Financial Statements:

The Federal Reserve Bank of New York

As of and for the Years Ended
December 31, 2018 and 2017 and
Independent Auditors' Report

Federal Reserve Bank of New York

Contents

FEDERAL RESERVE BANK *of* NEW YORK

33 LIBERTY STREET, NEW YORK, NY 10045-0001

Management's Report on Internal Control Over Financial Reporting

March 8, 2019

To the Board of Directors of the
Federal Reserve Bank of New York:

The management of the Federal Reserve Bank of New York (Bank) is responsible for the preparation and fair presentation of the Statements of Condition as of December 31, 2018 and 2017, and the Statements of Operations, and Statements of Changes in Capital for the years then ended (the financial statements). The financial statements have been prepared in conformity with the accounting principles, policies, and practices established by the Board of Governors of the Federal Reserve System as set forth in the *Financial Accounting Manual for Federal Reserve Banks* (FAM), and, as such, include some amounts that are based on management judgments and estimates. To our knowledge, the financial statements are, in all material respects, fairly presented in conformity with the accounting principles, policies and practices documented in the FAM and include all disclosures necessary for such fair presentation.

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

Even effective internal control, no matter how well designed, has inherent limitations, including the possibility of human error, and therefore can provide only reasonable assurance with respect to the preparation of reliable financial statements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

The management of the Bank assessed its internal control over financial reporting based upon the criteria established in the *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this assessment, we believe that the Bank maintained effective internal control over financial reporting.

John C. Williams	Michael Strine	Helen E. Mucciolo
President	First Vice President	Chief Financial Officer

KPMG LLP
345 Park Avenue
New York, NY 10154-0102

Independent Auditors' Report

To the Board of Governors of the Federal Reserve System
and the Board of Directors of the Federal Reserve Bank of New York:

We have audited the accompanying consolidated statements of condition of the Federal Reserve Bank of New York and subsidiaries as of December 31, 2018 and 2017, and the related consolidated statements of operations and changes in capital for the years then ended. We also have audited the Federal Reserve Bank of New York's internal control over financial reporting as of December 31, 2018, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. The Federal Reserve Bank of New York's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on these consolidated financial statements and an opinion on the Federal Reserve Bank of New York's internal control over financial reporting based on our audits.

We conducted our audits in accordance with the auditing standards of the Public Company Accounting Oversight Board (United States) and in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the consolidated financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

The Federal Reserve Bank of New York's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of consolidated financial statements for external purposes in accordance with the accounting principles established by the Board of Governors of the Federal Reserve System (the "Board") as described in Note 3 of the consolidated financial statements and as set forth in the *Financial Accounting Manual for Federal Reserve Banks* ("FAM"). The Federal Reserve Bank of New York's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Federal Reserve Bank of New York; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of consolidated financial statements in accordance with the FAM, and that receipts and expenditures of the Federal Reserve Bank of New York are being made only in accordance with authorizations of management and directors of the Federal Reserve Bank of New York; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the Federal Reserve Bank of New York's assets that could have a material effect on the consolidated financial statements.

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

As described in Note 3 to the consolidated financial statements, the Federal Reserve Bank of New York has prepared these consolidated financial statements in conformity with the accounting principles established by the Board, as set forth in the FAM, which is a basis of accounting other than U.S. generally accepted accounting principles.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Federal Reserve Bank of New York and subsidiaries as of December 31, 2018 and 2017, and the results of their operations for the years then ended, on the basis of accounting described in Note 3. Also, in our opinion, the Federal Reserve Bank of New York maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

KPMG LLP

New York, New York
March 8, 2019

Abbreviations

ACH	**Automated clearinghouse**
ASC	**Accounting Standards Codification**
ASU	**Accounting Standards Update**
BEP	**Benefit Equalization Retirement Plan**
Budget Act	**Bipartisan Budget Act of 2018**
Bureau	**Bureau of Consumer Financial Protection**
CDS	**Credit default swaps**
CIP	**Committee on Investment Performance (related to System Retirement Plan)**
DFMU	**Designated financial market utility**
FAM	***Financial Accounting Manual for Federal Reserve Banks***
FASB	**Financial Accounting Standards Board**
FOMC	**Federal Open Market Committee**
GAAP	**Accounting principles generally accepted in the United States of America**
GSE	**Government-sponsored enterprise**
IMF	**International Monetary Fund**
JPMC	**JPMorgan Chase & Co.**
LLC	**Limited liability company**
MBS	**Mortgage-backed securities**
ML	**Maiden Lane LLC**
RMBS	**Residential mortgage-backed securities**
OEB	**Office of Employee Benefits of the Federal Reserve System**
SDR	**Special drawing rights**
SERP	**Supplemental Retirement Plan for Select Officers of the Federal Reserve Banks**
SOMA	**System Open Market Account**
STRIPS	**Separate Trading of Registered Interest and Principal of Securities**
TBA	**To be announced**
TDF	**Term Deposit Facility**
TRS	**Total return swap**
VIE	**Variable interest entity**

Consolidated Statements of Condition

As of December 31, 2018 and December 31, 2017
(in millions)

		2018	2017
ASSETS			
Gold certificates		$ 3,626	$ 3,592
Special drawing rights certificates		1,818	1,818
Coin		39	47
Loans	Note 4	-	70
System Open Market Account:	Note 5		
Treasury securities, net (of which $13,858 and $15,796 is lent as of December 31, 2018 and 2017, respectively)		1,271,137	1,433,481
Government-sponsored enterprise debt securities, net (of which $0 is lent as of December 31, 2018 and 2017)		1,513	2,676
Federal agency and government-sponsored enterprise mortgage-backed securities, net		929,440	1,023,532
Foreign currency denominated investments, net		6,590	6,825
Central bank liquidity swaps		1,326	3,864
Accrued interest receivable		12,258	13,912
Other assets		-	7
Investments held by consolidated variable interest entity, net (of which $0 and $1,712 is measured at fair value as of December 31, 2018 and 2017, respectively)	Note 6	-	1,713
Prepaid pension benefit costs	Note 9	-	14
Bank premises and equipment, net	Note 7	507	501
Other assets		285	295
Total assets		$ 2,228,539	$ 2,492,347
LIABILITIES AND CAPITAL			
Federal Reserve notes outstanding, net		$ 559,119	$ 528,663
System Open Market Account:	Note 5		
Securities sold under agreements to repurchase		167,838	317,560
Other liabilities		19	314
Deposits:			
Depository institutions		891,753	1,206,552
Treasury, general account		402,138	228,933
Other deposits		27,230	27,902
Interest payable to depository institutions and others		844	644
Accrued benefit costs	Notes 9 and 10	845	618
Accrued remittance to the Treasury		612	1,448
Interdistrict settlement account		165,634	166,593
Other liabilities		81	74
Total liabilities		2,216,113	2,479,301
Capital paid-in		10,260	9,894
Surplus (including accumulated other comprehensive loss of $3,228 and $3,198 at December 31, 2018 and 2017, respectively)		2,166	3,152
Total capital		12,426	13,046
Total liabilities and capital		$ 2,228,539	$ 2,492,347

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

Consolidated Statements of Operations

For the years ended December 31, 2018 and December 31, 2017
(in millions)

		2018	2017
INTEREST INCOME			
System Open Market Account:	Note 5		
Treasury securities, net		$ 34,871	$ 36,298
Government-sponsored enterprise debt securities, net		97	235
Federal agency and government-sponsored enterprise mortgage-backed securities, net		27,371	27,630
Foreign currency denominated investments, net		(9)	(5)
Central bank liquidity swaps		5	4
Total interest income		62,335	64,162
INTEREST EXPENSE			
System Open Market Account:	Note 5		
Securities sold under agreements to repurchase		2,528	1,899
Other		2	4
Deposits:			
Depository institution and others		24,988	17,050
Term Deposit Facility		1	5
Total interest expense		27,519	18,958
Net interest income		34,816	45,204
OTHER ITEMS OF INCOME (LOSS)			
System Open Market Account:	Note 5		
Treasury securities gains, net		3	16
Federal agency and government-sponsored enterprise mortgage-backed securities (losses) gains, net		(2)	5
Foreign currency translation (losses) gains, net		(119)	612
Other		12	15
Income from investments held by consolidated variable interest entity, net	Note 6	9	6
Income from services		117	117
Compensation received for service costs provided		1	1
Reimbursable services to government agencies		144	147
Other		9	9
Total other items of income		174	928
OPERATING EXPENSES			
Salaries and benefits		693	683
Occupancy		69	63
Equipment		20	21
Net periodic pension expense	Note 9	437	498
Compensation paid for service costs incurred		44	42
Other		229	210
Assessments:			
Board of Governors operating expenses and currency costs		435	382
Bureau of Consumer Financial Protection		107	183
Total operating expenses		2,034	2,082
Net income before providing for remittances to the Treasury		32,956	44,050
Earnings remittances to the Treasury	Note 3o	33,608	44,553
Net loss after providing for remittances to the Treasury		(652)	(503)
Change in prior service costs related to benefit plans	Notes 9 and 10	52	77
Change in actuarial (losses) gains related to benefit plans	Notes 9 and 10	(82)	610
Total other comprehensive (loss) income		(30)	687
Comprehensive (loss) income		$ (682)	$ 184

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

Consolidated Statements of Changes in Capital

For the years ended December 31, 2018 and December 31, 2017
(in millions, except share data)

		Surplus			
	Capital paid-in	Net income retained	Accumulated other comprehensive income (loss)	Total surplus	Total capital
Balance at December 31, 2016 (194,954,658 shares)	$ 9,748	$ 7,087	$ (3,885)	$ 3,202	$ 12,950
Net change in capital stock issued (2,923,554 shares)	146	-	-	-	146
Comprehensive income:					
Net loss	-	(503)	-	(503)	(503)
Other comprehensive income	-	-	687	687	687
Dividends on capital stock	-	(234)	-	(234)	(234)
Net change in capital	146	(737)	687	(50)	96
Balance at December 31, 2017 (197,878,212 shares)	$ 9,894	$ 6,350	$ (3,198)	$ 3,152	$ 13,046
Net change in capital stock issued (7,324,580 shares)	366	-	-	-	366
Comprehensive loss:					
Net loss	-	(652)	-	(652)	(652)
Other comprehensive loss	-	-	(30)	(30)	(30)
Dividends on capital stock	-	(304)	-	(304)	(304)
Net change in capital	366	(956)	(30)	(986)	(620)
Balance at December 31, 2018 (205,202,792 shares)	$ 10,260	$ 5,394	$ (3,228)	$ 2,166	$ 12,426

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

Federal Reserve Bank of New York
Notes to Consolidated Financial Statements

(1) Structure

The Federal Reserve Bank of New York (Bank) is part of the Federal Reserve System (System) and is one of the 12 Federal Reserve Banks (Reserve Banks) created by Congress under the Federal Reserve Act of 1913 (Federal Reserve Act), which established the central bank of the United States. The Reserve Banks are chartered by the federal government and possess a unique set of governmental, corporate, and central bank characteristics. The Bank serves the Second Federal Reserve District, which includes the State of New York, the 12 northern counties of New Jersey, Fairfield County, Connecticut, the Commonwealth of Puerto Rico, and the U.S. Virgin Islands.

In accordance with the Federal Reserve Act, supervision and control of the Bank is exercised by a board of directors. The Federal Reserve Act specifies the composition of the board of directors for each of the Reserve Banks. Each board is composed of nine members serving three-year terms: three directors, including those designated as chairman and deputy chairman, are appointed by the Board of Governors of the Federal Reserve System (Board of Governors) to represent the public, and six directors are elected by member banks. Banks that are members of the System include all nationally-chartered banks and any state-chartered banks that apply and are approved for membership. Member banks are divided into three classes according to size. Member banks in each class elect one director representing member banks and one director representing the public. In any election of directors, each member bank receives one vote, regardless of the number of shares of Reserve Bank stock it holds.

In addition to the 12 Reserve Banks, the System also consists, in part, of the Board of Governors and the Federal Open Market Committee (FOMC). The Board of Governors, an independent federal agency, is charged by the Federal Reserve Act with a number of specific duties, including general supervision over the Reserve Banks. The FOMC is composed of members of the Board of Governors, the president of the Bank, and, on a rotating basis, four other Reserve Bank presidents.

(2) Operations and Services

The Reserve Banks perform a variety of services and operations. These functions include participating in formulating and conducting monetary policy; participating in the payment system, including transfers of funds, automated clearinghouse (ACH) operations, and check collection; distributing coin and currency; performing fiscal agency functions for the U.S. Department of the Treasury (Treasury), certain federal agencies, and other entities; serving as the federal government's bank; providing short-term loans to depository institutions; providing loans to participants in programs or facilities with broad-based eligibility in unusual and exigent circumstances; serving consumers and communities by providing educational materials and information regarding financial consumer protection rights and laws and information on community development programs and activities; and supervising bank holding companies, state member banks, savings and loan holding companies, U.S. offices of foreign banking organizations, edge and agreement corporations, and certain financial market utilities that have been designated as systemically important. Certain services are provided to foreign official and international account holders, primarily by the Bank.

The FOMC, in conducting monetary policy, establishes policy regarding domestic open market operations and oversees these operations. The FOMC has selected the Bank to execute open market transactions for the System Open Market Account (SOMA) as provided in its annual authorization. The FOMC authorizes and directs the Bank to conduct operations in domestic markets, including the direct purchase and sale of Treasury securities, government-sponsored enterprise (GSE) debt securities, and federal agency and GSE mortgage-backed securities (MBS); the purchase of these securities under agreements to resell; and the sale of these securities under agreements to repurchase. The Bank holds the resulting securities and agreements in a portfolio known as the SOMA. The Bank is authorized and directed to lend the Treasury securities and GSE debt securities that are held in the SOMA.

To be prepared to meet the needs specified by the FOMC to carry out the System's central bank responsibilities, the FOMC authorized and directed the Bank to execute standalone spot and forward foreign exchange transactions in the resultant foreign currencies, to hold balances in those currencies, and to invest such foreign currency holdings, while maintaining adequate liquidity. The Bank holds these securities and agreements in the SOMA. The FOMC also authorized and directed the Bank to maintain reciprocal currency arrangements with the Bank of Canada and the Bank of Mexico in the maximum amounts of $2 billion and $3 billion, respectively, and at the request of the Treasury to conduct swap transactions with the United States Exchange Stabilization Fund in the maximum amount of $5 billion, also known as warehousing.

Because of the global character of bank funding markets, the System has, at times, coordinated with other central banks to provide liquidity. The FOMC authorized and directed the Bank to maintain standing U.S. dollar liquidity swap arrangements and standing foreign currency liquidity swap arrangements with the Bank of Canada, the Bank of England, the Bank of Japan, the European Central Bank, and the Swiss National Bank. The Bank holds amounts outstanding under these liquidity swap lines in the SOMA. These liquidity swap lines are subject to annual review and approval by the FOMC.

