Goldman Sachs Bank USA and Subsidiaries

Annual Report
for the year ended December 31, 2019

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PART I

Introduction

Goldman Sachs Bank USA, together with its consolidated subsidiaries (collectively, the Bank), is a New York State-chartered bank and a member of the Federal Reserve System. The Bank is supervised and regulated by the Board of Governors of the Federal Reserve System (FRB), the New York State Department of Financial Services (NYDFS) and the Consumer Financial Protection Bureau (CFPB), and is a member of the Federal Deposit Insurance Corporation (FDIC). The Bank's deposits are insured by the FDIC up to the maximum amount provided by law. The Bank is registered with the U.S. Commodity Futures Trading Commission (CFTC) as a swap dealer and as a government securities dealer subject to the rules and regulations of the U.S. Department of the Treasury.

The Bank is a wholly-owned subsidiary of The Goldman Sachs Group, Inc. (Group Inc.). Group Inc. is a bank holding company (BHC) under the U.S. Bank Holding Company Act of 1956 (BHC Act) and a financial holding company (FHC) under amendments to the BHC Act effected by the U.S. Gramm-Leach-Bliley Act of 1999. Group Inc. is subject to supervision and examination by the FRB as its primary regulator.

When we use the terms "we," "us" and "our," we mean Goldman Sachs Bank USA and its consolidated subsidiaries. When we use the term "GS Group," we are referring to Group Inc. and its consolidated subsidiaries, including us.

Our principal office is located in New York, New York. We operate two domestic branches, which are located in Salt Lake City, Utah and Draper, Utah. Both branches are regulated by the Utah Department of Financial Institutions. We also have a foreign branch in London, United Kingdom, which is regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority.

References to "this Annual Report" are to our Annual Report for the year ended December 31, 2019. All references to 2019 and 2018 refer to our years ended, or the dates, as the context requires, December 31, 2019 and December 31, 2018, respectively.

Business

We are a financial services provider that engages in banking activities. We are GS Group's primary lending entity, serving corporate and private bank clients, as well as U.S. consumers through our digital platform, *Marcus by Goldman Sachs* (Marcus), and by issuing credit cards. We are also GS Group's primary deposit-taking entity. Our depositors include private bank clients, U.S. consumers, clients of third-party broker-dealers, institutions, corporations and our affiliates. Our consumer deposit-taking activities are conducted through Marcus. We also provide transaction banking services, which includes deposit taking and payment services. In addition, we enter into interest rate, currency, credit and other derivatives, and transact in certain related cash products, for the purpose of market making and risk management.

Lending

We are GS Group's primary lending entity. We provide loans, on a secured and unsecured basis, to corporations, private bank clients and U.S. consumers. See Note 9 to the consolidated financial statements in Part III of this Annual Report for further information about our lending activities.

We also provide lending commitments. Commercial lending commitments are primarily agreements to lend with fixed termination dates. The total commitment amount does not necessarily reflect actual future cash flows because we may syndicate all or portions of these commitments. In addition, commitments can expire unused or be reduced or cancelled at the counterparty's request. We also issue credit cards that provide U.S. consumers with revolving lines of credit, which can be cancelled by us. See Note 18 to the consolidated financial statements in Part III of this Annual Report for further information about our commitments to extend credit.

Corporate Loans. We offer term loans, revolving lines of credit, letter of credit facilities and bridge loans to institutions and corporations. The proceeds from these forms of lending are principally used by borrowers for operating liquidity and general corporate purposes, or in connection with acquisitions. We may elect to syndicate portions of these loans either directly or through our affiliates or may retain the loans.

Many of these lending opportunities arise from referrals made by our affiliates. Accordingly, the volume of loans we make largely corresponds to levels of loan demand from clients of GS Group. The loans are all subject to our underwriting criteria, consistent with applicable banking law and regulation. In addition, we may be compensated by Group Inc. or affiliates for participation in certain lending activities.

The type of loan, including whether the loan is secured or unsecured, extended to a borrower varies and is dependent upon the borrower's needs and capital structure and the then-current state of the credit markets. In each case, we underwrite the loan based on our underwriting criteria. However, we may rely on services provided by employees of affiliates to assist in this process.

Wealth Management Loans. We provide loans and lines of credit to private bank clients, including wealth management and other clients. Substantially all of these loans are secured by securities, commercial and residential real estate or other assets. We work with clients in order to finance investments in both financial and nonfinancial assets, bridge cash flow timing gaps and provide liquidity for other needs. We underwrite, structure and negotiate pricing for these loans based on our underwriting criteria. However, in some cases, we rely on services provided by employees of affiliates to assist in this process. We also originate secured loans through *Goldman Sachs Private Bank Select* (GS Select) to clients of financial advisors at third-party broker-dealers, registered investment advisors and asset custodians.

Commercial and Residential Real Estate Loans. We originate and purchase loans backed by commercial and residential real estate and lend to clients who warehouse assets that are directly or indirectly secured by commercial and residential real estate.

Consumer, Credit Card and Other Loans. We originate unsecured fixed-rate loans to U.S. consumers through Marcus, issue credit cards to U.S. consumers and lend to clients who warehouse assets that are directly or indirectly secured by consumer loans, including auto loans and private student loans, and other assets.

In the future, we intend to expand our lending activities, including our consumer-oriented activities. See "Risk Factors — We face enhanced risks as new business initiatives and acquisitions lead us to engage in new activities and transact with a broader array of clients and counterparties, and expose us to new assets, activities and markets" for further information about how engaging in consumer-oriented lending could impact us.

Deposit Taking

We are GS Group's primary deposit-taking entity. We accept deposits from private bank clients, U.S. consumers, clients of third-party broker-dealers, institutions, corporations and affiliates. Deposits are our primary source of funding for our assets.

We accept deposits through Marcus, our sweep programs with affiliates and third-party broker-dealers and our transaction banking activities. We also issue brokered certificates of deposit (CDs), distributed through third-party broker-dealers and Goldman Sachs & Co. LLC (GS&Co.). Additionally, we accept consumer time deposits through Marcus and also accept institutional time deposits.

For further information about our deposits, including the sources and types of our deposits and the amount that is insured by the FDIC, see "Management's Discussion and Analysis of Financial Condition and Results of Operations — Balance Sheet and Funding Sources — Funding Sources — Deposits" in Part II of this Annual Report and Note 13 to the consolidated financial statements in Part III of this Annual Report.

Market Making

We enter into interest rate, currency, credit and other derivatives, and transact in certain related cash products, for the purpose of market making and also use derivatives to manage our own risk exposure as part of our risk management processes. Derivatives are instruments that derive their value from underlying asset prices, indices, reference rates and other inputs, or a combination of these factors. Derivative transactions provide liquidity to clients and facilitate the active management of risk exposures, including market, credit and other risks.

We enter into various types of derivatives, including (i) swaps (which are agreements to exchange cash flows, such as currency or interest payment streams), (ii) options (contracts which provide the right but not the obligation to buy or sell a certain financial instrument or currency on a specified date in the future at a certain price) and (iii) futures and forwards (which are contracts to purchase or sell a financial instrument, currency or commodity in the future).

Derivatives may be traded on an exchange (exchange-traded) or they may be privately negotiated contracts, which are referred to as over-the-counter (OTC) derivatives. Certain of these OTC derivatives are cleared and settled through central clearing counterparties, while others are bilateral contracts between two counterparties.

We have entered into derivative transactions with both affiliates and unaffiliated third parties. Affiliate trades are part of Group Inc.'s centralized hedging and risk management processes and practices.

See Note 7 to the consolidated financial statements in Part III of this Annual Report for further information about our derivative products and activities.

Other Activities

We also engage in securities financing transactions and agency lending. We provide payment services for certain affiliates in connection with transaction banking.

See Notes 11 and 18 to the consolidated financial statements in Part III of this Annual Report for further information about our securities financings and agency lending.

Our Relationship with Group Inc. and our Affiliates

We are a wholly-owned insured depository institution (IDI) subsidiary of Group Inc. We use and benefit from business relationships, certain processes, support systems and infrastructure, and financial support of Group Inc. and our affiliates. We also provide certain processes, support systems and infrastructure to our affiliates and provide payment services for certain affiliates.

Services provided from and to our affiliates are governed under Master Services Agreements and supplemented by Service Level Agreements (collectively, the Master Services Agreement). We benefit from our affiliates' access to third-party vendors, experience and knowledge, and services provided to us by employees of affiliates. For further information about our relationship with our affiliates, see "Risk Factors — We are a wholly-owned subsidiary of Group Inc. and are dependent on Group Inc. and certain of our affiliates for client business, various services and capital" and Note 20 to the consolidated financial statements in Part III of this Annual Report.

Business Relationships. Our affiliates are sources of business for our lending and other business activities, and often are counterparties to derivatives transactions with us. See " — Lending — Wealth Management Loans," " — Lending — Corporate Loans" and " — Market Making" for further information about our business relationships.

Support Services. We receive operational and administrative support services from Group Inc. and our affiliates pursuant to the Master Services Agreement. All operational and administrative support services we receive from Group Inc. and our affiliates are overseen by our employees. Support services include trade execution, loan origination and servicing, operational and infrastructure services, control and other support services. We also provide certain operational support to our affiliates.

Funding Sources. In addition to accepting deposits and deposit sweep programs from affiliates, we also have access to funding facilities primarily from Group Inc. and Goldman Sachs Funding LLC (Funding IHC), a wholly-owned subsidiary of Group Inc. See Note 14 to the consolidated financial statements in Part III of this Annual Report for further information about funding facilities from Group Inc. and Funding IHC.

We receive secured funding from Group Inc. and our affiliates. In particular, we enter into collateralized financings, such as repurchase agreements. In addition, our shareholder's equity provides us with a stable and perpetual source of funding. See "Other Activities" above, "Management's Discussion and Analysis of Financial Condition and Results of Operations — Balance Sheet and Funding Sources — Funding Sources" in Part II of this Annual Report and Note 11 to the consolidated financial statements in Part III of this Annual Report for further information about our funding sources.

Group Inc. General Guarantee. Group Inc. has agreed to guarantee our payment obligations (General Guarantee Agreement), subject to certain limitations. Subject to the terms and conditions of the General Guarantee Agreement, Group Inc. unconditionally and irrevocably guarantees complete payment of all of our payment obligations when due, other than non-recourse payment obligations and payment obligations arising in connection with any of our CDs (unless applicable governing documents of the CD expressly state otherwise) and our outstanding notes evidencing senior unsecured debt.

Furthermore, FRB regulation requires Group Inc., as a BHC, to act as a source of strength to us, as its bank subsidiary, and to commit capital and financial resources to support us.

All of our relationships and transactions with our affiliates are closely monitored in accordance with applicable laws and regulations, including, without limitation, Sections 23A and 23B of the Federal Reserve Act and the FRB's Regulation W. See Note 20 to the consolidated financial statements in Part III of this Annual Report for further information about our transactions with related parties.

Human Capital Management

As of December 2019, we had 2,185 direct employees and 219 dual employees who perform services for both us and our affiliates pursuant to an Employee Sharing Agreement. Employees of our affiliates also provide services to us under the Master Services Agreement.

Competition

The financial services industry is intensely competitive. Our competitors are other institutions that originate bank and bridge loans, commercial and consumer and mortgage loans; provide transaction banking services and deposit-taking products, including consumer deposits; make markets in interest rate, currency, credit and other derivatives and in loans and other financial assets; and engage in leveraged finance and agency lending. We compete with institutions on a regional and product basis. We compete based on a number of factors, including transaction execution, products and services, innovation, reputation and price. In addition to financial institutions such as commercial banks, credit card issuers, broker-dealers and investment banking firms, our competitors also include consumer finance companies and financial technology and other internet-based financial companies.

We also face intense competition in attracting and retaining qualified employees. Our ability to continue to compete effectively has depended and will continue to depend upon our ability to attract new employees, retain and motivate our existing employees and to continue to compensate employees competitively amid intense public and regulatory scrutiny on the compensation practices of large financial institutions.

Regulation

We are supervised and regulated by the FRB, the NYDFS, the CFPB and the FDIC and are also regulated by the CFTC and the U.S. Department of the Treasury in respect of our swap dealer and government securities dealer activities, respectively. