\$ (52.1)	\$ 713.5
Money Market	12.4	75.7
Total Broadridge Flows	\$ (39.7)	\$ 789.2

⁽¹⁾ Industry data is provided for illustrative purposes only and is not intended to reflect the Company's activity or its clients' activity.

⁽²⁾ Source: Investment Company Institute. Investment Company Institute (ICI) data includes funds not registered under the Investment Company Act of 1940. Mutual fund data represents estimates of net new cash flow, which is new sales minus redemptions combined with net exchanges, while ETF data represents net issuance, which is gross issuance less gross redemptions. Data for mutual funds that invest primarily in other mutual funds and ETFs that invest primarily in other ETFs were excluded from the series. ICI classifies mutual funds and ETFs based on language in the fund prospectus.

⁽³⁾ The long-term fund flows reported by ICI are composed of North America Market flows mainly in Equities, Hybrids and Fixed-Income Asset Classes. The long-term fund flows reported by Broadridge are composed of EMEA Market flows mainly in Equities, Fixed-Income and Multi Asset Classes.

⁽⁴⁾ Source: © Copyright 2018, Broadridge Financial Solutions, Inc. Funds of funds have been excluded from Broadridge data (to avoid double counting). Therefore, a market total is the sum of all the investment categories excluding the three funds of funds categories (in-house, ex-house and hedge). ETFs are included in Broadridge's database on mutual funds, but this excludes exchange-traded commodity products that are not mutual funds.

Pricing

The industry in which we operate has historically faced pricing pressure, and our servicing fee revenues are also affected by such pressures today. On average, over the past 5 years, including the year ended December 31, 2018, we estimate that pricing pressure with respect to existing clients have impacted our servicing fees by approximately (2%) annually, with the impact ranging from (1%) to (4%) in any given year and during the year ended December 31, 2018, the impact was at the higher end of that range. Pricing concessions can be a part of a contract renegotiation with a client including terms that may benefit us, such as extending the terms of our relationship with the client, expanding the scope of services that we provide or reducing our dependency on manual processes through the standardization of the services we provide. The timing of the impact of additional revenue generated by such additional services, and the amount of revenue generated, may differ from the impact of pricing concessions on existing services due to the necessary time required to onboard those new services and the nature of those services. These same market pressures also impact the fees we negotiate when we win business from new clients.

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Net New Business

Over the past five years, including the year ended December 31, 2018, net new business, which includes business both won and lost, has affected our servicing fee revenues by approximately 2% on average with a range of 1% to 3% annually and approximately 1% in 2018. New business can include: custody; product and participant level accounting; daily valuation and administration; record-keeping; cash management; foreign exchange, brokerage and other trading services; securities finance; and other services. Revenues associated with new servicing mandates may vary based on the breadth of services provided, the time required to install the assets, and the types of assets installed.

Management Fee Revenue

Management fees generally are affected by changes in month-end valuations of AUM. Management fees for certain components of managed assets, such as ETFs, mutual funds and UCITS, are affected by daily average valuations of AUM. Management fee revenue is more sensitive to market valuations than servicing fee revenue, as a higher proportion of the underlying services provided, and the associated management fees earned, are dependent on equity and fixed-income security valuations. Additional factors, such as the relative mix of assets managed, may have a significant effect on our management fee revenue. While certain management fees are directly determined by the values of AUM and the investment strategies employed, management fees may reflect other factors, including performance fee arrangements, as well as our relationship pricing for clients.

Asset-based management fees for actively managed products are generally charged at a higher percentage of AUM than for passive products. Actively managed products may also include performance fee arrangements which are recorded when the fee is earned, based on predetermined benchmarks associated with the applicable account's performance.

In light of the above, we estimate, using relevant information as of December 31, 2018 and assuming that all other factors remain constant, including the impact of business won and lost and client flows, that:

- A 10% increase or decrease in worldwide equity valuations, on a weighted average basis, over the relevant periods for which our management fees are calculated, would result in a corresponding change in our total management fee revenues, on average and over time, of approximately 5%; and

- A 10% increase or decrease in worldwide fixed-income valuations, on a weighted average basis, over the relevant periods for which our management fees are calculated, would result in a corresponding change in our total management fee revenues, on average and over time, of approximately 4%.

Daily averages, month-end averages and year-end indices demonstrate worldwide changes in equity and debt markets that affect our management fee revenue. Year-end indices affect the values of AUM as of those dates. See Table 3: Daily, Month-End and Year-End Equity Indices for selected indices.

Additional information about fee revenue is provided under "Line of Business Information" included in this Management's Discussion and Analysis.

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Net Interest Income

See Table 2: Total Revenue, for the breakout of interest income and interest expense for the years ended December 31, 2018, 2017 and 2016. NII was \$2,671 million for 2018, compared to \$2,304 million and \$2,084 million for 2017 and 2016, respectively.

NII is defined as interest income earned on interest-earning assets less interest expense incurred on interest-bearing liabilities. Interest-earning assets, which principally consist of investment securities, interest-bearing deposits with banks, resale agreements, loans and leases and other liquid assets, are financed primarily by client deposits, short-term borrowings and long-term debt.

NIM represents the relationship between annualized fully taxable-equivalent NII and average total interest-earning assets for the period. It is calculated by dividing fully taxable-equivalent NII by average interest-earning assets. Revenue that is exempt from income taxes, mainly earned from certain investment securities (state and political subdivisions), is adjusted to a fully taxable-equivalent basis using the U.S. federal and state statutory income tax rates.

See Table 5: Average Balances and Interest Rates - Fully Taxable-Equivalent Basis, for the breakout of NII on a FTE basis for the years ended December 31, 2018, 2017 and 2016. NII on a FTE basis increased in 2018 compared to 2017, primarily due to higher U.S. interest rates and a continued focus on disciplined liability pricing.

TABLE 5: AVERAGE BALANCES AND INTEREST RATES - FULLY TAXABLE-EQUIVALENT BASIS⁽¹⁾

(Dollars in millions; fully taxable-equivalent basis)	Years Ended December 31,								
	2018			2017			2016		
	Average Balance	Interest Revenue/Expense	Rate	Average Balance	Interest Revenue/Expense	Rate	Average Balance	Interest Revenue/Expense	Rate
Interest-bearing deposits with banks	\$ 54,328	\$ 387	0.71%	\$ 47,514	\$ 180	0.38 %	\$ 53,091	\$ 126	0.24 %
Securities purchased under resale agreements ⁽²⁾	2,901	335	11.55	2,131	264	12.38	2,558	146	5.70
Trading account assets	1,051	—	—	1,011	(1)	(0.12)	921	—	—
Investment securities	88,070	1,927	2.19	95,779	1,891	1.97	100,738	1,962	1.95
Loans and leases	23,573	698	2.96	21,916	519	2.37	19,013	384	2.02
Other interest-earning assets	15,714	372	2.37	22,884	222	0.97	22,863	61	0.27
Average total interest-earning assets	\$ 185,637	\$ 3,719	2.00	\$ 191,235	\$ 3,075	1.61	\$ 199,184	\$ 2,679	1.34
Interest-bearing deposits:									
U.S.	\$ 54,953	\$ 256	0.47%	\$ 30,623	\$ 96	0.31 %	\$ 30,107	\$ 132	0.44 %
Non-U.S. ⁽³⁾	70,623	107	0.15	91,937	67	0.07	95,551	(47)	(0.05)
Total interest-bearing deposits⁽³⁾⁽⁴⁾	125,576	363	0.29	122,560	163	0.13	125,658	85	0.07
Securities sold under repurchase agreements	2,048	13	0.62	3,683	2	0.05	4,113	1	0.02
Federal funds purchased	—	—	—	—	—	—	31	—	—
Other short-term borrowings	1,327	17	1.28	1,313	10	0.80	1,666	7	0.40
Long-term debt	10,686	389	3.64	11,595	308	2.66	11,401	260	2.29
Other interest-bearing liabilities	4,956	209	4.20	4,607	121	2.63	5,394	75	1.39
Average total interest-bearing liabilities	\$ 144,593	\$ 991	0.68	\$ 143,758	\$ 604	0.42	\$ 148,263	\$ 428	0.29
Interest rate spread			1.32%			1.19 %			1.05 %
Net interest income-fully taxable-equivalent basis		\$ 2,728			\$ 2,471			\$ 2,251	
Net interest margin-fully taxable-equivalent basis			1.47%			1.29 %			1.13 %
Tax-equivalent adjustment		(57)			(167)			(167)	
Net interest income-GAAP basis		\$ 2,671			\$ 2,304			\$ 2,084	

⁽¹⁾ Rates earned/paid on interest-earning assets and interest-bearing liabilities include the impact of hedge activities associated with our asset and liability management activities where applicable.

⁽²⁾ Reflects the impact of balance sheet netting under enforceable netting agreements of approximately \$36 billion, \$31 billion and \$30 billion for the years ended December 31, 2018, 2017 and 2016, respectively. Excluding the impact of netting, the average interest rates would be approximately 0.87%, 0.79% and 0.43% for the years ended December 31, 2018, 2017 and 2016, respectively.

⁽³⁾ Average rate includes the impact of FX swap costs of approximately \$106 million, \$141 million and \$27 million for the years ended December 31, 2018, 2017 and 2016, respectively. Average rates for total interest-bearing deposits excluding the impact of FX swap costs were 0.20%, 0.02% and 0.04% for the years ended December 31, 2018, 2017 and 2016, respectively.

⁽⁴⁾ Total deposits averaged \$161.4 billion for 2018, compared to \$163.8 billion and \$170.5 billion for 2017 and 2016, respectively.

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Changes in the components of interest-earning assets and interest-bearing liabilities are discussed in more detail below. Additional information about the components of interest income and interest expense is provided in Note 17 to the consolidated financial statements in this Form 10-K.

Average total interest-earning assets were \$185.64 billion in 2018 compared to \$191.24 billion in 2017. The decrease is largely driven by lower client deposits, which includes both interest-bearing and non-interest-bearing deposits and securities sold under repurchase agreements.

Interest-bearing deposits with banks averaged \$54.33 billion in 2018 compared to \$47.51 billion in 2017. These deposits primarily reflect our maintenance of cash balances at the Federal Reserve, the ECB and other non-U.S. central banks.

Securities purchased under resale agreements averaged \$2.90 billion in 2018 compared to \$2.13 billion in 2017. This reflects the impact of balance sheet netting under enforceable netting agreements of approximately \$36 billion and \$31 billion for 2018 and 2017, respectively. We maintain an agreement with the Fixed Income Clearing Corporation (FICC), a clearing organization that enables us to net all securities sold under repurchase agreements against those purchased under resale agreements with counterparties that are also members of the clearing organization. The increase in 2018 compared to 2017 is primarily due to the expansion of our program with the FICC and new client activity.

Investment securities averaged \$88.07 billion in 2018 compared to \$95.78 billion in 2017. The decrease in average investment securities was primarily driven by our investment repositioning strategy to prioritize capital efficient client lending while managing OCI sensitivity. We sold approximately \$26 billion of securities, primarily non-HQLA, during 2018, with a significant portion of the proceeds being reinvested in HQLA, such as MBS and interest-bearing deposits with banks.

Loans and leases averaged \$23.57 billion in 2018 compared to \$21.92 billion in 2017. The increase in average loans and leases was primarily driven by higher levels of mutual fund lending and commercial real estate loans, as part of our effort to expand our commercial and real estate loan program. Loans and leases also includes U.S. and non-U.S. overdrafts, which provide liquidity to clients in support of investment activities.

Average other interest-earning assets, largely associated with our enhanced custody business, decreased to \$15.71 billion in 2018 from \$22.88 billion in 2017, primarily driven by a reduction in the level of cash collateral posted. Enhanced custody is our securities financing business where we act as principal with respect to our custody clients and generate

securities finance revenue. The NII earned on these transactions is generally lower than the interest earned on other alternative investments.

Aggregate average U.S. and non-U.S. interest-bearing deposits increased to \$125.58 billion in 2018 from \$122.56 billion in 2017. The increase was primarily driven by a gradual shift from non-interest-bearing deposits to interest-bearing deposits. Future deposit levels will be influenced by the underlying asset servicing business, client deposit behavior and market conditions, including the general levels of U.S. and non-U.S. interest rates.

Average other short-term borrowings, largely associated with our tax-exempt investment program, increased to \$1.33 billion in 2018 from \$1.31 billion in 2017.

Average long-term debt was \$10.69 billion in 2018 compared to \$11.60 billion in 2017. These amounts reflect issuances and maturities of senior debt during the respective periods, including the issuance of \$1.0 billion of senior debt in December 2018.

Average other interest-bearing liabilities were \$4.96 billion in 2018 compared to \$4.61 billion in 2017. Other interest-bearing liabilities primarily reflect our level of cash collateral received from clients in connection with our enhanced custody business, which is presented on a net basis where we have enforceable netting agreements.

Several factors could affect future levels of NII and NIM, including the volume and mix of client deposits and funding sources; central bank actions; balance sheet management activities; changes in the level and slope of U.S. and non-U.S. interest rates; revised or proposed regulatory capital or liquidity standards, or interpretations of those standards; the yields earned on securities purchased compared to the yields earned on securities sold or matured and changes in the type and amount of credit or other loans we extend.

Based on market conditions and other factors, including regulatory standards, we continue to reinvest the majority of the proceeds from pay-downs and maturities of investment securities in highly-rated U.S. and non-U.S. securities, such as U.S. Treasury and agency securities, sovereign debt securities and federal agency MBS. The pace at which we reinvest and the types of investment securities purchased will depend on the impact of market conditions, the implementation of regulatory standards, including interpretation of those standards and other factors over time. We expect these factors and the levels of global interest rates to impact our reinvestment program and future levels of NII and NIM.

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Provision for Loan Losses

We recorded a provision for loan losses of \$15 million in 2018 compared to \$2 million and \$10 million in 2017 and 2016, respectively. The provision increased in 2018 compared to 2017, primarily due to a higher volume of loans to non-investment grade borrowers composed of senior secured loans that we purchased in connection with our participation in loan syndications in the non-investment grade lending market. Additional information about these senior secured loans is provided under "Loans and Leases" in "Financial Condition" in this Management's Discussion and Analysis and in Note 4 to the consolidated financial statements in this Form 10-K.

Expenses

Table 6: Expenses, provides the breakout of expenses for the years ended December 31, 2018, 2017 and 2016.

TABLE 6: EXPENSES

(Dollars in millions)	Years Ended December 31,			% Change 2018 vs. 2017	% Change 2017 vs. 2016
	2018	2017	2016		
Compensation and employee benefits ⁽¹⁾	\$ 4,780	\$ 4,394	\$ 4,353	9 %	1 %
Information systems and communications	1,324	1,167	1,105	14	6
Transaction processing services ⁽²⁾	985	838	800	18	5
Occupancy	500	461	440	9	5
Acquisition costs	31	21	69	48	(70)
Restructuring charges, net	(7)	245	140	nm	75
Amortization of other intangible assets ⁽¹⁾	226	214	207	6	3
Other:					
Professional services	357	340	379	5	(10)
Regulatory fees and assessments	87	106	82	(18)	29
Other ⁽²⁾	732	483	502	52	(4)
Total other ⁽²⁾	1,176	929	963	27	(4)
Total expenses^{(1) (2)}	\$ 9,015	\$ 8,269	\$ 8,077	9	2
Number of employees at year-end	40,142	36,643	33,783	10	8

⁽¹⁾ Charles River Development contributed approximately \$57 million in total expenses for the fourth quarter of 2018, including approximately \$28 million in compensation and employee benefits, \$18 million in amortization of other intangible assets and \$11 million in other expense lines.

⁽²⁾ The new revenue recognition standard contributed approximately \$319 million in total expenses for 2018, compared to 2017, including approximately \$183 million in other expenses, \$106 million in transaction processing and \$30 million across other expense line items.

^{nm} Not meaningful

Compensation and employee benefits expenses increased 9% in 2018 compared to 2017, primarily due to repositioning charges of \$259 million in 2018, or two-thirds of the 9% increase, as described below, as well as annual merit increases, higher investments to support new business and approximately \$28 million from Charles River Development, partially offset by net Beacon savings and lower performance based incentive compensation.

Compensation and employee benefits expenses increased 1% in 2017, compared to 2016, primarily due to increased costs to support new business, annual merit and performance based incentive compensation increases, partially offset by net Beacon savings. In December 2016, we recorded a pre-tax charge of \$249 million (\$161 million after tax) associated with an amendment of the terms of outstanding, previously issued, deferred cash-settled incentive compensation awards for certain employees to remove continued service requirements, thereby accelerating the future expense that would have been recognized over the remaining term of the awards had the continued service requirement not been removed.

Headcount increased 10% in 2018 compared to 2017, primarily driven by growth in our low cost locations and our acquisition of Charles River Development. Headcount in high cost locations fell in 2018 compared to 2017, primarily due to reductions from Beacon, partially offset by increases resulting from the Charles River Development acquisition.

Information systems and communications expenses increased 14% in 2018 compared to 2017, and 6% in 2017 compared to 2016. Both increases were primarily related to technology infrastructure enhancements as well as additional investments to support growth, regulatory initiatives and Beacon-related investments.

Transaction processing services expenses increased 18% in 2018 compared to 2017, reflecting the adoption of the new revenue recognition standard and higher client volumes. Transaction processing services expenses increased 5% in 2017 compared to 2016, primarily related to higher client volumes.

Occupancy expenses increased 9% in 2018 compared to 2017, primarily due to repositioning charges of approximately \$41 million in 2018, partially offset by net Beacon savings. Occupancy expenses increased 5% in 2017 compared to 2016, primarily due to the GEAM acquisition and higher investments to support new business.

Amortization of other intangible assets increased 6% in 2018 compared to 2017, primarily due to contributions from Charles River Development of approximately \$18 million and accelerated amortization associated with a business exit of approximately \$16 million. Amortization of other intangible assets increased 3% in 2017 compared to 2016, primarily due to GEAM intangible asset amortization.

Other expenses increased 27% in 2018, compared to 2017, reflecting the adoption of the new revenue recognition standard which contributed approximately \$183 million as well as higher legal and related expenses, partially offset by net Beacon savings. Other expenses decreased 4% in 2017

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compared to 2016, primarily due to lower professional services costs.

As a systemically important financial institution, we are subject to enhanced supervision and prudential standards. Our status as a G-SIB has also resulted in heightened prudential and conduct expectations of our U.S. and international regulators with respect to our capital and liquidity management and our compliance and risk oversight programs. These heightened expectations have increased our regulatory compliance costs, including personnel, technology and systems, as well as significant additional implementation and related costs to enhance our regulatory compliance programs. Regulatory compliance requirements are anticipated to remain at least at the elevated levels we have experienced over the past several years.

Acquisition Costs

We recorded approximately \$31 million of acquisition costs in 2018 related to our acquisition of Charles River Development on October 1, 2018. In 2017, we recorded approximately \$21 million of acquisition costs primarily related to our acquisition of the GEAM business on July 1, 2016. As we integrate Charles River Development into our business, we expect to incur a total of approximately \$200 million, including the \$31 million in 2018, of acquisition costs, including merger and integration costs, through 2021. For further information on our acquisition of Charles River Development, refer to Note 1 to the consolidated financial statements in this Form 10-K.

Restructuring and Repositioning Charges

Repositioning Charges

In 2018, we initiated a new expense program to accelerate efforts to become a higher-performing organization and help navigate challenging market and industry conditions. Through increased resource discipline, process re-engineering and automation, we expect to realize \$350 million in gross expense savings in 2019, consisting primarily of compensation and benefits expenses savings. As part of that program, expenses for 2018 included a repositioning charge of \$300 million, including \$259 million of compensation and employee benefits and \$41 million of occupancy costs.

Beacon

In 2018, we released \$7 million of restructuring accruals related to Beacon. In 2017, we recorded restructuring charges of \$245 million primarily related to Beacon. In aggregate, we have recorded restructuring charges of approximately \$380 million related to Beacon, including \$293 million in severance costs and \$87 million in real estate actions, information technology application rationalization and other restructuring.

The following table presents aggregate activity for the periods indicated.

TABLE 7: RESTRUCTURING AND REPOSITIONING CHARGES

(In millions)	Employee Related Costs	Real Estate Actions	Asset and Other Write-offs	Total
Accrual Balance at December 31, 2015	\$ 9	\$ 11	\$ 3	\$ 23
Accruals for Business Operations and Information Technology	(2)	—	—	(2)
Accruals for Beacon	94	18	30	142
Payments and other adjustments	(64)	(12)	(31)	(107)
Accrual Balance at December 31, 2016	\$ 37	\$ 17	\$ 2	\$ 56
Accruals for Beacon	186	32	27	245
Payments and Other Adjustments	(57)	(17)	(26)	(100)
Accrual Balance at December 31, 2017	\$ 166	\$ 32	\$ 3	\$ 201
Accruals for Beacon	(7)	—	—	(7)
Accruals for Repositioning Charges	259	41	—	300
Payments and Other Adjustments	(115)	(36)	(2)	(153)
Accrual Balance at December 31, 2018	\$ 303	\$ 37	\$ 1	\$ 341

Income Tax Expense

Income tax expense (benefit) was \$508 million in 2018, compared to \$839 million and \$67 million in 2017 and 2016, respectively. Our effective tax rate for 2018 was 16.3%, compared to 27.9% and 3.0% in 2017 and 2016, respectively. The 2018 income tax expense included an additional deferred tax benefit of \$32 million related to adjustments from the TCJA provisional estimate recorded in 2017. The 2017 income tax expense included a one-time estimated tax expense of \$250 million for the provisional impact of the enactment of the TCJA. The 2016 benefit included a reduction in accrued tax expense attributable to retained foreign earnings and tax benefits from capital actions involving our overseas affiliates.

Additional information regarding income tax expense, including unrecognized tax benefits, and tax contingencies are provided in Notes 13 and 22 to the consolidated financial statements in this Form 10-K.

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LINE OF BUSINESS INFORMATION

Our operations are organized into two lines of business: Investment Servicing and Investment Management, which are defined based on products and services provided. The results of operations for these lines of business are not necessarily comparable with those of other companies, including companies in the financial services industry.

Investment Servicing provides services for institutional clients, including mutual funds, collective investment funds and other investment pools, corporate and public retirement plans, insurance companies, investment managers, foundations and endowments worldwide. Products include: custody; product- and participant-level accounting; daily pricing and administration; master trust and master custody; record-keeping; cash management; foreign exchange, brokerage and other trading services; securities finance; our enhanced custody product, which integrates principal securities lending and custody; deposit and short-term investment facilities; loans and lease financing; investment manager and alternative investment manager operations outsourcing; and performance, risk and compliance analytics to support institutional investors. New products and services resulting from our acquisition of Charles River Development on October 1, 2018 include: portfolio modeling and construction; trade order management; investment risk and compliance; and wealth management solutions.

Investment Management, through State Street Global Advisors, provides a broad range of investment management strategies and products for our clients. Our investment management strategies and products span the risk/reward spectrum, including core and enhanced indexing, multi-asset strategies, active quantitative and fundamental active capabilities and alternative investment strategies. Our AUM is currently primarily weighted to indexed strategies. In addition, we provide a breadth of services and solutions, including environmental, social and governance investing, defined benefit and defined contribution and OCIO. State Street Global Advisors is also a provider of ETFs, including the SPDR® ETF brand. While management fees are primarily determined by the values of AUM and the investment strategies employed, management fees reflect other factors as well, including the benchmarks specified in the respective management agreements related to performance fees.

For information about our two lines of business, as well as the revenues, expenses and capital allocation methodologies associated with them, refer to Note 24 to the consolidated financial statements in this Form 10-K.

Investment Servicing

TABLE 8: INVESTMENT SERVICING LINE OF BUSINESS RESULTS

(Dollars in millions, except where otherwise noted)	Years Ended December 31,			% Change 2018 vs. 2017	% Change 2017 vs. 2016
	2018	2017	2016		
Servicing fees	\$ 5,429	\$ 5,365	\$ 5,073	1 %	6 %
Foreign exchange trading services	1,071	999	1,038	7	(4)
Securities finance	543	606	562	(10)	8
Processing fees and other ⁽¹⁾	443	336	203	32	66
Total fee revenue⁽¹⁾	7,486	7,306	6,876	2	6
Net interest income	2,691	2,309	2,081	17	11
Gains (losses) related to investment securities, net	6	(39)	7	nm	nm
Total revenue⁽¹⁾	10,183	9,576	8,964	6	7
Provision for loan losses	15	2	10	650	(80)
Total expenses	7,081	6,717	6,660	5	1
Income before income tax expense	\$ 3,087	\$ 2,857	\$ 2,294	8	25
Pre-tax margin	30%	30%	26%		
Average assets (in billions)	\$ 220.2	\$ 214.0	\$ 225.3		

⁽¹⁾ Charles River Development contributed approximately \$121 million and \$57 million in total revenue and total expenses, respectively, for the fourth quarter of 2018, including approximately \$116 million in processing fees and other and \$5 million across other revenue lines, and expenses contributed approximately \$29 million in compensation and employee benefits, \$16 million in amortization of other intangible assets and \$11 million in other expense lines.

⁽²⁾ Not meaningful.

Servicing Fees

Servicing fees increased 1% in 2018 compared to 2017, primarily due to market appreciation and net new business, largely offset by challenging industry conditions, including fee pressure.

Servicing fees increased 6% in 2017 compared to 2016, primarily due to market appreciation and net new business, partially offset by continued hedge fund outflows and the impact of the businesses we exited in 2017. Servicing fees in 2016 included a revenue reduction of \$48 million from reimbursements related to the manner in which we invoiced certain expenses to our clients.

Servicing fees generated outside the U.S. were approximately 47% of total servicing fees in 2018 compared to approximately 45% and 42% in 2017 and 2016, respectively.

**MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION
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TABLE 9: ASSETS UNDER CUSTODY AND/OR ADMINISTRATION BY PRODUCT

(In billions)	As of December 31,			% Change 2018 vs. 2017	% Change 2017 vs. 2016
	2018	2017	2016		
Collective funds	8,999	9,707	7,501	(7)	29
Insurance and other products	8,220	9,105	8,845	(10)	3
Mutual funds	\$ 7,912	\$ 7,603	\$ 6,841	4 %	11%
Pension products	6,489	6,704	5,584	(3)	20
Total	\$ 31,620	\$ 33,119	\$ 28,771	(5)	15

TABLE 10: ASSETS UNDER CUSTODY AND/OR ADMINISTRATION BY ASSET CLASS

(In billions)	As of December 31,			% Change 2018 vs. 2017	% Change 2017 vs. 2016
	2018	2017	2016		
Equities	\$ 18,041	\$ 19,214	\$ 16,189	(6)%	19%
Fixed-income	9,758	10,070	9,231	(3)	9
Short-term and other investments	3,821	3,835	3,351	—	14
Total	\$ 31,620	\$ 33,119	\$ 28,771	(5)	15

TABLE 11: ASSETS UNDER CUSTODY AND/OR ADMINISTRATION BY GEOGRAPHY⁽¹⁾

(In billions)	As of December 31,			% Change 2018 vs. 2017	% Change 2017 vs. 2016
	2018	2017	2016		
Americas	\$ 23,203	\$ 24,418	\$ 21,544	(5)%	13%
Europe/Middle East/Africa	6,699	7,028	5,734	(5)	23
Asia/Pacific	1,718	1,673	1,493	3	12
Total	\$ 31,620	\$ 33,119	\$ 28,771	(5)	15

⁽¹⁾ Geographic mix is generally based on the domicile of the entity servicing the funds and is not necessarily representative of the underlying asset mix.

Asset servicing mandates newly announced in 2018 totaled approximately \$1.9 trillion, which includes a small number of large client mandates announced in the first quarter of 2018. Servicing assets remaining to be installed in future periods totaled approximately \$385 billion as of December 31, 2018, which will be reflected in AUC/A in future periods after installation and will generate servicing fee revenue in subsequent periods. The full revenue impact of such mandates will be realized over several quarters as the assets are installed and additional services are added over that period.

New asset servicing mandates and servicing assets remaining to be installed in future periods exclude certain new business which has been contracted, but for which the client has not yet provided permission to publicly disclose and the expected installation date extends beyond one quarter. These excluded assets, which from time to time may be significant, will be included in new asset servicing mandates and reflected in servicing assets remaining to be installed in the period in which the client provides its permission. Servicing mandates and servicing assets remaining to be installed in future periods are presented on a gross basis and therefore also do not include the impact of clients who have notified us during the period of their intent to terminate or reduce their relationship with us, which may from time to time be significant.

With respect to these new servicing mandates, once installed we may provide various services, including, accounting, bank loan servicing, compliance reporting and monitoring, custody, depository banking services, foreign exchange, fund administration, hedge fund servicing, middle office outsourcing, performance and analytics, private equity administration, real estate administration, securities finance, transfer agency and wealth management services. Revenues associated with new servicing mandates may vary based on the breadth of services provided and the timing of installation, and the types of assets.

For additional information about the impact of worldwide equity and fixed-income valuations on our fee revenue, as well as other key drivers of our servicing fee revenue, refer to "Fee Revenue" in "Consolidated Results of Operations" included in this Management's Discussion and Analysis.

As a result of a decision to diversify providers, one of our large clients has moved a portion of its assets, largely common trust funds, to another service provider. We remain a significant service provider to this client. The transition, which began in 2018 and is largely complete, represents approximately \$1 trillion in assets with respect to which we no longer derive revenue post-transition.

Foreign Exchange Trading Services

Foreign exchange trading services revenue, as presented in Table 8: Investment Servicing Line of Business Results, increased 7% in 2018 compared to

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

2017, primarily due to higher FX client volumes and volatility. Foreign exchange trading services is composed of revenue generated by FX trading, as well as revenue generated by brokerage and other trading services. FX trading and brokerage and other trading services represented approximately 60% and 40%, respectively, of our total foreign exchange trading services revenue in both 2018 and 2017.

We primarily earn FX trading revenue by acting as a principal market-maker through both "direct sales and trading" and "indirect foreign exchange trading."

- *Direct sales and trading:* Represent FX transactions at negotiated rates with clients and investment managers that contact our trading desk directly. These principal market-making activities include transactions for funds serviced by third party custodians or prime brokers, as well as those funds under custody with us.
- *Indirect FX trading:* Represent FX transactions with clients or their investment managers routed to our FX desk through our asset-servicing operation, and to all of which, we are the funds' custodian. We execute indirect FX trades as a principal at rates disclosed to our clients.

Our FX trading revenue is influenced by multiple factors, including: the volume and type of client FX transactions and related spreads; currency volatility, reflecting market conditions; and our management of exchange rate, interest rate and other market risks associated with our foreign exchange activities. The relative impact of these factors on our total FX trading revenues often differs from period to period. For example, assuming all other factors remain constant, increases or decreases in volumes or bid-offer spreads across product mix tend to result in increases or decreases, as the case may be, in client-related FX revenue.

Our clients that utilize indirect FX trading can, in addition to executing their FX transactions through dealers not affiliated with us, transition from indirect FX trading to either direct sales and trading execution, including our "Street FX" service, or to one of our electronic trading platforms. Street FX, in which we continue to act as a principal market-maker, enables our clients to define their FX execution strategy and automate the FX trade execution process, both for funds under custody with us as well as those under custody at another bank.

We also earn foreign exchange trading services revenue through "electronic FX services" and "other trading, transition management and brokerage revenue."

- *Electronic FX services:* Our clients may choose to execute FX transactions through one of our

electronic trading platforms. These transactions generate revenue through a "click" fee.

- *Other trading, transition management and brokerage revenue:* As our clients look to us to enhance and preserve portfolio values, they may choose to utilize our Transition or Currency Management capabilities or transact with our Equity Trade execution group. These transactions generate revenue via commissions charged for trades transacted during the management of these portfolios.

Our transition management revenue has been adversely affected by compliance issues in our U.K. business during 2010 and 2011, including settlements with the U.K. FCA in 2014 and the DOJ and SEC in 2017, including a deferred prosecution agreement. The reputational and regulatory impact of those compliance issues continues and may continue to adversely affect our results in future periods.

Securities Finance

Our securities finance business consists of three components:

(1) an agency lending program for State Street Global Advisors managed investment funds with a broad range of investment objectives, which we refer to as the State Street Global Advisors lending funds;

(2) an agency lending program for third-party investment managers and asset owners, which we refer to as the agency lending funds; and

(3) security lending transactions which we enter into as principal, which we refer to as our enhanced custody business.

Securities finance revenue earned from our agency lending activities, which is composed of our split of both the spreads related to cash collateral and the fees related to non-cash collateral, is principally a function of the volume of securities on loan, the interest rate spreads and fees earned on the underlying collateral and our share of the fee split.

As principal, our enhanced custody business borrows securities from the lending client or other market participants and then lends such securities to the subsequent borrower, either our client or a broker/dealer. We act as principal when the lending client is unable to, or elects not to, transact directly with the market and execute the transaction and furnish the securities. In our role as principal, we provide support to the transaction through our credit rating. While we source a significant proportion of the securities furnished by us in our role as principal from third parties, we have the ability to source securities through assets under custody from clients who have designated us as an eligible borrower.

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Securities finance revenue, as presented in Table 8: Investment Servicing Line of Business Results, decreased 10% in 2018 compared to 2017, primarily due to certain balance sheet repositioning efforts within our enhanced custody business. Securities finance revenue increased 8% in 2017 compared to 2016, primarily as a result of higher revenue in our enhanced custody business.

Market influences may continue to affect client demand for securities finance, and as a result our revenue from, and the profitability of, our securities lending activities in future periods. In addition, the constantly evolving regulatory environment, including revised or proposed capital and liquidity standards, interpretations of those standards, and our own balance sheet management activities, may influence modifications to the way in which we deliver our agency lending or enhanced custody businesses, the volume of our securities lending activity and related revenue and profitability in future periods.

Processing Fees and Other

Processing fees and other revenue includes diverse types of fees and revenue, including fees from our structured products business, fees from software licensing and maintenance, equity income from our joint venture investments, gains and losses on sales of other assets and amortization of our tax-advantaged investments.

Processing fees and other revenue, presented in Table 8: Investment Servicing Line of Business Results, increased 32% in 2018 compared to 2017, and reflects approximately \$116 million from Charles River Development in 2018.

Processing fees and other revenue increased 66% in 2017 compared to 2016, primarily due to pre-tax gains in 2017 from the disposition of certain joint venture interests and the sale of an equity trading platform.

Expenses

Total expenses for Investment Servicing increased 5% in 2018 compared to 2017, primarily due to higher technology costs, higher investments to support new business, annual merit increases and \$57 million of expenses from Charles River Development, partially offset by net Beacon savings and lower performance based incentive compensation.

Additional information about expenses is provided under "Expenses" in "Consolidated Results of Operations" included in this Management's Discussion and Analysis.

Investment Management

TABLE 12: INVESTMENT MANAGEMENT LINE OF BUSINESS RESULTS

(Dollars in millions, except where otherwise noted)	Years Ended December 31,			% Change 2018 vs. 2017	% Change 2017 vs. 2016
	2018	2017	2016		
Management fees ⁽¹⁾	\$ 1,851	\$ 1,616	\$ 1,292	15 %	25 %
Foreign exchange trading services ⁽¹⁾⁽²⁾	130	72	61	81	18
Processing fees and other	(5)	7	(29)	(171)	(124)
Total fee revenue	1,976	1,695	1,324	17	28
Net interest income	(20)	(5)	3	nm	nm
Total revenue	1,956	1,690	1,327	16	27
Total expenses⁽¹⁾	1,544	1,286	1,218	20	6
Income before income tax expense	\$ 412	\$ 404	\$ 109	2	271
Pre-tax margin	21%	24%	8%		
Average assets (in billions)	\$ 3.2	\$ 5.4	\$ 4.4		

⁽¹⁾ The new revenue recognition standard contributed approximately \$248 million in Investment Management total revenue, including approximately \$190 million in management fees and \$58 million in foreign exchange trading services, and \$248 million in Investment Management total expenses for 2018 compared to 2017.

⁽²⁾ Includes revenues from distributing and marketing activities for US mutual funds and ETFs associated with State Street Global Advisors.

^{nm} Not meaningful

Management Fees

Management fees increased 15%, or \$235 million, in 2018 compared to 2017, reflecting higher average global equity markets during 2018. The new revenue recognition standard contributed approximately \$190 million to management fee revenue in 2018 compared to 2017.

Management fees increased 25% in 2017 compared to 2016, primarily due to the full year of the acquired GEAM business in 2017 compared to a half year in 2016, higher global equity markets and higher revenue yielding ETF inflows.

Management fees generated outside the U.S. were approximately 27% of total management fees in 2018, compared to approximately 28% and 32% in 2017 and 2016, respectively.

**MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION
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TABLE 13: ASSETS UNDER MANAGEMENT BY ASSET CLASS AND INVESTMENT APPROACH

(In billions)	As of December 31,			% Change 2018 vs. 2017	% Change 2017 vs. 2016
	2018	2017	2016		
Equity:					
Active	\$ 80	\$ 95	\$ 73	(16)%	30 %
Passive	1,464	1,650	1,401	(11)	18
Total Equity	1,544	1,745	1,474	(12)	18
Fixed-Income:					
Active	81	77	70	5	10
Passive	341	337	308	1	9
Total Fixed-Income	422	414	378	2	10
Cash ⁽¹⁾	287	330	333	(13)	(1)
Multi-Asset-Class Solutions:					
Active	19	18	19	6	(5)
Passive	113	129	107	(12)	21
Total Multi-Asset-Class Solutions	132	147	126	(10)	17
Alternative Investments⁽²⁾:					
Active	21	23	28	(9)	(18)
Passive	105	123	129	(15)	(5)
Total Alternative Investments	126	146	157	(14)	(7)
Total	\$ 2,511	\$ 2,782	\$ 2,468	(10)	13

⁽¹⁾ Includes both floating- and constant-net-asset-value portfolios held in commingled structures or separate accounts.

⁽²⁾ Includes real estate investment trusts, currency and commodities, including SPDR[®] Gold Shares ETF and SPDR[®] Long Dollar Gold Trust ETF. We are not the investment manager for the SPDR[®] Gold Shares ETF and SPDR[®] Long Dollar Gold Trust ETF, but act as the marketing agent.

TABLE 14: EXCHANGE - TRADED FUNDS BY ASSET CLASS⁽¹⁾

(In billions)	As of December 31,			% Change 2018 vs. 2017	% Change 2017 vs. 2016
	2018	2017	2016		
Alternative Investments ⁽²⁾	\$ 43	\$ 48	\$ 42	(10)%	14%
Cash	9	2	2	350	—
Equity	482	531	426	(9)	25
Fixed-income	66	63	51	5	24
Total Exchange-Traded Funds	\$ 600	\$ 644	\$ 521	(7)	24

⁽¹⁾ ETFs are a component of AUM presented in the preceding table.

⁽²⁾ Includes real estate investment trusts, currency and commodities, including SPDR[®] Gold Shares ETF and SPDR[®] Long Dollar Gold Trust ETF. We are not the investment manager for the SPDR[®] Gold Shares ETF and SPDR[®] Long Dollar Gold Trust ETF, but act as the marketing agent.

TABLE 15: GEOGRAPHIC MIX OF ASSETS UNDER MANAGEMENT⁽¹⁾

(In billions)	As of December 31,			% Change 2018 vs. 2017	% Change 2017 vs. 2016
	2018	2017	2016		
North America	\$ 1,731	\$ 1,931	\$ 1,691	(10)%	14%
Europe/Middle East/Africa	421	521	482	(19)	8
Asia/Pacific	359	330	295	9	12
Total	\$ 2,511	\$ 2,782	\$ 2,468	(10)	13

⁽¹⁾ Geographic mix is based on client location or fund management location.

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TABLE 16: ACTIVITY IN ASSETS UNDER MANAGEMENT BY PRODUCT CATEGORY

(In billions)	Equity	Fixed-Income	Cash ⁽¹⁾	Multi-Asset-Class Solutions	Alternative Investments ⁽²⁾	Total
Balance as of December 31, 2015	\$ 1,326	\$ 312	\$ 368	\$ 103	\$ 136	\$ 2,245
Long-term institutional flows, net ⁽³⁾	(57)	(6)	—	14	(8)	(57)
ETF flows, net	37	9	—	—	6	52
Cash fund flows, net	—	—	(37)	—	—	(37)
Total flows, net	(20)	3	(37)	14	(2)	(42)
Market appreciation	140	10	—	9	14	173
Foreign exchange impact	(10)	(3)	(2)	(3)	(2)	(20)
Total market/foreign exchange impact	130	7	(2)	6	12	153
Acquisitions and transfers ⁽⁴⁾	38	56	4	3	11	112
Balance as of December 31, 2016	\$ 1,474	\$ 378	\$ 333	\$ 126	\$ 157	\$ 2,468
Long-term institutional flows, net ⁽³⁾	(74)	2	—	4	(21)	(89)
ETF flows, net	26	10	—	—	1	37
Cash fund flows, net	—	—	(8)	—	—	(8)
Total flows, net	(48)	12	(8)	4	(20)	(60)
Market appreciation	293	15	2	12	3	325
Foreign exchange impact	26	9	3	5	6	49
Total market/foreign exchange impact	319	24	5	17	9	374
Balance as of December 31, 2017	\$ 1,745	\$ 414	\$ 330	\$ 147	\$ 146	\$ 2,782
Long-term institutional flows, net ⁽³⁾	(45)	12	—	(3)	(2)	(38)
ETF flows, net	(3)	7	6	—	(2)	8
Cash fund flows, net	—	—	(50)	—	—	(50)
Total flows, net	(48)	19	(44)	(3)	(4)	(80)
Market appreciation (depreciation)	(142)	(7)	3	(10)	(10)	(166)
Foreign exchange impact	(11)	(4)	(2)	(2)	(6)	(25)
Total market/foreign exchange impact	(153)	(11)	1	(12)	(16)	(191)
Balance as of December 31, 2018	\$ 1,544	\$ 422	\$ 287	\$ 132	\$ 126	\$ 2,511

⁽¹⁾ Includes both floating- and constant-net-asset-value portfolios held in commingled structures or separate accounts.

⁽²⁾ Includes real estate investment trusts, currency and commodities, including SPDR[®] Gold Shares ETF and SPDR[®] Long Dollar Gold Trust ETF. We are not the investment manager for the SPDR[®] Gold Shares ETF and SPDR[®] Long Dollar Gold Trust ETF, but act as the marketing agent.

⁽³⁾ Amounts represent long-term portfolios, excluding ETFs.

⁽⁴⁾ Includes AUM acquired as part of the acquisition of the GEAM business on July 1, 2016.

The preceding table does not include approximately \$37 billion of new asset management business which was awarded but not installed as of December 31, 2018. New business will be reflected in AUM in future periods after installation, and will generate management fee revenue in subsequent periods. Total AUM as of December 31, 2018 included managed assets lost but not liquidated. Lost business occurs from time to time and it is difficult to predict the timing of client behavior in transitioning these assets as the timing can vary significantly.

Expenses

Total expenses for Investment Management increased 20% in 2018 compared to 2017, reflecting the impact from the new revenue recognition standard which contributed approximately \$248 million to Investment Management expenses in 2018.

Additional information about expenses is provided under "Expenses" in "Consolidated Results of Operations" included in this Management's Discussion and Analysis in this Form 10-K.

Report of Ernst & Young LLP, Independent Registered Public Accounting Firm

To the Shareholders and Board of Directors of
State Street Corporation

Opinion on the Financial Statements

We have audited the accompanying consolidated statements of condition of State Street Corporation (the "Corporation") as of December 31, 2018 and 2017, the related consolidated statements of income, comprehensive income, changes in shareholders' 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 "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Corporation at 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 U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the Corporation's internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated February 21, 2019 expressed an unqualified opinion thereon.

Change in Accounting Principle

As discussed in Note 1 to the consolidated financial statements, the Corporation has elected to change its method of accounting for investments in low income housing tax credits from the equity method of accounting to the proportional amortization method of accounting in each of the three years in the period ended December 31, 2018.

Basis for Opinion

These consolidated financial statements are the responsibility of the Corporation's management. Our responsibility is to express an opinion on the Corporation's consolidated 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 Corporation 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 audit to obtain reasonable assurance about whether the consolidated 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 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. We believe that our audits provide a reasonable basis for our opinion.

/s/ Ernst & Young LLP

We have served as the Corporation's auditor since 1972.

Boston, Massachusetts
February 21, 2019
except for Note 1 - Change in Accounting Policy, as to which the date is
May 2, 2019

STATE STREET CORPORATION
CONSOLIDATED STATEMENT OF INCOME

(Dollars in millions, except per share amounts)	Years Ended December 31,		
	2018	2017	2016
Fee revenue:			
Servicing fees	\$ 5,421	\$ 5,365	\$ 5,073
Management fees	1,851	1,616	1,292
Foreign exchange trading services	1,201	1,071	1,099
Securities finance	543	606	562
Processing fees and other	438	343	174
Total fee revenue	9,454	9,001	8,200
Net interest income:			
Interest income	3,662	2,908	2,512
Interest expense	991	604	428
Net interest income	2,671	2,304	2,084
Gains (losses) related to investment securities, net:			
Gains (losses) from sales of available-for-sale securities, net	9	(39)	10
Losses from other-than-temporary impairment	(3)	—	(2)
Losses reclassified (from) to other comprehensive income	—	—	(1)
Gains (losses) related to investment securities, net	6	(39)	7
Total revenue	12,131	11,266	10,291
Provision for loan losses	15	2	10
Expenses:			
Compensation and employee benefits	4,780	4,394	4,353
Information systems and communications	1,324	1,167	1,105
Transaction processing services	985	838	800
Occupancy	500	461	440
Acquisition and restructuring costs	24	266	209
Amortization of other intangible assets	226	214	207
Other	1,176	929	963
Total expenses	9,015	8,269	8,077
Income before income tax expense (benefit)	3,101	2,995	2,204
Income tax expense (benefit)	508	839	67
Net income from non-controlling interest	—	—	1
Net income	\$ 2,593	\$ 2,156	\$ 2,138
Net income available to common shareholders	\$ 2,404	\$ 1,972	\$ 1,963
Earnings per common share:			
Basic	\$ 6.46	\$ 5.26	\$ 5.01
Diluted	6.39	5.19	4.96
Average common shares outstanding (in thousands):			
Basic	371,983	374,793	391,485
Diluted	376,476	380,213	396,090
Cash dividends declared per common share	\$ 1.78	\$ 1.60	\$ 1.44

The accompanying notes are an integral part of these consolidated financial statements.

STATE STREET CORPORATION
CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

(In millions)	Years Ended December 31,		
	2018	2017	2016
Net income	\$ 2,593	\$ 2,156	\$ 2,138
Other comprehensive income (loss), net of related taxes:			
Foreign currency translation, net of related taxes of (\$8), \$21 and (\$11), respectively	(67)	900	(372)
Net unrealized gains (losses) on available-for-sale securities, net of reclassification adjustment and net of related taxes of (\$134), \$272 and (\$119), respectively	(302)	367	(181)
Net unrealized gains (losses) on available-for-sale securities designated in fair value hedges, net of related taxes of \$9, \$16 and \$16, respectively	24	22	23
Other-than-temporary impairment on held-to-maturity securities related to factors other than credit, net of related taxes of \$2, \$3 and \$5, respectively	4	3	7
Net unrealized gains (losses) on cash flow hedges, net of related taxes of (\$17), (\$181) and (\$42), respectively	(33)	(285)	(64)
Net unrealized gains (losses) on retirement plans, net of related taxes of \$8, \$8 and \$1, respectively	27	24	(11)
Other comprehensive income (loss)	(347)	1,031	(598)
Total comprehensive income	\$ 2,246	\$ 3,187	\$ 1,540

The accompanying notes are an integral part of these consolidated financial statements.

STATE STREET CORPORATION
CONSOLIDATED STATEMENT OF CONDITION

(Dollars in millions, except per share amounts)	December 31,	
	2018	2017
Assets:		
Cash and due from banks	\$ 3,597	\$ 2,107
Interest-bearing deposits with banks	73,040	67,227
Securities purchased under resale agreements	4,679	3,241
Trading account assets	860	1,093
Investment securities available-for-sale	45,148	57,121
Investment securities held-to-maturity (fair value of \$41,351 and \$40,255)	41,914	40,458
Loans and leases (less allowance for losses of \$67 and \$54)	25,722	23,240
Premises and equipment (net of accumulated depreciation of \$4,152 and \$3,881)	2,214	2,186
Accrued interest and fees receivable	3,203	3,099
Goodwill	7,446	6,022
Other intangible assets	2,369	1,613
Other assets	34,404	30,985
Total assets	\$ 244,596	\$ 238,392
Liabilities:		
Deposits:		
Non-interest-bearing	\$ 44,804	\$ 47,175
Interest-bearing - U.S.	66,235	50,139
Interest-bearing - non-U.S.	69,321	87,582
Total deposits	180,360	184,896
Securities sold under repurchase agreements	1,082	2,842
Other short-term borrowings	3,092	1,144
Accrued expenses and other liabilities	24,232	15,620
Long-term debt	11,093	11,620
Total liabilities	219,859	216,122
Commitments, guarantees and contingencies (Notes 12 and 13)		
Shareholders' equity:		
Preferred stock, no par, 3,500,000 shares authorized:		
Series C, 5,000 shares issued and outstanding	491	491
Series D, 7,500 shares issued and outstanding	742	742
Series E, 7,500 shares issued and outstanding	728	728
Series F, 7,500 shares issued and outstanding	742	742
Series G, 5,000 shares issued and outstanding	493	493
Series H, 5,000 shares issued and outstanding	494	—
Common stock, \$1 par, 750,000,000 shares authorized:		
503,879,642 and 503,879,642 shares issued, and 379,946,724 and 367,649,858 shares outstanding	504	504
Surplus	10,061	9,799
Retained earnings	20,553	18,809
Accumulated other comprehensive income (loss)	(1,356)	(1,009)
Treasury stock, at cost (123,932,918 and 136,229,784 shares)	(8,715)	(9,029)
Total shareholders' equity	24,737	22,270
Total liabilities and shareholders' equity	\$ 244,596	\$ 238,392

The accompanying notes are an integral part of these consolidated financial statements.

STATE STREET CORPORATION
CONSOLIDATED STATEMENT OF CHANGES IN SHAREHOLDERS' EQUITY

(Dollars in millions, except per share amounts, shares in thousands)	Preferred Stock	Common Stock			Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Treasury Stock		Total
		Shares	Amount	Surplus			Shares	Amount	
Balance as of December 31, 2015	\$ 2,703	503,880	\$ 504	\$ 9,746	\$ 16,028	\$ (1,442)	104,228	\$ (6,457)	\$ 21,082
Net income					2,138				2,138
Other comprehensive income (loss)						(598)			(598)
Preferred stock issued	493								493
Cash dividends declared:									
Common stock - \$1.44 per share					(559)				(559)
Preferred stock					(173)				(173)
Common stock acquired							21,098	(1,365)	(1,365)
Common stock awards and options vested, including income tax benefit of \$13				36			(3,369)	139	175
Other					(1)		(16)	1	—
Balance as of December 31, 2016	\$ 3,196	503,880	\$ 504	\$ 9,782	\$ 17,433	\$ (2,040)	121,941	\$ (7,682)	\$ 21,193
Net income					2,156				2,156
Other comprehensive income						1,031			1,031
Cash dividends declared:									
Common stock - \$1.60 per share					(596)				(596)
Preferred stock					(182)				(182)
Common stock acquired							16,788	(1,450)	(1,450)
Common stock awards vested				16			(2,503)	104	120
Other				1	(2)		4	(1)	(2)
Balance as of December 31, 2017	\$ 3,196	503,880	\$ 504	\$ 9,799	\$ 18,809	\$ (1,009)	136,230	\$ (9,029)	\$ 22,270
Net income					2,593				2,593
Other comprehensive income (loss)						(347)			(347)
Preferred stock issued	494								494
Common stock issued				586			(13,244)	564	1,150
Cash dividends declared:									
Common stock - \$1.78 per share					(665)				(665)
Preferred stock					(188)				(188)
Common stock acquired							3,324	(350)	(350)
Common stock awards vested				44			(2,389)	101	145
Other				(368)	4		12	(1)	(365)
Balance as of December 31, 2018	\$ 3,690	503,880	\$ 504	\$ 10,061	\$ 20,553	\$ (1,356)	123,933	\$ (8,715)	\$ 24,737

The accompanying notes are an integral part of these consolidated financial statements.

STATE STREET CORPORATION
CONSOLIDATED STATEMENT OF CASH FLOWS

(In millions)	Years Ended December 31,		
	2018	2017	2016
Operating Activities:			
Net income	\$ 2,593	\$ 2,156	\$ 2,138
Adjustments to reconcile net income to net cash provided by (used in) operating activities:			
Deferred income tax (benefit)	(136)	92	(356)
Amortization of other intangible assets	226	214	207
Other non-cash adjustments for depreciation, amortization and accretion, net	977	871	722
(Gains) losses related to investment securities, net	(6)	39	(7)
Change in trading account assets, net	233	(69)	(175)
Change in accrued interest and fees receivable, net	26	(455)	(298)
Change in collateral deposits, net	7,326	1,819	(18)
Change in unrealized (gains) losses on foreign exchange derivatives, net	(1,836)	3,267	(1,057)
Change in other assets, net	260	(1,341)	1,772
Change in accrued expenses and other liabilities, net	394	33	(1,144)
Other, net	400	307	506
Net cash provided by operating activities	10,457	6,933	2,290
Investing Activities:			
Net (increase) decrease in interest-bearing deposits with banks	(5,813)	3,708	4,403
Net (increase) decrease in securities purchased under resale agreements	(1,438)	(1,285)	1,448
Proceeds from sales of available-for-sale securities	26,082	12,439	1,401
Proceeds from maturities of available-for-sale securities	14,645	28,878	30,070
Purchases of available-for-sale securities	(31,814)	(34,841)	(30,162)
Proceeds from maturities of held-to-maturity securities	6,296	4,028	7,942
Purchases of held-to-maturity securities	(6,539)	(8,772)	(8,425)
Net (increase) in loans and leases	(2,461)	(3,511)	(924)
Business acquisitions, net of cash acquired	(2,595)	—	(437)
Purchases of equity investments and other long-term assets	(326)	(233)	(643)
Purchases of premises and equipment, net	(609)	(637)	(613)
Proceeds from sale of joint venture investment	—	172	—
Other, net	76	102	170
Net cash (used in) provided by investing activities	(4,496)	48	4,230
Financing Activities:			
Net increase (decrease) in time deposits	6,673	(15,306)	8,488
Net (decrease) increase in all other deposits	(11,209)	13,040	(12,952)
Net increase (decrease) in other short-term borrowings	188	(1,999)	(268)
Proceeds from issuance of long-term debt, net of issuance costs	995	747	1,492
Payments for long-term debt and obligations under capital leases	(1,461)	(493)	(1,441)
Proceeds from issuance of preferred stock, net of issuance costs	495	—	493
Proceeds from issuance of common stock, net of issuance costs	1,150	—	—
Repurchases of common stock	(350)	(1,292)	(1,365)
Excess tax benefit related to stock-based compensation	—	—	13
Repurchases of common stock for employee tax withholding	(124)	(126)	(122)
Payments for cash dividends	(828)	(768)	(723)
Other, net	—	9	(28)
Net cash (used in) financing activities	(4,471)	(6,188)	(6,413)
Net increase	1,490	793	107
Cash and due from banks at beginning of period	2,107	1,314	1,207
Cash and due from banks at end of period	\$ 3,597	\$ 2,107	\$ 1,314
Supplemental disclosure:			
Interest paid	\$ 981	\$ 593	\$ 441
Income taxes paid, net	549	345	371

The accompanying notes are an integral part of these consolidated financial statements.

**STATE STREET CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS**

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We use acronyms and other defined terms for certain business terms and abbreviations, as defined in the acronyms list and glossary accompanying these consolidated financial statements.

STATE STREET CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Note 1. Summary of Significant Accounting Policies

Basis of Presentation

The accounting and financial reporting policies of State Street Corporation conform to U.S. GAAP. State Street Corporation, the Parent Company, is a financial holding company headquartered in Boston, Massachusetts. Unless otherwise indicated or unless the context requires otherwise, all references in these notes to consolidated financial statements to "State Street," "we," "us," "our" or similar references mean State Street Corporation and its subsidiaries on a consolidated basis, including our principal banking subsidiary, State Street Bank.

We have two lines of business:

Investment Servicing provides a suite of related products and services including: custody; product and participant level accounting; daily pricing and administration; master trust and master custody; depotbank services (a fund oversight role created by regulation); record-keeping; cash management; foreign exchange, brokerage and other trading services; securities finance; our enhanced custody product, which integrates principal securities lending and custody; deposit and short-term investment facilities; loans and lease financing; investment manager and alternative investment manager operations outsourcing; performance, risk and compliance analytics; and financial data management to support institutional investors. New products and services resulting from our acquisition of Charles River Development on October 1, 2018 include: portfolio modeling and construction, trade order management, investment risk and compliance and wealth management solutions.

Investment Management, through State Street Global Advisors, provides a broad range of investment management strategies and products for our clients. Our investment management strategies and products span the risk/reward spectrum, including core and enhanced indexing, multi-asset strategies, active quantitative and fundamental active capabilities and alternative investment strategies. Our AUM is currently primarily weighted to indexed strategies. In addition, we provide a breadth of services and solutions, including environmental, social and governance investing, defined benefit and defined contribution and OCIO. State Street Global Advisors is also a provider of ETFs, including the SPDR® ETF brand.

Consolidation

Our consolidated financial statements include the accounts of the Parent Company and its majority- and wholly-owned and otherwise controlled subsidiaries, including State Street Bank. All material inter-company transactions and balances have been eliminated.

Certain previously reported amounts have been reclassified to conform to current-year presentation.

We consolidate subsidiaries in which we exercise control. Investments in unconsolidated subsidiaries, recorded in other assets, generally are accounted for under the equity method of accounting if we have the ability to exercise significant influence over the operations of the investee. For investments accounted for under the equity method, our share of income or loss is recorded in processing fees and other revenue in our consolidated statement of income. Investments not meeting the criteria for equity-method treatment are measured at fair value through earnings, except for investments where a fair market value is not readily available, which are accounted for under the cost method of accounting.

Use of Estimates

The preparation of consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions in the application of certain of our significant accounting policies that may materially affect the reported amounts of assets, liabilities, equity, revenue and expenses. As a result of unanticipated events or circumstances, actual results could differ from those estimates.

Foreign Currency Translation

The assets and liabilities of our operations with functional currencies other than the U.S. dollar are translated at month-end exchange rates, and revenue and expenses are translated at rates that approximate average monthly exchange rates. Gains or losses from the translation of the net assets of subsidiaries with functional currencies other than the U.S. dollar, net of related taxes, are recorded in AOCI, a component of shareholders' equity.

Cash and Cash Equivalents

For purposes of the consolidated statement of cash flows, cash and cash equivalents are defined as cash and due from banks.

Interest-Bearing Deposits with Banks

Interest-bearing deposits with banks generally consist of highly liquid, short-term investments maintained at the Federal Reserve Bank and other non-U.S. central banks with original maturities at the time of purchase of one month or less.

Securities Purchased Under Resale Agreements and Securities Sold Under Repurchase Agreements

Securities purchased under resale agreements and sold under repurchase agreements are treated as collateralized financing transactions, and are recorded in our consolidated statement of condition at the amounts at which the securities will be subsequently resold or repurchased, plus accrued interest. Our policy is to take possession or control of securities underlying resale agreements either directly or through agent

STATE STREET CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

banks, allowing borrowers the right of collateral substitution and/or short-notice termination. We revalue these securities daily to determine if additional collateral is necessary from the borrower to protect us against credit exposure. We can use these securities as collateral for repurchase agreements.

For securities sold under repurchase agreements collateralized by our investment securities portfolio, the dollar value of the securities remains in investment securities in our consolidated statement of condition. Where a master netting agreement exists or both parties are members of a common clearing organization, resale and repurchase agreements with the same counterparty or clearing house and maturity date are recorded on a net basis.

Fee and Net Interest Income

The majority of fees from investment servicing, investment management, securities finance, trading services and certain types of processing fees and other revenue are recorded in our consolidated statement of income based on the consideration specified in contracts with our customers, and excludes taxes collected from customers subsequently remitted to governmental authorities. We recognize revenue as the services are performed or at a point in time depending on the nature of the services provided. Payments made to third party service providers are generally recognized on a gross basis when we control those services and are deemed to be the principal. Additional information about revenue from contracts with customers is provided in Note 25.

Interest income on interest-earning assets and interest expense on interest-bearing liabilities are recorded in our consolidated statement of income as components of NII, and are generally based on the effective yield of the related financial asset or liability.

Other Significant Policies

The following table identifies our other significant accounting policies and the note and page where a detailed description of each policy can be found:

Fair Value	Note	2	Page	32
Investment Securities	Note	3	Page	40
Loans and Leases	Note	4	Page	48
Goodwill and Other Intangible Assets	Note	5	Page	51
Derivative Financial Instruments	Note	10	Page	55
Offsetting Arrangements	Note	11	Page	59
Contingencies	Note	13	Page	64
Variable Interest Entities	Note	14	Page	66
Regulatory Capital	Note	16	Page	70
Equity-Based Compensation	Note	18	Page	72
Income Taxes	Note	22	Page	75
Earnings Per Common Share	Note	23	Page	78
Revenue from Contracts with Customers	Note	25	Page	80

Acquisitions and Dispositions

On October 1, 2018, we acquired a 100% interest in Charles River Development, a provider of investment management front office tools and solutions, for an all cash purchase price of approximately \$2.6 billion.

We accounted for this acquisition as a business combination and, in accordance with ASC Topic 805, *Business Combinations*, we have recorded assets acquired and liabilities assumed at their respective fair values as of the acquisition date.

A significant portion of the purchase price is allocated to goodwill and identifiable intangible assets. Goodwill of \$1.5 billion, of which approximately \$1.4 billion is expected to be deductible for tax purposes, is attributable to revenue and cost synergies expected to arise from enhanced platform services and efficiencies, revenue growth from future product and service offerings and new customers, together with certain intangible assets that do not qualify for separate recognition. Identifiable intangible assets of \$1.0 billion arising from the acquisition are primarily related to technology and client relationships which are amortized on a straight line basis over a period of 10 and 18 years, respectively. We determined the estimated fair value of identifiable intangible assets acquired by applying the income approach. Additional information about goodwill and other intangible assets, including information by line of business is provided in Note 5.

The purchase price accounting reflected in the accompanying financial statements is provisional and is based upon estimates and assumptions that are subject to change within the measurement period (up to one year from the acquisition date pursuant to ASC 805). The measurement period remains open pending the completion of valuation procedures related to the acquired assets and assumed liabilities, primarily the identifiable intangible assets.

Our consolidated financial statements include the operating results for the acquired business from the date of acquisition, October 1, 2018. Charles River Development contributed approximately \$121 million and \$57 million in total revenue and total expenses, respectively, for the year ended December 31, 2018.

Pro forma results of operations for this acquisition have not been presented because the effects would not have been material to our consolidated revenues or net income.

STATE STREET CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Recent Accounting Developments

Relevant standards that were recently issued but not yet adopted as of December 31, 2018:

Standard	Description	Date of Adoption	Effects on the financial statements or other significant matters
ASU 2016-02, Leases (Topic 842) and relevant amendments	The standard represents a wholesale change to lease accounting and requires all leases, other than short-term leases, to be reported on balance sheet through recognition of a right-of-use asset and a corresponding liability for future lease obligations. The standard also requires extensive disclosures for assets, expenses, and cash flows associated with leases, as well as a maturity analysis of lease liabilities.	January 1, 2019	We have adopted the new standard as of January 1, 2019. Upon adoption of the standard, we recognized the required right-of-use assets of approximately \$0.9 billion and lease liabilities of approximately \$1.1 billion. This increase largely relates to the present value of future minimum lease payments due under existing operating leases of office space. No material changes are expected to the recognition of lease expenses in the Consolidated Statement of Income. We adopted the standard by applying the transition method whereby comparative periods will not be restated, and no material adjustment to retained earnings was required. For adoption we elected the standard's package of three practical expedients, and (1) have not reassessed whether any expired or existing contracts are or contain leases, (2) have not reassessed the lease classification for any expired or existing leases, and (3) have not reassessed initial direct costs for any existing leases. In addition, we made an accounting policy election not to apply the recognition requirements to short-term leases, and have elected the practical expedient to not separate lease and nonlease components.
ASU 2016-13, Financial Instruments-Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments	The standard replaces the existing incurred loss impairment guidance and requires immediate recognition of expected credit losses for financial assets carried at amortized cost, including trade and other receivables, loans and commitments, held-to-maturity debt securities and other financial assets, held at the reporting date to be measured based on historical experience, current conditions and reasonable supportable forecasts. The standard also amends existing impairment guidance for available-for-sale securities, and credit losses will be recorded as an allowance versus a write-down of the amortized cost basis of the security and will allow for a reversal of impairment loss when the credit of the issuer improves. The guidance requires a cumulative effect of initial application to be recognized in retained earnings at the date of initial application.	January 1, 2020, early adoption permitted	We are continuing to assess the impact of the standard on our consolidated financial statements. We have established a steering committee to provide cross-functional governance over the project plan and key decisions, and are continuing to develop key accounting policies, assess existing credit loss models and processes against the new guidance and address data requirements and sources to ensure that the expected credit losses are calculated in accordance with the standard. We continue to develop and test new and modified credit loss models and based on our analysis to date, we expect the recognition of credit losses to accelerate under the new standard. We are continuing to assess the extent of the impact on the allowance for credit losses which will be impacted by our portfolio and the macroeconomic factors on the date of adoption. We plan to adopt the new guidance on January 1, 2020.
ASU 2017-04, Intangibles-Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment	The standard simplifies the subsequent measurement of goodwill by eliminating the goodwill impairment test. The ASU requires an entity to compare the fair value of adoption permitted from the goodwill impairment test. The ASU requires an entity to compare the fair value of adoption permitted a reporting unit with its carrying amount and recognize an impairment charge for the amount by which the carrying value exceeds the fair value of the reporting unit. Additionally, an entity should consider income tax effects from any tax deductible goodwill on the carrying amount of the reporting unit when measuring the goodwill impairment loss.	Step 2 January 1, 2020, early adoption permitted	We are evaluating the impacts of early adoption, and will apply this standard prospectively upon adoption.
ASU 2017-08, Receivables - Nonrefundable Fees and Other Costs (Subtopic 310-20): Premium Amortization on Purchased Callable Debt Securities	The standard shortens the amortization period for certain purchased callable debt securities to the earliest call date. The standard does not impact debt securities which are held at a discount. The guidance requires a cumulative effect of initial application to be recognized in retained earnings at the beginning of the period of adoption.	January 1, 2019	We have adopted the new standard as of January 1, 2019. No material adjustment to retained earnings was required.
ASU 2018-02, Income Statement - Reporting of Certain Tax Effects from Accumulated Other Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income	This standard provides an election to reclassify the stranded tax effects resulting from the enactment of the Tax Cuts and Jobs Act of 2017, from accumulated other comprehensive income to retained earnings.	January 1, 2019	We have adopted the new standard as of January 1, 2019. Upon adoption of the standard we reclassified approximately \$84 million of stranded tax effects from accumulated other comprehensive income to retained earnings.

STATE STREET CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Relevant standards that were recently issued but not yet adopted as of December 31, 2018 (continued):

Standard	Description	Date of Adoption	Effects on the financial statements or other significant matters
ASU 2018-13, Fair Value Measurement (Topic 820): Requirements for Fair Value Measurement	ASU 2018-13, Fair Value Measurement (Topic 820): The standard eliminates, amends and adds disclosure requirements for fair value measurements. Requirements for Fair Value Measurement	January 1, 2020, early adoption permitted, including partial early adoption. Provisions that eliminate or amend disclosures can be early adopted without early adopting the new disclosure requirements.	We have elected to early adopt the provisions of the new standard that eliminate or amend disclosures as of December 31, 2018 and our disclosures were modified accordingly. The provisions of the new standard that add disclosures will be adopted upon the effective date of the standard.
ASU 2018-15, Intangibles-Goodwill and Internal-Use Software (Subtopic 350-40): Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract (a consensus of the FASB Emerging Issues Task Force)	ASU 2018-15, Intangibles-Goodwill and Internal-Use Software (Subtopic 350-40): Customer's and other upfront costs incurred in a cloud computing arrangement that is hosted by the vendor, i.e., a service contract. The new guidance aligns treatment for capitalization of Cloud Computing Arrangement That Is a Service implementation costs with guidance on internal-use software.	January 1, 2020, early adoption permitted	We are currently evaluating the impact of the new standard and the early adoption provisions.

Relevant standards that were adopted during the year ended December 31, 2018:

We adopted ASU 2014-09, Revenue from Contracts with Customers (Topic 606), effective January 1, 2018. The standard provides companies with a single model for recognizing revenue from contracts with customers. The core principle requires a company to recognize revenue to depict the transfer of goods or services to customers in an amount that reflects the consideration that it expects to be entitled to in exchange for those goods or services. We used the modified retrospective method of transition, which requires the impact of applying the standard on prior periods to be reflected in opening retained earnings upon adoption. The adoption of the standard does not have a material impact on the timing of recognition of revenue in our consolidated statement of income, or our consolidated statement of condition, and therefore no adjustment has been made to retained earnings. However, due to the updated principal and agent guidance in the standard, certain costs we pay to third parties on behalf of our clients previously reported in our consolidated statement of income on a net basis, primarily against the related management fee revenue and foreign exchange trading services revenue, are now reported on a gross basis in expenses.

For the year ended December 31, 2018, both revenues and expenses increased by approximately \$319 million, primarily due to the updated principal and agent guidance. The revenue impact was approximately \$190 million in management fees, \$58 million in foreign exchange trading services and \$71 million across other revenue lines, and the expense impact was approximately \$183 million in other expenses, \$106 million in transaction processing and \$30 million across other expense line items. Adoption of the standard had no impact on cash from or used in operating, financing, or investing activities in our consolidated statements of cash flows.

We adopted ASU 2017-12, Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities, effective October 1, 2018. The standard amends the hedge accounting model to better portray the economics of risk management activities in the financial statements and enhances the presentation of hedge results. The amendments also make targeted changes to simplify the application of hedge accounting in certain situations. The guidance permits a one-time reclassification of debt securities eligible to be hedged under the "last-of-layer" method from HTM to AFS upon adoption. In the fourth quarter of 2018, we elected to make a one-time transfer of qualifying securities with a total book value of approximately \$1.2 billion. We have applied certain aspects of the updated standard to existing hedges as permitted by the ASU, however, the adoption did not have a material impact on our financial statements.

We adopted ASU 2016-01, Financial Instruments-Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities, effective January 1, 2018. Under the new standard, all equity securities will be measured at fair value through earnings with certain exceptions, including investments accounted for under the equity method of accounting or where the fair market value of an equity security is not readily available. Upon adoption of the standard on January 1, 2018, we reclassified approximately \$397 million of money market funds and \$46 million of equity securities classified as AFS to held at fair value through profit and loss in other assets. The cumulative-effect transition adjustment recognized in retained earnings on January 1, 2018, and the change in fair value recognized through profit and loss for the period ended December 31, 2018, were immaterial to the financial statements.

STATE STREET CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Change in Accounting Method

During the first quarter of 2019, we voluntarily changed our accounting method under the FASB ASC 323, *Investments - Equity Method and Joint Ventures*, for investments in low income housing tax credit (LIHTC) from the equity method of accounting to the proportional amortization method of accounting. While both methods of accounting are acceptable under U.S. GAAP, we believe the proportional method is preferable because it more fairly represents the economics of LIHTC investments, which are made primarily for the purpose of receiving tax credits and other tax benefits. In addition, this method aligns to the method typically used by the companies within our industry which have similar investments. In addition to the change in the timing of the recognition of income on LIHTC investments, amortization of the LIHTC investments is now recorded fully within the Income tax expense (benefit) line instead of the Processing fees and other line on the consolidated statements of operations.

This change in accounting method has been applied retrospectively to all prior periods presented herein, resulting in a reduction in the opening balance of Retained earnings as of January 1, 2017 of \$26 million. In addition, the following presents the effect of the changes on the financial statement line items for prior periods presented:

Consolidated Statement of Condition Impact

(Dollars in millions)	December 31, 2018			December 31, 2017		
	Originally Reported	Change in Accounting	Revised	Originally Reported	Change in Accounting	Revised
Assets:						
Other assets	\$ 34,434	\$ (30)	\$ 34,404	\$ 31,018	\$ (33)	\$ 30,985
Total assets	244,626	(30)	244,596	238,425	(33)	238,392
Liabilities and stockholders' equity:						
Accrued expenses and other liabilities	\$ 24,209	\$ 23	\$ 24,232	\$ 15,606	\$ 14	\$ 15,620
Retained earnings	20,606	(53)	20,553	18,856	(47)	18,809
Total liabilities and stockholders' equity	244,626	(30)	244,596	238,425	(33)	238,392

Consolidated Statement of Income Impact

(Dollars in millions, except per share amounts, or where otherwise noted)	2016 Reported	Change in Acctg	2016 Revised	2017 Reported	Change in Acctg	2017 Revised	2018 Reported	Change in Acctg	Other Adj	2018 Revised
Processing fees and other	90	84	174	247	96	343	289	102	47	438
Total fee revenue	8,116	84	8,200	8,905	96	9,001	9,305	102	47	9,454
Income tax expense (benefit)	(22)	89	67	722	117	839	400	108	—	508
Net income	\$ 2,143	\$ (5)	\$ 2,138	\$ 2,177	\$ (21)	\$ 2,156	\$ 2,599	\$ (6)	\$ —	\$ 2,593
Earnings per common share:										
Basic	\$ 5.03	\$ (0.02)	\$ 5.01	\$ 5.32	\$ (0.06)	\$ 5.26	\$ 6.48	\$ (0.02)	\$ —	\$ 6.46
Diluted	4.97	(0.01)	4.96	5.24	(0.05)	5.19	6.40	(0.01)	—	6.39

STATE STREET CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Note 2. Fair Value

Fair Value Measurements

We carry trading account assets and liabilities, AFS debt securities, certain equity securities and various types of derivative financial instruments, at fair value in our consolidated statement of condition on a recurring basis. Changes in the fair values of these financial assets and liabilities are recorded either as components of our consolidated statement of income or as components of AOCI within shareholders' equity in our consolidated statement of condition.

We measure fair value for the above-described financial assets and liabilities in conformity with U.S. GAAP that governs the measurement of the fair value of financial instruments. Management believes that its valuation techniques and underlying assumptions used to measure fair value conform to the provisions of U.S. GAAP. We categorize the financial assets and liabilities that we carry at fair value based on a prescribed three-level valuation hierarchy. The hierarchy gives the highest priority to quoted prices in active markets for identical assets or liabilities (level 1) and the lowest priority to valuation methods using significant unobservable inputs (level 3). If the inputs used to measure a financial asset or liability cross different levels of the hierarchy, categorization is based on the lowest-level input that is significant to the fair-value measurement. Management's assessment of the significance of a particular input to the overall fair-value measurement of a financial asset or liability requires judgment, and considers factors specific to that asset or liability. The three levels of the valuation hierarchy are described below.

Level 1. Financial assets and liabilities with values based on unadjusted quoted prices for identical assets or liabilities in an active market. Our level 1 financial assets and liabilities primarily include positions in U.S. government securities and highly liquid U.S. and non-U.S. government fixed-income securities. Our level 1 financial assets also include actively traded exchange-traded equity securities.

Level 2. Financial assets and liabilities with values based on quoted prices for similar assets and liabilities in active markets, and inputs that are observable for the asset or liability, either directly or indirectly, for substantially the full term of the asset or liability. Level 2 inputs include the following:

- Quoted prices for similar assets or liabilities in active markets;
- Quoted prices for identical or similar assets or liabilities in non-active markets;
- Pricing models whose inputs are observable for substantially the full term of the asset or liability; and

- Pricing models whose inputs are derived principally from, or corroborated by, observable market information through correlation or other means for substantially the full term of the asset or liability.

Our level 2 financial assets and liabilities primarily include non-U.S. debt securities carried in trading account assets and various types of fixed-income AFS investment securities, as well as various types of foreign exchange and interest rate derivative instruments.

Fair value for our AFS investment securities categorized in level 2 is measured primarily using information obtained from independent third parties. This third-party information is subject to review by management as part of a validation process, which includes obtaining an understanding of the underlying assumptions and the level of market participant information used to support those assumptions. In addition, management compares significant assumptions used by third parties to available market information. Such information may include known trades or, to the extent that trading activity is limited, comparisons to market research information pertaining to credit expectations, execution prices and the timing of cash flows and, where information is available, back-testing.

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Derivative instruments categorized in level 2 predominantly represent foreign exchange contracts used in our trading activities, for which fair value is measured using discounted cash-flow techniques, with inputs consisting of observable spot and forward points, as well as observable interest rate curves. With respect to derivative instruments, we evaluate the impact on valuation of the credit risk of our counterparties. We consider factors such as the likelihood of default by our counterparties, our current and potential future net exposures and remaining maturities in determining the fair value. Valuation adjustments associated with derivative instruments were not material to those instruments for the years ended December 31, 2018 and 2017.

Level 3. Financial assets and liabilities with values based on prices or valuation techniques that require inputs that are both unobservable in the market and significant to the overall measurement of fair value. These inputs reflect management's judgment about the assumptions that a market participant would use in pricing the financial asset or liability, and are based on the best available information, some of which may be internally developed. The following provides a more detailed discussion of our financial assets and liabilities that we may categorize in level 3 and the related valuation methodology.

- The fair value of our investment securities categorized in level 3 is measured using information obtained from third-party sources, typically non-binding broker/dealer quotes, or through the use of internally-developed pricing models. Management has evaluated its methodologies used to measure fair value, and has considered the level of observable market information to be insufficient to categorize the securities in level 2.
- The fair value of certain foreign exchange contracts, primarily options, is measured using an option-pricing model. Because of a limited number of observable transactions, certain model inputs are not observable, such as implied volatility surface, but are derived from observable market information.

Our level 3 financial assets and liabilities are similar in structure and profile to our level 1 and level 2 financial instruments, but they trade in less liquid markets, and the measurement of their fair value is inherently less observable.

The following tables present information with respect to our financial assets and liabilities carried at fair value in our consolidated statement of condition on a recurring basis as of the dates indicated.

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Fair Value Measurements on a Recurring Basis

(In millions)	As of December 31, 2018				
	Quoted Market Prices in Active Markets (Level 1)	Pricing Methods with Significant Observable Market Inputs (Level 2)	Pricing Methods with Significant Unobservable Market Inputs (Level 3)	Impact of Netting (1)	Total Net Carrying Value in Consolidated Statement of Condition
Assets:					
Trading account assets:					
U.S. government securities	\$ 34	\$ —	\$ —		\$ 34
Non-U.S. government securities	146	179	—		325
Other	—	501	—		501
Total trading account assets	180	680	—		860
AFS investment securities:					
U.S. Treasury and federal agencies:					
Direct obligations	1,039	—	—		1,039
Mortgage-backed securities	—	15,968	—		15,968
Total U.S. Treasury and federal agencies	1,039	15,968	—		17,007
Asset-backed securities:					
Student loans	—	541	—		541
Credit cards	—	583	—		583
Collateralized loan obligations	—	—	593		593
Total asset-backed securities	—	1,124	593		1,717
Non-U.S. debt securities:					
Mortgage-backed securities	—	1,682	—		1,682
Asset-backed securities	—	943	631		1,574
Government securities	—	12,793	—		12,793
Other ⁽²⁾	—	6,544	58		6,602
Total non-U.S. debt securities	—	21,962	689		22,651
State and political subdivisions	—	1,918	—		1,918
Collateralized mortgage obligations	—	195	2		197
Other U.S. debt securities	—	1,658	—		1,658
Total AFS investment securities	1,039	42,825	1,284		45,148
Other assets:					
Derivative instruments:					
Foreign exchange contracts	—	16,382	4	\$ (11,210)	5,176
Interest rate contracts	13	—	—	—	13
Total derivative instruments	13	16,382	4	(11,210)	5,189
Other	—	395	—	—	395
Total assets carried at fair value	\$ 1,232	\$ 60,282	\$ 1,288	\$ (11,210)	\$ 51,592
Liabilities:					
Accrued expenses and other liabilities:					
Derivative instruments:					
Foreign exchange contracts	—	16,518	4	(11,564)	4,958
Interest rate contracts	—	71	—	—	71
Other derivative contracts	—	214	—	—	214
Total derivative instruments	—	16,803	4	(11,564)	5,243
Total liabilities carried at fair value	\$ —	\$ 16,803	\$ 4	\$ (11,564)	\$ 5,243

⁽¹⁾ Represents counterparty netting against level 2 financial assets and liabilities where a legally enforceable master netting agreement exists between us and the counterparty. Netting also reflects asset and liability reductions of \$987 million and \$1,341 million, respectively, for cash collateral received from and provided to derivative counterparties.

⁽²⁾ As of December 31, 2018, the fair value of other non-U.S. debt securities included \$1,295 million of covered bonds and \$1,331 million of corporate bonds.

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Fair Value Measurements on a Recurring Basis

(In millions)	As of December 31, 2017				Total Net Carrying Value in Consolidated Statement of Condition
	Quoted Market Prices in Active Markets (Level 1)	Pricing Methods with Significant Observable Market Inputs (Level 2)	Pricing Methods with Significant Unobservable Market Inputs (Level 3)	Impact of Netting (1)	
Assets:					
Trading account assets:					
U.S. government securities	\$ 39	\$ —	\$ —		\$ 39
Non-U.S. government securities	389	93	—		482
Other	44	528	—		572
Total trading account assets	472	621	—		1,093
AFS investment securities:					
U.S. Treasury and federal agencies:					
Direct obligations	11	212	—		223
Mortgage-backed securities	—	10,872	—		10,872
Total U.S. Treasury and federal agencies	11	11,084	—		11,095
Asset-backed securities:					
Student loans	—	3,358	—		3,358
Credit cards	—	1,542	—		1,542
Collateralized loan obligations	—	89	1,358		1,447
Total asset-backed securities	—	4,989	1,358		6,347
Non-U.S. debt securities:					
Mortgage-backed securities	—	6,576	119		6,695
Asset-backed securities	—	2,545	402		2,947
Government securities	—	10,721	—		10,721
Other ⁽²⁾	—	5,904	204		6,108
Total non-U.S. debt securities	—	25,746	725		26,471
State and political subdivisions	—	9,108	43		9,151
Collateralized mortgage obligations	—	1,054	—		1,054
Other U.S. debt securities	—	2,560	—		2,560
U.S. equity securities	—	46	—		46
U.S. money-market mutual funds	—	397	—		397
Total AFS investment securities	11	54,984	2,126		57,121
Other assets:					
Derivatives instruments:					
Foreign exchange contracts	—	11,596	1	\$ (7,593)	4,004
Interest rate contracts	8	—	—	—	8
Other derivative contracts	1	—	—	—	1
Total derivative instruments	9	11,596	1	(7,593)	4,013
Total assets carried at fair value	\$ 492	\$ 67,201	\$ 2,127	\$ (7,593)	\$ 62,227
Liabilities:					
Accrued expenses and other liabilities:					
Trading account liabilities:					
Other	\$ 39	\$ —	\$ —	\$ —	\$ 39
Derivative instruments:					
Foreign exchange contracts	—	11,467	1	(5,970)	5,498
Interest rate contracts	—	100	—	—	100
Other derivative contracts	1	283	—	—	284
Total derivative instruments	1	11,850	1	(5,970)	5,882
Total liabilities carried at fair value	\$ 40	\$ 11,850	\$ 1	\$ (5,970)	\$ 5,921

⁽¹⁾ Represents counterparty netting against level 2 financial assets and liabilities where a legally enforceable master netting agreement exists between us and the counterparty. Netting also reflects asset and liability reductions of \$2,045 million and \$422 million, respectively, for cash collateral received from and provided to derivative counterparties.

⁽²⁾ As of December 31, 2017, the fair value of other non-U.S. debt securities was primarily composed of \$3,537 million of covered bonds and \$1,885 million of corporate bonds.

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The following tables present activity related to our level 3 financial assets during the years ended December 31, 2018 and 2017, respectively. Transfers into and out of level 3 are reported as of the beginning of the period presented. During the years ended December 31, 2018 and 2017, transfers into level 3 were mainly related to certain CMO, MBS and ABS, including non-U.S. debt securities, for which fair value was measured using information obtained from third-party sources, including non-binding broker/dealer quotes. During the years ended December 31, 2018 and 2017, transfers out of level 3 were mainly related to certain CMO, MBS and ABS, including non-U.S. debt securities, for which fair value was measured using prices for which observable market information became available.

Fair Value Measurements Using Significant Unobservable Inputs

(In millions)	Year Ended December 31, 2018									
	Fair Value as of December 31, 2017	Total Realized and Unrealized Gains (Losses)		Purchases	Sales	Settlements	Transfers into Level 3	Transfers out of Level 3	Fair Value as of December 31, 2018 ⁽¹⁾	Change in Unrealized Gains (Losses) Related to Financial Instruments Held as of December 31, 2018
Recorded in Revenue ⁽¹⁾	Recorded in Other Comprehensive Income ⁽¹⁾									
Assets:										
AFS Investment securities:										
Asset-backed securities:										
Collateralized loan obligations	\$ 1,358	\$ 4	\$ (7)	\$ 351	\$ (636)	\$ (268)	\$ —	\$ (209)	\$ 593	
Total asset-backed securities	1,358	4	(7)	351	(636)	(268)	—	(209)	593	
Non-U.S. debt securities:										
Mortgage-backed securities	119	—	—	—	—	—	—	(119)	—	
Asset-backed securities	402	—	(4)	495	(310)	(66)	114	—	631	
Other	204	—	—	13	(59)	(36)	—	(64)	58	
Total non-U.S. debt securities	725	—	(4)	508	(369)	(102)	114	(183)	689	
State and political subdivisions	43	—	—	—	(37)	(1)	—	(5)	—	
Collateralized mortgage obligations	—	—	—	—	—	(6)	8	—	2	
Total AFS investment securities	2,126	4	(11)	859	(1,042)	(377)	122	(397)	1,284	
Derivative instruments:										
Foreign exchange contracts	1	(3)	—	6	—	—	—	—	4	\$ (3)
Total derivative instruments	1	(3)	—	6	—	—	—	—	4	(3)
Total assets carried at fair value	\$ 2,127	\$ 1	\$ (11)	\$ 865	\$ (1,042)	\$ (377)	\$ 122	\$ (397)	\$ 1,288	\$ (3)

⁽¹⁾ Total realized and unrealized gains (losses) on AFS investment securities are included within gains (losses) related to investment securities, net. Total realized and unrealized gains (losses) on derivative instruments are included within foreign exchange trading services.

STATE STREET CORPORATION
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Fair Value Measurements Using Significant Unobservable Inputs
Year Ended December 31, 2017

(In millions)	Fair Value as of December 31, 2016	Total Realized and Unrealized Gains (Losses)		Purchases	Sales	Settlements	Transfers into Level 3	Transfers out of Level 3	Fair Value as of December 31, 2017 ⁽¹⁾	Change in Unrealized Gains (Losses) Related to Financial Instruments Held as of December 31, 2017
		Recorded in Revenue ⁽¹⁾	Recorded in Other Comprehensive Income ⁽¹⁾							
Assets:										
AFS Investment securities:										
U.S. Treasury and federal agencies:										
Mortgage-backed securities	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ 25	\$ (25)	\$ —	
Asset-backed securities:										
Student loans	97	—	1	200	—	—	—	(298)	—	
Other	905	3	—	1,035	(240)	(620)	275	—	1,358	
Total asset-backed securities	1,002	3	1	1,235	(240)	(620)	275	(298)	1,358	
Non-U.S. debt securities:										
Mortgage-backed securities	—	—	(2)	119	—	2	—	—	119	
Asset-backed securities	32	1	—	370	(10)	(11)	67	(47)	402	
Other	248	—	1	5	(81)	31	—	—	204	
Total non-U.S. debt securities	280	1	(1)	494	(91)	22	67	(47)	725	
State and political subdivisions	39	—	2	—	—	(3)	5	—	43	
Collateralized mortgage obligations	16	—	(1)	24	—	—	—	(39)	—	
Other U.S. debt securities	—	—	—	19	(19)	—	—	—	—	
Total AFS investment securities	1,337	4	1	1,772	(350)	(601)	372	(409)	2,126	
Other assets:										
Derivative instruments:										
Foreign exchange contracts	8	(7)	—	4	—	(4)	—	—	1	\$ (3)
Total derivative instruments	8	(7)	—	4	—	(4)	—	—	1	(3)
Total assets carried at fair value	\$ 1,345	\$ (3)	\$ 1	\$ 1,776	\$ (350)	\$ (605)	\$ 372	\$ (409)	\$ 2,127	\$ (3)

⁽¹⁾ Total realized and unrealized gains (losses) on AFS investment securities are included within gains (losses) related to investment securities, net. Total realized and unrealized gains (losses) on derivative instruments are included within foreign exchange trading services.

The following table presents quantitative information, as of the dates indicated, about the valuation techniques and significant unobservable inputs used in the valuation of our level 3 financial assets and liabilities measured at fair value on a recurring basis for which we use internally-developed pricing models. The significant unobservable inputs for our level 3 financial assets and liabilities whose fair value is measured using pricing information from non-binding broker/dealer quotes are not included in the table, as the specific inputs applied are not provided by the broker/dealer.

(Dollars in millions)	Quantitative Information about Level 3 Fair Value Measurements					
	Fair Value		Valuation Technique	Significant Unobservable Input ⁽¹⁾	Weighted-Average	
	As of December 31, 2018	As of December 31, 2017			As of December 31, 2018	As of December 31, 2017
Significant unobservable inputs readily available to State Street:						
Assets:						
Derivative Instruments, foreign exchange contracts	\$ 4	\$ 1	Option model	Volatility	11.4%	7.2%
Total	\$ 4	\$ 1				
Liabilities:						
Derivative instruments, foreign exchange contracts	\$ 4	\$ 1	Option model	Volatility	11.4%	7.2%
Total	\$ 4	\$ 1				

⁽¹⁾ Significant changes in these unobservable inputs may result in significant changes in fair value measurement of the derivative instrument.

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Financial Instruments Not Carried at Fair Value

Estimates of fair value for financial instruments not carried at fair value on a recurring basis in our consolidated statement of condition are generally subjective in nature, and are determined as of a specific point in time based on the characteristics of the financial instruments and relevant market information. Disclosure of fair value estimates is not required by U.S. GAAP for certain items, such as lease financing, equity-method investments, obligations for pension and other post-retirement plans, premises and equipment, other intangible assets and income-tax assets and liabilities. Accordingly, aggregate fair-value estimates presented do not purport to represent, and should not be considered representative of, our underlying "market" or franchise value. In addition, because of potential differences in methodologies and assumptions used to estimate fair values, our estimates of fair value should not be compared to those of other financial institutions.

We use the following methods to estimate the fair values of our financial instruments:

- For financial instruments that have quoted market prices, those quoted prices are used to estimate fair value;
- For financial instruments that have no defined maturity, have a remaining maturity of 180 days or less, or reprice frequently to a market rate, we assume that the fair value of these instruments approximates their reported value, after taking into consideration any applicable credit risk; and
- For financial instruments for which no quoted market prices are available, fair value is estimated

using information obtained from independent third parties, or by discounting the expected cash flows using an estimated current market interest rate for the financial instrument.

The generally short duration of certain of our assets and liabilities results in a significant number of financial instruments for which fair value equals or closely approximates the amount recorded in our consolidated statement of condition. These financial instruments are reported in the following captions in our consolidated statement of condition: cash and due from banks; interest-bearing deposits with banks; securities purchased under resale agreements; accrued interest and fees receivable; deposits; securities sold under repurchase agreements; and other short-term borrowings.

In addition, due to the relatively short duration of certain of our loans, we consider fair value for these loans to approximate their reported value. The fair value of other types of loans, such as senior secured bank loans, commercial real estate loans, purchased receivables and municipal loans is estimated using information obtained from independent third parties or by discounting expected future cash flows using current rates at which similar loans would be made to borrowers with similar credit ratings for the same remaining maturities. Commitments to lend have no reported value because their terms are at prevailing market rates.

STATE STREET CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

The following tables present the reported amounts and estimated fair values of the financial assets and liabilities not carried at fair value on a recurring basis, as they would be categorized within the fair value hierarchy, as of the dates indicated.

(In millions)	Fair Value Hierarchy					
	Reported Amount	Estimated Fair Value	Quoted Market Prices in Active Markets (Level 1)	Pricing Methods with Significant Observable Market Inputs (Level 2)	Pricing Methods with Significant Unobservable Market Inputs (Level 3)	
December 31, 2018						
Financial Assets:						
Cash and due from banks	\$ 3,597	\$ 3,597	\$ 3,597	\$ —	\$ —	\$ —
Interest-bearing deposits with banks	73,040	73,040	—	73,040	—	—
Securities purchased under resale agreements	4,679	4,679	—	4,679	—	—
Investment securities held-to-maturity	41,914	41,351	14,541	26,688	—	122
Net loans (excluding leases) ⁽¹⁾	25,722	25,561	—	24,648	—	913
Other ⁽²⁾	8,500	8,500	—	8,500	—	—
Financial Liabilities:						
Deposits:						
Non-interest-bearing	\$ 44,804	\$ 44,804	\$ —	\$ 44,804	\$ —	\$ —
Interest-bearing - U.S.	66,235	66,235	—	66,235	—	—
Interest-bearing - non-U.S.	69,321	69,321	—	69,321	—	—
Securities sold under repurchase agreements	1,082	1,082	—	1,082	—	—
Other short-term borrowings	3,092	3,092	—	3,092	—	—
Long-term debt	11,093	11,048	—	10,865	—	183
Other ⁽²⁾	8,500	8,500	—	8,500	—	—

⁽¹⁾ Includes \$10 million of loans classified as held-for-sale that were measured at fair value on a non-recurring basis as of December 31, 2018.

⁽²⁾ Represents a portion of underlying client assets related to our enhanced custody business, which clients have allowed us to transfer and re-pledge.

(In millions)	Fair Value Hierarchy					
	Reported Amount	Estimated Fair Value	Quoted Market Prices in Active Markets (Level 1)	Pricing Methods with Significant Observable Market Inputs (Level 2)	Pricing Methods with Significant Unobservable Market Inputs (Level 3)	
December 31, 2017						
Financial Assets:						
Cash and due from banks	\$ 2,107	\$ 2,107	\$ 2,107	\$ —	\$ —	\$ —
Interest-bearing deposits with banks	67,227	67,227	—	67,227	—	—
Securities purchased under resale agreements	3,241	3,241	—	3,241	—	—
Investment securities held-to-maturity	40,458	40,255	16,814	23,318	—	123
Net loans (excluding leases) ⁽¹⁾	22,577	22,482	—	22,431	—	51
Financial Liabilities:						
Deposits:						
Non-interest-bearing	\$ 47,175	\$ 47,175	\$ —	\$ 47,175	\$ —	\$ —
Interest-bearing - U.S.	50,139	50,139	—	50,139	—	—
Interest-bearing - non-U.S.	87,582	87,582	—	87,582	—	—
Securities sold under repurchase agreements	2,842	2,842	—	2,842	—	—
Other short-term borrowings	1,144	1,144	—	1,144	—	—
Long-term debt	11,620	11,919	—	11,639	—	280

⁽¹⁾ Includes \$3 million of loans classified as held-for-sale that were measured at fair value on a non-recurring basis as of December 31, 2017.

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Note 3. Investment Securities

Investment securities held by us are classified as either trading account assets, AFS, HTM or equity securities held at fair value at the time of purchase and reassessed periodically, based on management's intent.

As described in Note 1, upon adoption of ASU 2016-01 in 2018, we reclassified approximately \$397 million of money market funds and \$46 million of equity securities to other assets, where they are held at fair value with changes to fair value recorded through our consolidated statement of income.

Generally, trading assets are debt and equity securities purchased in connection with our trading activities and, as such, are expected to be sold in the near term. Our trading activities typically involve active and frequent buying and selling with the objective of generating profits on short-term movements. AFS investment securities are those securities that we intend to hold for an indefinite period of time. AFS investment

securities include securities utilized as part of our asset and liability management activities that may be sold in response to changes in interest rates, prepayment risk, liquidity needs or other factors. HTM securities are debt securities that management has the intent and the ability to hold to maturity.

Trading assets are carried at fair value. Both realized and unrealized gains and losses on trading assets are recorded in foreign exchange trading services revenue in our consolidated statement of income. AFS securities are carried at fair value, and after-tax net unrealized gains and losses are recorded in AOCI. Gains or losses realized on sales of AFS investment securities are computed using the specific identification method and are recorded in gains (losses) related to investment securities, net, in our consolidated statement of income. HTM investment securities are carried at cost, adjusted for amortization of premiums and accretion of discounts.

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The following table presents the amortized cost, fair value and associated unrealized gains and losses of AFS and HTM investment securities as of the dates indicated:

(In millions)	December 31, 2018				December 31, 2017			
	Amortized Cost	Gross Unrealized		Fair Value	Amortized Cost	Gross Unrealized		Fair Value
		Gains	Losses			Gains	Losses	
Available-for-sale:								
U.S. Treasury and federal agencies:								
Direct obligations	\$ 1,035	\$ 4	\$ —	\$ 1,039	\$ 222	\$ 2	\$ 1	\$ 223
Mortgage-backed securities	16,112	37	181	15,968	10,975	26	129	10,872
Total U.S. Treasury and federal agencies	<u>17,147</u>	<u>41</u>	<u>181</u>	<u>17,007</u>	<u>11,197</u>	<u>28</u>	<u>130</u>	<u>11,095</u>
Asset-backed securities:								
Student loans ⁽¹⁾	538	4	1	541	3,325	37	4	3,358
Credit cards	609	—	26	583	1,565	2	25	1,542
Collateralized loan obligations	594	1	2	593	1,440	7	—	1,447
Total asset-backed securities	<u>1,741</u>	<u>5</u>	<u>29</u>	<u>1,717</u>	<u>6,330</u>	<u>46</u>	<u>29</u>	<u>6,347</u>
Non-U.S. debt securities:								
Mortgage-backed securities	1,687	—	5	1,682	6,664	36	5	6,695
Asset-backed securities	1,580	—	6	1,574	2,942	5	—	2,947
Government securities	12,816	22	45	12,793	10,754	16	49	10,721
Other ⁽²⁾	6,600	18	16	6,602	6,076	38	6	6,108
Total non-U.S. debt securities	<u>22,683</u>	<u>40</u>	<u>72</u>	<u>22,651</u>	<u>26,436</u>	<u>95</u>	<u>60</u>	<u>26,471</u>
State and political subdivisions ⁽³⁾	1,905	20	7	1,918	8,929	245	23	9,151
Collateralized mortgage obligations	200	—	3	197	1,060	3	9	1,054
Other U.S. debt securities	1,683	1	26	1,658	2,563	12	15	2,560
U.S. equity securities ⁽⁴⁾	—	—	—	—	40	8	2	46
U.S. money-market mutual funds ⁽⁴⁾	—	—	—	—	397	—	—	397
Total	<u>\$ 45,359</u>	<u>\$ 107</u>	<u>\$ 318</u>	<u>\$ 45,148</u>	<u>\$ 56,952</u>	<u>\$ 437</u>	<u>\$ 268</u>	<u>\$ 57,121</u>
Held-to-maturity:								
U.S. Treasury and federal agencies:								
Direct obligations	\$ 14,794	\$ —	\$ 199	\$ 14,595	\$ 17,028	\$ —	\$ 143	\$ 16,885
Mortgage-backed securities	21,647	24	518	21,153	16,651	22	225	16,448
Total U.S. Treasury and federal agencies	<u>36,441</u>	<u>24</u>	<u>717</u>	<u>35,748</u>	<u>33,679</u>	<u>22</u>	<u>368</u>	<u>33,333</u>
Asset-backed securities:								
Student loans ⁽¹⁾	3,191	35	10	3,216	3,047	32	9	3,070
Credit cards	193	—	—	193	798	2	—	800
Other	1	—	—	1	1	—	—	1
Total asset-backed securities	<u>3,385</u>	<u>35</u>	<u>10</u>	<u>3,410</u>	<u>3,846</u>	<u>34</u>	<u>9</u>	<u>3,871</u>
Non-U.S. debt securities:								
Mortgage-backed securities	638	77	9	706	939	82	6	1,015
Asset-backed securities	223	—	—	223	263	1	—	264
Government securities	358	1	—	359	474	2	—	476
Other	46	—	—	46	48	—	—	48
Total non-U.S. debt securities	<u>1,265</u>	<u>78</u>	<u>9</u>	<u>1,334</u>	<u>1,724</u>	<u>85</u>	<u>6</u>	<u>1,803</u>
Collateralized mortgage obligations	823	38	2	859	1,209	45	6	1,248
Total	<u>\$ 41,914</u>	<u>\$ 175</u>	<u>\$ 738</u>	<u>\$ 41,351</u>	<u>\$ 40,458</u>	<u>\$ 186</u>	<u>\$ 389</u>	<u>\$ 40,255</u>

⁽¹⁾ Primarily comprised of securities guaranteed by the federal government with respect to at least 97% of defaulted principal and accrued interest on the underlying loans.

⁽²⁾ As of December 31, 2018 and December 31, 2017, the fair value of other non-U.S. debt securities included \$1,295 million and \$3,537 million, respectively, of covered bonds and \$1,331 million and \$1,885 million, respectively, of corporate bonds.

⁽³⁾ As of December 31, 2018 and December 31, 2017, the fair value of state and political subdivisions includes securities in trusts of \$1,052 million and \$1,247 million, respectively. Additional information about these trusts is provided in Note 14.

⁽⁴⁾ As described in Note 1 to the consolidated financial statements in this Form 10-K, upon adoption of ASU 2016-01 in 2018, we reclassified money-market funds and equity securities classified as AFS to held at fair value through profit and loss in other assets.

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Aggregate investment securities with carrying values of approximately \$39 billion and \$48 billion as of December 31, 2018 and December 31, 2017, respectively, were designated as pledged for public and trust deposits, short-term borrowings and for other purposes as provided by law.

In 2018, \$1.2 billion of HTM securities, primarily consisting of MBS and CMBS, were transferred to AFS at book value and sold at a pre-tax loss of approximately \$36 million, due to our election to make a one-time transfer of securities relating to the adoption of ASU 2017-12. Additional information on this new standard is provided in Note 1.

In 2018, we sold approximately \$26 billion of AFS securities, primarily ABS and municipal bonds, resulting in a net pre-tax gain of approximately \$9 million. In 2017, we sold \$12.2 billion of AFS securities, primarily agency MBS and U.S. treasury securities in our investment portfolio, to position for the then existing interest rate environment resulting in a pre-tax loss of \$39 million.

In 2018 and 2017, \$2.1 billion and \$496 million, respectively, of agency MBS, previously classified as AFS, were transferred to HTM. This transfer reflects our intent to hold these securities until their maturity. These securities were transferred at fair value, which included a net unrealized loss of \$53 million and \$2.8 million as of December 31, 2018 and 2017, respectively, within accumulated other comprehensive loss which will be accreted into interest income over the remaining life of the transferred security (ranging from approximately 10 to 42 years).

The following tables present the aggregate fair values of AFS and HTM investment securities that have been in a continuous unrealized loss position for less than 12 months, and those that have been in a continuous unrealized loss position for 12 months or longer, as of the dates indicated:

December 31, 2018 (In millions)	Less than 12 months		12 months or longer		Total	
	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
Available-for-sale:						
U.S. Treasury and federal agencies:						
Mortgage-backed securities	\$ 5,058	\$ 21	\$ 5,089	\$ 160	\$ 10,147	\$ 181
Total U.S. Treasury and federal agencies	5,058	21	5,089	160	10,147	181
Asset-backed securities:						
Student loans	106	—	218	1	324	1
Credit cards	90	—	493	26	583	26
Collateralized loan obligations	548	2	—	—	548	2
Total asset-backed securities	744	2	711	27	1,455	29
Non-U.S. debt securities:						
Mortgage-backed securities	1,407	4	118	1	1,525	5
Asset-backed securities	1,479	6	—	—	1,479	6
Government securities	5,478	45	—	—	5,478	45
Other	2,167	12	226	4	2,393	16
Total non-U.S. debt securities	10,531	67	344	5	10,875	72
State and political subdivisions	365	3	244	4	609	7
Collateralized mortgage obligations	181	3	14	—	195	3
Other U.S. debt securities	861	14	484	12	1,345	26
Total	\$ 17,740	\$ 110	\$ 6,886	\$ 208	\$ 24,626	\$ 318
Held-to-maturity:						
U.S. Treasury and federal agencies:						
Direct obligations	\$ 2,192	\$ 45	\$ 12,403	\$ 154	\$ 14,595	\$ 199
Mortgage-backed securities	6,502	103	10,648	415	17,150	518
Total U.S. Treasury and federal agencies	8,694	148	23,051	569	31,745	717
Asset-backed securities:						
Student loans	481	4	536	6	1,017	10
Total asset-backed securities	481	4	536	6	1,017	10
Non-U.S. debt securities:						
Mortgage-backed securities	184	2	119	7	303	9
Total non-U.S. debt securities	184	2	119	7	303	9
Collateralized mortgage obligations	102	1	51	1	153	2
Total	\$ 9,461	\$ 155	\$ 23,757	\$ 583	\$ 33,218	\$ 738

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December 31, 2017 (In millions)	Less than 12 months		12 months or longer		Total	
	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
Available-for-sale:						
U.S. Treasury and federal agencies:						
Direct obligations	\$ —	\$ —	\$ 67	\$ 1	\$ 67	\$ 1
Mortgage-backed securities	5,161	31	3,341	98	8,502	129
Total U.S. Treasury and federal agencies	5,161	31	3,408	99	8,569	130
Asset-backed securities:						
Student loans	—	—	769	4	769	4
Credit cards	1,289	25	—	—	1,289	25
Total asset-backed securities	1,289	25	769	4	2,058	29
Non-U.S. debt securities:						
Mortgage-backed securities	1,059	4	469	1	1,528	5
Government securities	7,629	48	68	1	7,697	49
Other	816	4	289	2	1,105	6
Total non-U.S. debt securities	9,504	56	826	4	10,330	60
State and political subdivisions	734	6	901	17	1,635	23
Collateralized mortgage obligations	399	5	136	4	535	9
Other U.S. debt securities	1,007	8	345	7	1,352	15
U.S. equity securities	—	—	6	2	6	2
Total	\$ 18,094	\$ 131	\$ 6,391	\$ 137	\$ 24,485	\$ 268
Held-to-maturity:						
U.S. Treasury and federal agencies:						
Direct obligations	\$ 14,439	\$ 109	\$ 2,447	\$ 34	\$ 16,886	\$ 143
Mortgage-backed securities	6,785	38	5,988	187	12,773	225
Total U.S. Treasury and federal agencies	21,224	147	8,435	221	29,659	368
Asset-backed securities:						
Student loans	440	3	423	6	863	9
Total asset-backed securities	440	3	423	6	863	9
Non-U.S. debt securities:						
Mortgage-backed securities	—	—	239	6	239	6
Total non-U.S. debt securities	—	—	239	6	239	6
Collateralized mortgage obligations	—	—	276	6	276	6
Total	\$ 21,664	\$ 150	\$ 9,373	\$ 239	\$ 31,037	\$ 389

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The following table presents contractual maturities of debt investment securities by carrying amount as of December 31, 2018. The maturities of certain ABS, MBS, and CMOs are based on expected principal payments. Actual maturities may differ from these expected maturities since certain borrowers have the right to prepay obligations with or without prepayment penalties.

December 31, 2018 (In millions)	Under 1 Year	1 to 5 Years	6 to 10 Years	Over 10 Years	Total
Available-for-sale:					
U.S. Treasury and federal agencies:					
Direct obligations	\$ 224	\$ 815	\$ —	\$ —	\$ 1,039
Mortgage-backed securities	101	802	1,884	13,181	15,968
Total U.S. Treasury and federal agencies	325	1,617	1,884	13,181	17,007
Asset-backed securities:					
Student loans	57	164	250	70	541
Credit cards	199	294	90	—	583
Collateralized loan obligations	—	402	171	20	593
Total asset-backed securities	256	860	511	90	1,717
Non-U.S. debt securities:					
Mortgage-backed securities	139	769	176	598	1,682
Asset-backed securities	136	698	581	159	1,574
Government securities	3,439	6,409	2,945	—	12,793
Other	1,071	4,575	937	19	6,602
Total non-U.S. debt securities	4,785	12,451	4,639	776	22,651
State and political subdivisions	235	776	446	461	1,918
Collateralized mortgage obligations	2	—	—	195	197
Other U.S. debt securities	141	1,219	298	—	1,658
Total	\$ 5,744	\$ 16,923	\$ 7,778	\$ 14,703	\$ 45,148
Held-to-maturity:					
U.S. Treasury and federal agencies:					
Direct obligations	\$ 4,002	\$ 10,737	\$ 12	\$ 43	\$ 14,794
Mortgage-backed securities	33	127	1,697	19,790	21,647
Total U.S. Treasury and federal agencies	4,035	10,864	1,709	19,833	36,441
Asset-backed securities:					
Student loans	7	291	267	2,626	3,191
Credit cards	58	135	—	—	193
Other	—	—	—	1	1
Total asset-backed securities	65	426	267	2,627	3,385
Non-U.S. debt securities:					
Mortgage-backed securities	160	42	7	429	638
Asset-backed securities	96	127	—	—	223
Government securities	243	115	—	—	358
Other	46	—	—	—	46
Total non-U.S. debt securities	545	284	7	429	1,265
Collateralized mortgage obligations	1	318	15	489	823
Total	\$ 4,646	\$ 11,892	\$ 1,998	\$ 23,378	\$ 41,914

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The following tables present gross realized gains and losses from sales of AFS investment securities, and the components of net impairment losses included in net gains and losses related to investment securities for the periods indicated.

(In millions)	Years Ended December 31,		
	2018	2017	2016
Gross realized gains from sales of AFS investment securities	\$ 205	\$ 74	\$ 15
Gross realized losses from sales of AFS investment securities	(196)	(113)	(5)
Net impairment losses:			
Gross losses from OTTI	(3)	—	(2)
Losses reclassified (from) to other comprehensive income	—	—	(1)
Net impairment losses ⁽¹⁾	(3)	—	(3)
Gains (losses) related to investment securities, net	\$ 6	\$ (39)	\$ 7
⁽¹⁾ Net impairment losses, recognized in our consolidated statement of income, were composed of the following:			
Impairment associated with expected credit losses	\$ —	\$ —	\$ (1)
Impairment associated with adverse changes in timing of expected future cash flows	(3)	—	(2)
Net impairment losses	\$ (3)	\$ —	\$ (3)

The following table presents a roll-forward with respect to net impairment losses that have been recognized in income for the periods indicated.

(In millions)	Years Ended December 31,		
	2018	2017	2016
Balance, beginning of period	\$ 77	\$ 79	\$ 105
Additions ⁽¹⁾ :			
OTTI recognized	3	—	2
Deductions ⁽²⁾ :			
Realized losses on securities sold or matured	(2)	(2)	(28)
Balance, end of period	\$ 78	\$ 77	\$ 79

⁽¹⁾ Additions represent securities with a first time credit impairment realized or when a subsequent credit impairment has occurred.

⁽²⁾ Deductions represent impairments on securities that have been sold or matured, are required to be sold, or for which management intends to sell.

Interest income related to debt securities is recognized in our consolidated statement of income using the effective interest method, or on a basis approximating a level rate of return over the contractual or estimated life of the security. The level rate of return considers any non-refundable fees or costs, as well as purchase premiums or discounts, resulting in amortization or accretion, accordingly.

For certain debt securities acquired which are considered to be beneficial interests in securitized financial assets, the excess of our estimate of undiscounted future cash flows from these securities over their initial recorded investment is accreted into interest income on a level-yield basis over the securities' estimated remaining terms. Subsequent decreases in these securities' expected future cash flows are either

recognized prospectively through an adjustment of the yields on the securities over their remaining terms, or are evaluated for OTTI. Increases in expected future cash flows are recognized prospectively over the securities' estimated remaining terms through the recalculation of their yields.

Impairment

We conduct periodic reviews of individual securities to assess whether OTTI exists. Impairment exists when the current fair value of an individual security is below its amortized cost basis. For AFS and HTM debt securities, impairment is recorded in our consolidated statement of income when management intends to sell (or may be required to sell) the securities before they recover in value, or when management expects the present value of cash flows expected to be collected from the securities to be less than the amortized cost of the impaired security (a credit loss).

Our review of impaired securities generally includes:

- the identification and evaluation of securities that have indications of potential OTTI, such as issuer-specific concerns, including deteriorating financial condition or bankruptcy;
- the analysis of expected future cash flows of securities, based on quantitative and qualitative factors;
- the analysis of the collectability of those future cash flows, including information about past events, current conditions, and reasonable and supportable forecasts;
- the analysis of the underlying collateral for MBS and ABS;
- the analysis of individual impaired securities, including consideration of the length of time the security has been in an unrealized loss position, the anticipated recovery period, and the magnitude of the overall price decline;
- evaluation of factors or triggers that could cause individual securities to be deemed OTTI and those that would not support OTTI; and
- documentation of the results of these analyses.

Factors considered in determining whether impairment is other than temporary include:

- certain macroeconomic drivers;
- certain industry-specific drivers;
- the length of time the security has been impaired;
- the severity of the impairment;
- the cause of the impairment and the financial condition and near-term prospects of the issuer;

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- activity in the market with respect to the issuer's securities, which may indicate adverse credit conditions; and
- our intention not to sell, and the likelihood that we will not be required to sell, the security for a period of time sufficient to allow for its recovery in value.

Substantially all of our investment securities portfolio is composed of debt securities. A critical component of our assessment of OTTI of these debt securities is the identification of credit-impaired securities for which management does not expect to receive cash flows sufficient to recover the entire amortized cost basis of the security.

Debt securities that are not deemed to be credit-impaired are subject to additional management analysis to assess whether management intends to sell, or, more likely than not, would be required to sell, the security before the expected recovery of its amortized cost basis.

The following provides a description of our process for the identification and assessment of OTTI, as well as information about OTTI recorded in 2018, 2017 and 2016 and changes in period-end unrealized losses, for major security types as of December 31, 2018.

U.S. Agency Securities

Our portfolio of U.S. agency direct obligations and MBS receives the implicit or explicit backing of the U.S. government in conjunction with specified financial support of the U.S. Treasury. We recorded no OTTI on these securities in 2018, 2017 or 2016.

The overall increase in unrealized losses on these securities as of December 31, 2018 was primarily attributable to interest rate increases in 2018 and to an increase in total U.S. agency securities during 2018.

Asset-Backed Securities - Student Loans

Asset-backed securities collateralized by student loans are primarily composed of securities collateralized by FFELP loans. FFELP loans benefit from a federal government guarantee of at least 97% of defaulted principal and accrued interest, with additional credit support provided to our securities in the form of over-collateralization, subordination and excess spread, which collectively total in excess of 100%. Accordingly, the vast majority of FFELP loan-backed securities are protected from traditional consumer credit risk. We recorded no OTTI on these securities in 2018, 2017 or 2016.

Our assessment of OTTI of these securities considers, among many other factors, the strength of the U.S. government guarantee, the performance of the underlying collateral, and the remaining average term of the FFELP loan-backed securities portfolio, which was approximately 5.0 years as of December 31, 2018.

In general, the rating agencies have largely completed their downgrade review of FFELP loan-backed securities due to potential extension of student loan repayments beyond the securities' legal final maturity dates. At this time, we do not expect a significant number of additional downgrades related to potential legal final maturity breaches. Based on the limited price impact on the overall FFELP loan-backed securities portfolio and recent remedial actions by issuers, including amending loan-backed securities' maturity dates and exercising cleanup calls, the credit quality of the FFELP loan-backed securities portfolio remains stable and we, as a bondholder, remain protected from principal loss as a result of the aforementioned federal government guarantee and over-collateralization. Downside risks remain should remedial actions fail to address the extension risks.

Our total exposure to private student loan-backed securities was less than \$4 million as of December 31, 2018. Our assessment of OTTI of private student loan-backed securities considers, among other factors, the impact of high unemployment rates on the collateral performance of private student loans. We recorded no OTTI on these securities in 2018, 2017 or 2016.

Non-U.S. Mortgage- and Asset-Backed Securities

Non-U.S. mortgage- and asset-backed securities are primarily composed of U.K., Australian and Dutch securities collateralized by residential mortgages and German and U.K. securities collateralized by automobile loans and leases. Our assessment of impairment with respect to these securities considers the location of the underlying collateral, collateral enhancement and structural features, expected credit losses under base-case and stressed conditions and the macroeconomic outlook for the country in which the collateral is located, including housing prices and unemployment. Where appropriate, any potential loss after consideration of the above-referenced factors is further evaluated to determine whether any OTTI exists.

We recorded OTTI of \$3 million, less than \$1 million and \$2 million in 2018, 2017 and 2016, respectively, on non-U.S. residential MBS, which resulted from adverse changes in the timing of expected future cash flows from the securities.

Our assessment of OTTI of these securities takes into account government intervention in the corresponding mortgage markets and assumes a baseline macroeconomic environment for this region, factoring in slower economic growth and continued government austerity measures. In addition, we perform stress testing and sensitivity analysis in order to understand the impact of more severe assumptions on potential OTTI.

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State and Political Subdivisions and Other U.S. Debt Securities

Our municipal securities portfolio primarily includes securities issued by U.S. states and their municipalities. A portion of this portfolio is held in connection with our tax-exempt investment program, more fully described in Note 14. Our portfolio of other U.S. debt securities is primarily composed of securities issued by U.S. corporations.

Our assessment of OTTI of these portfolios considers, among other factors, adverse conditions specifically related to the geographic area or financial condition of the issuer; the structure of the security, including collateral, if any, and payment schedule; rating agency changes to the security's credit rating; the volatility of the fair value changes; and our intent and ability to hold the security until its recovery in value. If the impairment of the security is credit-related, we estimate the future cash flows from the security, tailored to the security and considering the above-described factors, and any resulting impairment deemed to be other-than-temporary is recorded in our consolidated statement of income. We recorded no OTTI on these securities in 2018, 2017 or 2016.

U.S. Non-Agency Residential Mortgage-Backed Securities

We assess OTTI of our portfolio of U.S. non-agency residential mortgage-backed securities using cash flow models, tailored for each security, that estimate the future cash flows from the underlying mortgages, using the security-specific collateral and transaction structure. Estimates of future cash flows are subject to management judgment. The future cash flows and performance of our portfolio of U.S. non-agency residential mortgage-backed securities are a function of a number of factors, including, but not limited to, the condition of the U.S. economy, the condition of the U.S. residential mortgage markets, and the level of loan defaults, prepayments and loss severities. Management's estimates of future losses for each security also consider the underwriting and historical performance of each specific security, the underlying collateral type, vintage, borrower profile, third-party guarantees, current levels of subordination, geography and other factors. We recorded no OTTI on these securities in 2018, 2017 or 2016.

U.S. Non-Agency Commercial Mortgage-Backed Securities

With respect to our portfolio of U.S. non-agency commercial mortgage-backed securities, OTTI is assessed by considering a number of factors, including, but not limited to, the condition of the U.S. economy and the condition of the U.S. commercial real estate market, as well as capitalization rates. Management estimates of future losses for each security also consider the underlying collateral type, property location, vintage, debt-service coverage ratios, expected property income, servicer advances and estimated property values, as well as current levels of subordination. We recorded no OTTI on these securities in 2018 and 2017. In 2016 we recorded \$1 million of OTTI on these securities, all associated with expected credit losses.

The estimates, assumptions and other risk factors utilized in our assessment of impairment as described above are used by management to identify securities which are subject to further analysis of potential credit losses. Additional analyses are performed using more stressful assumptions to further evaluate the sensitivity of losses relative to the above-described factors. However, since the assumptions are based on the unique characteristics of each security, management uses a range of estimates for prepayment speeds, default, and loss severity forecasts that reflect the collateral profile of the securities within each asset class. In addition, in measuring expected credit losses, the individual characteristics of each security are examined to determine whether any additional factors would increase or mitigate the expected loss. Once losses are determined, the timing of the loss will also affect the ultimate OTTI, since the loss is ultimately subject to a discount commensurate with the purchase yield of the security.

After a review of the investment portfolio, taking into consideration current economic conditions, adverse situations that might affect our ability to fully collect principal and interest, the timing of future payments, the credit quality and performance of the collateral underlying MBS and ABS and other relevant factors, management considers the aggregate decline in fair value of the investment securities portfolio and the resulting gross pre-tax unrealized losses of \$1,056 million related to 1,129 securities as of December 31, 2018 to be temporary, and not the result of any material changes in the credit characteristics of the securities.

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Note 4. Loans and Leases

Loans are generally recorded at their principal amount outstanding, net of the allowance for loan losses, unearned income, and any net unamortized deferred loan origination fees. Acquired loans have been initially recorded at fair value based on management's expectation with respect to future principal and interest collection as of the date of acquisition. Acquired loans are held for investment, and as such their initial fair value is not adjusted subsequent to acquisition. Loans that are classified as held-for-sale are measured at lower of cost or fair value on an individual basis.

Interest income related to loans is recognized in our consolidated statement of income using the interest method, or on a basis approximating a level rate of return over the term of the loan. Fees received for providing loan commitments and letters of credit that we anticipate will result in loans typically are deferred and amortized to interest income over the term of the related loan, beginning with the initial borrowing. Fees on commitments and letters of credit are amortized to processing fees and other revenue over the commitment period when funding is not known or expected.

As of December 31, 2018, we had no net investment in leveraged lease financing compared to \$479 million as of December 31, 2017.

The following table presents our recorded investment in loans and leases, by segment, as of the dates indicated:

(In millions)	December 31, 2018	December 31, 2017
Domestic:		
Commercial and financial:		
Loans to investment funds	\$ 15,050	\$ 13,618
Senior secured bank loans	3,490	2,923
Loans to municipalities	902	2,105
Other	37	50
Commercial real estate	874	98
Lease financing ⁽¹⁾	—	267
Total domestic	20,353	19,061
Non-U.S.:		
Commercial and financial:		
Loans to investment funds	4,505	3,213
Senior secured bank loans	931	624
Lease financing ⁽¹⁾	—	396
Total non-U.S.	5,436	4,233
Total loans and leases	25,789	23,294
Allowance for loan and lease losses	(67)	(54)
Loans and leases, net of allowance	\$ 25,722	\$ 23,240

⁽¹⁾ Our leveraged lease portfolio was entirely sold off as of December 31, 2018.

We segregate our loans and leases into three segments: commercial and financial loans, commercial real estate loans and lease financing. We further classify commercial and financial loans as loans to investment funds, senior secured bank loans, loans to municipalities, and other. These classifications reflect their risk characteristics, their initial measurement attributes and the methods we use to monitor and assess credit risk.

The commercial and financial segment is composed of primarily floating-rate loans to mutual fund clients, purchased senior secured bank loans, and loans to municipalities. Investment fund lending is composed of short-duration revolving credit lines providing liquidity to fund clients in support of their transaction flows associated with securities' settlement activities.

Certain loans are pledged as collateral for access to the Federal Reserve's discount window. As of December 31, 2018 and December 31, 2017, the loans pledged as collateral totaled \$6.5 billion and \$1.9 billion, respectively.

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The following tables present our recorded investment in each class of loans and leases by credit quality indicator as of the dates indicated:

December 31, 2018				
(In millions)	Commercial and Financial	Commercial Real Estate	Lease Financing	Total Loans and Leases
Investment grade ⁽¹⁾	\$ 19,599	\$ 874	\$ —	\$ 20,473
Speculative ⁽²⁾	5,308	—	—	5,308
Substandard ⁽³⁾	8	—	—	8
Total	\$ 24,915	\$ 874	\$ —	\$ 25,789

December 31, 2017				
(In millions)	Commercial and Financial	Commercial Real Estate	Lease Financing	Total Loans and Leases
Investment grade ⁽¹⁾	\$ 17,866	\$ 98	\$ 663	\$ 18,627
Speculative ⁽²⁾	4,638	—	—	4,638
Special mention ⁽⁴⁾	29	—	—	29
Total	\$ 22,533	\$ 98	\$ 663	\$ 23,294

⁽¹⁾ Investment grade loans and leases consist of counterparties with strong credit quality and low expected credit risk and probability of default. Ratings apply to counterparties with a strong capacity to support the timely repayment of any financial commitment.

⁽²⁾ Speculative loans consist of counterparties that face ongoing uncertainties or exposure to business, financial, or economic downturns. However, these counterparties may have financial flexibility or access to financial alternatives, which allow for financial commitments to be met.

⁽³⁾ Substandard loans and leases consist of counterparties with well-defined weaknesses that jeopardize repayment with the possibility we will sustain some loss.

⁽⁴⁾ Special mention loans consist of counterparties with potential weaknesses that, if uncorrected, may result in deterioration of repayment prospects.

We use an internal risk-rating system to assess our risk of credit loss for each loan or lease. This risk-rating process incorporates the use of risk-rating tools in conjunction with management judgment. Qualitative and quantitative inputs are captured in a systematic manner, and following a formal review and approval process, an internal credit rating based on our credit scale is assigned.

In assessing the risk rating assigned to each individual loan or lease, among the factors considered are the borrower's debt capacity, collateral coverage, payment history and delinquency experience, financial flexibility and earnings strength, the expected amounts and source of repayment, the level and nature of contingencies, if any, and the industry and geography

in which the borrower operates. These factors are based on an evaluation of historical and current information, and involve subjective assessment and interpretation. Credit counterparties are evaluated and risk-rated on an individual basis at least annually. Management considers the ratings to be current as of December 31, 2018.

We review all loans individually for indicators of impairment. Loans where such indicators exist are evaluated individually for impairment at least quarterly. For those loans where no such indicators are identified, the loans are collectively evaluated for impairment.

The following table presents our recorded investment in loans and leases, disaggregated based on our impairment methodology, as of the dates indicated:

(In millions)	December 31, 2018				December 31, 2017			
	Commercial and Financial	Commercial Real Estate	Lease Financing	Total Loans and Leases	Commercial and Financial	Commercial Real Estate	Lease Financing	Total Loans and Leases
Loans and leases:								
Individually evaluated for impairment ⁽¹⁾	\$ 8	\$ —	\$ —	\$ 8	\$ —	\$ —	\$ —	\$ —
Collectively evaluated for impairment	24,907	874	—	25,781	22,533	98	663	23,294
Total	\$ 24,915	\$ 874	\$ —	\$ 25,789	\$ 22,533	\$ 98	\$ 663	\$ 23,294

⁽¹⁾ As of December 31, 2018, we had one loan for \$8 million in the commercial and financial segment that was individually evaluated for impairment and deemed to be impaired. This loan was subsequently paid in full in January 2019. As of December 31, 2017, there were no impaired loans.

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In certain circumstances, we restructure troubled loans by granting concessions to borrowers experiencing financial difficulty. Once restructured, the loans are generally considered impaired until their maturity, regardless of whether the borrowers perform under the modified terms of the loans. There were no loans modified in troubled debt restructurings during the years ended December 31, 2018 and 2017.

We generally place loans on non-accrual status once principal or interest payments are 90 days contractually past due, or earlier if management determines that full collection is not probable. Loans 90 days past due, but considered both well-secured and in the process of collection, may be excluded from non-accrual status. When we place a loan on non-accrual status, the accrual of interest is discontinued and previously recorded but unpaid interest is reversed and generally charged against interest income. For loans on non-accrual status, income is recognized on a cash basis after recovery of principal, if and when interest payments are received. Loans may be removed from non-accrual status when repayment is reasonably assured and performance under the terms of the loan has been demonstrated. As of December 31, 2018 and December 31, 2017, we had no loans or leases on non-accrual status and no loans or leases contractually past due.

Allowance For Loan And Lease Losses

The allowance for loan and lease losses, recorded as a reduction of loans and leases in our consolidated statement of condition, represents management's estimate of incurred credit losses in our loan and lease portfolio as of the balance sheet date. The allowance is evaluated on a regular basis by management. Factors considered in evaluating the appropriate level of the allowance for each segment of our loan-and-lease portfolio include loss experience, the probability of default reflected in our internal risk rating of the counterparty's creditworthiness, current economic conditions and adverse situations that may affect the borrower's ability to repay, the estimated value of the underlying collateral, if any, the performance of individual credits in relation to contract terms, and other relevant factors.

Loans and leases are charged off to the allowance for loan and lease losses in the reporting period in which either an event occurs that confirms the existence of a loss on a loan or lease, including a sale of a loan below its carrying value, or a portion of a loan or lease is determined to be uncollectible. In addition, any impaired loan or lease that is determined to be collateral-dependent is reduced to an amount equal to the fair value of the collateral less costs to sell. A loan or lease is identified as collateral-dependent when management determines that it is probable that the underlying collateral will be the sole source of repayment.

Recoveries are recorded on a cash basis as adjustments to the allowance.

The following table presents activity in the allowance for loan and lease losses for the periods indicated:

(In millions)	Years Ended December 31,		
	2018	2017	2016
Allowance for loan and lease losses:			
Beginning balance	\$ 54	\$ 53	\$ 46
Provision for loan and lease losses ⁽¹⁾	15	2	10
Charge-offs ⁽¹⁾	(2)	(1)	(3)
Ending balance	\$ 67	\$ 54	\$ 53

⁽¹⁾ The provisions and charge-offs for loans and leases were primarily attributable to exposure to senior secured loans to non-investment grade borrowers, purchased in connection with our loans.

Loans and leases are reviewed on a regular basis, and any provisions for loan and lease losses that are recorded reflect management's estimate of the amount necessary to maintain the allowance for loan and lease losses at a level considered appropriate to absorb estimated incurred losses in the loan and lease portfolio.

Off-Balance Sheet Credit Exposures

The reserve for off-balance sheet credit exposures, recorded in accrued expenses and other liabilities in our consolidated statement of condition, represents management's estimate of probable credit losses primarily in outstanding letters and lines of credit and other credit-enhancement facilities provided to our clients and outstanding as of the balance sheet date.

The reserve is evaluated on a regular basis by management. Factors considered in evaluating the appropriate level of this reserve are similar to those considered with respect to the allowance for loan and lease losses. Provisions to maintain the reserve at a level considered by us to be appropriate to absorb estimated incurred credit losses in outstanding facilities are recorded in other expenses in our consolidated statement of income.

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Note 5. Goodwill and Other Intangible Assets

Goodwill represents the excess of the cost of an acquisition over the fair value of the net tangible and other intangible assets acquired. Other intangible assets represent purchased long-lived intangible assets, primarily client relationships, that can be distinguished from goodwill because of contractual rights or because the asset can be exchanged on its own or in combination with a related contract, asset or liability. Goodwill is not amortized, but is subject to at least annual evaluation for impairment. Other intangible assets, which are also subject to annual evaluation for impairment, are mainly related to client relationships, which are amortized on a straight-line basis over periods ranging from five to twenty years, technology assets, which are amortized on a straight-line basis over periods ranging from three to ten years, and core deposit intangible assets, which are amortized on a straight-line basis over periods

ranging from sixteen to twenty-two years, with such amortization recorded in other expenses in our consolidated statement of income.

Impairment of goodwill is deemed to exist if the carrying value of a reporting unit, including its allocation of goodwill and other intangible assets, exceeds its estimated fair value. Impairment of other intangible assets is deemed to exist if the balance of the other intangible asset exceeds the cumulative expected net cash inflows related to the asset over its remaining estimated useful life. If these reviews determine that goodwill or other intangible assets are impaired, the value of the goodwill or the other intangible asset is written down through a charge to other expenses in our consolidated statement of income. There were no impairments to goodwill or other intangible assets in 2018.

The following table presents changes in the carrying amount of goodwill during the periods indicated:

(In millions)	Investment Servicing ⁽¹⁾	Investment Management	Total
Goodwill:			
Ending balance December 31, 2016	\$ 5,550	\$ 264	\$ 5,814
Acquisitions	17	—	17
Divestitures and other reductions	(9)	—	(9)
Foreign currency translation	194	6	200
Ending balance December 31, 2017	5,752	270	6,022
Acquisitions ⁽¹⁾	1,512	—	1,512
Foreign currency translation	(84)	(4)	(88)
Ending balance December 31, 2018	\$ 7,180	\$ 266	\$ 7,446

⁽¹⁾ Investment Servicing includes our acquisition of Charles River Development on October 1, 2018, which is described in Note 1.

The following table presents changes in the net carrying amount of other intangible assets during the periods indicated:

(In millions)	Investment Servicing ⁽¹⁾	Investment Management	Total
Other intangible assets:			
Ending balance December 31, 2016	\$ 1,539	\$ 211	\$ 1,750
Acquisitions	16	—	16
Divestitures	(11)	—	(11)
Amortization	(183)	(31)	(214)
Foreign currency translation	71	1	72
Ending balance December 31, 2017	1,432	181	1,613
Acquisitions ⁽¹⁾	1,007	—	1,007
Amortization	(196)	(30)	(226)
Foreign currency translation	(25)	—	(25)
Ending balance December 31, 2018	\$ 2,218	\$ 151	\$ 2,369

⁽¹⁾ Investment Servicing includes our acquisition of Charles River Development on October 1, 2018, which is described in Note 1.

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The following table presents the gross carrying amount, accumulated amortization and net carrying amount of other intangible assets by type as of the dates indicated:

(In millions)	December 31, 2018			December 31, 2017		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Other intangible assets:						
Client relationships	\$ 3,262	\$ (1,605)	\$ 1,657	\$ 2,669	\$ (1,470)	\$ 1,199
Technology	389	(49)	340	47	(40)	7
Core deposits	676	(350)	326	686	(320)	366
Other	103	(57)	46	95	(54)	41
Total	\$ 4,430	\$ (2,061)	\$ 2,369	\$ 3,497	\$ (1,884)	\$ 1,613

Amortization expense related to other intangible assets was \$226 million, \$214 million and \$207 million in 2018, 2017 and 2016, respectively.

Expected future amortization expense for other intangible assets recorded as of December 31, 2018 is as follows:

(In millions)	Future Amortization
Years Ended December 31,	
2019	\$ 245
2020	243
2021	236
2022	233
2023	232

Note 6. Other Assets

The following table presents the components of other assets as of the dates indicated:

(In millions)	December 31,	
	2018	2017
Securities borrowed ⁽¹⁾	\$ 19,575	\$ 19,404
Derivative instruments, net	5,189	4,013
Bank-owned life insurance	3,323	3,242
Investments in joint ventures and other unconsolidated entities ⁽²⁾	2,882	2,226
Collateral, net	1,354	473
Receivable for securities settlement	531	188
Prepaid expenses	493	364
Accounts receivable	343	348
Income taxes receivable	129	97
Deferred tax assets, net of valuation allowance ⁽³⁾	113	113
Deposits with clearing organizations	58	120
Other	414	397
Total	\$ 34,404	\$ 30,985

⁽¹⁾ Refer to Note 11, for further information on the impact of collateral on our financial statement presentation of securities borrowing and securities lending transactions.

⁽²⁾ Includes certain equity securities held at fair value through profit and loss that were transferred from AFS as part of our adoption of ASU 2016-01. Refer to Note 1, for further information on this new accounting standard.

⁽³⁾ Deferred tax assets and liabilities recorded in our consolidated statement of condition are netted within the same tax jurisdiction.

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Note 7. Deposits

As of December 31, 2018, we had \$46.40 billion of time deposits outstanding, of which \$4.52 billion were wholesale CDs, \$41.57 billion were derived from client deposits (payable on demand to such clients) and held in a time deposit established by us as the agent and \$314 million were non-U.S. and all of which are scheduled to mature in 2019. As of December 31, 2017, we had \$39.73 billion of time deposits outstanding, of which \$4.75 billion were wholesale CDs, \$34.73 billion were derived from client deposits (payable on demand to such clients) and held in a time deposit established by us as the agent and \$252 million were non-U.S. As of December 31, 2018 and 2017, all U.S. and non-U.S. time deposits were in amounts of \$100,000 or more. Demand deposit overdrafts of \$5.44 billion and \$3.24 billion were included as loan balances at December 31, 2018 and 2017, respectively.

Note 8. Short-Term Borrowings

Our short-term borrowings include securities sold under repurchase agreements, short-term borrowings associated with our tax-exempt investment program (more fully described in Note 14), and other short-term borrowings.

Collectively, short-term borrowings had weighted-average interest rates of 0.88% and 0.25% in 2018 and 2017, respectively.

The following table presents information with respect to the amounts outstanding and weighted-average interest rates of the primary components of our short-term borrowings as of and for the years ended December 31:

(Dollars in millions)	2018			2017			2016											
	Securities Sold Under Repurchase Agreements			Tax-Exempt Investment Program			Other											
Balance as of December 31	\$	1,082	\$	2,842	\$	4,400	\$	931	\$	1,078	\$	1,158	\$	2,000	\$	—	\$	—
Maximum outstanding as of any month-end		3,441		4,302		5,572		1,078		1,158		1,726		2,000		—		29
Average outstanding during the year		2,048		3,683		4,113		1,023		1,127		1,512		nm		1		31
Weighted-average interest rate as of year-end		1.38%		.03%		.04%		1.74%		1.45%		.67%		2.68%		.00%		.00%
Weighted-average interest rate during the year		.62		.05		.02		1.46		.79		.36		nm		.00		.17

nm Not meaningful

Obligations to repurchase securities sold are recorded as a liability in our consolidated statement of condition. U.S. government securities with a fair value of \$1.10 billion underlying the repurchase agreements remained in our investment securities portfolio as of December 31, 2018.

The following table presents information about these U.S. government securities and the carrying value of the related repurchase agreements, including accrued interest, as of December 31, 2018.

(In millions)	U.S. Government Securities Sold		Repurchase Agreements ⁽¹⁾			
	Amortized Cost	Fair Value	Amortized Cost			
Overnight maturity	\$	1,127	\$	1,100	\$	1,082

⁽¹⁾ Collateralized by investment securities.

We maintain an agreement with a clearing organization that enables us to net all securities purchased under resale agreements and sold under repurchase agreements with counterparties that are also members of the clearing organization. As a result of this netting, the average balances of securities purchased under resale agreements and securities sold under repurchase agreements were reduced by \$35.74 billion in 2018 compared to \$31.15 billion in 2017.

State Street Bank currently maintains a line of credit of CAD 1.40 billion, or approximately \$1.03 billion, as of December 31, 2018, to support its Canadian securities processing operations. The line of credit has no stated termination date and is cancelable by either party with prior notice. As of December 31, 2018 and 2017, there was no balance outstanding on this line of credit.

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Note 9. Long-Term Debt

(Dollars in millions)						As of December 31,	
Issuance Date	Maturity Date	Coupon Rate	Seniority	Interest Due Dates	2018	2017	
Parent Company And Non-Banking Subsidiary Issuances							
August 18, 2015	August 18, 2025	3.55%	Senior notes	2/18; 8/18 ⁽¹⁾	\$ 1,268	\$ 1,287	
August 18, 2015	August 18, 2020	2.55%	Senior notes	2/18; 8/18	1,177	1,184	
November 19, 2013	November 20, 2023	3.7%	Senior notes	5/20; 11/20 ⁽¹⁾	1,006	1,021	
December 15, 2014	December 16, 2024	3.3%	Senior notes	6/16; 12/16 ⁽¹⁾	979	993	
May 15, 2013	May 15, 2023 ⁽²⁾	3.1%	Subordinated notes	5/15; 11/15 ⁽¹⁾	972	981	
April 30, 2007	June 15, 2047	Floating-rate	Junior subordinated debentures	3/15; 6/15; 9/15; 12/15	794	793	
May 15, 2017	May 15, 2023	2.653%	Fixed-to-floating rate senior notes	5/15; 11/15 ⁽¹⁾	734	740	
March 7, 2011	March 7, 2021	4.375%	Senior notes	3/7; 9/7 ⁽¹⁾	731	734	
May 19, 2016	May 19, 2021	1.95%	Senior notes	5/19; 11/19 ⁽¹⁾	725	724	
May 19, 2016	May 19, 2026	2.65%	Senior notes	5/19; 11/19 ⁽¹⁾	698	706	
December 3, 2018	December 3, 2029	4.141%	Fixed-to-floating rate senior notes	6/3; 12/3 ⁽¹⁾	513	—	
December 3, 2018	December 3, 2024	3.776%	Fixed-to-floating rate senior notes	6/3; 12/3 ⁽¹⁾	507	—	
August 18, 2015	August 18, 2020	Floating-rate	Senior notes	2/18; 5/18; 8/18; 11/18	499	499	
May 15, 1998	May 15, 2028	Floating-rate	Junior subordinated debentures	2/15; 5/15; 8/15; 11/15	150	150	
June 21, 1996	June 15, 2026 ⁽³⁾	7.35%	Senior notes	6/15; 12/15	150	150	
February 11, 2011	March 15, 2018	4.956%	Junior subordinated debentures	3/15; 9/15	—	502	
May 15, 2013	May 15, 2018	1.35%	Senior notes	5/15; 11/15	—	499	
Parent Company							
Long-term capital leases					190	250	
State Street Bank issuances							
September 24, 2003	October 15, 2018 ⁽²⁾	5.25%	Subordinated notes	4/15; 10/15	—	407	
Total long-term debt					<u>\$ 11,093</u>	<u>\$ 11,620</u>	

⁽¹⁾ We have entered into interest rate swap agreements, recorded as fair value hedges, to modify our interest expense on these senior and subordinated notes from a fixed rate to a floating rate. As of December 31, 2018 and 2017, the carrying value of long-term debt associated with these fair value hedges decreased \$157 million and \$87 million, respectively. Refer to Note 10 for additional information about fair value hedges.

⁽²⁾ The subordinated notes qualify for inclusion in tier 2 regulatory capital under current federal regulatory capital guidelines.

⁽³⁾ We may not redeem notes prior to their maturity.

Parent Company

As of December 31, 2018 and 2017, long-term capital leases included \$190 million and \$244 million, respectively, related to our One Lincoln Street headquarters building and related underground parking garage. Refer to Note 20 for additional information.

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Note 10. Derivative Financial Instruments

We use derivative financial instruments to support our clients' needs and to manage our interest rate and currency risks. These financial instruments consist of foreign exchange contracts such as forwards, futures and options contracts; interest rate contracts such as interest rate swaps (cross currency and single currency) and futures; and other derivative contracts. Derivatives instruments used for risk management purposes that are highly effective in offsetting the risk being hedged are generally designated as hedging instruments in hedge accounting relationships while others are economic hedges and not designated in hedge accounting relationships. Derivatives in hedge accounting relationships are disclosed according to the type of hedge, such as, fair value, cash flow, or net investment. Derivatives designated as hedging instruments in hedge accounting relationships are carried at fair value with change in fair value recognized in the consolidated statement of income or OCI, as appropriate. Derivatives not designated in hedge accounting relationships include those derivatives entered into to support client needs and derivatives used to manage interest rate or foreign currency risk associated with certain assets and liabilities. Such derivatives are carried at fair value with changes in fair value recognized in the consolidated statement of income.

Derivatives Not Designated as Hedging Instruments

We provide foreign exchange forward contracts and options in support of our client needs, and also act as a dealer in the currency markets. As part of our trading activities, we assume positions in both the foreign exchange and interest rate markets by buying and selling cash instruments and using derivative financial instruments, including foreign exchange forward contracts, foreign exchange and interest rate options, interest rate forward contracts, and interest rate futures. The entire change in the fair value of our non-hedging derivatives utilized in our trading activities are recorded in foreign exchange trading services revenue, and the entire change in fair value of our non-hedging derivatives utilized in our asset-and-liability management activities are recorded in net interest income.

We enter into stable value wrap derivative contracts with unaffiliated stable value funds that allow a stable value fund to provide book value coverage to its participants. These derivatives contracts qualify as guarantees as described in Note 12.

We grant deferred cash awards to certain of our employees as part of our employee incentive compensation plans. We account for these awards as derivative financial instruments, as the underlying referenced shares are not equity instruments of ours.

The fair value of these derivatives is referenced to the value of units in State Street-sponsored investment funds or funds sponsored by other unrelated entities. We re-measure these derivatives to fair value quarterly, and record the change in value in compensation and employee benefits expenses in our consolidated statement of income.

Derivatives Designated as Hedging Instruments

We adopted ASU 2017-12, in the fourth quarter of 2018, which better aligns hedge accounting with the economics of our risk management activities. Additional information on this new standard is provided in Note 1.

In connection with our asset-and-liability management activities, we use derivative financial instruments to manage our interest rate risk and foreign currency risk for certain assets and liabilities. At both the inception of the hedge and on an ongoing basis, we formally assess and document the effectiveness of a derivative designated in a hedging relationship and the likelihood that the derivative will be an effective hedge in future periods. We discontinue hedge accounting prospectively when we determine that the derivative is no longer highly effective in offsetting changes in fair value or cash flows of the underlying risk being hedged, the derivative expires, terminates or is sold, or management discontinues the hedge designation.

The risk management objective of a highly effective hedging strategy that qualifies for hedge accounting must be formally documented. The hedge documentation includes the derivative hedging instrument, the asset or liability or forecasted transaction, type of risk being hedged and method for assessing hedge effectiveness of the derivative prospectively and retrospectively. We use quantitative methods including regression analysis and cumulative dollar offset method, comparing the change in the fair value of the derivative to the change in fair value or the cash flows of the hedged item. We may also utilize qualitative methods such as matching critical terms and evaluation of any changes in those critical terms. Effectiveness is assessed and documented quarterly and if determined that the derivative is not highly effective at hedging the designated risk hedge accounting is discontinued.

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Fair Value Hedges

Derivatives designated as fair value hedges are utilized to mitigate the risk of changes in the fair values of recognized assets and liabilities, including long-term debt, AFS securities, and foreign currency investment securities. We use interest rate or foreign exchange contracts in this manner to manage our exposure to changes in the fair value of hedged items caused by changes in interest rates or foreign exchange rates.

Changes in the fair value of the derivative and changes in fair value of the hedged item due to changes in the hedged risk are recognized in earnings in the same line item. As of January 1, 2018, we prospectively changed the presentation of both hedging instruments and hedged items designated as fair value hedges of interest rate risk from processing fees and other revenue to net interest income. If a hedge is terminated, all remaining adjustments to the carrying amount of the hedged item shall be amortized over a period that is consistent with the amortization of other discounts or premiums associated with the hedged item.

Cash Flow Hedges

Derivatives designated as cash flow hedges are utilized to offset the variability of cash flows of recognized assets or liabilities or forecasted transactions. We have entered into foreign exchange contracts to hedge the change in cash flows attributable to foreign exchange movements in foreign currency denominated investment securities. Additionally, we have entered into interest rate swap agreements to hedge the forecasted cash flows associated with LIBOR-indexed floating-rate loans. The interest rate swaps synthetically convert the loan interest receipts from a variable-rate to a fixed-rate, thereby mitigating the risk attributable to changes in the LIBOR benchmark rate.

Changes in fair value of the derivatives designated as cash flow hedges are initially recorded in AOCI and then reclassified into earnings in the same period or periods during which the hedged forecasted transaction affects earnings and are presented in the same income statement line item as the earnings effect of the hedged item. If the hedge relationship is terminated, the change in fair value on the derivative recorded in AOCI is reclassified into earnings consistent with the timing of the hedged item. For hedge relationships that are discontinued because a forecasted transaction is not expected to occur according to the original hedge terms, any related derivative values recorded in AOCI are immediately recognized in earnings. As of December 31, 2018, the maximum maturity date of the underlying loans is approximately 4.9 years.

Net Investment Hedges

Derivatives categorized as net investment hedges are entered into to protect the net investment in our foreign operations against adverse changes in exchange rates. We use foreign exchange forward contracts to convert the foreign currency risk to U.S. dollars to mitigate our exposure to fluctuations in foreign exchange rates. The changes in fair value of the foreign exchange forward contracts are recorded, net of taxes, in the foreign currency translation component of OCI.

The following table presents the aggregate contractual, or notional, amounts of derivative financial instruments entered into in connection with our trading and asset-and-liability management activities as of the dates indicated:

(In millions)	December 31,	
	2018	2017
Derivatives not designated as hedging instruments:		
Interest rate contracts:		
Futures	\$ 2,348	\$ 2,392
Foreign exchange contracts:		
Forward, swap and spot	2,238,819	1,679,976
Options purchased	578	350
Options written	576	302
Futures	49	50
Commodity and equity contracts:		
Commodity ⁽¹⁾	—	16
Equity ⁽¹⁾	—	50
Other:		
Stable value contracts ⁽²⁾	26,634	26,653
Deferred value awards ⁽³⁾	434	473
Derivatives designated as hedging instruments:		
Interest rate contracts:		
Swap agreements	10,596	11,047
Foreign exchange contracts:		
Forward and swap	3,412	28,913

⁽¹⁾ Primarily composed of positions held by a consolidated sponsored investment fund.

⁽²⁾ The notional value of the stable value contracts generally represents our maximum exposure. However, exposure to various stable value contracts is contractually limited to substantially lower amounts than the notional values, which represent the total assets of the stable value funds.

⁽³⁾ Represents grants of deferred value awards to employees; refer to discussion in this note under "Derivatives Not Designated as Hedging Instruments."

Notional amounts are provided here as an indication of the volume of our derivative activity and serve as a reference to calculate the fair values of the derivative.

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The following tables present the fair value of derivative financial instruments, excluding the impact of master netting agreements, recorded in our consolidated statement of condition as of the dates indicated. The impact of master netting agreements is provided in Note 11.

(In millions)	December 31,			
	2018		2017	
	Derivative Assets ⁽¹⁾			
Derivatives not designated as hedging instruments:				
Foreign exchange contracts	\$	16,369	\$	11,477
Other derivative contracts		—		1
Total	\$	16,369	\$	11,478
Derivatives designated as hedging instruments:				
Foreign exchange contracts	\$	17	\$	120
Interest rate contracts		13		8
Total	\$	30	\$	128

⁽¹⁾ Derivative assets are included within other assets in our consolidated statement of condition.

⁽²⁾ Derivative liabilities are included within other liabilities in our consolidated statement of condition.

The following tables present the impact of our use of derivative financial instruments on our consolidated statement of income for the periods indicated:

(In millions)	Location of Gain (Loss) on Derivative in Consolidated Statement of Income	Years Ended December 31,		
		2018	2017	2016
		Amount of Gain (Loss) on Derivative Recognized in Consolidated Statement of Income		
Derivatives not designated as hedging instruments:				
Foreign exchange contracts	Foreign exchange trading services revenue	\$ 723	\$ 632	\$ 662
Foreign exchange contracts	Interest expense ⁽¹⁾	(41)	—	—
Foreign exchange contracts	Processing fees and other revenue	—	(23)	—
Interest rate contracts	Foreign exchange trading services revenue	(6)	8	(7)
Interest rate contracts	Processing fees and other revenue ⁽¹⁾	(1)	—	1
Credit derivative contracts	Foreign exchange trading services revenue	—	—	(1)
Other derivative contracts	Foreign exchange trading services revenue	5	—	(2)
Other derivative contracts	Compensation and employee benefits	(171)	(143)	(448)
Total		\$ 509	\$ 474	\$ 205

⁽¹⁾ 2018 includes approximately \$15 million of swap costs related to the first quarter of 2018 that were reclassified from Processing fees and other revenues to NII.

The following table shows the carrying amount and associated cumulative basis adjustments related to the application of hedge accounting that is included in the carrying amount of hedged assets and liabilities in fair value hedging relationships:

December 31, 2018	Hedged Items Currently Designated		Hedged Items No Longer Designated ⁽¹⁾	
	Carrying Amount of Assets (Liabilities) ⁽²⁾	Cumulative Hedge Accounting Basis Adjustments	Carrying Amount of Assets (Liabilities)	Cumulative Hedge Accounting Basis Adjustments
(In millions)				
Long-term debt	\$ 8,270	\$ (137)	\$ 1,197	\$ (20)
Available-for-sale securities	1,496	72	50	1
Total	\$ 9,766	\$ (65)	\$ 1,247	\$ (19)
December 31, 2017	Hedged Items Currently Designated		Hedged Items No Longer Designated ⁽¹⁾	
	Carrying Amount of Assets (Liabilities) ⁽²⁾	Cumulative Hedge Accounting Basis Adjustments	Carrying Amount of Assets (Liabilities)	Cumulative Hedge Accounting Basis Adjustments
(In millions)				
Long-term debt	\$ 8,465	\$ (95)	\$ 1,400	\$ 8
Available-for-sale securities	1,926	106	894	1
Total	\$ 10,391	\$ 11	\$ 2,294	\$ 9

⁽¹⁾ Represents hedged items no longer designated in qualifying fair value hedging relationships for which an associated basis adjustment exists at the balance sheet date.

⁽²⁾ Does not include the carrying amount of hedged items when only foreign currency risk is the designated hedged risk. The carrying amount excluded for investment securities was \$458 million and \$763 million for December 31, 2018 and 2017, respectively. The carrying amount of assets (liabilities) excludes deposits of zero and \$13.2 billion for December 31, 2018 and 2017, respectively.

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As of December 31, 2018 and 2017, the total notional amount of the interest rate swaps of fair value hedges was \$9.3 billion and \$9.7 billion, respectively.

The following tables present the impact of our use of derivative financial instruments on our consolidated statement of income for the periods indicated:

(In millions)	Location of Gain (Loss) on Derivative in Consolidated Statement of Income	Years Ended December 31,			Hedged Item in Fair Value Hedging Relationship	Location of Gain (Loss) on Hedged Item in Consolidated Statement of Income	Years Ended December 31,		
		2018	2017	2016			2018	2017	2016
Derivatives designated as fair value hedges:									
Foreign exchange contracts	Processing fees and other revenue	\$ (74)	\$ 18	\$ (6)	Investment securities	Processing fees and other revenue	\$ 74	\$ (18)	\$ 6
Foreign exchange contracts	Processing fees and other revenue	(328)	626	221	FX deposit	Processing fees and other revenue	328	(626)	(221)
Interest rate contracts ⁽¹⁾	Net interest income	31	—	—	Available-for-sale securities ⁽²⁾	Net interest income	(32)	—	—
Interest rate contracts ⁽¹⁾	Net interest income	(58)	—	—	Long-term debt	Net interest income	49	—	—
Interest rate contracts ⁽¹⁾	Processing fees and other revenue	—	39	43	Available-for-sale securities ⁽²⁾	Processing fees and other revenue	—	(37)	(40)
Interest rate contracts ⁽¹⁾	Processing fees and other revenue	—	(38)	(98)	Long-term debt	Processing fees and other revenue	—	39	100
Total		\$ (429)	\$ 645	\$ 160			\$ 419	\$ (642)	\$ (155)

⁽¹⁾ As of January 1, 2018, we prospectively changed the presentation of gains (losses) on hedging instruments and hedge items designated as fair value hedges of interest rate risk, and any resulting hedge ineffectiveness, from processing fees and other revenue to Nil.

⁽²⁾ In 2018, 2017 and 2016, \$24 million, \$22 million and \$23 million, respectively, of net unrealized gains on AFS investment securities designated in fair value hedges were recognized in OCI.

(In millions)	Years Ended December 31,			Location of Gain or (Loss) Reclassified from Accumulated Other Comprehensive Income into Income	Years Ended December 31,		
	2018	2017	2016		2018	2017	2016
Derivatives designated as cash flow hedges:							
Interest rate contracts	\$ (12)	\$ (14)	\$ —	Net interest income	\$ (1)	\$ 2	\$ —
Foreign exchange contracts	(12)	(104)	(39)	Net interest income	27	24	24
Total	\$ (24)	\$ (118)	\$ (39)		\$ 26	\$ 26	\$ 24
Derivatives designated as net investment hedges:							
Foreign exchange contracts	\$ 81	\$ (160)	\$ 109	Gains (losses) related to investment securities, net	\$ —	\$ —	\$ —
Total	\$ 81	\$ (160)	\$ 109		\$ —	\$ —	\$ —

Derivatives Netting and Credit Contingencies

Netting

Derivatives receivable and payable as well as cash collateral from the same counterparty are netted in the consolidated statement of condition for those counterparties with whom we have legally binding master netting agreements in place. In addition to cash collateral received and transferred presented on a net basis, we also receive and transfer collateral in the form of securities, which mitigate credit risk but are not eligible for netting. Additional information on netting is provided in Note 11.

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Credit Contingencies

Certain of our derivatives are subject to master netting agreements with our derivative counterparties containing credit risk-related contingent features, which requires us to maintain an investment grade credit rating with the various credit rating agencies. If our rating falls below investment grade, we would be in violation of the provisions, and counterparties to the derivatives could request immediate payment or demand full overnight collateralization on derivatives instruments in net liability positions. The aggregate fair value of all derivatives with credit contingent features and in a liability position as of December 31, 2018 totaled approximately \$2.1 billion, against which we provided \$1.1 billion of collateral in the normal course of business. If our credit related contingent features underlying these agreements were triggered as of December 31, 2018, the maximum additional collateral we would be required to post to our counterparties is approximately \$1.0 billion.

Note 11. Offsetting Arrangements

Certain of our transactions are subject to master netting agreements that allow us to net receivables and payables by contract and settlement type. For those legally enforceable contracts, we net receivables and payables with the same counterparty on our statement of condition.

In addition to netting receivables and payables with our derivatives counterparty where a legal and enforceable netting arrangement exist, we also net related cash collateral received and transferred up to the fair value exposure amount.

With respect to our securities financing arrangements, we net balances outstanding on our consolidated statement of condition for those transactions that met the netting requirements and were transacted under a legally enforceable netting arrangement with the counterparty.

Securities received as collateral under securities financing or derivatives transactions can be transferred as collateral in many instances. The securities received as proceeds under secured lending transactions are recorded at a value that approximates fair value in other assets in our consolidated statement of condition with a related liability to return the collateral, if we have the right to transfer or re-pledge the collateral.

As of December 31, 2018 and December 31, 2017, the value of securities received as collateral from third parties where we are permitted to transfer or re-pledge the securities totaled \$11.69 billion and \$2.47 billion, respectively, and the fair value of the portion that had been transferred or re-pledged as of the same dates was \$5.31 billion and \$15 million, respectively. The increase in 2018 is primarily attributable to underlying client assets related to our enhanced custody business, which assets clients have allowed us to transfer or re-pledge.

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The following tables present information about the offsetting of assets related to derivative contracts and secured financing transactions, as of the dates indicated:

		December 31, 2018				
		Gross Amounts of Recognized Assets ⁽¹⁾⁽²⁾	Gross Amounts Offset in Statement of Condition ⁽³⁾	Net Amounts of Assets Presented in Statement of Condition	Gross Amounts Not Offset in Statement of Condition	
(In millions)					Cash and Securities Received ⁽⁴⁾	Net Amount ⁽⁵⁾
Assets:						
Derivatives:						
Foreign exchange contracts	\$	16,386	\$ (10,223)	\$ 6,163	\$ —	\$ 6,163
Interest rate contracts ⁽⁶⁾		13	—	13	—	13
Other derivative contracts		—	—	—	—	—
Cash collateral and securities netting		NA	(987)	(987)	(220)	(1,207)
Total derivatives		16,399	(11,210)	5,189	(220)	4,969
Other financial instruments:						
Resale agreements and securities borrowing ⁽⁷⁾		116,143	(91,889)	24,254	(22,872)	1,382
Total derivatives and other financial instruments	\$	132,542	\$ (103,099)	\$ 29,443	\$ (23,092)	\$ 6,351
		December 31, 2017				
		Gross Amounts of Recognized Assets ⁽¹⁾⁽²⁾	Gross Amounts Offset in Statement of Condition ⁽³⁾	Net Amounts of Assets Presented in Statement of Condition	Gross Amounts Not Offset in Statement of Condition	
(In millions)					Cash and Securities Received ⁽⁴⁾	Net Amount ⁽⁵⁾
Derivatives:						
Foreign exchange contracts	\$	11,597	\$ (5,548)	\$ 6,049	\$ —	\$ 6,049
Interest rate contracts ⁽⁶⁾		8	—	8	—	8
Other derivative contracts		1	—	1	—	1
Cash collateral and securities netting		NA	(2,045)	(2,045)	(124)	(2,169)
Total derivatives		11,606	(7,593)	4,013	(124)	3,889
Other financial instruments:						
Resale agreements and securities borrowing ⁽⁷⁾		70,079	(47,434)	22,645	(22,645)	—
Total derivatives and other financial instruments	\$	81,685	\$ (55,027)	\$ 26,658	\$ (22,769)	\$ 3,889

⁽¹⁾ Amounts include all transactions regardless of whether or not they are subject to an enforceable netting arrangement.

⁽²⁾ Refer to Note 1 and Note 2 for additional information about the measurement basis of derivative instruments.

⁽³⁾ Amounts subject to netting arrangements which have been determined to be legally enforceable and eligible for netting in the consolidated statement of condition.

⁽⁴⁾ Includes securities in connection with our securities borrowing transactions.

⁽⁵⁾ Includes amounts secured by collateral not determined to be subject to enforceable netting arrangements.

⁽⁶⁾ Variation margin payments presented as settlements rather than collateral.

⁽⁷⁾ Included in the \$24.3 billion as of December 31, 2018 were \$4.7 billion of resale agreements and \$19.6 billion of collateral provided related to securities borrowing. Included in the \$22.6 billion as of December 31, 2017 were \$3.2 billion of resale agreements and \$19.4 billion of collateral provided related to securities borrowing. Resale agreements and collateral provided related to securities borrowing were recorded in securities purchased under resale agreements and other assets, respectively, in our consolidated statement of condition. Refer to Note 12 for additional information with respect to principal securities finance transactions.

⁽⁸⁾ Not applicable

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The following tables present information about the offsetting of liabilities related to derivative contracts and secured financing transactions, as of the dates indicated:

Liabilities:		December 31, 2018					
(In millions)	Gross Amounts of Recognized Liabilities ⁽¹⁾⁽²⁾	Gross Amounts Offset in Statement of Condition ⁽³⁾	Net Amounts of Liabilities Presented in Statement of Condition	Gross Amounts Not Offset in Statement of Condition			
				Cash and Securities Received ⁽⁴⁾	Net Amount ⁽⁵⁾		
Derivatives:							
Foreign exchange contracts	\$ 16,522	\$ (10,223)	\$ 6,299	\$ —	\$ 6,299		
Interest rate contracts ⁽⁶⁾	71	—	71	—	71		
Other derivative contracts	214	—	214	—	214		
Cash collateral and securities netting	NA	(1,341)	(1,341)	(215)	(1,556)		
Total derivatives	16,807	(11,564)	5,243	(215)	5,028		
Other financial instruments:							
Repurchase agreements and securities lending ⁽⁷⁾	104,494	(91,889)	12,605	(11,543)	1,062		
Total derivatives and other financial instruments	\$ 121,301	\$ (103,453)	\$ 17,848	\$ (11,758)	\$ 6,090		

Liabilities:		December 31, 2017					
(In millions)	Gross Amounts of Recognized Liabilities ⁽¹⁾⁽²⁾	Gross Amounts Offset in Statement of Condition ⁽³⁾	Net Amounts of Liabilities Presented in Statement of Condition	Gross Amounts Not Offset in Statement of Condition			
				Cash and Securities Received ⁽⁴⁾	Net Amount ⁽⁵⁾		
Derivatives:							
Foreign exchange contracts	\$ 11,467	\$ (5,548)	\$ 5,919	\$ —	\$ 5,919		
Interest rate contracts ⁽⁶⁾	100	—	100	—	100		
Other derivative contracts	285	—	285	—	285		
Cash collateral and securities netting	NA	(422)	(422)	(450)	(872)		
Total derivatives	11,852	(5,970)	5,882	(450)	5,432		
Other financial instruments:							
Repurchase agreements and securities lending ⁽⁷⁾	54,127	(47,434)	6,693	(4,299)	2,394		
Total derivatives and other financial instruments	\$ 65,979	\$ (53,404)	\$ 12,575	\$ (4,749)	\$ 7,826		

⁽¹⁾ Amounts include all transactions regardless of whether or not they are subject to an enforceable netting arrangement.

⁽²⁾ Refer to Note 1 and Note 2 for additional information about the measurement basis of derivative instruments.

⁽³⁾ Amounts subject to netting arrangements which have been determined to be legally enforceable and eligible for netting in the consolidated statement of condition.

⁽⁴⁾ Includes securities provided in connection with our securities lending transactions.

⁽⁵⁾ Includes amounts secured by collateral not determined to be subject to enforceable netting arrangements.

⁽⁶⁾ Variation margin payments presented as settlements rather than collateral.

⁽⁷⁾ Included in the \$12.6 billion as of December 31, 2018 were \$1.1 billion of repurchase agreements and \$11.5 billion of collateral received related to securities lending transactions. Included in the \$6.7 billion as of December 31, 2017 were \$2.8 billion of repurchase agreements and \$3.9 billion of collateral received related to securities lending transactions. Repurchase agreements and collateral received related to securities lending were recorded in securities sold under repurchase agreements and accrued expenses and other liabilities, respectively, in our consolidated statement of condition. Refer to Note 12 for additional information with respect to principal securities finance transactions.

^{NA} Not applicable

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The securities transferred under resale and repurchase agreements typically are U.S. Treasury, agency and agency MBS. In our principal securities borrowing and lending arrangements, the securities transferred are predominantly equity securities and some corporate debt securities. The fair value of the securities transferred may increase in value to an amount greater than the amount received under our repurchase and securities lending arrangements, which exposes the Company to counterparty risk. We require the review of the price of the underlying securities in

relation to the carrying value of the repurchase agreements and securities lending arrangements on a daily basis and when appropriate, adjust the cash or security to be obtained or returned to counterparties that is reflective of the required collateral levels.

The following table summarizes our repurchase agreements and securities lending transactions by category of collateral pledged and remaining maturity of these agreements as of the periods indicated:

(In millions)	As of December 31, 2018			As of December 31, 2017 ⁽¹⁾
	Overnight and Continuous	Up to 30 Days	Total	Overnight and Continuous
Repurchase agreements:				
U.S. Treasury and agency securities	\$ 88,904	\$ —	\$ 88,904	\$ 43,072
Total	88,904	—	88,904	43,072
Securities lending transactions:				
US Treasury and agency securities	249	—	249	—
Corporate debt securities	278	—	278	35
Equity securities	6,426	137	6,563	11,020
Other ⁽²⁾	8,500	—	8,500	—
Total	15,453	137	15,590	11,055
Gross amount of recognized liabilities for repurchase agreements and securities lending	\$ 104,357	\$ 137	\$ 104,494	\$ 54,127

⁽¹⁾ As of December 31, 2017, there were no balances with contractual maturities up to 30 days.

⁽²⁾ Represents a security interest in underlying client assets related to our enhanced custody business, which assets clients have allowed us to transfer and re-pledge.

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Note 12. Commitments and Guarantees

The following table presents the aggregate gross contractual amounts of our off-balance sheet commitments and off-balance sheet guarantees as of the dates indicated.

(In millions)	December 31, 2018	December 31, 2017
Commitments:		
Unfunded credit facilities	\$ 28,951	\$ 26,488
Guarantees⁽¹⁾:		
Indemnified securities financing	\$ 342,337	\$ 381,817
Standby letters of credit	2,985	3,158

⁽¹⁾The potential losses associated with these guarantees equal the gross contractual amounts and do not consider the value of any collateral or reflect any participations to independent third parties.

Unfunded Credit Facilities

Unfunded credit facilities consist of liquidity facilities for our fund and municipal lending clients and undrawn lines of credit related to senior secured bank loans.

As of December 31, 2018, approximately 73% of our unfunded commitments to extend credit expire within one year. Since many of these commitments are expected to expire or renew without being drawn upon, the gross contractual amounts do not necessarily represent our future cash requirements.

Indemnified Securities Financing

On behalf of our clients, we lend their securities, as agent, to brokers and other institutions. In most circumstances, we indemnify our clients for the fair market value of those securities against a failure of the borrower to return such securities. We require the borrowers to maintain collateral in an amount in excess of 100% of the fair market value of the securities borrowed. Securities on loan and the collateral are revalued daily to determine if additional collateral is necessary or if excess collateral is required to be returned to the borrower. Collateral received in connection with our securities lending services is held by us as agent and is not recorded in our consolidated statement of condition.

The cash collateral held by us as agent is invested on behalf of our clients. In certain cases, the cash collateral is invested in third-party repurchase agreements, for which we indemnify the client against the loss of the principal invested. We require the counterparty to the indemnified repurchase agreement to provide collateral in an amount in excess of 100% of the amount of the repurchase agreement. In our role as agent, the indemnified repurchase agreements and the related collateral held by us are not recorded in our consolidated statement of condition.

The following table summarizes the aggregate fair values of indemnified securities financing and related collateral, as well as collateral invested in indemnified repurchase agreements, as of the dates indicated:

(In millions)	December 31, 2018	December 31, 2017
Fair value of indemnified securities financing	\$ 342,337	\$ 381,817
Fair value of cash and securities held by us, as agent, as collateral for indemnified securities financing	357,893	400,828
Fair value of collateral for indemnified securities financing invested in indemnified repurchase agreements	42,610	61,270
Fair value of cash and securities held by us or our agents as collateral for investments in indemnified repurchase agreements	45,064	65,272

In certain cases, we participate in securities finance transactions as a principal. As a principal, we borrow securities from the lending client and then lend such securities to the subsequent borrower, either our client or a broker/dealer. Our right to receive and obligation to return collateral in connection with our securities lending transactions are recorded in other assets and other liabilities, respectively, in our consolidated statement of condition. As of December 31, 2018 and December 31, 2017, we had approximately \$19.58 billion and \$19.40 billion, respectively, of collateral provided and approximately \$11.52 billion and \$3.85 billion, respectively, of collateral received from clients in connection with our participation in principal securities finance transactions.

Stable Value Protection

Stable value funds wrapped by us are high-quality diversified portfolios of short-intermediate duration fixed-income investments. Stable value contracts are derivative contracts that also qualify as guarantees. The notional amount under non-hedging derivatives, provided in Note 10, generally represents our maximum exposure under these derivatives contracts. However, exposure to various stable value contracts is contractually limited to substantially lower amounts than the notional values, which represent the total assets of the stable value funds.

Standby Letters of Credit

Standby letters of credit provide credit enhancement to our municipal clients to support the issuance of capital markets financing.

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Note 13. Contingencies

Legal and Regulatory Matters

In the ordinary course of business, we and our subsidiaries are involved in disputes, litigation, and governmental or regulatory inquiries and investigations, both pending and threatened. These matters, if resolved adversely against us or settled, may result in monetary awards or payments, fines and penalties or require changes in our business practices. The resolution or settlement of these matters is inherently difficult to predict. Based on our assessment of these pending matters, we do not believe that the amount of any judgment, settlement or other action arising from any pending matter is likely to have a material adverse effect on our consolidated financial condition. However, an adverse outcome or development in certain of the matters described below could have a material adverse effect on our consolidated results of operations for the period in which such matter is resolved, or an accrual is determined to be required, on our consolidated financial condition, or on our reputation.

We evaluate our needs for accruals of loss contingencies related to legal and regulatory proceedings on a case-by-case basis. When we have a liability that we deem probable, and we deem the amount of such liability can be reasonably estimated as of the date of our consolidated financial statements, we accrue our estimate of the amount of loss. We also consider a loss probable and establish an accrual when we make, or intend to make, an offer of settlement. Once established, an accrual is subject to subsequent adjustment as a result of additional information. The resolution of legal and regulatory proceedings and the amount of reasonably estimable loss (or range thereof) are inherently difficult to predict, especially in the early stages of proceedings. Even if a loss is probable, an amount (or range) of loss might not be reasonably estimated until the later stages of the proceeding due to many factors such as the presence of complex or novel legal theories, the discretion of governmental authorities in seeking sanctions or negotiating resolutions in civil and criminal matters, the pace and timing of discovery and other assessments of facts and the procedural posture of the matter (collectively, "factors influencing reasonable estimates").

As of December 31, 2018, our aggregate accruals for loss contingencies for legal and regulatory matters totaled approximately \$38 million. To the extent that we have established accruals in our consolidated statement of condition for probable loss contingencies, such accruals may not be sufficient to cover our ultimate financial exposure associated with any settlements or judgments. Any such ultimate financial exposure, or proceedings to which we may become subject in the future, could have a material adverse effect on our

businesses, on our future consolidated financial statements or on our reputation.

As of December 31, 2018, for those matters for which we have accrued probable loss contingencies (including the Invoicing Matter described below) and for other matters for which loss is reasonably possible (but not probable) in future periods, and for which we are able to estimate a range of reasonably possible loss, our estimate of the aggregate reasonably possible loss (in excess of any accrued amounts) ranges up to approximately \$300 million. Our estimate with respect to the aggregate reasonably possible loss is based upon currently available information and is subject to significant judgment and a variety of assumptions and known and unknown uncertainties, which may change quickly and significantly from time to time, particularly if and as we engage with applicable governmental agencies or plaintiffs in connection with a proceeding. Also, the matters underlying the reasonably possible loss will change from time to time. As a result, actual results may vary significantly from the current estimate.

In certain pending matters, it is not currently feasible to reasonably estimate the amount or a range of reasonably possible loss, and such losses, which may be significant, are not included in the estimate of reasonably possible loss discussed above. This is due to, among other factors, the factors influencing reasonable estimates described above. An adverse outcome in one or more of the matters for which we have not estimated the amount or a range of reasonably possible loss, individually or in the aggregate, could have a material adverse effect on our businesses, on our future consolidated financial statements or on our reputation. Given that our actual losses from any legal or regulatory proceeding for which we have provided an estimate of the reasonably possible loss could significantly exceed such estimate, and given that we cannot estimate reasonably possible loss for all legal and regulatory proceedings as to which we may be subject now or in the future, no conclusion as to our ultimate exposure from current pending or potential legal or regulatory proceedings should be drawn from the current estimate of reasonably possible loss.

The following discussion provides information with respect to significant legal, governmental and regulatory matters.

Invoicing Matter

In 2015, we determined that we had incorrectly invoiced clients for certain expenses. We have reimbursed most of our affected customers for those expenses, and we have implemented enhancements to our billing processes. In connection with our enhancements to our billing processes, we continue to review historical billing practices and may from time to time identify additional remediation. In 2017, we identified an additional area of incorrect expense billing

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associated with mailing services in our retirement services business. The accrual for loss contingencies at December 31, 2018 included an estimate of the amount we anticipate reimbursing clients due to that error. We currently expect the cumulative total of our payments to customers for these invoicing errors, including the error in the retirement services business, to be at least \$380 million, all of which has been paid or is accrued. However, we may identify additional remediation costs.

In March 2017, a purported class action was commenced against us alleging that our invoicing practices violated duties owed to retirement plan customers under ERISA. In addition, we have received a purported class action demand letter alleging that our invoicing practices were unfair and deceptive under Massachusetts law. A class of customers, or particular customers, may assert that we have not paid to them all amounts incorrectly invoiced, and may seek double or treble damages under Massachusetts law.

We are also cooperating with investigations by governmental and regulatory authorities on these matters, including the civil and criminal divisions of the DOJ, the SEC, the DOL and the Massachusetts Attorney General, which could result in significant fines or other sanctions, civil and criminal, against us. If these governmental or regulatory authorities were to conclude that all or a portion of the billing errors merited civil or criminal sanctions, any fine or other penalty could be a significant percentage, or a multiple of, the portion of the overcharging serving as the basis of such a claim or of the full amount overcharged. The governmental and regulatory authorities have significant discretion in civil and criminal matters as to the fines and other penalties they may seek to impose. The severity of such fines or other penalties could take into account factors such as the amount and duration of our incorrect invoicing, the government's or regulator's assessment of the conduct of our employees, as well as prior conduct such as that which resulted in our January 2017 deferred prosecution agreement in connection with transition management services and our settlement of civil claims regarding our indirect foreign exchange business. The staff of the SEC has informed us that it intends to ask the SEC for permission to bring an action against us asserting that we overcharged clients that are registered investment companies for custody expenses in violation of §§ 31(a), 34(b) and 37 of the Investment Company Act of 1940, and Rules 31a-1(a) and 31a-1(b) thereunder. We have submitted to the staff of the SEC a response, which included a settlement proposal, which the staff has indicated is too low, and we remain in discussions with the staff as to a potential settlement. Our aggregate accruals for loss contingencies for legal and regulatory matters as of December 31, 2018 include the amount of penalties reflected in our settlement proposal. There can be no

assurance that any settlement, whether with the SEC or other governmental authorities, will be reached or, if so, the amount of the settlement or its impact on other claims relating to these matters. In the first half of 2019, it is likely that discussions will commence with the DOJ regarding a potential resolution of their investigation regarding this matter, which will then enable us to better assess the potential penalties and/or other sanctions they will be seeking. The aggregate amount of penalties that may potentially be imposed upon us in connection with the resolution of all outstanding investigations into our historical billing practices could be multiples of the potential penalties being discussed with the staff of the SEC.

The outcome of any of these proceedings and, in particular, any criminal sanction could materially adversely affect our results of operations and could have significant collateral consequences for our business and reputation.

Federal Reserve/Massachusetts Division of Banks Written Agreement

On June 1, 2015, we entered into a written agreement with the Federal Reserve and the Massachusetts Division of Banks relating to deficiencies identified in our compliance programs with the requirements of the Bank Secrecy Act, AML regulations and U.S. economic sanctions regulations promulgated by OFAC. As part of this enforcement action, we have been required to, among other things, implement improvements to our compliance programs. If we fail to comply with the terms of the written agreement, we may become subject to fines and other regulatory sanctions, which may have a material adverse effect on us.

Shareholder Litigation

A shareholder of ours has filed a purported class action complaint against the Company alleging that the Company's financial statements in its annual reports for the 2011-2014 period were misleading due to the inclusion of revenues associated with the invoicing matter referenced above and the facts surrounding our 2017 settlements with the U.S. government relating to our transition management business. The Court has preliminarily approved a class settlement in this matter for \$4.9 million. The final fairness hearing is scheduled to take place in April 2019. In addition, a shareholder of ours has filed a derivative complaint against the Company's past and present officers and directors to recover alleged losses incurred by the Company relating to the invoicing matter and to our Ohio public retirement plans matter.

Income Taxes

In determining our provision for income taxes, we make certain judgments and interpretations with respect to tax laws in jurisdictions in which we have business operations. Because of the complex nature of

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these laws, in the normal course of our business, we are subject to challenges from U.S. and non-U.S. income tax authorities regarding the amount of income taxes due. These challenges may result in adjustments to the timing or amount of taxable income or deductions or the allocation of taxable income among tax jurisdictions. We recognize a tax benefit when it is more likely than not that our position will result in a tax deduction or credit. Unrecognized tax benefits of approximately \$108 million as of December 31, 2018 increased from \$94 million as of December 31, 2017.

We are presently under audit by a number of tax authorities, and the Internal Revenue Service is currently reviewing our U.S. income tax returns for the tax years 2014 and 2015. The earliest tax year open to examination in jurisdictions where we have material operations is 2012. Management believes that we have sufficiently accrued liabilities as of December 31, 2018 for potential tax exposures.

Note 14. Variable Interest Entities

We are involved, in the normal course of our business, with various types of special purpose entities, some of which meet the definition of VIEs. When evaluating a VIE for consolidation, we must determine whether or not we have a variable interest in the entity. Variable interests are investments or other interests that absorb portions of an entity's expected losses or receive portions of the entity's expected returns. If it is determined that we do not have a variable interest in the VIE, no further analysis is required and we do not consolidate the VIE. If we hold a variable interest in a VIE, we are required by U.S. GAAP to consolidate that VIE when we have a controlling financial interest in the VIE and therefore are deemed to be the primary beneficiary. We are determined to have a controlling financial interest in a VIE when it has both the power to direct the activities of the VIE that most significantly impact the VIE's economic performance and the obligation to absorb losses or the right to receive benefits of the VIE that could potentially be significant to that VIE. This determination is evaluated periodically as facts and circumstances change.

Asset-Backed Investment Securities

We invest in various forms of ABS, which we carry in our investment securities portfolio. These ABS meet the U.S. GAAP definition of asset securitization entities, which are considered to be VIEs. We are not considered to be the primary beneficiary of these VIEs since we do not have control over their activities. Additional information about our ABS is provided in Note 3.

Tax-Exempt Investment Program

In the normal course of our business, we structure and sell certificated interests in pools of tax-exempt investment grade assets, principally to our mutual fund clients. We structure these pools as partnership trusts, and the assets and liabilities of the trusts are recorded in our consolidated statement of condition as AFS investment securities and other short-term borrowings. As of December 31, 2018 and December 31, 2017, we carried AFS investment securities, composed of securities related to state and political subdivisions, with a fair value of \$1.05 billion and \$1.25 billion, respectively, and other short-term borrowings of \$0.93 billion and \$1.08 billion, respectively, in our consolidated statement of condition in connection with these trusts. The interest income and interest expense generated by the investments and certificated interests, respectively, are recorded as components of NII when earned or incurred.

We transfer assets to the trusts from our investment securities portfolio at adjusted book value, and the trusts finance the acquisition of these assets by selling certificated interests issued by the trust to third-party investors and to us as residual holder. These transfers do not meet the de-recognition criteria defined by U.S. GAAP, and therefore, the assets continue to be recorded in our consolidated financial statements. The trusts had a weighted-average life of approximately 3.6 years as of December 31, 2018, compared to approximately 4.6 years as of December 31, 2017.

Under separate legal agreements, we provide liquidity facilities to these trusts and, with respect to certain securities, letters of credit. As of December 31, 2018, our commitments to the trusts under these liquidity facilities and/or letters of credit totaled \$946 million, and neither of the liquidity facilities nor letters of credit were utilized. In the event that our obligations under these liquidity facilities are triggered, no material impact to our consolidated results of operations or financial condition is expected to occur, because the securities are already recorded at fair value in our consolidated statement of condition. In addition, neither creditors or third-party investors in the trusts have any recourse to our general credit other than through the liquidity facilities and letters of credit noted above.

Interests in Investment Funds

In the normal course of business, we manage various types of investment funds through State Street Global Advisors in which our clients are investors, including State Street Global Advisors commingled investment vehicles and other similar investment structures. The majority of our AUM are contained within such funds. The services we provide to these funds generate management fee revenue. From time to time, we may invest cash in the funds in order for the funds to establish a performance history for newly-launched

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strategies, referred to as seed capital, or for other purposes.

With respect to our interests in funds that meet the definition of a VIE, a primary beneficiary assessment is performed to determine if we have a controlling financial interest. As part of our assessment, we consider all the facts and circumstances regarding the terms and characteristics of the variable interest(s), the design and characteristics of the fund and the other involvements of the enterprise with the fund. Upon consolidation of certain funds, we retain the specialized investment company accounting rules followed by the underlying funds.

All of the underlying investments held by such consolidated funds are carried at fair value, with corresponding changes in the investments' fair values reflected in foreign exchange trading services revenue in our consolidated statement of income. When we no longer control these funds due to a reduced ownership interest or other reasons, the funds are de-consolidated and accounted for under another accounting method if we continue to maintain investments in the funds.

As of December 31, 2018, we do not have any consolidated sponsored investment funds. As of December 31, 2017, the aggregate assets and liabilities of our consolidated sponsored investment funds totaled approximately \$150 million and \$50 million, respectively.

Our conclusion to consolidate a fund may vary from period to period, most commonly as a result of fluctuation in our ownership interest as a result of changes in the number of fund shares held by either us or by third parties. Given that the funds follow specialized investment company accounting rules which prescribe fair value, a de-consolidation generally would not result in gains or losses for us.

The net assets of any consolidated fund are solely available to settle the liabilities of the fund and to settle any investors' ownership redemption requests, including any seed capital invested in the fund by us. We are not contractually required to provide financial or any other support to any of our funds. In addition, neither creditors nor equity investors in the funds have any recourse to our general credit.

As of December 31, 2018 and December 31, 2017, we managed certain funds, considered VIEs, in which we held a variable interest but for which we were not deemed to be the primary beneficiary. Our potential maximum loss exposure related to these unconsolidated funds totaled approximately \$70 million and \$72 million as of December 31, 2018 and December 31, 2017, respectively, and represented the carrying value of our investments, which are recorded in either AFS investment securities or other assets in our consolidated statement of condition. The amount of loss we may recognize during any period is limited to the

carrying amount of our investments in the unconsolidated funds.

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Note 15. Shareholders' Equity

Preferred Stock

In September 2018, we issued 500,000 depositary shares, each representing 1/100th ownership interest in a share of our fixed-to-floating rate non-cumulative perpetual preferred stock, Series H, without par value per share, with a liquidation preference of \$100,000 per share (equivalent to \$1,000 per depositary share), in a public offering. The aggregate proceeds, net of underwriting discounts, commissions and other issuance costs, were approximately \$500 million, and were used to fund a portion of our acquisition of Charles River Development on October 1, 2018. Dividends on the Series H Preferred stock are paid semi-annually and commenced on December 15, 2018, with the first dividend paid on a pro-rata basis.

The following table summarizes selected terms of each of the series of the preferred stock issued and outstanding as of December 31, 2018:

	Issuance Date	Depositary Shares Issued	Ownership Interest Per Depositary Share	Liquidation Preference Per Share	Liquidation Preference Per Depositary Share	Net Proceeds of Offering (In millions)	Redemption Date ⁽¹⁾
Preferred Stock⁽²⁾:							
Series C	August 2012	20,000,000	1/4,000th	\$ 100,000	\$ 25	\$ 488	September 15, 2017
Series D	February 2014	30,000,000	1/4,000th	100,000	25	742	March 15, 2024
Series E	November 2014	30,000,000	1/4,000th	100,000	25	728	December 15, 2019
Series F	May 2015	750,000	1/100th	100,000	1,000	742	September 15, 2020
Series G	April 2016	20,000,000	1/4,000th	100,000	25	493	March 15, 2026
Series H	September 2018	500,000	1/100th	100,000	1,000	494	December 15, 2023

⁽¹⁾ On the redemption date, or any dividend declaration date thereafter, the preferred stock and corresponding depositary shares may be redeemed by us, in whole or in part, at the liquidation price per share and liquidation price per depositary share plus any declared and unpaid dividends, without accumulation of any undeclared dividends.

⁽²⁾ The preferred stock and corresponding depositary shares may be redeemed at our option in whole, but not in part, prior to the redemption date upon the occurrence of a regulatory capital treatment event, as defined in the certificate of designation, at a redemption price equal to the liquidation price per share and liquidation price per depositary share plus any declared and unpaid dividends, without accumulation of any undeclared dividends.

The following table presents the dividends declared for each of the series of preferred stock issued and outstanding for the periods indicated:

	Years Ended December 31,					
	2018			2017		
	Dividends Declared per Share	Dividends Declared per Depositary Share	Total (In millions)	Dividends Declared per Share	Dividends Declared per Depositary Share	Total (In millions)
Preferred Stock:						
Series C	\$ 5,250	\$ 1.32	\$ 26	\$ 5,250	\$ 1.32	\$ 26
Series D	5,900	1.48	44	5,900	1.48	44
Series E	6,000	1.52	45	6,000	1.52	45
Series F	5,250	52.50	40	5,250	52.50	40
Series G	5,352	1.32	27	5,352	1.32	27
Series H	1,219	12.18	6	—	—	—
Total			\$ 188			\$ 182

In January 2019, we declared dividends on our Series C, D, E, F and G preferred stock of approximately \$1,313, \$1,475, \$1,500, \$2,625 and \$1,338, respectively, per share, or approximately \$0.33, \$0.37, \$0.38, \$26.25 and \$0.33, respectively, per depositary share. These dividends total approximately \$6 million, \$11 million, \$11 million, \$20 million and \$7 million on our Series C, D, E, F and G preferred stock, respectively, which will be paid in March 2019.

Common Stock

In July 2018, we completed a public offering of approximately 13.24 million shares of our common stock. The offering price was \$86.93 per share and net proceeds totaled approximately \$1.15 billion, which were used to fund a portion of our acquisition of Charles River Development on October 1, 2018.

In June 2017, our Board approved a common stock purchase program authorizing the purchase of up to \$1.4 billion of our common stock through June 30, 2018 (the 2017 Program). In June 2018, our Board approved a common

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stock purchase program authorizing the purchase of up to \$1.2 billion of our common stock through June 30, 2019 (the 2018 Program). We did not repurchase any common stock during either the second quarter of 2018 under the 2017 Program or the third and fourth quarters of 2018 under the 2018 Program. The table below presents the activity under our common stock purchase program during the period indicated:

	Year Ended December 31, 2018 ⁽¹⁾		
	Shares Acquired (In millions)	Average Cost per Share	Total Acquired (In millions)
2017 Program	3.3	\$ 105.31	\$ 350

⁽¹⁾ During the year ended December 31, 2018, there were no shares repurchased under the 2018 Program.

The table below presents the dividends declared on common stock for the periods indicated:

	Years Ended December 31,			
	2018		2017	
	Dividends Declared per Share	Total (In millions)	Dividends Declared per Share	Total (In millions)
Common Stock	\$ 1.78	\$ 665	\$ 1.60	\$ 596

Accumulated Other Comprehensive Income (Loss)

The following table presents the after-tax components of AOCI as of the dates indicated:

(In millions)	Years Ended December 31,		
	2018	2017	2016
Net unrealized (losses) gains on cash flow hedges	\$ (89)	\$ (56)	\$ 229
Net unrealized (losses) gains on available-for-sale securities portfolio	(193)	148	(225)
Net unrealized gains related to reclassified available-for-sale securities	58	19	25
Net unrealized (losses) gains on available-for-sale securities	(135)	167	(200)
Net unrealized (losses) on available-for-sale securities designated in fair value hedges	(40)	(64)	(86)
Net unrealized gains (losses) on hedges of net investments in non-U.S. subsidiaries	16	(65)	95
Other-than-temporary impairment on held-to-maturity securities related to factors other than credit	(2)	(6)	(9)
Net unrealized (losses) on retirement plans	(143)	(170)	(194)
Foreign currency translation	(963)	(815)	(1,875)
Total	\$ (1,356)	\$ (1,009)	\$ (2,040)

The following table presents changes in AOCI by component, net of related taxes, for the periods indicated:

(In millions)	Net Unrealized Gains (Losses) on Cash Flow Hedges	Net Unrealized Gains (Losses) on Available-for-Sale Securities	Net Unrealized Gains (Losses) on Hedges of Net Investments in Non-U.S. Subsidiaries	Other-Than-Temporary Impairment on Held-to- Maturity Securities	Net Unrealized Losses on Retirement Plans	Foreign Currency Translation	Total
	Balance as of December 31, 2016	\$ 229	\$ (286)	\$ 95	\$ (9)	\$ (194)	\$ (1,875)
Other comprehensive income (loss) before reclassifications	(285)	412	(160)	3	—	1,059	1,029
Amounts reclassified into (out of) earnings	—	(23)	—	—	24	1	2
Other comprehensive income (loss)	(285)	389	(160)	3	24	1,060	1,031
Balance as of December 31, 2017	\$ (56)	\$ 103	\$ (65)	\$ (6)	\$ (170)	\$ (815)	\$ (1,009)
Other comprehensive income (loss) before reclassifications	(33)	(285)	81	6	—	(148)	(379)
Amounts reclassified into (out of) earnings	—	7	—	(2)	27	—	32
Other comprehensive income (loss)	(33)	(278)	81	4	27	(148)	(347)
Balance as of December 31, 2018	\$ (89)	\$ (175)	\$ 16	\$ (2)	\$ (143)	\$ (963)	\$ (1,356)

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The following table presents after-tax reclassifications into earnings for the periods indicated:

(In millions)	Years Ended December 31,		Affected Line Item in Consolidated Statement of Income
	2018	2017	
	Amounts Reclassified into (out of) Earnings		
Available-for-sale securities:			
Net realized gains (losses) from sales of available-for-sale securities, net of related taxes of (\$2) and \$16, respectively	\$ 7	\$ (23)	Net gains (losses) from sales of available-for-sale securities
Held-to-maturity securities:			
Other-than-temporary impairment on held-to-maturity securities related to factors other than credit, net of related taxes of \$1 and zero, respectively	(2)	—	Losses reclassified (from) to other comprehensive income
Retirement plans:			
Amortization of actuarial losses, net of related taxes of (\$8) and (\$8), respectively	27	24	Compensation and employee benefits expenses
Foreign currency translation:			
Sales of non-U.S. entities, net of related taxes	—	1	Processing fees and other revenue
Total reclassifications into (out of) AOCI	\$ 32	\$ 2	

Note 16. Regulatory Capital

We are subject to various regulatory capital requirements administered by federal banking agencies. Failure to meet minimum regulatory capital requirements can initiate certain mandatory and discretionary actions by regulators that, if undertaken, could have a direct material effect on our consolidated financial condition. Under current regulatory capital adequacy guidelines, we must meet specified capital requirements that involve quantitative measures of our consolidated assets, liabilities and off-balance sheet exposures calculated in conformity with regulatory accounting practices. Our capital components and their classifications are subject to qualitative judgments by regulators about components, risk weightings and other factors.

As required by the Dodd-Frank Act, we and State Street Bank, as advanced approaches banking organizations, are subject to a permanent "capital floor" in the calculation and assessment of regulatory capital adequacy by U.S. banking regulators. Beginning on January 1, 2015, we were required to calculate our risk-based capital ratios using both the advanced approaches and the standardized approach. As a result, from January 1, 2015 going forward, our risk-based capital ratios for regulatory assessment purposes are the lower of each ratio calculated under the standardized approach and the advanced approaches.

The methods for the calculation of our and State Street Bank's risk-based capital ratios have changed

as the provisions of the Basel III final rule related to the numerator (capital) and denominator (RWA) were phased in, and as we calculated our RWA using the advanced approaches. These ongoing methodological changes have resulted in differences in our reported capital ratios from one reporting period to the next that are independent of applicable changes to our capital base, our asset composition, our off-balance sheet exposures or our risk profile.

As of December 31, 2018, we and State Street Bank exceeded all regulatory capital adequacy requirements to which we were subject. As of December 31, 2018, State Street Bank was categorized as "well capitalized" under the applicable regulatory capital adequacy framework, and exceeded all "well capitalized" ratio guidelines to which it was subject. Management believes that no conditions or events have occurred since December 31, 2018 that have changed the capital categorization of State Street Bank.

The following table presents the regulatory capital structure, total RWA, related regulatory capital ratios and the minimum required regulatory capital ratios for us and State Street Bank as of the dates indicated. As a result of changes in the methodologies used to calculate our regulatory capital ratios from period to period as the provisions of the Basel III final rule were phased in, the ratios presented in the table for each period-end are not directly comparable. Refer to the footnotes following the table.

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(In millions)	State Street				State Street Bank					
	Basel III Advanced Approaches December 31, 2018	Basel III Standardized Approach December 31, 2018	Basel III Advanced Approaches December 31, 2017	Basel III Standardized Approach December 31, 2017	Basel III Advanced Approaches December 31, 2018	Basel III Standardized Approach December 31, 2018	Basel III Advanced Approaches December 31, 2017	Basel III Standardized Approach December 31, 2017		
Common shareholders' equity:										
Common stock and related surplus	\$ 10,565	\$ 10,565	\$ 10,302	\$ 10,302	\$ 12,894	\$ 12,894	\$ 11,612	\$ 11,612		
Retained earnings ⁽¹⁾	20,606	20,606	18,856	18,856	14,261	14,261	12,312	12,312		
Accumulated other comprehensive income (loss)	(1,332)	(1,332)	(972)	(972)	(1,112)	(1,112)	(809)	(809)		
Treasury stock, at cost	(8,715)	(8,715)	(9,029)	(9,029)	—	—	—	—		
Total	21,124	21,124	19,157	19,157	26,043	26,043	23,115	23,115		
Regulatory capital adjustments:										
Goodwill and other intangible assets, net of associated deferred tax liabilities ⁽²⁾	(9,350)	(9,350)	(6,877)	(6,877)	(9,073)	(9,073)	(6,579)	(6,579)		
Other adjustments ⁽³⁾	(194)	(194)	(76)	(76)	(29)	(29)	(5)	(5)		
Common equity tier 1 capital	11,580	11,580	12,204	12,204	16,941	16,941	16,531	16,531		
Preferred stock	3,690	3,690	3,196	3,196	—	—	—	—		
Trust preferred capital securities subject to phase-out from tier 1 capital	—	—	—	—	—	—	—	—		
Other adjustments	—	—	(18)	(18)	—	—	—	—		
Tier 1 capital	15,270	15,270	15,382	15,382	16,941	16,941	16,531	16,531		
Qualifying subordinated long-term debt	778	778	980	980	776	776	983	983		
Trust preferred capital securities phased out of tier 1 capital	—	—	—	—	—	—	—	—		
ALLL and other	14	83	4	72	11	83	—	72		
Other adjustments	—	—	1	1	—	—	—	—		
Total capital	\$ 16,062	\$ 16,131	\$ 16,367	\$ 16,435	\$ 17,728	\$ 17,800	\$ 17,514	\$ 17,586		
RWA:										
Credit risk ⁽⁴⁾	\$ 47,738	\$ 97,303	\$ 52,000	\$ 101,349	\$ 45,565	\$ 94,776	\$ 49,489	\$ 98,433		
Operational risk ⁽⁵⁾	46,060	NA	45,822	NA	44,494	NA	45,295	NA		
Market risk	1,517	1,517	1,334	1,334	1,517	1,517	1,334	1,334		
Total RWA	\$ 95,315	\$ 98,820	\$ 99,156	\$ 102,683	\$ 91,576	\$ 96,293	\$ 96,118	\$ 99,767		
Adjusted quarterly average assets	\$ 211,924	\$ 211,924	\$ 209,328	\$ 209,328	\$ 209,413	\$ 209,413	\$ 206,070	\$ 206,070		
Capital Ratios:										
	2018 Minimum Requirements Including Capital Conservation Buffer and G-SIB Surcharge ⁶	2017 Minimum Requirements Including Capital Conservation Buffer and G-SIB Surcharge ⁶								
Common equity tier 1 capital	7.5%	6.5%	12.1%	11.7%	12.3%	11.9%	18.5%	17.6%	17.2%	16.6%
Tier 1 capital	9.0	8.0	16.0	15.5	15.5	15.0	18.5	17.6	17.2	16.6
Total capital	11.0	10.0	16.9	16.3	16.5	16.0	19.4	18.5	18.2	17.6

⁽¹⁾ In accordance with the applicable bank regulatory rules, we are not required to and, accordingly, did not revise previously-filed reported capital metrics and ratios due to our change in accounting.

⁽²⁾ Amounts for us and State Street Bank as of December 31, 2018 consisted of goodwill, net of associated deferred tax liabilities, and 100% of other intangible assets, net of associated deferred tax liabilities. Amounts for us and State Street Bank as of December 31, 2017 consisted of goodwill, net of deferred tax liabilities and 80% of other intangible assets, net of associated deferred tax liabilities. Intangible assets, net of associated deferred tax liabilities is phased in as a deduction from capital, in conformity with the Basel III final rule.

⁽³⁾ Other adjustments within CET1 primarily include the overfunded portion of the firm's defined benefit pension plan obligation net of associated deferred tax liabilities, disallowed deferred tax assets, and other required credit risk based deductions.

⁽⁴⁾ Includes a CVA which reflects the risk of potential fair value adjustments for credit risk reflected in our valuation of over-the-counter derivative contracts. We used a simple CVA approach in conformity with the Basel III advanced approaches.

⁽⁵⁾ Under the current advanced approaches rules and regulatory guidance concerning operational risk models, RWA attributable to operational risk can vary substantially from period-to-period, without direct correlation to the effects of a particular loss event on our results of operations and financial condition and impacting dates and periods that may differ from the dates and periods as of and during which the loss event is reflected in our financial statements, with the timing and categorization dependent on the processes for model updates and, if applicable, model revalidation and regulatory review and related supervisory processes. An individual loss event can have a significant effect on the output of our operational RWA under the advanced approaches depending on the severity of the loss event and its categorization among the seven Basel-defined UOMs.

⁽⁶⁾ Minimum requirements were phased in with full implementation beginning on January 1, 2019; minimum requirements listed are as of December 31, 2018.

⁽⁷⁾ Minimum requirements were phased in with full implementation beginning on January 1, 2019; minimum requirements listed are as of December 31, 2017.

⁽⁸⁾ Not applicable

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Note 17. Net Interest Income

The following table presents the components of interest income and interest expense, and related NII, for the periods indicated:

(In millions)	Years Ended December 31,		
	2018	2017	2016
Interest income:			
Interest-bearing deposits with banks	\$ 387	\$ 180	\$ 126
Investment securities:			
U.S. Treasury and federal agencies	1,178	854	821
State and political subdivisions	143	226	224
Other investments	560	658	756
Securities purchased under resale agreements	335	264	146
Loans and leases	687	504	378
Other interest-earning assets	372	222	61
Total interest income	3,662	2,908	2,512
Interest expense:			
Interest-bearing deposits	363	163	85
Securities sold under repurchase agreements	13	2	1
Other short-term borrowings	17	10	7
Long-term debt	389	308	260
Other interest-bearing liabilities	209	121	75
Total interest expense	991	604	428
Net interest income	\$ 2,671	\$ 2,304	\$ 2,084

Note 18. Equity-Based Compensation

We record compensation expense for equity-based awards, such as deferred stock and performance awards, based on the closing price of our common stock on the date of grant, adjusted if appropriate, based on the eligibility of the award to receive dividends. The fair value of stock appreciation rights is determined using the Black-Scholes valuation model.

Compensation expense related to equity-based awards with service-only conditions and terms that provide for a graded vesting schedule is recognized on a straight-line basis over the required service period for the entire award. Compensation expense related to equity-based awards with performance conditions and terms that provide for a graded vesting schedule is recognized over the requisite service period for each separately vesting tranche of the award, and is based on the probable outcome of the performance conditions at each reporting date. Compensation expense is adjusted for assumptions with respect to the estimated amount of awards that will be forfeited prior to vesting, and for employees who have met certain retirement eligibility criteria. Compensation expense for common stock awards granted to employees meeting early retirement eligibility criteria is fully expensed on the grant date.

Dividend equivalents for certain equity-based awards are paid on stock units on a current basis prior to vesting and distribution.

The 2017 Stock Incentive Plan, or 2017 Plan, was approved by shareholders in May 2017 for issuance of stock and stock based awards. Awards may be made under the 2017 Plan for (i) up to 8.3 million shares of common stock plus (ii) up to an additional 28.5 million shares that were available to be issued under the 2006 Equity Incentive Plan, or 2006 Plan, or may become available for issuance under the 2006 Plan due to expiration, termination, cancellation, forfeiture or repurchase of awards granted under the 2006 Plan. As of December 31, 2018, a total of 18.9 million shares from the 2006 Plan have been added to and may be issued from the 2017 Plan. As of December 31, 2018, a cumulative total of 3.9 million shares had been awarded under the 2017 Plan and 68.9 million shares had been awarded under the 2006 Plan. As of December 31, 2017, we had cumulative totals of 0.4 million shares awarded under the 2017 Plan and 68.9 million shares awarded under the 2006 Plan. As of December 31, 2016, we had a cumulative total of 65.7 million shares awarded under the 2006 Plan. The 2017 Plan allows for shares withheld in payment of the exercise price of an award or in satisfaction of tax withholding requirements, shares forfeited due to employee termination, shares expired under options awards, or shares not delivered when performance conditions have not been met, to be added back to the pool of shares available for issuance under the 2017 Plan. From inception to December 31, 2018, fewer than 1 million shares had been awarded under the 2017 Plan but not delivered, and have become available for re-issue. As of December 31, 2018, a total of 23.6 million shares were available for future issuance under the 2017 Plan.

The exercise price of stock appreciation rights may not be less than the fair value of such shares on the date of grant. Stock appreciation rights granted under the 1997 Equity Incentive Plan, or 1997 Plan, and the 2006 Plan, collectively the Plans, generally vest over four years and expire no later than ten years from the date of grant. No stock appreciation rights have been granted since 2009.

For deferred stock awards granted under the Plans, no common stock is issued at the time of grant and the award does not possess dividend and voting rights. Generally, these grants vest over one to four years. Performance awards granted are earned over a performance period based on the achievement of defined goals, generally over three years. Payment for performance awards is made in shares of our common stock equal to its fair market value per share, based on the performance of certain financial ratios, after the conclusion of each performance period.

Beginning with 2012, malus-based forfeiture provisions were included in deferred stock awards granted to employees identified as "material risk-takers," as defined by management. These malus-

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based forfeiture provisions provide for the reduction or cancellation of unvested deferred compensation, such as deferred stock awards and performance based awards, if it is determined that a material risk-taker made risk-based decisions that exposed us to inappropriate risks that resulted in a material unexpected loss at the business-unit, line-of-business or corporate level. In addition, awards granted to certain of our senior executives, as well as awards granted to individuals in certain jurisdictions, may be subject to recoupment after vesting (if applicable) and delivery to the individual in specified circumstances generally relating to fraud or willful misconduct by the individual that results in material harm to us or a material financial restatement.

Compensation expense related to stock appreciation rights, deferred stock awards and performance awards, which we record as a component of compensation and employee benefits expense in our consolidated statement of income, was \$262 million, \$243 million and \$268 million for the years ended December 31, 2018, 2017 and 2016, respectively. Such expense for 2018, 2017 and 2016 excluded \$45 million, \$15 million and \$9 million, respectively, associated with acceleration of expense in connection with targeted staff reductions. This expense was included in the severance-related portion of the associated restructuring or repositioning charges recorded in each respective year.

The following table presents information about stock appreciation rights activity during the years indicated. For the year ended December 31, 2018, no stock appreciation rights were exercised. The total intrinsic value of stock appreciation rights exercised during the years ended December 31, 2017 and 2016 was \$5 million and \$1 million, respectively. As of December 31, 2018, there was no unrecognized compensation cost related to stock appreciation rights.

	Shares (In thousands)	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (In years)	Total Intrinsic Value (In millions)
Stock Appreciation Rights:				
Outstanding as of December 31, 2016	955	\$ 77.52		
Exercised	(595)	81.71		
Forfeited or expired	(360)	70.59		
Outstanding as of December 31, 2017	0	\$ —	0	\$ —

	Shares (In thousands)	Weighted-Average Grant Date Fair Value
Deferred Stock Awards:		
Outstanding as of December 31, 2016	7,814	\$ 60.01
Granted	2,977	76.38
Vested	(3,686)	62.88
Forfeited	(257)	63.56
Outstanding as of December 31, 2017	6,848	65.44
Granted	2,500	101.25
Vested	(3,235)	70.98
Forfeited	(138)	80.6
Outstanding as of December 31, 2018	5,975	\$ 77.07

The total fair value of deferred stock awards vested for the years ended December 31, 2018, 2017 and 2016, based on the weighted average grant date fair value in each respective year, was \$230 million, \$232 million and \$275 million, respectively. As of December 31, 2018, total unrecognized compensation cost related to deferred stock awards, net of estimated forfeitures, was \$249 million, which is expected to be recognized over a weighted-average period of 2.5 years.

	Shares (In thousands)	Weighted-Average Grant Date Fair Value
Performance Awards:		
Outstanding as of December 31, 2016	1,247	\$ 60.37
Granted	534	76.27
Forfeited	0	—
Paid out	(233)	58.91
Outstanding as of December 31, 2017	1,548	66.09
Granted	1,067	74.68
Forfeited	(1)	101.26
Paid out	(457)	70.58
Outstanding as of December 31, 2018	2,157	\$ 69.36

The total fair value of performance awards vested for the years ended December 31, 2018, 2017 and 2016, based on the weighted average grant date fair value in each respective year, was \$32 million, \$14 million and \$21 million, respectively. As of December 31, 2018, total unrecognized compensation cost related to performance awards, net of estimated forfeitures, was \$62 million, which is expected to be recognized over a weighted-average period of 2.1 years.

We utilize either treasury shares or authorized but unissued shares to satisfy the issuance of common stock under our equity incentive plans. We do not have a specific policy concerning purchases of our common stock to satisfy stock issuances. We have a general policy concerning purchases of our common stock to meet issuances under our employee benefit plans, including other corporate purposes. Various factors determine the amount and timing of our purchases of our common stock, including regulatory reviews and approvals or non-objections, our regulatory capital requirements, the number of shares we expect to issue

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under employee benefit plans, market conditions (including the trading price of our common stock), and legal considerations. These factors can change at any time, and the number of shares of common stock we will purchase or when we will purchase them cannot be assured. Additional information on our common stock purchase program is provided in Note 15.

Note 19. Employee Benefits

Defined Benefit Pension and Other Post-Retirement Benefit Plans

State Street Bank and certain of its U.S. subsidiaries participate in a non-contributory, tax-qualified defined benefit pension plan. The U.S. defined benefit pension plan was frozen as of December 31, 2007 and no new employees were eligible to participate after that date. We have agreed to contribute sufficient amounts as necessary to meet the benefits paid to plan participants and to fund the plan's service cost, plus interest. U.S. employee account balances earn annual interest credits until the employee begins receiving benefits. Non-U.S. employees participate in local defined benefit plans which are funded as required in each local jurisdiction. In addition to the defined benefit pension plans, we have non-qualified unfunded SERPs that provide certain officers with defined pension benefits in excess of allowable qualified plan limits. State Street Bank and certain of its U.S. subsidiaries also participate in a post-retirement plan that provides health care benefits for certain retired employees. The total expense for these tax-qualified and non-qualified plans was \$11 million, \$15 million and \$16 million in 2018, 2017 and 2016, respectively.

We recognize the funded status of our defined benefit pension plans and other post-retirement benefit plans, measured as the difference between the fair value of the plan assets and the projected benefit obligation, in the consolidated statement of position. The assets held by the defined benefit pension plans are largely made up of common, collective funds that are liquid and invest principally in U.S. equities and high-quality fixed-income investments. The majority of these assets fall within Level 2 of the fair value hierarchy. The benefit obligations associated with our primary U.S. and non-U.S. defined benefit plans, non-qualified unfunded supplemental retirement plans and post-retirement plans were \$1.21 billion, \$110 million and \$12 million, respectively, as of December 31, 2018 and \$1.32 billion, \$125 million and \$16 million, respectively, as of December 31, 2017. As the primary defined benefit plans are frozen, the benefit obligation will only vary over time as a result of changes in market interest rates, the life expectancy of the plan participants and payments made from the plans. The primary U.S. and non-U.S. defined benefit pension plans were underfunded by \$1 million and \$9 million as of December 31, 2018 and 2017, respectively. The non-

qualified supplemental retirement plans were underfunded by \$110 million and \$125 million as of December 31, 2018 and 2017, respectively. The other post-retirement benefit plans were underfunded by \$12 million and \$16 million as of December 31, 2018 and 2017, respectively. The underfunded status is included in other liabilities.

Defined Contribution Retirement Plans

We contribute to employer-sponsored U.S. and non-U.S. defined contribution plans. Our contribution to these plans was \$170 million, \$146 million, and \$132 million in 2018, 2017 and 2016, respectively.

Note 20. Occupancy Expense and Information Systems and Communications Expense

Occupancy expense and information systems and communications expense include depreciation of buildings, leasehold improvements, computer hardware and software, equipment, and furniture and fixtures. Total depreciation expense in 2018, 2017 and 2016 was \$599 million, \$526 million and \$472 million, respectively.

We lease 810,000 square feet at One Lincoln Street, our headquarters building located in Boston, Massachusetts, and a related underground parking garage, under 20-year, non-cancelable capital leases expiring in September 2023. A portion of the lease payments is offset by subleases for approximately 219,000 square feet of the building. As of December 31, 2018 and 2017, an aggregate net book value of \$102 million and \$159 million, respectively, related to the above-described capital leases was recorded in premises and equipment, with the related liability recorded in long-term debt, in our consolidated statement of condition.

Capital lease asset amortization is recorded in occupancy expense on a straight-line basis in our consolidated statement of income over the respective lease term. Lease payments are recorded as a reduction of the liability, with a portion recorded as imputed interest expense. In 2018, 2017 and 2016, interest expense related to these capital lease obligations, reflected in NII, was \$17 million, \$20 million and \$22 million, respectively. As of December 31, 2018 and 2017, accumulated amortization of capital lease assets was \$352 million and \$401 million, respectively.

We have entered into non-cancelable operating leases for premises and equipment. Nearly all of these leases include renewal options. Costs related to operating leases for office space are recorded in occupancy expense. Costs related to operating leases for equipment are recorded in information systems and communications expense. Both are recorded on a straight-line basis.

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Total rental expense net of sublease revenue in 2018, 2017 and 2016 amounted to \$185 million, \$229 million and \$194 million, respectively. Total rental expense was reduced by sublease revenue of \$5 million in both 2018 and 2017, and \$4 million in 2016.

The following table presents a summary of future minimum lease payments under non-cancelable capital and operating leases as of December 31, 2018. Aggregate future minimum rental commitments have been reduced by aggregate sublease rental commitments of \$46 million for capital leases and \$16 million for operating leases.

(In millions)	Capital Leases	Operating Leases	Total
2019	\$ 34	\$ 192	\$ 226
2020	31	181	212
2021	31	170	201
2022	31	147	178
2023	24	128	152
Thereafter	—	380	380
Total minimum lease payments	<u>151</u>	<u>\$ 1,198</u>	<u>\$ 1,349</u>
Less amount representing interest payments	(31)		
Present value of minimum lease payments	<u>\$ 120</u>		

Note 21. Expenses

The following table presents the components of other expenses for the periods indicated:

(In millions)	Years Ended December 31,		
	2018	2017	2016
Professional services	\$ 357	\$ 340	\$ 379
Sales advertising public relations	115	67	52
Insurance	97	118	93
Regulatory fees and assessments	87	106	82
Bank operations	70	80	62
Litigation	7	(15)	50
Other	443	233	245
Total other expenses	<u>\$ 1,176</u>	<u>\$ 929</u>	<u>\$ 963</u>

Acquisition Costs

We recorded \$31 million of acquisition costs in 2018 related to our acquisition of Charles River Development on October 1, 2018. In 2017, we recorded approximately \$21 million of acquisition costs primarily related to our acquisition of the GEAM business on July 1, 2016. As we integrate Charles River Development into our business, we expect to incur approximately \$200 million, including the \$31 million in 2018, of acquisition costs, including merger and integration costs, through 2021. For further information on our acquisition of Charles River Development, refer to Note 1.

Restructuring and Repositioning Charges

Repositioning Charges

In 2018, we initiated a new expense program to accelerate efforts to become a higher-performing organization and help navigate challenging market and industry conditions. As part of that program, expenses for 2018 included a repositioning charge of \$300 million, including \$259 million of compensation and employee benefits and \$41 million of occupancy costs.

Beacon

In 2018, we released \$7 million of restructuring accruals related to Beacon. In 2017, we recorded restructuring charges of \$245 million primarily related to Beacon.

The following table presents aggregate activity for the periods indicated:

(In millions)	Employee Related Costs	Real Estate Actions	Asset and Other Write-offs	Total
Accrual Balance at December 31, 2015	\$ 9	\$ 11	\$ 3	\$ 23
Accruals for Business Operations and Information Technology	(2)	—	—	(2)
Accruals for Beacon	94	18	30	142
Payments and other adjustments	(64)	(12)	(31)	(107)
Accrual Balance at December 31, 2016	\$ 37	\$ 17	\$ 2	\$ 56
Accruals for Beacon	186	32	27	245
Payments and Other Adjustments	(57)	(17)	(26)	(100)
Accrual Balance at December 31, 2017	\$ 166	\$ 32	\$ 3	\$ 201
Accruals for Beacon	(7)	—	—	(7)
Accruals for Repositioning Charges	259	41	—	300
Payments and Other Adjustments	(115)	(36)	(2)	(153)
Accrual Balance at December 31, 2018	<u>\$ 303</u>	<u>\$ 37</u>	<u>\$ 1</u>	<u>\$ 341</u>

Note 22. Income Taxes

We use an asset-and-liability approach to account for income taxes. Our objective is to recognize the amount of taxes payable or refundable for the current year through charges or credits to the current tax provision, and to recognize deferred tax assets and liabilities for future tax consequences of temporary differences between amounts reported in our consolidated financial statements and their respective tax bases. The measurement of tax assets and liabilities

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is based on enacted tax laws and applicable tax rates. The effects of a tax position on our consolidated financial statements are recognized when we believe it is more likely than not that the position will be sustained. A valuation allowance is established if it is considered more likely than not that all or a portion of the deferred tax assets will not be realized. Deferred tax assets and liabilities recorded in our consolidated statement of condition are netted within the same tax jurisdiction.

The following table presents the components of income tax expense (benefit) for the periods indicated:

(In millions)	Years Ended December 31,		
	2018	2017	2016
Current:			
Federal	\$ 122	\$ 343	\$ 69
State	148	24	34
Non-U.S.	374	380	320
Total current expense	644	747	423
Deferred:			
Federal	(128)	45	(309)
State	(22)	66	38
Non-U.S.	14	(19)	(85)
Total deferred expense (benefit)	(136)	92	(356)
Total income tax expense (benefit)	\$ 508	\$ 839	\$ 67

The following table presents a reconciliation of the U.S. statutory income tax rate to our effective tax rate based on income before income tax expense for the periods indicated:

	Years Ended December 31,		
	2018	2017	2016
U.S. federal income tax rate	21.0 %	35.0 %	35.0 %
Changes from statutory rate:			
State taxes, net of federal benefit	3.1	2.0	2.1
Tax-exempt income	(2.0)	(4.3)	(5.9)
Business tax credits ⁽¹⁾	(4.1)	(3.7)	(10.5)
Foreign tax differential	(0.6)	(7.2)	(7.4)
Transition tax	—	15.2	—
Deferred tax revaluation	(1.0)	(6.8)	—
Foreign designated earnings	—	(0.7)	(6.5)
Foreign capital transactions	—	—	(4.1)
Litigation expense	0.3	—	1.3
Other, net	(0.4)	(1.6)	(1.0)
Effective tax rate	16.3 %	27.9 %	3.0 %

⁽¹⁾ Business tax credits include low-income housing, production and investment tax credits.

On December 22, 2017, the U.S. President signed into law the TCJA (H.R. 1), reducing the corporate income tax rate from 35% to 21% and enacting a one-time transition tax on unremitted earnings of certain foreign subsidiaries. The TCJA also introduced the Global Intangible Low-Taxed Income (GILTI), a new minimum tax to be imposed on foreign subsidiary

earnings and an alternative tax for excess base erosion payments. In applying the guidance in Staff Accounting Bulletin No. 118 (SAB 118), the 2017 income tax expense included an estimated deferred tax benefit of \$197 million attributable to certain U.S. deferred tax assets and liabilities and a provisional \$454 million liability attributable to the one-time transition tax on total post-1986 earnings and profits (E&P) of foreign subsidiaries previously deferred from U.S. income taxes.

At December 31, 2018, the accounting for income tax effects of the TCJA has been completed. The 2018 income tax expense included an additional deferred tax benefit of approximately \$32 million related to the TCJA provisional estimate recorded in 2017 mainly attributable to the remeasurement of temporary differences. Our completed analysis of cumulative E&P did not result in a change in estimate for the transition tax liability.

Beginning in 2018, the TCJA subjects a U.S. shareholder to current tax on GILTI earned by certain foreign subsidiaries. We have elected to recognize the resulting tax on GILTI as a period expense in the period the tax is incurred. As such, we have included an estimate of this liability in our estimated annual effective tax rate. This adjustment increased our effective tax rate by 0.2% in 2018, which is reflected in the prior reconciliation table under "Other, net".

Undistributed indefinitely reinvested earnings of certain foreign subsidiaries amounted to approximately \$3.8 billion at December 31, 2018. As a result, no provision has been recorded for state and local or foreign withholding income taxes. If a distribution were to occur, we would be subject to state, local and to foreign withholding tax. It is expected that any distribution will be exempt from federal income tax. Although the foreign withholding tax is generally creditable against U.S. federal income tax, certain credit utilization limitations may result in a net cost.

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The following table presents significant components of our gross deferred tax assets and gross deferred tax liabilities as of the dates indicated:

(In millions)	December 31,	
	2018	2017
Deferred tax assets:		
Unrealized losses on investment securities, net	\$ 146	\$ 17
Deferred compensation	134	159
Pension plan	55	82
Accrued expenses	156	132
Foreign currency translation	50	18
General business credit	274	231
NOL and other carryforwards	153	101
Other	—	27
Total deferred tax assets	968	767
Valuation allowance for deferred tax assets	(138)	(88)
Deferred tax assets, net of valuation allowance	\$ 830	\$ 679
Deferred tax liabilities:		
Leveraged lease financing	\$ —	\$ 184
Fixed and intangible assets	744	755
Non-U.S. earnings	—	6
Investment basis differences	229	172
Other	11	—
Total deferred tax liabilities	\$ 984	\$ 1,117

The table below summarizes the deferred tax assets and related valuation allowances recognized as of December 31, 2018:

(In millions)	Deferred Tax Asset	Valuation Allowance	Expiration
General business Credits	\$ 274	\$ —	2035-2038
NOLs - Non-U.S.	55	(41)	2019-2028, None
Other Carryforwards	88	(88)	2037-2039 /None
NOLs - State	11	(9)	2019-2036

Management considers the valuation allowance adequate to reduce the total deferred tax assets to an aggregate amount that will more likely than not be realized. Management has determined that a valuation allowance is not required for the remaining deferred tax assets because it is more likely than not that there is sufficient taxable income of the appropriate nature within the carryforward periods to realize these assets.

At December 31, 2018, 2017 and 2016, the gross unrecognized tax benefits, excluding interest, were \$108 million, \$94 million and \$71 million, respectively. Of this, the amounts that would reduce the effective tax rate, if recognized, are \$100 million, \$87 million and \$63 million, respectively. The reduction in the effective tax rate includes the federal benefit for unrecognized state tax benefits.

The following table presents activity related to unrecognized tax benefits as of the dates indicated:

(In millions)	December 31,		
	2018	2017	2016
Beginning balance	\$ 94	\$ 71	\$ 63
Decrease related to agreements with tax authorities	(40)	(14)	(13)
Increase related to tax positions taken during current year	12	26	7
Increase related to tax positions taken during prior years	44	11	14
Decreases related to a lapse of the applicable statute of limitations	(2)	—	—
Ending balance	\$ 108	\$ 94	\$ 71

It is reasonably possible that of the \$108 million of unrecognized tax benefits as of December 31, 2018, up to \$25 million could decrease within the next 12 months due to the resolution of various audits. Management believes that we have sufficient accrued liabilities as of December 31, 2018 for tax exposures and related interest expense.

Income tax expense included related interest and penalties of approximately \$1 million and \$3 million in 2018 and 2017, respectively. Total accrued interest and penalties were approximately \$8 million, \$8 million and \$5 million as of December 31, 2018, 2017 and 2016, respectively.

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Note 23. Earnings Per Common Share

Basic EPS is calculated pursuant to the two-class method, by dividing net income available to common shareholders by the weighted-average common shares outstanding during the period. Diluted EPS is calculated pursuant to the two-class method, by dividing net income available to common shareholders by the total weighted-average number of common shares outstanding for the period plus the shares representing the dilutive effect of equity-based awards. The effect of equity-based awards is excluded from the calculation of diluted EPS in periods in which their effect would be anti-dilutive.

The two-class method requires the allocation of undistributed net income between common and participating shareholders. Net income available to common shareholders, presented separately in our consolidated statement of income, is the basis for the calculation of both basic and diluted EPS. Participating securities are composed of unvested and fully vested SERP shares and fully vested deferred director stock awards, which are equity-based awards that contain non-forfeitable rights to dividends, and are considered to participate with the common stock in undistributed earnings.

The following table presents the computation of basic and diluted earnings per common share for the periods indicated:

	Years Ended December 31,		
	2018	2017	2016
(Dollars in millions, except per share amounts)			
Net income	\$ 2,593	\$ 2,156	\$ 2,138
Less:			
Preferred stock dividends	(188)	(182)	(173)
Dividends and undistributed earnings allocated to participating securities ⁽¹⁾	(1)	(2)	(2)
Net income available to common shareholders	\$ 2,404	\$ 1,972	\$ 1,963
Average common shares outstanding (In thousands):			
Basic average common shares	371,983	374,793	391,485
Effect of dilutive securities: equity-based awards	4,493	5,420	4,605
Diluted average common shares	376,476	380,213	396,090
Anti-dilutive securities ⁽²⁾	1,011	188	2,143
Earnings per common share:			
Basic	\$ 6.46	\$ 5.26	\$ 5.01
Diluted ⁽³⁾	6.39	5.19	4.96

⁽¹⁾ Represents the portion of net income available to common equity allocated to participating securities, composed of unvested and fully vested SERP shares and fully vested deferred director stock awards, which are equity-based awards that contain non-forfeitable rights to dividends, and are considered to participate with the common stock in undistributed earnings.

⁽²⁾ Represents equity-based awards outstanding but not included in the computation of diluted average common shares, because their effect was anti-dilutive. Additional information about equity-based awards is provided in Note 18.

⁽³⁾ Calculations reflect allocation of earnings to participating securities using the two-class method, as this computation is more dilutive than the treasury stock method.

Note 24. Line of Business Information

Our operations are organized into two lines of business: Investment Servicing and Investment Management, which are defined based on products and services provided. The results of operations for these lines of business are not necessarily comparable with those of other companies, including companies in the financial services industry.

Investment Servicing provides services for U.S. mutual funds, collective investment funds and other investment pools, corporate and public retirement plans, insurance companies, foundations and endowments worldwide. Products include: custody; product and participant level accounting; daily pricing and administration; master trust and master custody; depotbank services (a fund oversight role created by regulation); record-keeping; cash management; foreign exchange, brokerage and other trading services; securities finance; our enhanced custody product, which integrates principal securities lending and custody; deposit and short-term investment facilities; loans and lease financing; investment manager and alternative investment manager operations outsourcing; performance, risk and compliance analytics; and financial data management to support institutional investors. New products and services resulting from our acquisition of Charles River Development on October 1, 2018 include: portfolio modeling and construction; trade order management; investment risk and compliance; and wealth management solutions.

Investment Management, through State Street Global Advisors, provides a broad range of investment management strategies and products for our clients. Our investment management strategies and products span the risk/reward spectrum, including core and enhanced indexing, multi-asset strategies, active quantitative and fundamental active capabilities and alternative investment strategies. Our AUM is currently primarily weighted to indexed strategies. In addition, we provide a breadth of services and solutions, including environmental, social and governance investing, defined benefit and defined contribution and OCIO. State Street Global Advisors is also a provider of ETFs, including the SPDR® ETF brand.

Our investment servicing strategy is to focus on total client relationships and the full integration of our products and services across our client base through cross-selling opportunities. In general, our clients will use a combination of services, depending on their needs, rather than one product or service. For instance, a custody client may purchase securities finance and cash management services from different business units. Products and services that we provide to our clients are parts of an integrated offering to these clients. We price our products and services on the basis

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of overall client relationships and other factors; as a result, revenue may not necessarily reflect the stand-alone market price of these products and services within the business lines in the same way it would for separate business entities.

Our servicing and management fee revenue from the Investment Servicing and Investment Management business lines, including foreign exchange trading services and securities finance activities, represents approximately 75% to 80% of our consolidated total revenue. The remaining 20% to 25% is composed of processing fees and other revenue, including Charles River Development, as well as NII, which is largely generated by our investment of client deposits, short-term borrowings and long-term debt in a variety of assets, and net gains (losses) related to investment securities. These other revenue types are generally fully allocated to, or reside in, Investment Servicing and Investment Management.

Revenue and expenses are directly charged or allocated to our lines of business through management information systems. Assets and liabilities are allocated according to policies that support management's strategic and tactical goals. Capital is allocated based on the relative risks and capital requirements inherent in each business line, along with management judgment. Capital allocations may not be representative

The following is a summary of our line of business results for the periods indicated. The amounts in the "Other" columns were not allocated to our business lines. Prior reported results reflect reclassifications, for comparative purposes, related to management changes in methodologies associated with allocations of revenue and expenses to lines of business in 2018.

of the capital that might be required if these lines of business were separate business entities.

The following is a summary of our line of business results for the periods indicated.

The "Other" column for the year ended December 31, 2018 included net costs of \$398 million composed of the following:

- Net repositioning charges related to organizational changes and management streamlining of \$300 million;
- Business exit costs of \$24 million;
- Legal and related expenses of \$50 million; and
- Net acquisition and restructuring costs of \$24 million.

The "Other" column for the year ended December 31, 2017 included net acquisition and restructuring costs of \$266 million.

The "Other" column for the year ended December 31, 2016 included net costs of \$199 million composed of the following:

- Net acquisition and restructuring costs of \$209 million; and
- Net severance costs associated with staffing realignment of \$10 million.

Years Ended December 31,

(Dollars in millions)	Investment Servicing			Investment Management ⁽¹⁾			Other			Total		
	2018	2017	2016	2018	2017	2016	2018	2017	2016	2018	2017	2016
Service fees	\$ 5,429	\$ 5,365	\$ 5,073	\$ —	\$ —	\$ —	\$ (8)	\$ —	\$ —	\$ 5,421	\$ 5,365	\$ 5,073
Management fees ⁽¹⁾	—	—	—	1,851	1,616	1,292	—	—	—	1,851	1,616	1,292
Foreign exchange trading services ⁽¹⁾	1,071	999	1,038	130	72	61	—	—	—	1,201	1,071	1,099
Securities finance	543	606	562	—	—	—	—	—	—	543	606	562
Processing fees and other ⁽²⁾	443	336	203	(5)	7	(29)	—	—	—	438	343	174
Total fee revenue ⁽¹⁾⁽²⁾	7,486	7,306	6,876	1,976	1,695	1,324	(8)	—	—	9,454	9,001	8,200
Net interest income	2,691	2,309	2,081	(20)	(5)	3	—	—	—	2,671	2,304	2,084
Gains (losses) related to investment securities, net	6	(39)	7	—	—	—	—	—	—	6	(39)	7
Total revenue ⁽¹⁾⁽²⁾	10,183	9,576	8,964	1,956	1,690	1,327	(8)	—	—	12,131	11,266	10,291
Provision for loan losses	15	2	10	—	—	—	—	—	—	15	2	10
Total expenses ⁽¹⁾⁽²⁾	7,081	6,717	6,660	1,544	1,286	1,218	390	266	199	9,015	8,269	8,077
Income before income tax expense	\$ 3,087	\$ 2,857	\$ 2,294	\$ 412	\$ 404	\$ 109	\$ (398)	\$ (266)	\$ (199)	\$ 3,101	\$ 2,995	\$ 2,204
Pre-tax margin	30%	30%	26%	21%	24%	8%				26%	27%	21%
Average assets (in billions)	\$ 220.2	\$ 214.0	\$ 225.3	\$ 3.2	\$ 5.4	\$ 4.4				\$ 223.4	\$ 219.4	\$ 229.7

⁽¹⁾ The new revenue recognition standard contributed approximately \$248 million in Investment Management total revenue, including approximately \$190 million in management fees and \$58 million in foreign exchange trading services, and \$248 million in Investment Management total expenses for 2018 compared to 2017.

⁽²⁾ Investment Servicing includes results from our acquisition of Charles River Development on October 1, 2018, which is described in Note 1.

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Note 25. Revenue from Contracts with Customers

We account for revenue from contracts with customers in accordance with Topic 606, which we adopted on January 1, 2018. Further discussion of our adoption, including the impact on our consolidated financial statements, is provided in Note 1.

The amount of revenue that we recognize is measured based on the consideration specified in contracts with our customers, and excludes taxes collected from customers subsequently remitted to governmental authorities. We recognize revenue when a performance obligation is satisfied over time as the services are performed or at a point in time depending on the nature of the services provided as further discussed below. Revenue recognition guidance related to contracts with customers excludes our NII, revenue earned on security lending transactions entered into as principal, realized gains/losses on securities, revenue earned on foreign exchange activity, loans and related fees, and gains/losses on hedging and derivatives, to which we apply other applicable U.S. GAAP guidance.

For contracts with multiple performance obligations, or contracts that have been combined, we allocate the contracts' transaction price to each performance obligation using our best estimate of the standalone selling price. Our contractual fees are negotiated on a customer by customer basis and are representative of standalone selling price utilized for allocating revenue when there are multiple performance obligations.

Substantially all of our services are provided as a distinct series of daily performance obligations that the customer simultaneously benefits from as they are performed. Payments may be made to third party service providers and the expense is recognized gross when we control those services as we are deemed the principal.

Contract durations may vary from short to long-term or may be open ended. Termination notice periods are in line with general market practice and typically do not include termination penalties. Therefore, for substantially all of our revenues, the duration of the contract and the enforceable rights and obligations do not extend beyond the services that are performed daily or at the transaction level. In instances where we have substantive termination penalties, the duration of the contract may extend through the date of substantive termination penalties.

Investment Servicing

Revenue from contracts with customers related to servicing fees is recognized over time as our customers benefit from the custody, administration, accounting, transfer agency and other related asset services as they are performed. At contract inception, no revenue is estimated as the fees are dependent on assets under custody and/or administration and/or actual transactions which are susceptible to market factors outside of our control. Therefore, revenue is recognized using a time-based output method as the customers benefit from the services over time and as the assets under custody or transactions are known or determinable during each reporting period based on contractual fee schedules. Payments made to third party service providers, such as sub-custodians, are generally recognized gross as we control those services and is deemed to be a principal in such arrangements.

Foreign exchange trading services revenue includes revenue generated from providing access and use of electronic trading platforms and other trading, transition management and brokerage services. Electronic FX services are dependent on the volume of actual transactions initiated through our electronic exchange platforms. Revenue is recognized over time using a time-based measure as access to, and use of, the electronic exchange platforms is made available to the customer and the activity is determinable. Revenue related to other trading, transition management and brokerage services is recognized when the customer obtains the benefit of such services which may be over time or at a point in time upon trade execution.

Securities finance revenue is related to services for providing agency lending programs to State Street Global Advisors managed investment funds and third-party investment managers and asset owners. This securities finance revenue is recognized over time using a time-based measure as our customers benefit from these lending services over time.

Revenue related to the front office solutions provided by Charles River Development is primarily driven by the sale of software to be installed on premise and Software as a Service (SaaS) arrangements, where the customer does not take possession of the software. Revenue for a sale of software to be installed on premise is recognized at a point in time when the customer benefits from obtaining access to and use of the software license. Revenue for a SaaS related arrangement is recognized over time as services are provided.

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Investment Management

Revenue from contracts with customers related to investment management, investment research and investment advisory services provided through State Street Global Advisors is recognized over time as our customers benefit from the services as they are performed. Substantially all of our investment management fees are determined by the value of assets under management and the investment strategies employed. At contract inception, no revenue is estimated as the fees are dependent on assets under management which are susceptible to market factors outside of our control.

Therefore, substantially all of our Investment Management services revenue is recognized using a time-based output method as the customers benefit from the services over time and as the assets under management are known or determinable during each reporting period based on contractual fee schedules. Payments made to third party service providers, such as payments to others in unitary fee arrangements, are generally recognized on a gross basis when State Street Global Advisors controls those services and is deemed to be a principal in such transactions.

Revenue by category

In the following table, revenue is disaggregated by our two lines of business and by revenue stream for which the nature, amount, timing and uncertainty of revenue and cash flows are affected by economic factors. The amounts in the "Other" columns were not allocated to our business lines.

(Dollars in millions)	Year Ended December 31, 2018									
	Investment Servicing			Investment Management			Other			Total
	Topic 606 revenue	All other revenue	Total	Topic 606 revenue	All other revenue	Total	Topic 606 revenue	All other revenue	Total	2018
Servicing fees	\$ 5,429	\$ —	\$ 5,429	\$ —	\$ —	\$ —	\$ (8)	\$ —	\$ (8)	\$ 5,421
Management fees	—	—	—	1,851	—	1,851	—	—	—	1,851
Foreign exchange trading services	361	710	1,071	130	—	130	—	—	—	1,201
Securities finance	308	235	543	—	—	—	—	—	—	543
Processing fees and other	209	234	443	—	(5)	(5)	—	—	—	438
Total fee revenue	6,307	1,179	7,486	1,981	(5)	1,976	(8)	—	(8)	9,454
Net interest income	—	2,691	2,691	—	(20)	(20)	—	—	—	2,671
Gains (losses) related to investment securities, net	—	6	6	—	—	—	—	—	—	6
Total revenue	\$ 6,307	\$ 3,876	\$ 10,183	\$ 1,981	\$ (25)	\$ 1,956	\$ (8)	\$ —	\$ (8)	\$ 12,131

Contract balances and contract costs

As of December 31, 2018 and December 31, 2017, net receivables of \$2.7 billion and \$2.6 billion, respectively, are included in accrued interest and fees receivable, representing amounts billed or currently billable to or due from our customers related to revenue from contracts with customers. As performance obligations are satisfied, we have an unconditional right to payment and billing is generally performed monthly; therefore, we do not have significant contract assets or liabilities.

No adjustments are made to the promised amount of consideration for the effects of a significant financing component as the period between when we transfer a promised service to a customer and when the customer pays for that service is expected to be one year or less.

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Note 26. Non-U.S. Activities

We define our non-U.S. activities as those revenue-producing business activities that arise from clients which are generally serviced or managed outside the U.S. Due to the integrated nature of our business, precise segregation of our U.S. and non-U.S. activities is not possible.

Subjective estimates, assumptions and other judgments are applied to quantify the financial results and assets related to our non-U.S. activities, including our application of funds transfer pricing, our asset and liability management policies and our allocation of certain indirect corporate expenses. Management periodically reviews and updates its processes for quantifying the financial results and assets related to our non-U.S. activities.

The following table presents our U.S. and non-U.S. financial results for the periods indicated:

(In millions)	Years Ended December 31,								
	2018			2017			2016		
	Non-U.S. ⁽¹⁾	U.S.	Total	Non-U.S. ⁽¹⁾	U.S.	Total	Non-U.S. ⁽¹⁾	U.S.	Total
Total revenue	\$ 5,178	\$ 6,953	\$ 12,131	\$ 4,734	\$ 6,532	\$ 11,266	\$ 4,419	\$ 5,872	\$ 10,291
Income before income taxes	1,664	1,437	3,101	1,230	1,765	2,995	1,047	1,157	2,204

⁽¹⁾ Geographic mix is generally based on the domicile of the entity servicing the funds and is not necessarily representative of the underlying asset mix.

Non-U.S. assets were \$81.7 billion and \$82.1 billion as of December 31, 2018 and 2017, respectively.

Note 27. Parent Company Financial Statements

The following tables present the financial statements of the Parent Company without consolidation of its banking and non-banking subsidiaries, as of and for the years indicated:

Statement of Income - Parent Company

(In millions)	Years Ended December 31,		
	2018	2017	2016
Cash dividends from consolidated banking subsidiary	\$ 785	\$ 2,224	\$ 640
Cash dividends from consolidated non-banking subsidiaries and unconsolidated entities	41	12	75
Other, net	58	127	92
Total revenue	884	2,363	807
Interest expense	381	297	249
Other expenses	162	94	107
Total expenses	543	391	356
Income tax (benefit)	(127)	(86)	(47)
Income before equity in undistributed income of consolidated subsidiaries and unconsolidated entities	468	2,058	498
Equity in undistributed income of consolidated subsidiaries and unconsolidated entities:			
Consolidated banking subsidiary	1,944	(1)	1,624
Consolidated non-banking subsidiaries and unconsolidated entities	181	99	16
Net income	\$ 2,593	\$ 2,156	\$ 2,138

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Statement of Condition - Parent Company

(In millions)	As of December 31,	
	2018	2017
Assets:		
Interest-bearing deposits with consolidated banking subsidiary	\$ 486	\$ 532
Trading account assets	357	361
Investment securities available-for-sale	224	43
Investments in subsidiaries:		
Consolidated banking subsidiary	25,966	23,033
Consolidated non-banking subsidiaries	6,726	6,762
Unconsolidated entities	106	63
Notes and other receivables from:		
Consolidated banking subsidiary	64	273
Consolidated non-banking subsidiaries and unconsolidated entities	2,337	2,843
Other assets	96	263
Total assets	\$ 36,362	\$ 34,173
Liabilities:		
Accrued expenses and other liabilities	\$ 685	\$ 917
Long-term debt	10,940	10,986
Total liabilities	11,625	11,903
Shareholders' equity	24,737	22,270
Total liabilities and shareholders' equity	\$ 36,362	\$ 34,173

Statement of Cash Flows - Parent Company

(In millions)	Years Ended December 31,		
	2018	2017	2016
Net cash provided by operating activities	\$ 2,250	\$ 2,047	\$ 417
Investing Activities:			
Net decrease (increase) in interest-bearing deposits with consolidated banking subsidiary	46	3,103	2,100
Purchases of available-for-sale securities	(224)	—	—
Investments in consolidated banking and non-banking subsidiaries	(4,883)	(7,672)	(7,600)
Sale or repayment of investment in consolidated banking and non-banking subsidiaries	2,472	4,216	6,703
Business acquisitions	—	—	(395)
Net increase in investments in unconsolidated affiliates	—	172	—
Net cash (used in) provided by investing activities	(2,589)	(181)	808
Financing Activities:			
Proceeds from issuance of long-term debt, net of issuance costs	996	748	1,492
Payments for long-term debt	(1,000)	(450)	(1,000)
Proceeds from issuance of preferred stock, net of issuance costs	495	—	493
Proceeds from issuance of common stock, net of issuance costs	1,150	—	—
Repurchases of common stock	(350)	(1,292)	(1,365)
Repurchases of common stock for employee tax withholding	(124)	(104)	(122)
Payments for cash dividends	(828)	(768)	(723)
Net cash provided (used in) financing activities	339	(1,866)	(1,225)
Net change	—	—	—
Cash and due from banks at beginning of year	—	—	—
Cash and due from banks at end of year	\$ —	\$ —	\$ —

Quarterly Summarized Financial Information (Unaudited)

(Dollars in millions,
except per share amounts; shares in thousands)

	4Q18	3Q18	2Q18	1Q18	4Q17	3Q17	2Q17	1Q17
Total fee revenue	\$ 2,326	\$ 2,318	\$ 2,395	\$ 2,415	\$ 2,254	\$ 2,266	\$ 2,259	\$ 2,222
Interest income	982	916	907	857	797	761	700	650
Interest expense	285	244	248	214	181	158	125	140
Net interest income	697	672	659	643	616	603	575	510
Gains (losses) related to investment securities, net	—	(1)	9	(2)	—	1	—	(40)
Total revenue	3,023	2,989	3,063	3,056	2,870	2,870	2,834	2,692
Provision for loan losses	8	5	2	—	(2)	3	3	(2)
Total expenses	2,486	2,091	2,170	2,268	2,131	2,021	2,031	2,086
Income before income tax expense	529	893	891	788	741	846	800	608
Income tax expense (benefit)	92	129	158	129	376	166	186	111
Net income	\$ 437	\$ 764	\$ 733	\$ 659	\$ 365	\$ 680	\$ 614	\$ 497
Net income available to common shareholders	\$ 396	\$ 708	\$ 697	\$ 603	\$ 329	\$ 624	\$ 578	\$ 441
Earnings per common share⁽¹⁾:								
Basic	\$ 1.04	\$ 1.89	\$ 1.91	\$ 1.64	\$.89	\$ 1.68	\$ 1.54	\$ 1.16
Diluted	1.03	1.87	1.88	1.62	.88	1.65	1.51	1.14
Average common shares outstanding:								
Basic	379,741	374,963	365,619	367,439	369,934	372,765	375,395	381,224
Diluted	383,651	379,383	370,410	372,619	375,477	378,518	380,915	386,417
Dividends per common share	\$.47	\$.47	\$.42	\$.42	\$.42	\$.42	\$.38	\$.38

⁽¹⁾ Basic and diluted earnings per common share for full-year 2018 and basic earnings per common share for full-year 2017 do not equal the sum of the four quarters for the year.

ACRONYMS

ABS	Asset-backed securities	GEAM	General Electric Asset Management
AFS	Available-for-sale	G-SIB	Global systemically important bank
AIFMD	Alternative Investment Fund Managers Directive	HQLA ⁽¹⁾	High-quality liquid assets
AIRB ⁽¹⁾	Advanced Internal Ratings-Based Approach	HTM	Held-to-maturity
ALLL	Allowance for loan and lease losses	IDI	Insured depository institution
AMA	Advanced Measurement Approach	ISDA	International Swaps and Derivatives Association
AML	Anti-money laundering	LCR ⁽¹⁾	Liquidity coverage ratio
AOCI	Accumulated other comprehensive income (loss)	LDA model	Loss distribution approach model
APAC	Asia Pacific	LIBOR	London Interbank Offered Rate
ASU	Accounting Standards Update	LTD	Long-term debt
AUC/A	Assets under custody and/or administration	MBS	Mortgage-backed securities
AUM	Assets under management	MIFID	Markets in Financial Instruments Directive
BCBS	Basel Committee on Banking Supervision	MiFID II	Markets in Financial Instruments Directive II
BCRC	Business Conduct Risk Committee	MiFIR	Markets in Financial Instruments Regulation
BOC	Basel Oversight Committee	MRAC	Management Risk and Capital Committee
bps	Basis points	MRC	Model Risk Committee
BRRD	Bank Recovery and Resolution Directive	MVG	Model Validation Group
CAP	Capital adequacy process	NII	Net interest income
CCAR	Comprehensive Capital Analysis and Review	NIM	Net interest margin
CCO	Chief Compliance Officer	NOL	Net Operating Loss
CD	Certificates of deposit	NSFR ⁽¹⁾	Net stable funding ratio
CET1 ⁽¹⁾	Common equity tier 1	NYSE	New York Stock Exchange
CFTC	Commodity Futures Trading Commission	OCI	Other comprehensive income (loss)
CIS	Corporate Information Security	OCC	Office of the Comptroller of the Currency
CLO	Collateralized loan obligations	OCIO	Outsourced Chief Investment Officer
CMO	Collateralized mortgage obligations	OFAC	Office of Foreign Assets Control
COSO	Committee of Sponsoring Organizations of the Treadway Commission	ORM	Operational risk management
CRE	Commercial real estate	OTC	Over-the-counter
CRO	Chief Risk Officer	OTTI	Other-than-temporary-impairment
CRPC	Credit Risk & Policy Committee	PCA	Prompt corrective action
CVA	Credit valuation adjustment	PCAOB	Public Company Accounting Oversight Board
DIF	Deposit Insurance Fund	PD ⁽¹⁾	Probability-of-default
DOJ	Department of Justice	P&L	Profit-and-loss
DOL	Department of Labor	RC	Risk Committee
E&A Committee	Examining and Audit Committee	ROE	Return on average common equity
EAD ⁽¹⁾	Exposure-at-default	RWA ⁽¹⁾	Risk-weighted asset
ECB	European Central Bank	SCB	Stress Capital Buffer
ECC	Executive Compensation Committee	SCCL	Single-counterparty credit limits
EGRRCPA	Economic Growth, Regulatory Relief, and Consumer Protection Act	SEC	Securities and Exchange Commission
EMEA	Europe, Middle East, and Africa	SERP	Supplemental executive retirement plans
EMIR	European Market Infrastructure Resolution	SIFI	Systemically important financial institutions
EPS	Earnings per share	SLB	Stress Leverage Buffer
ERISA	Employee Retirement Income Security Act	SLR ⁽¹⁾	Supplementary leverage ratio
ERM	Enterprise Risk Management	SOX	Sarbanes-Oxley Act of 2002
eSLR	Enhanced supplementary leverage ratio	SPDR	Spider; Standard and Poor's depository receipt
ETF	Exchange-Traded Fund	SPOE Strategy	Single Point of Entry Strategy
EVE	Economic value of equity	SSIF	State Street Intermediate Funding, LLC
FASB	Financial Accounting Standards Board	TJJA	Tax Cuts and Jobs Act
FDIC	Federal Deposit Insurance Corporation	TLAC ⁽¹⁾	Total loss-absorbing capacity
FFELP	Federal Family Education Loan Program	TMRC	Trading and Markets Risk Committee
FHLB	Federal Home Loan Bank of Boston	TOPS	Technology and Operations Committee
FRBB	Federal Reserve Bank of Boston	TORC	Technology and Operational Risk Committee
FSB	Financial Stability Board	UCITS	Undertakings for Collective Investments in Transferable Securities
FSOC	Financial Stability Oversight Council	U.K. FCA	United Kingdom Financial Conduct Authority
FX	Foreign exchange	U.K. PRA	United Kingdom Prudential Regulation Authority
GAAP	Generally accepted accounting principles	UOM	Unit of measure
GCR	Global credit review	VaR	Value-at-Risk
GDPR	General Data Protection Regulation	VIE	Variable interest entity
		VIX	Volatility Index

⁽¹⁾ As defined by the applicable U.S. regulations.

GLOSSARY

Asset-backed securities: A financial security backed by collateralized assets, other than real estate or mortgage backed securities.

Assets under custody and/or administration: Assets that we hold directly or indirectly on behalf of clients under a safekeeping or custody arrangement or for which we provide administrative services for clients. To the extent that we provide more than one AUC/A service for a client's assets, the value of the asset is only counted once in the total amount of AUC/A.

Assets under management: The total market value of client assets for which we provide investment management strategy services, advisory services and/or distribution services generating management fees based on a percentage of the assets' market values. These client assets are not included on our balance sheet.

Beacon: A multi-year program, announced in October 2015, to create cost efficiencies through changes in our operational processes and to further digitize our processes and interfaces with our clients.

Certificates of deposit: A savings certificate with a fixed maturity date, specified fixed interest rate and can be issued in any denomination aside from minimum investment requirements. A CD restricts access to the funds until the maturity date of the investment.

Collateralized loan obligations: A security backed by a pool of debt, primarily senior secured leveraged loans. CLOs are similar to collateralized mortgage obligations, except for the different type of underlying loan. With a CLO, the investor receives scheduled debt payments from the underlying loans, assuming most of the risk in the event borrowers default, but is offered greater diversity and the potential for higher-than-average returns.

Commercial real estate: Property intended to generate profit from capital gains or rental income. CRE loans are term loans secured by commercial and multifamily properties with strong competitive positions in major domestic markets, stable cash flows, modest leverage and experienced institutional ownership.

Deposit beta: A measure of how much of an interest rate increase is expected to be passed on to client interest-bearing accounts, on average.

Depot bank: A German term, specified by the country's law on investment companies, which essentially corresponds to 'custodian'.

Doubtful: Loans and leases meet the same definition of substandard loans and leases (i.e., well-defined weaknesses that jeopardize repayment with the possibility that we will sustain some loss) with the added characteristic that the weaknesses make collection or liquidation in full highly questionable and improbable.

Economic value of equity: Long-term interest rate risk measure designed to estimate the fair value of assets, liabilities and off-balance sheet instruments based on a discounted cash flow model.

Exchange-Traded Fund: A type of exchange-traded investment product that offer investors a way to pool their money in a fund that makes investments in stocks, bonds, or other assets and, in return, to receive an interest in that investment pool. ETF shares are traded on a national stock exchange and at market prices that may or may not be the same as the net asset value.

Exposure-at-default: A parameter used in the calculation of regulatory capital under Basel III. It can be defined as the expected amount of loss a bank may be exposed to upon default of an obligor.

Global systemically important bank: A financial institution whose distress or disorderly failure, because of its size, complexity and systemic interconnectedness, would cause significant disruption to the wider financial system and economic activity, which will be subject to additional capital requirements.

Held-to-maturity investment securities: We classify investments in debt securities as held-to-maturity only if we have the positive intent and ability to hold those securities to maturity. Investments in debt securities classified as held-to-maturity are measured subsequently at amortized cost in the statement of financial position.

High-quality liquid assets: Cash or assets that can be converted into cash at little or no loss of value in private markets and are considered unencumbered.

Investment grade: Loans and leases that consist of counterparties with strong credit quality and low expected credit risk and probability of default. Ratings apply to counterparties with a strong capacity to support the timely repayment of any financial commitment.

Liquidity coverage ratio: A Basel III framework requirement for banks and bank holding companies to measure liquidity. It is designed to ensure that certain banking institutions, including us, maintain a minimum amount of unencumbered HQLA sufficient to withstand the net cash outflow under a hypothetical standardized acute liquidity stress scenario for a 30-day stress period. The ratio of our encumbered high-quality liquid assets divided by our total net cash outflows over a 30-day stress period.

Net asset value: The amount of net assets attributable to each share of capital stock (other than senior securities, such as, preferred stock) outstanding at the close of the period.

Net stable funding ratio: The ratio of the amount of available stable funding relative to the amount of required stable funding. This ratio should be equal to at least 100% on an ongoing basis.

Other-than-temporary-impairment: Impairment charge taken on a security whose fair value has fallen below its carrying value on balance sheet and its value is not expected to recover through the holding period of the security.

Probability of default: An internal risk rating that indicates the likelihood that a credit obligor will enter into default status.

Qualified financial contracts: Securities contracts, commodity contracts, forward contracts, repurchase agreements, swap agreements and any other contract determined by the FDIC to be a qualified financial contract.

Risk-weighted assets: A measurement used to quantify risk inherent in our on and off-balance sheet assets by adjusting the asset value for risk. RWA is used in the calculation of our risk-based capital ratios.

Special mention: Loans and leases that consist of counterparties with potential weaknesses that, if uncorrected, may result in deterioration of repayment prospects.

Speculative: Loans and leases that consist of counterparties that face ongoing uncertainties or exposure to business, financial, or economic downturns. However, these counterparties may have financial flexibility or access to financial alternatives, which allow for financial commitments to be met.

Substandard: Loans and leases that consist of counterparties with well-defined weakness that jeopardizes repayment with the possibility we will sustain some loss.

Supplementary leverage ratio: The ratio of our tier 1 capital to our total leverage exposure, which measures our capital adequacy relative to our on and off-balance sheet assets.

Total loss-absorbing capacity: The sum of our tier 1 regulatory capital plus eligible external long-term debt issued by us.

Value-at-Risk: Statistical model used to measure the potential loss in value of a portfolio that could occur in normal markets condition, over a defined holding period, within a certain confidence level.

Variable interest entity: An entity that: (1) lacks enough equity investment at risk to permit the entity to finance its activities without additional financial support from other parties; (2) has equity owners that lack the right to make significant decisions affecting the entity's operations; and/or (3) has equity owners that do not have an obligation to absorb or the right to receive the entity's losses or return.