The FOMC has authorized and directed the Bank to conduct small-value exercises periodically for the purpose of testing operational readiness.

Although the Reserve Banks are separate legal entities, they collaborate on the delivery of certain services to achieve greater efficiency and effectiveness. This collaboration takes the form of centralized operations and product or function offices that have responsibility for the delivery of certain services on behalf of the Reserve Banks. Various operational and management models are used and are supported by service agreements among the Reserve Banks. In some cases, costs incurred by a Reserve Bank for services provided to other Reserve Banks are not shared; in other cases, the Reserve Banks are reimbursed for costs incurred in providing services to other Reserve Banks. Major services provided by the Bank on behalf of the System for which the costs were not reimbursed by the other Reserve Banks include the management of SOMA, the Wholesale Product Office, the Valuation Support team, and centralized business administration functions for wholesale payments services.

(3) Significant Accounting Policies

Accounting principles for entities with the unique powers and responsibilities of the nation's central bank have not been formulated by accounting standard-setting bodies. The Board of Governors has developed specialized accounting principles and practices that it considers to be appropriate for the nature and function of a central bank. These accounting principles and practices are documented in the *Financial Accounting Manual for Federal Reserve Banks* (FAM), which is issued by the Board of Governors. The Reserve Banks are required to adopt and apply accounting policies and practices that are consistent with the FAM. The consolidated financial statements and associated disclosures have been prepared in accordance with the FAM.

Due to the unique nature of the Bank's powers and responsibilities as part of the nation's central bank and given the System's unique responsibility to conduct monetary policy, the Board has adopted accounting principles and practices in the FAM that differ from accounting principles generally accepted in the United States of America (GAAP). The more significant differences are the presentation of all SOMA securities holdings at amortized cost, adjusted for credit impairment, if any, and the recording of all SOMA securities on a settlement-date basis. Amortized cost, rather than the fair value presentation, more appropriately reflects the financial position associated with the Bank's securities holdings given the System's unique responsibility to conduct monetary policy. Although the application of fair value measurements to the securities holdings may result in values substantially greater or less than their carrying values, these unrealized changes in value have no direct effect on the quantity of reserves available to the banking system or on the ability of the Reserve Banks, as the central bank, to meet their financial obligations and responsibilities. Both the domestic and foreign components of the SOMA portfolio may involve transactions that result in gains or losses when holdings are sold before maturity. Decisions regarding securities and foreign currency transactions, including their purchase and sale, are primarily motivated by monetary policy and financial stability objectives rather than profit. Accordingly, fair values, earnings, and gains or losses resulting from the sale of such securities and currencies are incidental to open market operations and do not motivate decisions related to policy or open market activities. Accounting for these securities on a settlement-date basis, rather than the trade-date basis required by GAAP, better reflects the timing of the transaction's effect on the quantity of reserves in the banking system.

In addition, the Bank does not present a Consolidated Statement of Cash Flows as required by GAAP because the liquidity and cash position of the Bank are not a primary concern given the Reserve Bank's unique powers and responsibilities as a central bank. Other information regarding the Bank's activities is provided in, or may be derived from, the Consolidated Statements of Condition, Operations, and Changes in Capital, and the accompanying notes to the consolidated financial statements. Other than those described above, the accounting policies described in FAM are generally consistent with those in GAAP and the references to GAAP in the notes to the consolidated financial statements highlight those areas where FAM is consistent with GAAP.

Preparing the consolidated financial statements in conformity with the FAM requires management to make certain estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the consolidated financial statements, and the reported amounts of income and expenses during the reporting period. Actual results could differ from those estimates.

Certain amounts relating to the prior year have been reclassified in the consolidated Statements of Condition to conform to the current year presentation. $1,722 million previously reported as "Assets: Investments held by consolidated variable interest entity" and $9 million previously reported as "Liabilities and capital: Liabilities of consolidated variable interest entity," as of December 31, 2017, have been combined and reported in a new line titled "Assets: Investments held by consolidated variable interest entity, net." Also, parenthetical fair value amounts $1,720 million and $8 million previously reported as of December 31, 2017 in the line headings of "Assets: Investments held by consolidated variable interest entity" and "Liabilities and capital: Liabilities of consolidated variable interest entity," have been combined and reported parenthetically in the line "Assets: Investments held by consolidated variable interest entity, net."

Certain amounts relating to the prior year have been reclassified in the consolidated Statements of Operations to conform to the current year presentation. $15 million and $9 million previously reported for the year ended December 31, 2017 as "Interest income: Investments held by consolidated variable interest entity" and "Non-interest income: Investments held by consolidated variable interest entity losses, net" have been combined and reported in a new line titled "Other items of income (loss): Income from investments held by consolidated variable interest entity, net."

Certain amounts relating to the prior year have been reclassified in the consolidated Statements of Condition to conform to the current year presentation. $86 million previously reported as "Liabilities and capital: Deposits: Depository institutions" as of December 31, 2017 have been reclassified as "Liabilities and capital: Deposits: Other deposits."

Significant accounts and accounting policies are explained below.

a. Consolidation

The consolidated financial statements include the accounts and results of operations of the Bank as well as a variable interest entity (VIE), Maiden Lane Limited Liability Company (LLC) (ML). The consolidation of the VIE was assessed in accordance with Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) Topic 810 (ASC 810), *Consolidation*, which requires a VIE to be consolidated by its controlling financial interest holder. Intercompany balances and transactions have been eliminated in consolidation. See Note 6 for additional information on the VIE. The consolidated financial statements of the Bank also include accounts and results of operations of Maiden and Nassau LLC, a Delaware LLC wholly-owned by the Bank, which was formed to own and operate the Bank-owned 33 Maiden Lane building.

The Bank consolidates a VIE if the Bank has a controlling financial interest, which is defined as the power to direct the significant economic activities of the entity and the obligation to absorb losses or the right to receive benefits of the entity that could potentially be significant to the VIE. To determine whether it is the controlling financial interest holder of a VIE, the Bank evaluates the VIE's design, capital structure, and relationships with the variable interest holders. The Bank reconsiders whether it has a controlling financial interest in a VIE, as required by ASC 810, at each reporting date or if there is an event that requires consideration.

The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (Dodd-Frank Act) established the Bureau of Consumer Financial Protection (Bureau) as an independent bureau within the System that has supervisory authority over some institutions previously supervised by the Reserve Banks in connection with those institutions' compliance with consumer protection statutes. Section 1017 of the Dodd-Frank Act provides that the financial statements of the Bureau are not to be consolidated with those of the Board of Governors or the System. The Board of Governors funds the Bureau through assessments on the Reserve Banks as required by the Dodd-Frank Act. The Reserve Banks reviewed the law and evaluated the design of and their relationship to the Bureau and determined that it should not be consolidated in the Bank's consolidated financial statements.

b. Gold and Special Drawing Rights Certificates

The Secretary of the Treasury is authorized to issue gold certificates to the Reserve Banks. Upon authorization, the Reserve Banks acquire gold certificates by crediting equivalent amounts in dollars to the account established for the Treasury. The gold certificates held by the Reserve Banks are required to be backed by the gold owned by the Treasury. The Treasury may reacquire the gold certificates at any time, and the Reserve Banks must deliver them to the Treasury. At such time, the Treasury's account is charged, and the Reserve Banks' gold certificate accounts are reduced. The value of gold for purposes of backing the gold certificates is set by law at $42 2/9 per fine troy ounce. Gold certificates are recorded by the Reserve Banks at original cost. The Board of Governors allocates the gold certificates among the Reserve Banks once a year based on each Reserve Bank's average Federal Reserve notes outstanding during the preceding 12 months.

Special drawing rights (SDR) are issued by the International Monetary Fund (IMF) to its members in proportion to each member's quota in the IMF at the time of issuance. SDRs serve as a supplement to international monetary reserves and may be transferred from one national monetary authority to another. Under the law providing for U.S. participation in the SDR system, the Secretary of the Treasury is authorized to issue SDR certificates to the Reserve Banks. When SDR certificates are issued to the Reserve Banks, equivalent amounts in U.S. dollars are credited to the account established for the Treasury and the Reserve Banks' SDR certificate accounts are increased. The Reserve Banks are required to purchase SDR certificates, at the direction of the Treasury, for the purpose of financing SDR acquisitions or for financing exchange-stabilization operations. At the time SDR certificate transactions occur, the Board of Governors allocates the SDR certificates among the Reserve Banks based upon each Reserve Bank's Federal Reserve notes outstanding at the end of the preceding calendar year. SDR certificates are recorded by the Reserve Banks at original cost.

c. Coin

The amount reported as coin in the Consolidated Statements of Condition represents the face value of all United States coin held by the Bank. The Bank buys coin at face value from the U.S. Mint in order to fill depository institution orders.

d. Loans

Loans to depository institutions are reported at their outstanding principal balances and interest income is recognized on an accrual basis.

Loans are impaired when current information and events indicate that it is probable that the Bank will not receive the principal and interest that are due in accordance with the contractual terms of the loan agreement. Impaired loans are evaluated to determine whether an allowance for loan loss is required. The Bank has developed procedures for assessing the adequacy of any allowance for loan losses using all available information to identify incurred losses. This assessment includes monitoring information obtained from banking supervisors, borrowers, and other sources to assess the credit condition of the borrowers and, as appropriate, evaluating collateral values. Generally, the Bank would discontinue recognizing interest income on impaired loans until the borrower's repayment performance demonstrates principal and interest would be received in accordance with the terms of the loan agreement. If the Bank discontinues recording interest on an impaired loan, cash payments are first applied to principal until the loan balance is reduced to zero; subsequent payments are applied as recoveries of amounts previously deemed uncollectible, if any, and then as interest income.

e. Securities Purchased Under Agreements to Resell, Securities Sold Under Agreements to Repurchase, and Securities Lending

The Bank may engage in purchases of securities under agreements to resell (repurchase agreements) with primary dealers. Transactions under these repurchase agreements are typically settled through a tri-party arrangement, in which a commercial custodial bank manages the collateral clearing, settlement, pricing, and pledging, and provides cash and securities custodial services for and on behalf of the Bank and counterparty. The collateral pledged must exceed the principal amount of the transaction by a margin determined by the Bank for each class and maturity of acceptable collateral. Collateral designated by the Bank as acceptable under repurchase agreements primarily includes Treasury securities (including Treasury Inflation-Protected Securities, Separate Trading of Registered Interest and Principal of Securities (STRIPS) Treasury securities, and Treasury Floating Rate Notes); direct obligations of several federal and GSE-related agencies, including Federal National Mortgage Association, Federal Home Loan Mortgage Corporation, and Federal Home Loan Banks; and pass-through federal agency and GSE MBS. The repurchase agreements are accounted for as financing transactions with the associated interest income recognized over the life of the transaction. These repurchase agreements are reported at their contractual amounts as "System Open Market Account: Securities purchased under agreements to resell" and the related accrued interest receivable is reported as a component of "System Open Market Account: Accrued interest receivable" in the Consolidated Statements of Condition. Interest income is reported as a component of "System Open Market Account: Securities purchased under agreements to resell" in the Consolidated Statements of Operations.

The Bank may engage in sales of securities under agreements to repurchase (reverse repurchase agreements) with primary dealers and with a set of expanded counterparties that includes banks, savings associations, GSEs, and domestic money market funds. Transactions under these reverse repurchase agreements are designed to have a margin of zero and are settled through a tri-party arrangement, similar to repurchase agreements. Reverse repurchase agreements may also be executed with foreign official and international account holders as part of a service offering. Reverse repurchase agreements are collateralized by a pledge of an amount of Treasury securities, GSE debt securities, or federal agency and GSE MBS that are held in the SOMA. Reverse repurchase agreements are accounted for as financing transactions, and the associated interest expense is recognized over the life of the transaction. These reverse repurchase agreements are reported at their contractual amounts as "System Open Market Account: Securities sold under agreements to repurchase" and the related accrued interest payable is reported as a component of "System Open Market Account: Other liabilities" in the Consolidated Statements of Condition. Interest expense is reported as a component of "System Open Market Account: Securities sold under agreements to repurchase" in the Consolidated Statements of Operations.

Treasury securities and GSE debt securities held in the SOMA may be lent to primary dealers, typically overnight, to facilitate the effective functioning of the domestic securities markets. The amortized cost basis of securities lent continues to be reported as "System Open Market Account: Treasury securities, net" and "System Open Market Account: Government-sponsored enterprise debt securities, net," as appropriate, in the Consolidated Statements of Condition. Securities lending transactions are fully collateralized by Treasury securities based on the fair values of the securities lent increased by a margin determined by the Bank. The Bank charges the primary dealer a fee for borrowing securities, and these fees are reported as a component of "Other items of income (loss): System Open Market Account: Other" in the Consolidated Statements of Operations.

Activity related to repurchase agreements, reverse repurchase agreements, and securities lending is allocated to each of the Reserve Banks on a percentage basis derived from an annual settlement of the interdistrict settlement account that occurs in the second quarter of each year.

f. Treasury Securities, Government-Sponsored Enterprise Debt Securities, Federal Agency and Government-Sponsored Enterprise Mortgage-Backed Securities, and Foreign Currency Denominated Investments

Interest income on Treasury securities, GSE debt securities, federal agency and GSE MBS, and foreign currency denominated investments included in the SOMA is recorded when earned and includes amortization of premiums and accretion of discounts using the effective interest method. Interest income on federal agency and GSE MBS also includes gains or losses associated with principal paydowns. Premiums and discounts related to federal agency and GSE MBS are amortized or accreted over the term of the security to stated maturity, and the amortization of premiums and accretion of discounts are accelerated when principal payments are received. Gains and losses resulting from sales of securities are determined by specific issue based on average cost. Treasury securities, GSE debt securities, and federal agency and GSE MBS are reported net of premiums and discounts in the Consolidated Statements of Condition and interest income on those securities is reported net of the amortization of premiums and accretion of discounts in the Consolidated Statements of Operations.

In addition to outright purchases of federal agency and GSE MBS that are held in the SOMA, the Bank enters into dollar roll transactions (dollar rolls), which primarily involve an initial transaction to purchase or sell “to be announced” (TBA) MBS for delivery in the current month combined with a simultaneous agreement to sell or purchase TBA MBS on a specified future date. During the years ended December 31, 2018 and 2017, the Bank executed dollar rolls to facilitate settlement of outstanding purchases of federal agency and GSE MBS. The Bank accounts for dollar rolls as individual purchases and sales, on a settlement-date basis. Accounting for these transactions as purchases and sales, rather than as financing transactions, is appropriate because the purchase or sale component of the MBS TBA dollar roll is paired off or assigned prior to settlement and, as a result, there is no transfer and return of securities. Net gains (losses) resulting from MBS transactions are reported as a component of “Other items of income (loss): System Open Market Account: Federal agency and government-sponsored enterprise mortgage-backed securities (losses) gains, net” in the Consolidated Statements of Operations.

Foreign currency denominated investments, which can include foreign currency deposits, repurchase agreements, and government debt instruments, are revalued daily at current foreign currency market exchange rates in order to report these assets in U.S. dollars. Any negative interest associated with these foreign currency denominated investments is included as a component of “Interest income: System Open Market Account: Foreign currency denominated investments, net” in the Consolidated Statements of Operations. Foreign currency translation gains and losses that result from the daily revaluation of foreign currency denominated investments are reported as “Other items of income (loss): System Open Market Account: Foreign currency translation (losses) gains, net” in the Consolidated Statements of Operations.

Because the Bank enters into commitments to buy Treasury securities, federal agency and GSE MBS, and foreign government debt instruments and records the related securities on a settlement-date basis in accordance with the FAM, the related outstanding commitments are not reflected in the Consolidated Statements of Condition.

Activity related to Treasury securities, GSE debt securities, and federal agency and GSE MBS, including the premiums, discounts, and realized gains and losses, is allocated to each Reserve Bank on a percentage basis derived from an annual settlement of the interdistrict settlement account that occurs in the second quarter of each year. Activity related to foreign currency denominated investments, including the premiums, discounts, and realized and unrealized gains and losses, is allocated to each Reserve Bank on a percentage basis, adjusted annually in the second quarter of each year, calculated as the ratio of each Reserve Bank’s capital and surplus to the Reserve Banks’ aggregate capital and surplus at the preceding December 31.

The Bank is authorized to hold foreign currency working balances and execute foreign exchange contracts to facilitate international payments and currency transactions it makes on behalf of foreign central bank and U.S. official institution customers. These foreign currency working balances and contracts are not related to the Bank's monetary policy operations. Foreign currency working balances are reported as a component of "Other assets" in the Consolidated Statements of Condition and the related foreign currency translation gains and losses that result from the daily revaluation of the foreign currency working balances and contracts are reported as a component of "Other items of income (loss): Other" in the Consolidated Statements of Operations.

g. Central Bank Liquidity Swaps

Central bank liquidity swaps, which are transacted between the Bank and a foreign central bank, can be structured as either U.S. dollar or foreign currency liquidity swap arrangements.

Central bank liquidity swaps activity, including the related income and expense, is allocated to each Reserve Bank based on a percentage basis, adjusted annually in the second quarter of each year, calculated as the ratio of each Reserve Bank's capital and surplus to the Reserve Banks' aggregate capital and surplus at the preceding December 31.

U.S. dollar liquidity swaps

At the initiation of each U.S. dollar liquidity swap transaction, the foreign central bank transfers a specified amount of its currency to a restricted account for the Bank in exchange for U.S. dollars at the prevailing market exchange rate. Concurrent with this transaction, the Bank and the foreign central bank agree to a second transaction that obligates the foreign central bank to return the U.S. dollars and the Bank to return the foreign currency on a specified future date at the same exchange rate as the initial transaction. The Bank's allocated portion of the foreign currency amounts that the Bank acquires are reported as "System Open Market Account: Central bank liquidity swaps" in the Consolidated Statements of Condition. Because the swap transaction will be unwound at the same U.S. dollar amount and exchange rate that were used in the initial transaction, the recorded value of the foreign currency amounts is not affected by changes in the market exchange rate.

The foreign central bank compensates the Bank based on the amount outstanding and the rate under the swap agreement. The Bank's allocated portion of the amount of compensation received during the term of the swap transaction is reported as "Interest income: System Open Market Account: Central bank liquidity swaps" in the Consolidated Statements of Operations.

Foreign currency liquidity swaps

Foreign currency liquidity swap transactions involve the transfer by the Bank at the prevailing market exchange rate, of a specified amount of U.S. dollars to an account for the foreign central bank in exchange for its currency. The foreign currency amounts that the Bank receives are recorded as a liability.

h. Consolidated VIE – Investments and Liabilities

The investments held by the consolidated VIE consist primarily of cash and cash equivalents, short-term investments with maturities of greater than three months and less than one year, and swap contracts. Swap contracts consist of credit default swaps (CDS). Investments are reported as "Investments held by consolidated variable interest entity, net" in the Consolidated Statements of Condition. Changes in fair value of the investments are recorded in "Other items of income (loss): Income from investments held by consolidated variable interest entity, net" in the Consolidated Statements of Operations.

Investments in debt securities are accounted for in accordance with FASB ASC Topic 320, *Investments – Debt and Equity Securities*, and the VIE elected the fair value option for all eligible assets and liabilities in accordance with FASB ASC Topic 825 (ASC 825), *Financial Instruments*. Other financial instruments, including swap contracts, are recorded at fair value in accordance with FASB ASC Topic 815 (ASC 815), *Derivatives and Hedging*.

The liabilities of the consolidated VIE consist primarily of swap contracts, cash collateral on swap contracts, and accruals for operating expenses. Swap contracts are recorded at fair value in accordance with ASC 815. Liabilities are reported in "Investments held by consolidated variable interest entity, net" in the Consolidated Statements of Condition. Changes in fair value of the liabilities are recorded in "Other items of income (loss): Income from investments held by consolidated variable interest entity, net" in the Consolidated Statements of Operations.

i. Bank Premises, Equipment, and Software

Bank premises and equipment are stated at cost less accumulated depreciation. Depreciation is calculated on a straight-line basis over the estimated useful lives of the assets, which range from 3 to 50 years. Major alterations, renovations, and improvements are capitalized at cost as additions to the asset accounts and are depreciated over the remaining useful life of the asset or, if appropriate, over the unique useful life of the alteration, renovation, or improvement. Maintenance, repairs, and minor replacements are charged to operating expense in the year incurred. Reserve Banks may transfer assets to other Reserve Banks or may lease property of other Reserve Banks.

Costs incurred to acquire software are capitalized based on the purchase price. Costs incurred during the application development stage to develop internal-use software are capitalized based on the cost of direct services and materials associated with designing, coding, installing, and testing the software. Capitalized software costs are amortized on a straight-line basis over the estimated useful lives of the software applications, which generally range from two to five years. Maintenance costs and minor replacements related to software are charged to operating expense in the year incurred.

Capitalized assets, including software, buildings, leasehold improvements, furniture, and equipment, are impaired and an adjustment is recorded when events or changes in circumstances indicate that the carrying amount of assets or asset groups is not recoverable and significantly exceeds the assets' fair value.

j. Interdistrict Settlement Account

Each Reserve Bank aggregates the payments due to or from other Reserve Banks. These payments result from transactions between the Reserve Banks and transactions that involve depository institution accounts held by other Reserve Banks, such as Fedwire funds and securities transfers and check and ACH transactions. The cumulative net amount due to or from the other Reserve Banks is reflected in the "Interdistrict settlement account" in the Consolidated Statements of Condition.

An annual settlement of the interdistrict settlement account occurs in the second quarter of each year. As a result of the annual settlement, the balance in each Bank's interdistrict settlement account is adjusted by an amount equal to the average balance in the account during the previous twelve-month period ended March 31. An equal and offsetting adjustment is made to each Bank's allocated portion of SOMA assets and liabilities.

k. Federal Reserve Notes

Federal Reserve notes are the circulating currency of the United States. These notes, which are identified as issued to a specific Reserve Bank, must be fully collateralized. All of the Bank's assets are eligible to be pledged as collateral. The collateral value is equal to the book value of the collateral tendered with the exception of securities, for which the collateral value is equal to the par value of the securities tendered. The par value of securities pledged as collateral under reverse repurchase agreements is deducted from the eligible collateral value.

The Board of Governors may, at any time, call upon a Reserve Bank for additional security to adequately collateralize outstanding Federal Reserve notes. To satisfy the obligation to provide sufficient collateral for outstanding Federal Reserve notes, the Reserve Banks have entered into an agreement that provides for certain assets of the Reserve Banks to be jointly pledged as collateral for the Federal Reserve notes issued to all Reserve Banks. In the event that this collateral is insufficient, the Federal Reserve Act provides that Federal Reserve notes become a first and paramount lien on all the assets of the Reserve Banks. Finally, Federal Reserve notes are obligations of the United States government.

"Federal Reserve notes outstanding, net" in the Consolidated Statements of Condition represents the Bank's Federal Reserve notes outstanding, reduced by the Bank's currency holdings of $55,968 million and $49,106 million at December 31, 2018 and 2017, respectively.

At December 31, 2018 and 2017, all Federal Reserve notes outstanding, net, were fully collateralized. At December 31, 2018 and 2017, all gold certificates, all SDR certificates, and $1,655 billion and $1,554 billion, respectively, of domestic securities held in the SOMA were pledged as collateral. At December 31, 2018 and 2017, no investments denominated in foreign currencies were pledged as collateral.

l. Deposits

Depository Institutions

Depository institutions' deposits represent the reserve and service-related balances in the accounts that depository institutions hold at the Bank. Required reserve balances are those that a depository institution must hold to satisfy its reserve requirement. Reserve requirements are the amount of funds that a depository institution must hold in reserve against specified deposit liabilities. Excess reserves are those held by the depository institutions in excess of their required reserve balances. The interest rates paid on required reserve balances and excess balances are determined by the Board of Governors, based on an FOMC-established target range for the federal funds rate. Interest expense on depository institutions' deposits is accrued daily at the appropriate rate. Interest payable is reported as a component of "Interest payable to depository institutions and others" in the Consolidated Statements of Condition.

The Term Deposit Facility (TDF) consists of deposits with specific maturities held by eligible institutions at the Reserve Banks. The Reserve Banks pay interest on these deposits at interest rates determined by auction. Interest expense on deposits held by the Reserve Banks under the TDF is accrued daily at the appropriate rate. Interest payable is reported as a component of "Interest payable to depository institutions and others" in the Consolidated Statements of Condition. There were no deposits held by the Bank under the TDF at December 31, 2018 and 2017.

Treasury

The Treasury general account is the primary operational account of the Treasury and is held at the Bank.

Other

Other deposits include the Bank's allocated portion of foreign central bank and foreign government deposits held at the Bank and those in which the Bank has an undivided interest. Other deposits also include cash collateral, deposits of designated financial market utilities (DFMUs), and GSE deposits held by the Bank. The Bank pays interest on deposits held by DFMUs at the rate paid on balances maintained by depository institutions or another rate determined by the Board from time to time, not to exceed the general level of short term interest rates. Interest payable is reported as a component of "Interest payable to depository institutions and others" in the Consolidated Statements of Condition.

m. Capital Paid-in

The Federal Reserve Act requires that each member bank subscribe to the capital stock of the Reserve Bank in an amount equal to 6 percent of the capital and surplus of the member bank. These shares are nonvoting, with a par value of $100, and may not be transferred or hypothecated. As a member bank's capital and surplus changes, its holdings of Reserve Bank stock must be adjusted. Currently, only one-half of the subscription is paid in, and the remainder is subject to call. A member bank is liable for Reserve Bank liabilities up to twice the par value of stock subscribed by it.

The Federal Reserve Act requires each Reserve Bank to pay each member bank an annual dividend based on the amount of the member bank's paid-in capital stock and a rate determined by the member bank's total consolidated assets. Member banks with total consolidated assets in excess of a threshold established in the Federal Reserve Act receive a dividend equal to the smaller of 6 percent or the rate equal to the high yield of the 10-year Treasury note auctioned at the last auction held prior to the payment of the dividend. Member banks with total consolidated assets equal to or less than the threshold receive a dividend of 6 percent. The threshold for total consolidated assets was $10.2 billion and $10.1 billion for the years ended December 31, 2018 and 2017, respectively. This threshold is adjusted annually based on the Gross Domestic Product Price Index, which is published by the Bureau of Economic Analysis. The dividend is paid semiannually and is cumulative.

n. Surplus

The Federal Reserve Act limits aggregate Reserve Bank surplus. Effective February 9, 2018, the Bipartisan Budget Act of 2018 (Budget Act) reduced the statutory limit on aggregate Reserve Bank surplus from $10 billion to $7.5 billion. Effective May 24, 2018, the Economic Growth, Regulatory Relief, and Consumer Protection Act (Economic Growth Act), further reduced the statutory limit on aggregate Reserve Bank surplus from $7.5 billion to $6.825 billion. Reserve Bank surplus is allocated among the Reserve Banks based on the ratio of each Bank's capital paid-in to total Reserve Bank capital paid-in as of December 31 of each year. The amount reported as surplus by the Bank as of December 31, 2018 and 2017 represents the Bank's allocated portion of surplus.

Accumulated other comprehensive loss is reported as a component of "Surplus" in the Consolidated Statements of Condition and the Consolidated Statements of Changes in Capital. Additional information regarding the classifications of accumulated other comprehensive income is provided in Notes 9, 10, and 11.

o. Earnings Remittances to the Treasury

The Federal Reserve Act requires that any amounts of the surplus funds of the Reserve Banks that exceed, or would exceed, the aggregate surplus limitation shall be transferred to the Board of Governors for transfer to the Treasury. The Bank remits excess earnings to the Treasury after providing for the cost of operations, payment of dividends, and reservation of an amount necessary to maintain surplus at the Bank's allocated portion of the aggregate surplus limitation. Remittances to the Treasury are made on a weekly basis. The amount of the remittances to the Treasury is reported as "Earnings remittances to the Treasury" in the Consolidated Statements of Operations. The amount due to the Treasury is reported as "Accrued remittances to the Treasury" in the Consolidated Statements of Condition. See Note 12 for additional information on earnings remittances to the Treasury.

If earnings during the year are not sufficient to provide for the costs of operations, payment of dividends, and maintaining surplus at an amount equal to the Bank's allocated portion of the aggregate surplus limitation, remittances to the Treasury are suspended. This decrease in earnings remittances to the Treasury results in a deferred asset that represents the amount of net earnings a Reserve Bank will need to realize before remittances to the Treasury resume.

p. Income and Costs Related to Treasury Services

When directed by the Secretary of the Treasury, the Bank is required by the Federal Reserve Act to serve as fiscal agent and depositary of the United States Government. By statute, the Treasury has appropriations to pay for these services. During the years ended December 31, 2018 and 2017, the Bank was reimbursed for substantially all services provided to the Treasury as its fiscal agent.

q. Income from Services, Compensation Received for Service Costs Provided, and Compensation Paid for Service Costs Incurred

The Bank has overall responsibility for managing the Reserve Banks' provision of Fedwire funds and securities services and, as a result, reports total System revenue for these services as "Other items of income (loss): Income from services" in its Consolidated Statements of Operations. The Bank compensates the applicable Reserve Banks for the costs incurred to provide these services and reports the resulting compensation paid as "Operating expenses: Compensation paid for service costs incurred" in its Consolidated Statements of Operations.

The Federal Reserve Bank of Atlanta has overall responsibility for managing the Reserve Banks' provision of check and ACH services to depository institutions, and the Federal Reserve Bank of Chicago has overall responsibility for managing the Reserve Banks' provision of electronic access services to depository institutions. The Reserve Bank that has overall responsibility for managing these services recognizes the related total System revenue in its Consolidated Statements of Operations. The Bank is compensated for costs incurred to provide these services by the Reserve Banks responsible for managing these services and reports this compensation as "Other items of income (loss): Compensation received for service costs provided" in its Consolidated Statements of Operations.

r. Assessments

The Board of Governors assesses the Reserve Banks to fund its operations and the operations of the Bureau. These assessments are allocated to each Reserve Bank based on each Reserve Bank's capital and surplus balances. The Board of Governors also assesses each Reserve Bank for expenses related to producing, issuing, and retiring Federal Reserve notes based on each Reserve Bank's share of the number of notes comprising the System's net liability for Federal Reserve notes on December 31 of the prior year.

The Dodd-Frank Act requires that, after the transfer of its responsibilities to the Bureau on July 21, 2011, the Board of Governors fund the Bureau in an amount not to exceed a fixed percentage of the total operating expenses of the System as reported in the Board of Governor's 2009 annual report, which totaled $4.98 billion. After 2013, the amount will be adjusted annually in accordance with the provisions of the Dodd-Frank Act. The percentage of total operating expenses of the System for the years ended December 31, 2018 and 2017 was 13.31 percent ($663.0 million) and 12.98 percent ($646.2 million), respectively. The Bank's assessment for Bureau funding is reported as "Operating expenses: Assessments: Bureau of Consumer Financial Protection" in the Consolidated Statements of Operations.

s. Fair Value

Investments and liabilities of the consolidated VIE and assets of the Retirement Plan for Employees of the System are measured at fair value in accordance with FASB ASC Topic 820 (ASC 820), *Fair Value Measurement*. ASC 820 defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. ASC 820 establishes a three-level fair value hierarchy that distinguishes between assumptions developed using market data obtained from independent sources (observable inputs) and the Bank's assumptions developed using the best information available in the circumstances (unobservable inputs). The three levels established by ASC 820 are described as follows:

- Level 1 – Valuation is based on quoted prices for identical instruments traded in active markets.
- Level 2 – Valuation is based on quoted prices for similar instruments in active markets, quoted prices for identical or similar instruments in markets that are not active, and model-based valuation techniques for which all significant assumptions are observable in the market.
- Level 3 – Valuation is based on model-based techniques that use significant inputs and assumptions not observable in the market. These unobservable inputs and assumptions reflect the Bank's estimates of inputs and assumptions that market participants would use in pricing the assets and liabilities. Valuation techniques include the use of option pricing models, discounted cash flow models, and similar techniques.

The inputs or methodology used for valuing assets and liabilities are not necessarily an indication of the risk associated with those assets and liabilities.

t. Taxes

The Reserve Banks are exempt from federal, state, and local taxes, except for taxes on real property. The Bank's real property taxes were $14 million and $11 million for the years ended December 31, 2018 and 2017, respectively, and are reported as a component of "Operating expenses: Occupancy" in the Consolidated Statements of Operations.

u. Restructuring Charges

The Reserve Banks recognize restructuring charges for exit or disposal costs incurred as part of the closure of business activities in a particular location, the relocation of business activities from one location to another, or a fundamental reorganization that affects the nature of operations. Restructuring charges may include costs associated with employee separations, contract terminations, and asset impairments. Expenses are recognized in the period in which the Bank commits to a formalized restructuring plan or executes the specific actions contemplated in the plan and all criteria for financial statement recognition have been met.

The Bank had no significant restructuring activities in 2018 and 2017.

v. Recently Issued Accounting Standards

Other than the significant differences described in Note 3, the accounting policies described in FAM are generally consistent with those in GAAP. The following items represent recent GAAP accounting standards and describe how FAM was or will be revised to be consistent with these standards.

In May 2014, the FASB issued Accounting Standards Update (ASU) 2014-09, *Revenue from Contracts with Customers (Topic 606)*. This update was issued to create common revenue recognition guidance for U.S. GAAP and International Financial Reporting Standards. The guidance is applicable to all contracts for the transfer of goods or services regardless of industry or type of transaction. This update requires recognition of revenue in a manner that reflects the consideration that the entity expects to receive in return for the transfer of goods or services to customers. Subsequently, the FASB issued a number of related ASUs including ASU 2015-14, *Revenue from Contracts with Customers (Topic 606): Deferral of the Effective Date;* ASU 2016-08, *Revenue from Contracts with Customers (Topic 606): Principal versus Agent Considerations (Reporting Revenue Gross versus Net);* ASU 2016-10, *Revenue from Contracts with Customers (Topic 606): Identifying Performance Obligations and Licensing;* ASU 2016-12, *Revenue from Contracts with Customers (Topic 606): Narrow-Scope Improvements and Practical Expedients*; and ASU 2016-20, *Technical Corrections and Improvements to Topic 606, Revenue from Contracts with Customers*. This revenue recognition accounting guidance is effective for the Bank for the year ending December 31, 2019 and is not expected to have a material effect on the Bank's consolidated financial statements.

In January 2016, the FASB issued ASU 2016-01, *Financial Instruments – Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities*. The amendments in this update eliminate the requirement to disclose methods and significant assumptions used to estimate the fair value for financial instruments measured at amortized cost on the balance sheet. This update is effective for the Bank for the year ending December 31, 2019 and is not expected to have a material effect on the Bank's consolidated financial statements.

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)*. This update revises the model to assess how a lease should be classified and provides guidance for lessees, requiring lessees to present right-of-use assets and lease liabilities on the balance sheet. Subsequently, in July 2018, the FASB issued additional related ASUs, ASU 2018-10, *Codification Improvements to Topic 842, Leases* and ASU 2018-11, *Leases (Topic 842) Targeted Improvements*; and in November 2018, ASU 2018-20, *Leases (Topic 842): Narrow-scope Improvements for Lessors*. This lease accounting guidance is effective for the Bank for the year ending December 31, 2020. The Board of Governors is continuing to evaluate the effect of this guidance on the Bank's consolidated financial statements, and is considering the information and processes necessary to adopt the guidance.

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments – Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*. This update revises the methodology for assessing expected credit losses and requires consideration of reasonable and supportable information to inform credit loss estimates. Subsequently, in November 2018, the FASB issued one related ASU, ASU 2018-19, *Codification Improvements to Topic 326, Financial Instruments—Credit Losses*. The update is effective for the Bank for the year ending

December 31, 2022, although earlier adoption is permitted, and is not expected to have a material effect on the Bank's consolidated financial statements.

In March 2017, the FASB issued ASU 2017-07, *Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost*. This update requires an employer to disaggregate the service cost component from the other components of net benefit cost. It also provides explicit guidance on how to present the service cost component and the other components of net benefit cost in the income statement and allows only the service cost component of net benefit cost to be eligible for capitalization. This update is effective for the Bank for the year ending December 31, 2019, and is not expected to have a material effect on the Bank's consolidated financial statements.

In March 2017, the FASB issued ASU 2017-08, *Receivables—Nonrefundable Fees and Other Costs (Subtopic 310-20) –Premium Amortization on Purchased Callable Debt Securities*. This update shortens the amortization period for certain callable debt securities held at a premium. Specifically, the amendments require the premium to be amortized to the earliest call date. The amendments do not require an accounting change for securities held at a discount; the discount continues to be amortized to maturity. This update is effective for the Bank for the year ending December 31, 2019, and is not expected to have a material effect on the Bank's consolidated financial statements.

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement (Topic 820)*. This update modifies disclosure requirements for fair value measurements in Topic 820 to provide users of financial statements with information about assets and liabilities measured at fair value, including the valuation techniques, the uncertainty in fair value measurements, and how changes in the measurements will affect financial performance. This update is effective for the Bank for the year ending December 31, 2020. The Board of Governors is continuing to evaluate the effect of this new guidance on the Bank's consolidated financial statements.

In August 2018, the FASB issued ASU 2018-14, *Retirement Benefits-Defined Benefits Plans-General (Subtopic 715-20)*. This update modifies the disclosure requirements for pension and postretirement plans. The update is effective for the Bank for the year ending December 31, 2021, although earlier adoption is permitted. The Board of Governors is continuing to evaluate the effect of this new guidance on the Bank's consolidated financial statements.

In August 2018, the FASB issued ASU 2018-15, *Intangibles-Goodwill and Other-Internal-Use Software (Subtopic 350-40)*. This update aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software (and hosting arrangements that include an internal-use software license). This update is effective for the Bank for the year ending December 31, 2021, although earlier adoption is permitted. The Board of Governors plans to early adopt this standard for the year ending December 31, 2019, and it is not expected to have a material effect on the Bank's consolidated financial statements.

(4) LOANS

Loans to Depository Institutions

The Bank offers primary, secondary, and seasonal loans to eligible borrowers (depository institutions that maintain reservable transaction accounts or nonpersonal time deposits and have established discount window borrowing privileges). Each program has its own interest rate and interest is accrued using the applicable interest rate established at least every 14 days by the Bank's board of directors, subject to review and determination by the Board of Governors. Primary and secondary loans are extended on a short-term basis, typically overnight, whereas seasonal loans may be extended for a period of up to nine months.

Primary, secondary, and seasonal loans are collateralized to the satisfaction of the Bank to reduce credit risk. Assets eligible to collateralize these loans include consumer, business, and real estate loans; Treasury securities; GSE debt securities; foreign sovereign debt; municipal, corporate, and state and local government obligations; asset-backed securities; corporate bonds; commercial paper; and bank-issued assets, such as certificates of deposit, bank notes, and deposit notes. Collateral is assigned a lending value that is deemed appropriate by the Bank, which is typically fair value reduced by a margin. Loans to depository institutions are monitored daily to ensure that borrowers continue to meet eligibility requirements for these programs. If a borrower no longer qualifies for these programs, the Bank will generally request full repayment of the outstanding loan or, for primary or seasonal loans, may convert the loan to a secondary credit loan. Collateral levels are reviewed daily against outstanding obligations, and borrowers that no longer have sufficient collateral to support outstanding loans are required to provide additional collateral or to make partial or full repayment.

The Bank had no loans outstanding as of December 31, 2018.

The remaining maturity distribution of loans to depository institutions outstanding as of December 31, 2017 was as follows (in millions):

	Within 15 days	16 days to 90 days	Total
December 31, 2017	$ 70	$ -	$ 70

At December 31, 2018 and 2017, the Bank did not have any loans that were impaired, restructured, past due, or on non-accrual status, and no allowance for loan losses was required. There were no impaired loans during the years ended December 31, 2018 and 2017. Interest income attributable to loans to depository institutions was immaterial during the years ended December 31, 2018 and 2017.

(5) SYSTEM OPEN MARKET ACCOUNT

a. Domestic Securities Holdings

The Bank executes domestic open market operations and, on behalf of the Reserve Banks, holds the resulting securities in the SOMA.

Pursuant to FOMC directives, during the period from January 1, 2017 through September 30, 2017, the Bank continued to reinvest all principal payments from the SOMA's holdings of GSE debt securities and federal agency and GSE MBS in federal agency and GSE MBS and to roll over maturing Treasury securities at auction. In October 2017, the FOMC initiated a balance sheet normalization program intended to reduce gradually the SOMA holdings by decreasing reinvestment of the principal payments received from securities held in the SOMA through the implementation of monthly caps. Effective from October 2017 and through December 2017, the FOMC directed the Bank to roll over principal payments from the SOMA holdings of Treasury securities maturing during each calendar month that exceeded a $6 billion cap, and to reinvest in federal agency and GSE MBS the amount of principal payments from the SOMA holdings of GSE debt securities and federal agency and GSE MBS received during each calendar month that exceeded a $4 billion cap. Effective 2018, the monthly cap on Treasury redemptions increased in steps of $6 billion at three-month intervals until it reached $30 billion per month, and the monthly cap for federal agency and GSE MBS increased in steps of $4 billion at three-month intervals until it reached $20 billion per month. The FOMC also anticipates that the caps will remain in place so that the SOMA holdings will continue to decline in a gradual and predictable manner until the FOMC judges that the SOMA is holding no more securities than necessary to implement monetary policy efficiently and effectively. The Bank's allocated share of activity related to domestic open market operations was 55.208 percent and 56.309 percent at December 31, 2018 and 2017, respectively.

The Bank's allocated share of Treasury securities, GSE debt securities, and federal agency and GSE MBS, net, excluding accrued interest, held in the SOMA at December 31, 2018 and 2017 was as follows (in millions):

	2018			
	Par	Unamortized premiums	Unaccreted discounts	Total amortized cost
Treasury securities				
Notes	$ 763,332	$ 3,000	$ (2,296)	$ 764,036
Bonds	463,686	48,350	(4,935)	507,101
Total Treasury securities	$ 1,227,018	$ 51,350	$ (7,231)	$ 1,271,137
GSE debt securities	$ 1,330	$ 183	$ -	$ 1,513
Federal agency and GSE MBS	$ 903,819	$ 25,803	$ (182)	$ 929,440

	2017			
	Par	Unamortized premiums	Unaccreted discounts	Total amortized cost
Treasury securities				
Notes	$ 914,810	$ 5,442	$ (2,654)	$ 917,598
Bonds	467,134	53,817	(5,068)	515,883
Total Treasury securities	$ 1,381,944	$ 59,259	$ (7,722)	$ 1,433,481
GSE debt securities	$ 2,473	$ 203	$ -	$ 2,676
Federal agency and GSE MBS	$ 993,817	$ 29,934	$ (219)	$ 1,023,532

There were no material transactions related to repurchase agreements during the years ended December 31, 2018 and 2017.

During the years ended December 31, 2018 and 2017, the Bank entered into reverse repurchase agreements as part of its monetary policy activities. These operations have been undertaken as necessary to maintain the federal funds rate in a target range. In addition, reverse repurchase agreements are entered into as part of a service offering to foreign official and international account holders. Financial information related to reverse repurchase agreements allocated to the Bank and held in the SOMA for the years ended December 31, 2018 and 2017 was as follows (in millions):

	Allocated to the Bank		Total SOMA	
	2018	2017	2018	2017
Primary dealers and expanded counterparties:				
Contract amount outstanding, end of year	$ 23,103	$ 179,961	$ 41,848	$ 319,595
Average daily amount outstanding, during the year	7,019	82,482	12,552	145,959
Maximum balance outstanding, during the year	179,961	266,525	319,595	468,355
Securities pledged (par value), end of year	23,455	170,442	42,485	302,690
Securities pledged (market value), end of year	23,143	180,217	41,919	320,048
Foreign official and international accounts:				
Contract amount outstanding, end of year	$ 144,735	$ 137,599	$ 262,164	$ 244,363
Average daily amount outstanding, during the year	131,467	136,454	236,818	241,581
Maximum balance outstanding, during the year	147,568	150,399	262,164	264,290
Securities pledged (par value), end of year	144,432	135,514	261,615	240,660
Securities pledged (market value), end of year	144,746	137,629	262,184	244,417
Total contract amount outstanding, end of year	$ 167,838	$ 317,560	$ 304,012	$ 563,958
Supplemental information - interest expense:				
Primary dealers and expanded counterparties	$ 104	$ 691	$ 186	$ 1,224
Foreign official and international accounts	2,424	1,208	4,373	2,141
Total interest expense - securities sold under agreements to repurchase	$ 2,528	$ 1,899	$ 4,559	$ 3,365

Securities pledged as collateral, at December 31, 2018 and 2017, consisted solely of Treasury securities. The contract amount outstanding as of December 31, 2018 of reverse repurchase agreements that were transacted with primary dealers and expanded counterparties had a term of one business day and matured on January 2, 2019. The contract amount outstanding as of December 31, 2018 of reverse repurchase agreements that were transacted with foreign official and international account holders had a term of one business day and matured on January 2, 2019.

The remaining maturity distribution of Treasury securities, GSE debt securities, federal agency and GSE MBS bought outright, and reverse repurchase agreements that were allocated to the Bank at December 31, 2018 and 2017 was as follows (in millions):

	Within 15 days	16 days to 90 days	91 days to 1 year	Over 1 year to 5 years	Over 5 years to 10 years	Over 10 years	Total
December 31, 2018							
Treasury securities (par value)	$ 1,155	$ 51,135	$ 160,225	$ 528,925	$ 144,036	$ 341,542	$ 1,227,018
GSE debt securities (par value)	-	34	-	-	-	1,296	1,330
Federal agency and GSE MBS (par value)[1]	-	-	2	118	34,619	869,080	903,819
Securities sold under agreements to repurchase (contract amount)	167,838	-	-	-	-	-	167,838
December 31, 2017							
Treasury securities (par value)	$ 11,600	$ 60,622	$ 177,611	$ 606,601	$ 174,769	$ 350,741	$ 1,381,944
GSE debt securities (par value)	-	-	1,116	35	-	1,322	2,473
Federal agency and GSE MBS (par value)[1]	-	-	1	97	11,269	982,450	993,817
Securities sold under agreements to repurchase (contract amount)	317,560	-	-	-	-	-	317,560

[1] The par amount shown for federal agency and GSE MBS is the remaining principal balance of the securities.

Federal agency and GSE MBS are reported at stated maturity in the table above. The estimated weighted-average life of these securities, which differs from the stated maturity primarily because it factors in scheduled payments and prepayment assumptions, was approximately 7.0 and 6.9 years as of December 31, 2018 and 2017, respectively.

The amortized cost and par value of Treasury securities that were loaned from the SOMA under securities lending agreements allocated to the Bank and held in the SOMA at December 31, 2018 and 2017 were as follows (in millions):

	Allocated to the Bank		Total SOMA	
	2018	2017	2018	2017
Treasury securities (amortized cost)	$ 13,858	$ 15,796	$ 25,102	$ 28,053
Treasury securities (par value)	13,670	15,198	24,761	26,990

Securities pledged as collateral by the counterparties in the securities lending arrangements at December 31, 2018 and 2017 consisted solely of Treasury securities. The securities lending agreements outstanding as of December 31, 2018 had a term of one business day and matured on January 2, 2019.

The Bank enters into commitments to buy and sell Treasury securities and records the related securities on a settlement-date basis. As of December 31, 2018, there were no outstanding commitments.

The Bank enters into commitments to buy and sell federal agency and GSE MBS and records the related securities on a settlement-date basis. As of December 31, 2018, the total purchase price of the federal agency and GSE MBS under outstanding purchase commitments was $294 million, none of which was related to dollar rolls. The total purchase price of outstanding purchase commitments allocated to the Bank was $162 million, none of which was related to dollar rolls. These commitments, which had contractual settlement dates extending through January 2019, are for the purchase of TBA MBS for which the number and identity of the pools that will be delivered to fulfill the commitment are unknown at the time of the trade. As of December 31, 2018, there were no outstanding sales commitments for federal agency and GSE MBS. MBS commitments are subject to varying degrees of off-balance-sheet market risk and counterparty credit risk that result from their future settlement. The Bank requires the posting of cash collateral for MBS commitments as part of its risk management practices used to mitigate the counterparty credit risk.

Other assets held in the SOMA consist primarily of cash and short-term investments related to the federal agency and GSE MBS portfolio and were immaterial and $13 million at December 31, 2018 and 2017, respectively, of which $7 million was allocated to the Bank at December 31, 2017. Other liabilities include the Bank's accrued interest payable related to repurchase agreements transactions, obligation to return cash margin posted by counterparties as collateral under commitments to purchase and sell federal agency and GSE MBS, and obligations that arise from the failure of a seller to deliver MBS to the Bank on the settlement date. Although the Bank has ownership of and records its investments in the MBS as of the contractual settlement date, it is not obligated to make payment until the securities are delivered, and the amount included in other liabilities represents the Bank's obligation to pay for the securities when delivered.

The amount of other liabilities allocated to the Bank and held in the SOMA at December 31, 2018 and 2017 was as follows (in millions):

	Allocated to the Bank		Total SOMA	
	2018	2017	2018	2017
Other liabilities:				
Accrued interest payable	$ 14	$ 35	$ 25	$ 63
Cash margin	5	271	8	481
Obligations from MBS transaction fails	-	8	1	14
Total other liabilities	$ 19	$ 314	$ 34	$ 558

In 2018, the description of the line item "Other liabilities: Other" has been revised to "Other liabilities: Accrued interest payable" in the preceding table to better reflect the nature of the item. The amount related to this line item was not changed from the prior year, only the nomenclature for the line item was revised.

Accrued interest receivable on domestic securities held in the SOMA was $22,160 million and $24,655 million as of December 31, 2018 and 2017, respectively, of which $12,234 million and $13,883 million, respectively, was allocated to the Bank. These amounts are reported as a component of "System Open Market Account: Accrued interest receivable" in the Consolidated Statements of Condition.

Information about transactions related to Treasury securities, GSE debt securities, and federal agency and GSE MBS allocated to the Bank and held in the SOMA during the years ended December 31, 2018 and 2017, is summarized as follows (in millions):

	Allocated to the Bank					
	Bills	Notes	Bonds	Total Treasury securities	GSE debt securities	Federal agency and GSE MBS
Balance at December 31, 2016	$ -	$ 937,446	$ 523,589	$ 1,461,035	$ 9,474	$ 1,021,477
Purchases[1]	-	91,184	8,946	100,130	-	183,421
Sales[1]	-	(70)	(184)	(254)	-	(187)
Realized gains (losses), net[2]	-	(1)	17	16	-	1
Principal payments and maturities	-	(99,401)	(7,547)	(106,948)	(6,655)	(164,256)
Amortization of premiums and accretion of discounts, net	-	(2,144)	(4,471)	(6,615)	(61)	(5,960)
Inflation adjustment on inflation-indexed securities	-	400	1,042	1,442	-	-
Annual reallocation adjustment[3]	-	(9,816)	(5,509)	(15,325)	(82)	(10,964)
Subtotal of activity	-	(19,848)	(7,706)	(27,554)	(6,798)	2,055
Balance at December 31, 2017	$ -	$ 917,598	$ 515,883	$ 1,433,481	$ 2,676	$ 1,023,532
Purchases[1]	70	107,081	8,647	115,798	-	67,574
Sales[1]	(26)	(28)	(37)	(91)	-	(140)
Realized gains (losses), net[2]	-	-	3	3	-	(3)
Principal payments and maturities	(44)	(242,102)	(4,268)	(246,414)	(1,094)	(136,678)
Amortization of premiums and accretion of discounts, net	-	(1,628)	(4,319)	(5,947)	(17)	(4,875)
Inflation adjustment on inflation-indexed securities	-	533	1,322	1,855	-	-
Annual reallocation adjustment[3]	-	(17,418)	(10,130)	(27,548)	(52)	(19,970)
Subtotal of activity	-	(153,562)	(8,782)	(162,344)	(1,163)	(94,092)
Balance at December 31, 2018	$ -	$ 764,036	$ 507,101	$ 1,271,137	$ 1,513	$ 929,440
Year Ended December 31, 2017						
Supplemental information - par value of transactions:						
Purchases[4]	$ -	$ 91,421	$ 9,017	$ 100,438	$ -	$ 177,927
Sales	-	(70)	(155)	(225)	-	(180)
Year Ended December 31, 2018						
Supplemental information - par value of transactions:						
Purchases[4]	$ 70	$ 107,496	$ 8,732	$ 116,298	$ -	$ 66,218
Sales[4]	(26)	(28)	(34)	(88)	-	(139)

[1] Purchases and sales may include payments and receipts related to principal, premiums, discounts, and inflation compensation adjustments to the basis of inflation-indexed securities. The amount reported as sales includes the realized gains and losses on such transactions. Purchases and sales exclude MBS TBA transactions that are settled on a net basis.

[2] Realized gains (losses), net is the offset of the amount of realized gains and losses included in the reported sales amount.

[3] Reflects the annual adjustment to the Bank's allocated portion of the related SOMA securities that results from the annual settlement of the interdistrict settlement account, as discussed in Note 3j.

[4] Includes inflation compensation.

	Total SOMA					
	Bills	Notes	Bonds	Total Treasury securities	GSE debt securities	Federal agency and GSE MBS
Balance at December 31, 2016	$ -	$ 1,647,339	$ 920,083	$ 2,567,422	$ 16,648	$ 1,795,003
Purchases[1]	-	161,378	15,849	177,227	-	324,524
Sales[1]	-	(124)	(326)	(450)	-	(331)
Realized gains (losses), net[2]	-	(2)	30	28	-	2
Principal payments and maturities	-	(175,933)	(13,402)	(189,335)	(11,789)	(290,939)
Amortization of premiums and accretion of discounts, net	-	(3,796)	(7,917)	(11,713)	(107)	(10,559)
Inflation adjustment on inflation-indexed securities	-	709	1,845	2,554	-	-
Subtotal of activity	-	(17,768)	(3,921)	(21,689)	(11,896)	22,697
Balance at December 31, 2017	$ -	$ 1,629,571	$ 916,162	$ 2,545,733	$ 4,752	$ 1,817,700
Purchases[1]	126	192,346	15,560	208,032	-	121,190
Sales[1]	(47)	(49)	(65)	(161)	-	(253)
Realized gains (losses), net[2]	-	(1)	6	5	-	(5)
Principal payments and maturities	(79)	(435,970)	(7,731)	(443,780)	(1,982)	(246,316)
Amortization of premiums and accretion of discounts, net	-	(2,929)	(7,781)	(10,710)	(29)	(8,784)
Inflation adjustment on inflation-indexed securities	-	961	2,382	3,343	-	-
Subtotal of activity	-	(245,642)	2,371	(243,271)	(2,011)	(134,168)
Balance at December 31, 2018	$ -	$ 1,383,929	$ 918,533	$ 2,302,462	$ 2,741	$ 1,683,532
Year Ended December 31, 2017						
Supplemental information - par value of transactions:						
Purchases[3]	$ -	$ 161,796	$ 15,976	$ 177,772	$ -	$ 314,797
Sales	-	(125)	(275)	(400)	-	(320)
Year Ended December 31, 2018						
Supplemental information - par value of transactions:						
Purchases[3]	$ 126	$ 193,093	$ 15,713	$ 208,932	$ -	$ 118,762
Sales[3]	(47)	(51)	(59)	(157)	-	(251)

[1] Purchases and sales may include payments and receipts related to principal, premiums, discounts, and inflation compensation adjustments to the basis of inflation-indexed securities. The amount reported as sales includes the realized gains and losses on such transactions. Purchases and sales exclude MBS TBA transactions that are settled on a net basis.

[2] Realized gains (losses), net is the offset of the amount of realized gains and losses included in the reported sales amount.

[3] Includes inflation compensation.

b. Foreign Currency Denominated Investments

The Bank conducts foreign currency operations and, on behalf of the Reserve Banks, holds the resulting foreign currency denominated investments in the SOMA.

The Bank holds foreign currency deposits with foreign central banks and invests in foreign government debt instruments of France, Germany, the Netherlands, and Japan. These foreign government debt instruments are backed by the full faith and credit of the issuing foreign governments. In addition, the Bank may enter into repurchase agreements to purchase government debt securities for which the accepted collateral is the debt instruments issued by a foreign government.

At December 31, 2018 and 2017, there were no repurchase agreements outstanding and, consequently, no related foreign securities held as collateral.

The Bank's allocated share of activity related to foreign currency operations was 31.521 percent and 32.020 percent at December 31, 2018 and 2017, respectively.

Information about foreign currency denominated investments recorded at amortized cost and valued at foreign currency market exchange rates allocated to the Bank and held in the SOMA at December 31, 2018 and 2017 was as follows (in millions):

	Allocated to Bank		Total SOMA	
	2018	2017	2018	2017
Euro:				
Foreign currency deposits	$ 2,014	$ 1,943	$ 6,390	$ 6,070
French government debt instruments	960	989	3,045	3,089
Dutch government debt instruments	476	521	1,511	1,626
German government debt instruments	454	717	1,440	2,239
Japanese yen:				
Foreign currency deposits	2,297	2,166	7,286	6,765
Japanese government debt instruments	389	489	1,234	1,527
Total	$ 6,590	$ 6,825	$ 20,906	$ 21,316

Net interest income earned on foreign currency denominated investments for the years ended December 31, 2018 and 2017 was immaterial for the Bank and held in the SOMA as follows (in millions):

	Total SOMA	
	2018	2017
Net interest income:[1]		
Euro	$ (30)	$ (19)
Japanese yen	1	2
Total net interest income	$ (29)	$ (17)

[1] As a result of negative interest rates in certain foreign currency denominated investments held in the SOMA, interest income on foreign currency denominated investments, net contains negative interest of $43 million and $36 million for the years ended December 31, 2018 and 2017, respectively.

Accrued interest receivable on foreign currency denominated investments, net was $72 million and $82 million as of December 31, 2018 and 2017, respectively, of which $23 million and $26 million, respectively, was allocated to the Bank. These amounts are reported as a component of "System Open Market Account: Accrued interest receivable" in the Consolidated Statements of Condition.

The remaining maturity distribution of foreign currency denominated investments that were allocated to the Bank at December 31, 2018 and 2017 was as follows (in millions):

	Within 15 days	16 days to 90 days	91 days to 1 year	Over 1 year to 5 years	Over 5 year to 10 years	Total
December 31, 2018						
Euro	$ 2,026	$ 25	$ 141	$ 880	$ 832	$ 3,904
Japanese yen	2,297	28	95	266	-	2,686
Total	$ 4,323	$ 53	$ 236	$ 1,146	$ 832	$ 6,590
December 31, 2017						
Euro	$ 1,973	$ 33	$ 393	$ 1,003	$ 768	$ 4,170
Japanese yen	2,166	20	84	385	-	2,655
Total	$ 4,139	$ 53	$ 477	$ 1,388	$ 768	$ 6,825

There were no foreign exchange contracts related to foreign currency operations outstanding as of December 31, 2018.

The Bank enters into commitments to buy foreign government debt instruments and records the related securities on a settlement-date basis. As of December 31, 2018, there were no outstanding commitments to purchase foreign government debt instruments. During 2018, there were purchases and maturities of foreign government debt instruments of $842 million and $1,734 million, respectively, of which $265 million and $548 million, respectively, were allocated to the Bank. There were immaterial sales of foreign government debt instruments in 2018.

In connection with its foreign currency activities, the Bank may enter into transactions that are subject to varying degrees of off-balance-sheet market risk and counterparty credit risk that result from their future settlement. The Bank controls these risks by obtaining credit approvals, establishing transaction limits, receiving collateral in some cases, and performing monitoring procedures.

Foreign currency working balances held and foreign exchange contracts executed by the Bank to facilitate international payments and currency transactions made on behalf of foreign central banks and U.S. official institution customers were immaterial as of December 31, 2018 and 2017.

c. Central Bank Liquidity Swaps

U.S. Dollar Liquidity Swaps

The Bank's allocated share of U.S. dollar liquidity swaps was 31.521 percent and 32.020 percent at December 31, 2018 and 2017, respectively.

The total foreign currency held in the SOMA under U.S. dollar liquidity swaps at December 31, 2018 and 2017 was $4,207 million and $12,067 million, respectively, of which $1,326 million and $3,864 million, respectively, was allocated to the Bank.

The remaining maturity distribution of U.S. dollar liquidity swaps that were allocated to the Bank at December 31, 2018 and 2017 was as follows (in millions):

	2018	2017
	Within 15 days	Within 15 days
Euro	$ 1,323	$ 3,813
Japanese yen	3	51
Total	$ 1,326	$ 3,864

Foreign Currency Liquidity Swaps

At December 31, 2018 and 2017, there was no balance outstanding related to foreign currency liquidity swaps.

d. Fair Value of SOMA Assets and Liabilities

The fair value amounts below are presented solely for informational purposes and are not intended to comply with the fair value disclosures required by ASC 820. Although the fair value of SOMA security holdings can be substantially greater than or less than the recorded value at any point in time, these unrealized gains or losses have no effect on the ability of the Reserve Banks, as the central bank, to meet their financial obligations and responsibilities. Because SOMA securities are recorded at amortized cost, cumulative unrealized gains (losses) are not recognized in the Consolidated Statements of Condition and the changes in cumulative unrealized gains (losses) are not recognized in the Consolidated Statements of Operations.

The fair value of the Treasury securities, GSE debt securities, federal agency and GSE MBS, and foreign government debt instruments held in the SOMA is subject to market risk, arising from movements in market variables such as interest rates and credit risk. The fair value of federal agency and GSE MBS is also affected by the expected rate of prepayments of mortgage loans underlying the securities. The fair value of foreign government debt instruments is also affected by currency risk. Based on evaluations performed as of December 31, 2018 and 2017, there are no credit impairments of SOMA securities holdings.

The following table presents the amortized cost, fair value, and cumulative unrealized gains (losses) on the Treasury securities, GSE debt securities, and federal agency and GSE MBS allocated to the Bank and held in the SOMA at December 31, 2018 and 2017 (in millions):

	Allocated to the Bank					
	2018			2017		
	Amortized cost	Fair value	Cumulative unrealized gains (losses), net	Amortized cost	Fair value	Cumulative unrealized gains (losses), net
Treasury securities:						
Notes	$ 764,036	$ 756,630	$ (7,406)	$ 917,598	$ 914,765	$ (2,833)
Bonds	507,101	534,123	27,022	515,883	567,860	51,977
Total Treasury Securities	1,271,137	1,290,753	19,616	1,433,481	1,482,625	49,144
GSE debt securities	1,513	1,779	266	2,676	3,031	355
Federal agency and GSE MBS	929,440	906,169	(23,271)	1,023,532	1,019,150	(4,382)
Total domestic SOMA portfolio securities holdings	$ 2,202,090	$ 2,198,701	$ (3,389)	$ 2,459,689	$ 2,504,806	$ 45,117
Memorandum - Commitments for:						
Purchases of Treasury securities	$ -	$ -	$ -	$ 6,446	$ 6,457	$ 11
Purchases of federal agency and GSE MBS	162	163	1	10,844	10,859	15
Sales of federal agency and GSE MBS	-	-	-	-	-	-

	Total SOMA					
	2018			2017		
	Amortized cost	Fair value	Cumulative unrealized gains (losses), net	Amortized cost	Fair value	Cumulative unrealized gains (losses), net
Treasury securities:						
Notes	$ 1,383,929	$ 1,370,515	$ (13,414)	$ 1,629,571	$ 1,624,540	$ (5,031)
Bonds	918,533	967,479	48,946	916,162	1,008,468	92,306
Total Treasury Securities	2,302,462	2,337,994	35,532	2,545,733	2,633,008	87,275
GSE debt securities	2,741	3,222	481	4,752	5,383	631
Federal agency and GSE MBS	1,683,532	1,641,381	(42,151)	1,817,700	1,809,918	(7,782)
Total domestic SOMA portfolio securities holdings	$ 3,988,735	$ 3,982,597	$ (6,138)	$ 4,368,185	$ 4,448,309	$ 80,124
Memorandum - Commitments for:						
Purchases of Treasury securities	$ -	$ -	$ -	$ 11,447	$ 11,467	$ 20
Purchases of federal agency and GSE MBS	294	296	2	19,257	19,285	28
Sales of federal agency and GSE MBS	-	-	-	-	-	-

The fair value of Treasury securities and GSE debt securities was determined using pricing services that provide market consensus prices based on indicative quotes from various market participants. The fair value of federal agency and GSE MBS was determined using pricing services that utilize a model-based approach that considers observable inputs for similar securities.

The cost bases of repurchase agreements, reverse repurchase agreements, central bank liquidity swaps, and other investments held in the SOMA portfolio approximate fair value. Due to the short-term nature of these agreements and the defined amount that will be received upon settlement, the cost basis approximates fair value.

At December 31, 2018 and 2017, the fair value of foreign currency denominated investments held in the SOMA was $20,957 million and $21,348 million, respectively, of which $6,606 million and $6,836 million, respectively, was allocated to the Bank. The fair value of foreign government debt instruments was determined using pricing services that provide market consensus prices based on indicative quotes from various market participants. Due to the short-term nature of foreign currency deposits, the cost basis is estimated to approximate fair value.

The following table provides additional information on the amortized cost and fair value of the federal agency and GSE MBS portfolio held in the SOMA and allocated to the Bank at December 31, 2018 and 2017 (in millions):

Distribution of MBS holdings by coupon rate	2018 Amortized cost	2018 Fair value	2017 Amortized cost	2017 Fair value
Allocated to the Bank:				
2.0%	$ 4,158	$ 4,028	$ 5,050	$ 4,921
2.5%	51,275	49,428	62,194	61,023
3.0%	332,245	318,724	379,602	372,169
3.5%	323,028	315,460	355,080	354,886
4.0%	164,268	162,331	163,194	164,348
4.5%	38,355	39,506	38,329	40,484
5.0%	12,861	13,321	15,965	16,920
5.5%	2,814	2,913	3,558	3,795
6.0%	381	398	490	529
6.5%	55	60	70	75
Total	$ 929,440	$ 906,169	$ 1,023,532	$ 1,019,150
Total SOMA:				
2.0%	$ 7,532	$ 7,296	$ 8,968	$ 8,739
2.5%	92,877	89,530	110,452	108,371
3.0%	601,805	577,317	674,138	660,939
3.5%	585,114	571,406	630,590	630,245
4.0%	297,546	294,038	289,819	291,868
4.5%	69,474	71,559	68,069	71,896
5.0%	23,296	24,128	28,352	30,048
5.5%	5,097	5,277	6,318	6,739
6.0%	691	722	870	939
6.5%	100	108	124	134
Total	$ 1,683,532	$ 1,641,381	$ 1,817,700	$ 1,809,918

The following tables present the realized gains (losses) and the change in the cumulative unrealized gains (losses) related to SOMA domestic securities holdings allocated to the Bank and held in the SOMA during the years ended December 31, 2018 and 2017 (in millions):

	Allocated to the Bank			
	2018		2017	
	Realized gains (losses), net [1,2]	Change in cumulative unrealized gains (losses)[3, 4]	Realized gains (losses), net [1,2]	Change in cumulative unrealized gains (losses)[3, 4]
Treasury securities	$ 3	$ (29,184)	$ 16	$ 8,044
GSE debt securities	-	(84)	-	(92)
Federal agency and GSE MBS	(2)	(19,431)	5	(76)
Total	$ 1	$ (48,699)	$ 21	$ 7,876

	Total SOMA			
	2018		2017	
	Realized gains (losses), net [1,2]	Change in cumulative unrealized gains (losses)[3]	Realized gains (losses), net [1,2]	Change in cumulative unrealized gains (losses)[3]
Treasury securities	$ 5	$ (51,743)	$ 28	$ 13,991
GSE debt securities	-	(150)	-	(163)
Federal agency and GSE MBS	(3)	(34,369)	8	(263)
Total	$ 2	$ (86,262)	$ 36	$ 13,565

[1] Realized gains for Treasury securities are reported in "Other items of income (loss): System Open Market Account: Treasury securities gains, net" in the Consolidated Statements of Operations.

[2] Realized gains (losses) for federal agency and GSE MBS are reported in "Other items of income (loss): System Open Market Account: Federal agency and government-sponsored enterprise mortgage-backed securities (losses) gains, net" in the Consolidated Statements of Operations.

[3] Because SOMA securities are recorded at amortized cost, the change in the cumulative unrealized gains (losses) is not reported in the Consolidated Statements of Operations.

[4] The amount reported as change in cumulative unrealized gains (losses) allocated to the Bank is affected by the annual adjustment to the Bank's allocated portion of the related SOMA securities, as discussed in Note 3f.

The amount of change in cumulative unrealized gains (losses) position, net related to foreign currency denominated investments was a gain of $19 million and a loss of $36 million for the years ended December 31, 2018 and 2017, respectively, of which $6 million and $12 million, respectively, were allocated to the Bank. Realized gains, net related to foreign currency denominated investments was immaterial for the years ended December 31, 2018 and 2017.

Treasury securities, GSE debt securities, federal agency and GSE MBS, and foreign government debt instruments are classified as Level 2 within the ASC 820 hierarchy because the fair values are based on indicative quotes and other observable inputs obtained from independent pricing services. The fair value hierarchy level of SOMA financial assets is not necessarily an indication of the risk associated with those assets.

(6) CONSOLIDATED VARIABLE INTEREST ENTITY

a. Description of Consolidated VIE

To facilitate the merger of The Bear Stearns Companies, Inc. (Bear Stearns) and JPMorgan Chase & Co. (JPMC), the Bank extended credit to ML in June 2008. ML is a Delaware LLC formed by the Bank to acquire certain assets of Bear Stearns and to manage those assets. The assets acquired by ML were valued at $29.9 billion as of March 14, 2008, the date that the Bank committed to the transaction, and largely consisted of federal agency and GSE MBS, non-agency residential mortgage-back securities (RMBS), commercial and residential mortgage loans, and derivatives and associated hedges.

The Bank extended a senior loan of approximately $28.8 billion and JPMC extended a subordinated loan of $1.15 billion to finance the acquisition of the assets, both of which were repaid in full plus interest in 2012. During 2018, the Bank sold all remaining securities from the ML portfolio and in accordance with the ML agreements, net proceeds were distributed to the Bank. On November 1, 2018, ML LLC was dissolved. While its affairs are being wound up, ML LLC will retain minimal cash to meet trailing expenses and other obligations as required by law. The costs to wind up ML LLC are not expected to be material.

b. Summary Information for Consolidated VIE

As of December 31, 2018, investments held by the consolidated VIE consisted primarily of $0.4 million in cash equivalents. The classification of significant assets and liabilities of ML at December 31, 2017 is summarized in the following table (in millions):

	2017
Assets:	
Short-term investments	$ 998
Swap contracts	5
Other investments	1
Subtotal	1,004
Cash, cash equivalents, accrued interest receivable, and other receivables	716
Cash collateral on swap contracts	2
Total investments held by consolidated VIE	1,722
Liabilities:	
Swap contracts	$ 8
Other liabilities	1
Total Liabilities of consolidated VIE	9
Investments held by consolidated VIE, net	$ 1,713

At December 31, 2018, the Bank had no remaining exposure to loss from its investments. At December 31, 2017, the Bank's approximate maximum exposure to loss was $1,004 million. This estimate incorporates potential losses associated with the investments recorded on the Bank's balance sheet.

The net income attributable to ML for the year ended December 31, 2018 and 2017 was as follows (in millions):

	2018	2017
Other items of income (loss):		
Interest income: Investments held by consolidated VIE	$ 20	$ 15
Realized portfolio holdings losses, net	(58)	(6)
Unrealized portfolio holdings gains (losses), net	47	(3)
Other items of income: Consolidated VIE, net	9	6
Less: Professional fees	2	2
Net income attributable to consolidated VIE	$ 7	$ 4

i. Debt Securities

ML had short-term investments with maturities of greater than three months and less than one year when acquired. As of December 31, 2018 there were no remaining investments in debt securities held in ML. As of December 31, 2017, ML's short-term investments consisted of U.S. Treasury bills.

ii. Derivative Instruments

Derivative contracts are instruments, such as swap contracts, that derive their value from underlying assets, indexes, reference rates, or a combination of these factors. As of December 31, 2018, there were no remaining derivative financial instruments in ML and the total return swap (TRS) with JPMC was terminated on September 11, 2018. As of December 31, 2017, the ML portfolio was composed of derivative financial instruments included in a TRS agreement with JPMC. ML and JPMC entered into the TRS with reference obligations representing CDS primarily on commercial mortgage-backed securities and RMBS, with various market participants, including JPMC.

c. Fair Value Measurement

ML has adopted ASC 820 and ASC 825 and has elected the fair value option for all holdings. The accounting and classification of these investments appropriately reflect ML's and the Bank's intent with respect to the purpose of the investments and most closely reflect the amount of the assets available to liquidate the entity's obligations.

Determination of Fair Value

ML values its investments and cash equivalents on the basis of last available bid prices or current market quotations provided by dealers or pricing services selected under the supervision of the Bank's designated investment manager. To determine the value of a particular investment, pricing services may use certain information with respect to market transactions in such investments or comparable investments, various relationships observed in the market between investments, quotations from dealers, and pricing metrics and calculated yield measures based on valuation methodologies commonly employed in the market for such investments. The fair value of swap contracts is provided by JPMC as calculation agent and is reviewed by the investment manager.

Market quotations may not represent fair value in certain instances in which the investment manager and the VIE believe that facts and circumstances applicable to an issuer, a seller, a purchaser, or the market for a particular investment cause such market quotations to not reflect the fair value of an investment. In such cases or when market quotations are unavailable, the investment manager applies proprietary valuation models that use collateral performance scenarios and pricing metrics derived from the reported performance of investments with similar characteristics as well as available market data to determine fair value.

Due to the uncertainty inherent in determining the fair value of investments that do not have a readily available fair value, the fair value of these investments may differ from the values that may ultimately be realized and paid.

As of December 31, 2018, all remaining assets, consisting entirely of cash equivalents, were classified as Level 1. There were no remaining Level 2 or Level 3 assets or liabilities held in ML as of December 31, 2018. The following table presents the financial instruments recorded in the VIE at fair value as of December 31, 2017 by ASC 820 hierarchy (in millions):

	Level 1[1]	Level 2[1]	Level 3[1]	Netting[2]	Total fair value
Assets:					
Short-term investments	$ 998	$ -	$ -	$ -	$ 998
Cash equivalents[3]	716	-	-	-	716
Swap contracts	-	-	6	(1)	5
Other investments	-	1	-	-	1
Total assets	$ 1,714	$ 1	$ 6	$ (1)	$ 1,720
Liabilities:					
Swap contracts	$ -	$ -	$ 14	$ (6)	$ 8
Investments held by consolidated VIE, net	$ 1,714	$ 1	$ (8)	$ 5	$ 1,712

[1] There were no transfers between Levels during the year ended December 31, 2017.

[2] Derivative receivables and payables and the related cash collateral received and paid are shown net when a master netting agreement exists.

[3] Cash equivalents consist of money market funds.

Certain amounts relating to the prior year have been revised in the preceding table. $716 million previously reported as of December 31, 2017 as “Assets: Short-term investments” has been revised to $998 million. $998 million previously reported as of December 31, 2017 as “Assets: Cash equivalents” has been revised to $716 million.

As of December 31, 2017, both the Level 3 assets and liabilities held in the Consolidated Statements of Condition as “Investments held by consolidated variable interest entity, net”, and the associated unrealized gains and losses related to those assets and liabilities are immaterial.

(7) Bank Premises, Equipment, and Software

Bank premises and equipment at December 31, 2018 and 2017 were as follows (in millions):

	2018	2017
Bank premises and equipment:		
Land and land improvements	$ 69	$ 69
Buildings	580	563
Building machinery and equipment	135	127
Construction in progress	36	34
Furniture and equipment	96	107
Subtotal	916	900
Accumulated depreciation	(409)	(399)
Bank premises and equipment, net	$ 507	$ 501
Depreciation expense, for the years ended December 31	$ 35	$ 34

The Bank leases space to outside tenants with remaining lease terms ranging from one to six years. Rental income from such leases was $6 million for the years ended December 31, 2018 and 2017, respectively, and is reported as a component of "Other items of income (loss): Other" in the Consolidated Statements of Operations. Future minimum lease payments that the Bank will receive under non-cancelable lease agreements in existence at December 31, 2018, are as follows (in millions):

2019	$	5
2020		5
2021		5
2022		3
2023		2
Thereafter		-
Total	$	20

The Bank had capitalized software assets, net of amortization, of $159 million and $132 million at December 31, 2018 and 2017, respectively. Amortization expense was $35 million and $33 million for the years ended December 31, 2018 and 2017, respectively. Capitalized software assets are reported as a component of "Other assets" in the Consolidated Statements of Condition and the related amortization is reported as a component of "Operating expenses: Other" in the Consolidated Statements of Operations.

(8) Commitments and Contingencies

In conducting its operations, the Bank enters into contractual commitments, normally with fixed expiration dates or termination provisions, at specific rates and for specific purposes.

At December 31, 2018, the Bank was obligated under non-cancelable leases for premises and equipment with a remaining term of approximately three years. These leases provide for increased lease payments based upon increases in real estate taxes, operating costs, or selected price indexes.

Rental expense under operating leases for certain operating facilities, warehouses, and data processing and office equipment (including taxes, insurance, and maintenance when included in rent), net of sublease rentals, was $3 million and $4 million for the years ended December 31, 2018 and 2017, respectively.

Future minimum lease payments under non-cancelable operating leases, net of sublease rentals, with remaining terms of one year or more, at December 31, 2018, were immaterial.

At December 31, 2018, there were no material unrecorded unconditional purchase commitments or obligations in excess of one year.

Under the Insurance Agreement of the Reserve Banks, each of the Reserve Banks has agreed to bear, on a per-incident basis, a share of certain losses in excess of 1 percent of the capital paid-in of the claiming Reserve Bank, up to 50 percent of the total capital paid-in of all Reserve Banks. Losses are borne in the ratio of a Reserve Bank's capital paid-in to the total capital paid-in of all Reserve Banks at the beginning of the calendar year in which the loss is shared. No claims were outstanding under the agreement at December 31, 2018 and 2017.

The Bank is involved in certain legal actions and claims arising in the ordinary course of business. Although it is difficult to predict the ultimate outcome of these actions, in management's opinion, based on discussions with counsel, the legal actions and claims will be resolved without material adverse effect on the financial position or results of operations of the Bank.

(9) Retirement and Thrift Plans

Retirement Plans

The Bank currently offers three defined benefit retirement plans to its employees, based on length of service and level of compensation. Substantially all of the employees of the Reserve Banks, Board of Governors, and Office of Employee Benefits of the Federal Reserve System (OEB) participate in the Retirement Plan for Employees of the Federal Reserve System (System Plan).[1] Under the Dodd-Frank Act, eligible Bureau employees may participate in the System Plan and, during the years ended December 31, 2018 and 2017, certain costs associated with the System Plan were reimbursed by the Bureau. In addition, employees at certain compensation levels participate in the Benefit Equalization Retirement Plan (BEP) and certain Reserve Bank officers participate in the Supplemental Retirement Plan for Select Officers of the Federal Reserve Banks (SERP).

The Bank, on behalf of the System, recognizes the net asset or net liability and costs associated with the System Plan in its consolidated financial statements. The Bank reports the net costs related to the System Plan, as well as the costs related to the BEP and SERP, as a component of "Operating expenses: Net periodic pension expense" in its Consolidated Statements of Operations. Accrued pension benefit costs are reported as a component of "Prepaid pension benefit costs" if the funded status is a net asset or "Accrued benefit costs" if the funded status is a net liability in the Consolidated Statements of Condition.

Following is a reconciliation of the beginning and ending balances of the System Plan benefit obligation for the years ended December 31, 2018 and 2017 (in millions):

	2018	2017
Estimated actuarial present value of projected benefit obligation at January 1	$ 16,501	$ 14,642
Service cost-benefits earned during the period	576	486
Interest cost on projected benefit obligation	622	614
Actuarial (gain) loss	(1,621)	1,179
Contributions by plan participants	6	4
Special termination benefits	12	11
Benefits paid	(463)	(435)
Estimated actuarial present value of projected benefit obligation at December 31	$ 15,633	$ 16,501

Annually, the Society of Actuaries released new mortality tables and updated mortality projection scales. The System analyzed these new tables relative to the System's actual retiree mortality experience. Based on these analyses, the System in 2018 adopted the modified MP-2018 projections scales and RP-2014 mortality tables with various adjustments to reflect the System's recent mortality experience of System retirees. These adjustments resulted in reduction to the System Plan projected benefit obligation of approximately $62 million and $70 million in 2018 and 2017, respectively.

[1] The OEB was established by the System to administer selected System benefit plans.

Following is a reconciliation showing the beginning and ending balance of the System Plan assets, the funded status, and the accrued pension benefit costs for the years ended December 31, 2018 and 2017 (in millions):

	2018	2017
Estimated plan assets at January 1 (of which $16,454 and $13,668 is measured at fair value as of January 1, 2018 and 2017, respectively)	$ 16,515	$ 13,699
Actual return on plan assets	(920)	2,497
Contributions by the employers	276	750
Contributions by plan participants	6	4
Benefits paid	(463)	(435)
Estimated plan assets at December 31 (of which $15,389 and $16,454 is measured at fair value as of December 31, 2018 and 2017, respectively)	$ 15,414	$ 16,515
Funded status and accrued pension benefit costs	$ (219)	$ 14
Amounts included in accumulated other comprehensive loss are shown below:		
Prior service cost	(20)	$ (82)
Net actuarial loss	(3,167)	(3,045)
Total accumulated other comprehensive loss	$ (3,187)	$ (3,127)

The Bank, on behalf of the System, funded $240 million and $720 million during the years ended December 31, 2018 and 2017, respectively. The Bureau is required by the Dodd-Frank Act to fund the System plan for each Bureau employee based on an established formula. During the years ended December 31, 2018 and 2017, the Bank received contributions from the Bureau of $36 million and $30 million, respectively.

The accumulated benefit obligation for the System Plan, which differs from the estimated actuarial present value of projected benefit obligation because it is based on current rather than future compensation levels, was $13,705 million and $14,376 million at December 31, 2018 and 2017, respectively.

The weighted-average assumptions used in developing the accumulated pension benefit obligation for the System Plan as of December 31 were as follows:

	2018	2017
Discount rate	4.36%	3.65%
Rate of compensation increase	4.25%	4.00%

Net periodic benefit expenses for the years ended December 31, 2018 and 2017 were actuarially determined using a January 1 measurement date. The weighted-average assumptions used in developing net periodic benefit expenses for the System Plan for the years were as follows:

	2018	2017
Discount rate	3.65%	4.15%
Expected asset return	6.00%	6.50%
Rate of compensation increase	4.00%	4.00%

Discount rates reflect yields available on high-quality corporate bonds that would generate the cash flows necessary to pay the System Plan's benefits when due. The expected long-term rate of return on assets is an estimate that is based on a combination of factors, including the System Plan's asset allocation strategy and historical returns; surveys of expected rates of return for various asset classes; and projected returns for equities and fixed income investments based on observable inputs for real interest rates, inflation expectations, and equity risk premiums. In 2018, a change in estimate was made to the discount rate methodology used by the actuarial model to determine the

System Plan's projected benefit obligation. Specifically, the discount rate methodology was refined to expand the universe of eligible fixed income securities and market pricing data. This change was applied prospectively and resulted in reduction to the System Plan projected benefit obligation of approximately $324 million for the year ended December 31, 2018.

The components of net periodic pension benefit expense (credit) for the System Plan for the years ended December 31, 2018 and 2017 are shown below (in millions):

	2018	2017
Service cost - benefits earned during the period	$ 576	$ 486
Interest cost on projected benefit obligation	622	614
Amortization of prior service cost	62	88
Amortization of net loss	160	209
Expected return on plan assets	(983)	(899)
Net periodic pension benefit expense	437	498
Special termination benefits	12	11
Bureau of Consumer Financial Protection contributions	(36)	(30)
Total periodic pension benefit expense	$ 413	$ 479

Estimated amounts that will be amortized from accumulated other comprehensive loss into net periodic pension benefit expense in 2019 are shown below (in millions):

Prior service cost	$ 9
Net actuarial loss	160
Total	$ 169

The recognition of special termination benefits is primarily the result of enhanced retirement benefits provided to employees in the normal course of operations. Following is a summary of expected benefit payments, excluding enhanced retirement benefits (in millions):

2019	$ 539
2020	577
2021	616
2022	656
2023	697
2024 - 2028	4,094
Total	$ 7,179

The System's Committee on Plan Administration is responsible for oversight of the operations of the Retirement Plan, which includes the Retirement Plan trust and for determining the amounts necessary to maintain the Retirement Plan on an actuarially sound basis and the amounts that employers must contribute to pay the expenses of OEB and the Retirement Plan.

The System's Committee on Investment Performance (CIP) is responsible for establishing investment policies, selecting investment managers, and monitoring the investment managers' compliance with its policies. At December 31, 2018, the System Plan's assets were held in 25 investment vehicles: 5 actively-managed long-duration fixed income portfolios, a passively-managed long-duration fixed income portfolio, an indexed U.S. equity fund, an indexed non-U.S. developed-markets equity fund, an indexed emerging-markets equity fund, 4 private equity limited partnerships, a private equity separate account, 4 core real estate funds, 6 real estate limited partnerships, and a money market fund.

The diversification of the System Plan's investments is designed to limit concentration of risk and the risk of loss related to an individual asset class. The three actively-managed long-duration fixed income portfolios are separate accounts benchmarked to a custom benchmark of 55 percent Barclays Long Credit Index and 45 percent of either Bloomberg, Barclays or Citigroup 15+ years U.S. Treasury STRIPS Index. This custom benchmark was selected as a proxy to match the liabilities of the Plan and the guidelines for these portfolios are designed to limit portfolio deviations from the benchmark. The passively-managed long-duration fixed-income portfolio is invested in 2 commingled funds and is benchmarked to 55 percent Barclays Long Credit Index and 45 percent Barclays 20+ STRIPS Index. The indexed U.S. equity fund is intended to track the overall U.S. equity market across market capitalizations and is benchmarked to the CRSP U.S. Total Market Index. The indexed non-U.S. developed-markets equity fund is intended to track the Morgan Stanley Capital International (MSCI) World ex-US Investible Markets Index (IMI), which includes stocks from 22 markets deemed by MSCI to be "developed markets." The indexed emerging-markets equity fund is intended to track the MSCI Emerging Markets IMI Index, which includes stocks from 24 markets deemed by MSCI to be "emerging markets."

The 3 indexed equity funds include stocks from across the market capitalization spectrum (i.e., large-, mid- and small-cap stocks).

The 4 private equity limited partnerships invest globally across various private equity strategies and the private equity separate account invests in various private equity investments globally across various strategies. The private equity separate account invests in various private equity funds (both primary and secondary interests) and coinvestment opportunities globally in private companies and targets returns in excess of public markets over a complete market cycle.

The 4 core real estate funds invest in high quality, well leased, low leverage commercial real estate throughout the U.S.

The 6 real estate limited partnerships invest in non-core U.S. and international commercial real estate including development and repositioning of assets. Finally, the money market fund, which invests in short term Treasury and agency debt and repurchase agreements backed by Treasury and agency debt, is the repository for cash balances and adheres to a constant dollar methodology.

Permitted and prohibited investments, including the use of certain derivatives, are defined in either the trust agreement (for the passively-managed long-duration fixed income portfolio) or the investment guidelines (for the remaining investments). The CIP reviews the trust agreement and approves all investment guidelines as part of the selection of each investment to ensure that they are consistent with the CIP's investment objectives for the System Plan's assets.

The System Plan's policy weight and actual asset allocations at December 31, 2018 and 2017 by asset category, are as follows:

	2018	Actual asset allocations	
	Policy weight	2018	2017
Fixed income	50.0%	51.6%	48.6%
U.S. equities	21.9%	21.1%	22.8%
International equities	14.0%	13.3%	16.0%
Emerging markets equities	4.7%	4.4%	5.1%
Private equity	4.7%	5.1%	3.6%
Real estate	4.7%	3.8%	2.9%
Cash	0.0%	0.7%	1.0%
Total	100.0%	100.0%	100.0%

Employer contributions to the System Plan may be determined using different assumptions than those required for financial reporting. The System Plan's anticipated funding level for 2019 is $180 million. In 2019, the Bank plans to make monthly contributions of $15 million and will reevaluate the monthly contributions upon completion of the 2019 actuarial valuation. The Bank's projected benefit obligation, funded status, and net pension expenses for the BEP and the SERP at December 31, 2018 and 2017, and for the years then ended, were immaterial.

Determination of Fair Value

The System Plan's publicly available investments are valued on the basis of the last available bid prices or current market quotations provided by dealers, or pricing services. To determine the value of a particular investment, pricing services may use information on transactions in such investments, quotations from dealers, pricing metrics, market transactions in comparable investments, relationships observed in the market between investments, and calculated yield measures based on valuation methodologies commonly employed in the market for such investments.

Collective trust funds are valued using the net asset value, calculated daily, based on the fair value of the underlying investments. Private equity and real estate investments are valued using the net asset value, as a practical expedient, which is based on the fair value of the underlying investments. The net asset value is adjusted for contributions, distributions, and both realized and unrealized gains and losses incurred during the period. The realized and unrealized gains and losses are based on reported valuation changes.

Because of the uncertainty inherent in determining the fair value of investments that do not have a readily available fair value, the fair value of these investments may differ significantly from the values that would have been reported if a readily available fair value had existed for these investments and may differ materially from the values that may ultimately be realized.

The following tables present the financial instruments recorded at fair value as of December 31, 2018 and 2017 by ASC 820 hierarchy (in millions):

	2018			
Description	Level 1	Level 2	Level 3	Total [1]
Short-term investments	$ 159	$ -	$ -	$ 159
Treasury and Federal agency securities	136	2,697	-	2,833
Corporate bonds	-	2,844	-	2,844
Other fixed income securities	-	327	-	327
Collective trusts	7,844	-	-	7,844
Investments measured at net asset value[2]	-	-	-	1,375
Total investments at fair value[3]	$ 8,139	$ 5,868	$ -	$ 15,382

[1] There were no transfers between Levels during the year ended December 31, 2018.

[2] Certain investments that are measured at fair value using the net asset value per share (or its equivalent) practical expedient have not been categorized in the fair value hierarchy.

[3] In addition to total investments, the System Plan holds future margin receivable of $14 million and future margin payable of $7 million at December 31, 2018.

Description	2017 Level 1	Level 2	Level 3	Total [1]
Short-term investments	$ 226	$ -	$ -	$ 226
Treasury and Federal agency securities	87	2,785	-	2,872
Corporate bonds	-	3,072	-	3,072
Other fixed income securities	-	381	-	381
Collective trusts	8,838	-	-	8,838
Investments measured at net asset value[2]	-	-	-	1,062
Total investments at fair value[3]	$ 9,151	$ 6,238	$ -	$ 16,451

[1] There were no transfers between Levels during the year ended December 31, 2017.

[2] Certain investments that are measured at fair value using the net asset value per share (or its equivalent) practical expedient have not been categorized in the fair value hierarchy.

[3] In addition to total investments at fair value, the System Plan holds future margin receivable of $4 million and future margin payables of $1 million at December 31, 2017.

The System Plan enters into futures contracts, traded on regulated exchanges, to manage certain risks and to maintain appropriate market exposure in meeting the investment objectives of the System Plan. The System Plan bears the market risk that arises from any unfavorable changes in the value of the securities or indexes underlying these futures contracts. The use of futures contracts involves, to varying degrees, elements of market risk in excess of the amount recorded in the Consolidated Statements of Condition. The guidelines established by the CIP further reduce risk by limiting the net futures positions, for most fund managers, to 15 percent of the market value of the advisor's portfolio.

At December 31, 2018 and 2017, a portion of short-term investments was available for futures trading. There were $5 million and $7 million of Treasury securities pledged as collateral for the years ended December 31, 2018 and 2017, respectively.

Thrift Plan

Employees of the Bank participate in the defined contribution Thrift Plan for Employees of the Federal Reserve System (Thrift Plan). The Bank matches 100 percent of the first 6 percent of employee contributions from the date of hire and provides an automatic employer contribution of 1 percent of eligible pay. The Bank's Thrift Plan contributions totaled $31 million and $30 million for the years ended December 31, 2018 and 2017, respectively, and are reported as a component of "Operating expenses: Salaries and benefits" in the Consolidated Statements of Operations.

(10) Postretirement Benefits other than Retirement Plans and Postemployment Benefits

Postretirement Benefits Other Than Retirement Plans

In addition to the Bank's retirement plans, employees who have met certain age and length-of-service requirements are eligible for both medical and life insurance benefits during retirement.

The Bank and plan participants fund benefits payable under the medical and life insurance plans as due and the plans have no assets.

Following is a reconciliation of the beginning and ending balances of the benefit obligation for the years ended December 31, 2018 and 2017 (in millions):

	2018	2017
Accumulated postretirement benefit obligation at January 1	$ 429	$ 386
Service cost benefits earned during the period	22	18
Interest cost on accumulated benefit obligation	16	16
Net actuarial (gain) loss	(31)	26
Contributions by plan participants	4	4
Benefits paid	(21)	(21)
Medicare Part D subsidies	1	-
Plan amendments	(1)	-
Accumulated postretirement benefit obligation at December 31	$ 419	$ 429

At December 31, 2018 and 2017, the weighted-average discount rate assumptions used in developing the postretirement benefit obligation were 4.26 percent and 3.59 percent, respectively.

Discount rates reflect yields available on high-quality corporate bonds that would generate the cash flows necessary to pay the plan's benefits when due. The System Plan discount rate assumption setting convention uses an unrounded rate.

Following is a reconciliation of the beginning and ending balance of the plan assets, and the unfunded postretirement benefit obligation and accrued postretirement benefit costs for the years ended December 31, 2018 and 2017 (in millions):

	2018	2017
Fair value of plan assets at January 1	$ -	$ -
Contributions by the employer	16	17
Contributions by plan participants	4	4
Benefits paid	(21)	(21)
Medicare Part D subsidies	1	-
Fair value of plan assets at December 31	$ -	$ -
Unfunded obligation and accrued postretirement benefit cost	$ 419	$ 429
Amounts included in accumulated other comprehensive loss are shown below:		
Prior service cost	$ 37	$ 47
Net actuarial loss	(78)	(118)
Total accumulated other comprehensive loss	$ (41)	$ (71)

Accrued postretirement benefit costs are reported as a component of "Accrued benefit costs" in the Consolidated Statements of Condition.

For measurement purposes, the assumed health-care cost trend rates at December 31, 2018 and 2017 are provided in the table below:

	2018	2017
Health-care cost trend rate assumed for next year	6.25%	6.20%
Rate to which the cost trend rate is assumed to decline (the ultimate trend rate)	4.75%	4.75%
Year that the rate reaches the ultimate trend rate	2025	2022

Assumed health-care cost trend rates have a significant effect on the amounts reported for health-care plans. A one percentage point change in assumed health-care cost trend rates would have the following effects for the year ended December 31, 2018 (in millions):

	One percentage point increase	One percentage point decrease
Effect on aggregate of service and interest cost components of net periodic postretirement benefit costs	$ 8	$ (6)
Effect on accumulated postretirement benefit obligation	63	(52)

The following is a summary of the components of net periodic postretirement benefit expense for the years ended December 31, 2018 and 2017 (in millions):

	2018	2017
Service cost benefits earned during the period	$ 22	$ 18
Interest cost on accumulated benefit obligation	16	16
Amortization of prior service cost	(11)	(11)
Amortization of net actuarial loss	9	7
Net periodic postretirement benefit expense	$ 36	$ 30

Estimated amounts that will be amortized from accumulated other comprehensive loss into net periodic postretirement benefit expense in 2019 are shown below:

Prior service cost	$ (11)
Net actuarial loss	4
Total	$ (7)

Net postretirement benefit costs are actuarially determined using a January 1 measurement date. At January 1, 2018 and 2017, the weighted-average discount rate assumptions used to determine net periodic postretirement benefit costs were 3.59 percent and 4.07 percent, respectively.

Net periodic postretirement benefit expense is reported as a component of "Operating expenses: Salaries and benefits" in the Consolidated Statements of Operations.

The Medicare Prescription Drug, Improvement and Modernization Act of 2003 established a prescription drug benefit under Medicare (Medicare Part D) and a federal subsidy to sponsors of retiree health-care benefit plans that provide benefits that are at least actuarially equivalent to Medicare Part D. The benefits provided under the Bank's plan to certain participants are at least actuarially equivalent to the Medicare Part D prescription drug benefit. The estimated effects of the subsidy are reflected in the actuarial loss in the accumulated postretirement benefit obligation and net periodic postretirement benefit expense.

Federal Medicare Part D subsidy receipts were $0.3 million and $0.5 million in the years ended December 31, 2018 and 2017, respectively. Expected receipts in 2019, related to benefits paid in the year ended December 31, 2018, are $0.2 million. Expected receipts in 2019, related to benefits paid in the year ended December 31, 2017, are immaterial.

Following is a summary of expected postretirement benefit payments (in millions):

	Without subsidy	With subsidy
2019	$ 18	$ 18
2020	20	19
2021	21	20
2022	22	21
2023	23	23
2024 - 2028	138	135
Total	$ 242	$ 236

Postemployment Benefits

The Bank offers benefits to former qualifying or inactive employees. Postemployment benefit costs are actuarially determined using a December 31 measurement date and include the cost of providing disability; medical, dental, and vision insurance; survivor income benefits, and certain workers' compensation expenses. The accrued postemployment benefit costs recognized by the Bank at December 31, 2018 and 2017 were $36 million and $40 million, respectively. This cost is included as a component of "Accrued benefit costs" in the Consolidated Statements of Condition. Net periodic postemployment benefit expense (credit) included in 2018 and 2017 operating expenses were $1 million and $7 million, respectively, and are recorded as a component of "Operating expenses: Salaries and benefits" in the Consolidated Statements of Operations.

(11) ACCUMULATED OTHER COMPREHENSIVE INCOME AND OTHER COMPREHENSIVE INCOME

Following is a reconciliation of beginning and ending balances of accumulated other comprehensive income (loss) as of December 31, 2018 and 2017 (in millions):

	2018			2017		
	Amount related to defined benefit retirement plan	Amount related to postretirement benefits other than retirement plans	Total accumulated other comprehensive income (loss)	Amount related to defined benefit retirement plan	Amount related to postretirement benefits other than retirement plans	Total accumulated other comprehensive income (loss)
Balance at January 1	$ (3,127)	$ (71)	$ (3,198)	$ (3,844)	$ (41)	$ (3,885)
Change in funded status of benefit plans:						
Prior service costs arising during the year	-	1	1	-	-	-
Amortization of prior service cost	62 [1]	(11) [2]	51	88 [1]	(11) [2]	77
Change in prior service costs related to benefit plans	62	(10)	52	88	(11)	77
Net actuarial (loss) gain arising during the year	(282)	31	(251)	420	(26)	394
Amortization of net actuarial loss	160 [1]	9 [2]	169	209 [1]	7 [2]	216
Change in actuarial (loss) gain related to benefit plans	(122)	40	(82)	629	(19)	610
Change in funded status of benefit plans - other comprehensive (loss) income	(60)	30	(30)	717	(30)	687
Balance at December 31	$ (3,187)	$ (41)	$ (3,228)	$ (3,127)	$ (71)	$ (3,198)

[1] Reclassification is reported as a component of "Operating Expenses: Net periodic pension expense" in the Consolidated Statements of Operations.
[2] Reclassification is reported as a component of "Operating Expenses: Salaries and benefits" in the Consolidated Statements of Operations.

Additional detail regarding the classification of accumulated other comprehensive loss is included in Note 9 and 10.

(12) RECONCILIATION OF TOTAL DISTRIBUTION OF COMPREHENSIVE INCOME

In accordance with the Federal Reserve Act, the Bank remits excess earnings to the Treasury after providing for the cost of operations, payment of dividends, and reservation of an amount necessary to maintain the Bank's allocated portion of the aggregate surplus limitation.

For the year ending December 31, 2017 and through February 8, 2018, the aggregate surplus limitation was $10 billion. On February 9, 2018, the Budget Act reduced the aggregate surplus limitation to $7.5 billion, which required the Reserve Banks to make a lump-sum payment to the Treasury in the amount of $2.5 billion; the payment was remitted to the Treasury on February 22, 2018, and the Bank's share of this remittance was $788 million. After making the transfer required by the Budget Act, the Bank's allocated portion of the aggregate $7.5 billion surplus was $2.4 billion.

On May 24, 2018, the Economic Growth Act reduced the aggregate surplus limitation to $6.825 billion, which required the Reserve Banks to make a lump-sum payment to the Treasury in the amount of $675 million; the payment was remitted to the Treasury on June 21, 2018, and the Bank's share of this remittance was $213 million. After making the transfer required by the Economic Growth Act, the Bank's allocated portion of the aggregate $6.825 billion surplus was $2.2 billion.

The following table presents the distribution of the Bank's and System total comprehensive income for the years ended December 31, 2018 and 2017 (in millions):

	Bank's portion		System total	
	2018	2017	2018	2017
Net income before providing for remittances to Treasury	$ 32,956	$ 44,050	$ 63,101	$ 80,692
Other comprehensive (loss) income	(30)	687	42	651
Comprehensive income - available for distribution	$ 32,926	$ 44,737	$ 63,143	$ 81,343
Distribution of comprehensive income:				
Transfer from surplus	$ (986)	$ (50)	$ (3,175)	$ -
Dividends	304	234	999	784
Earnings remittances to the Treasury[1]	33,608	44,553	65,319	80,559
Total distribution of comprehensive income	$ 32,926	$ 44,737	$ 63,143	$ 81,343

[1] Inclusive of lump-sum payments required by legislation enacted during the year ended December 31, 2018.

(13) SUBSEQUENT EVENTS

There were no subsequent events that required adjustments to or disclosures in the consolidated financial statements as of December 31, 2018. Subsequent events were evaluated through March 8, 2019, which is the date that the consolidated financial statements were available to be issued.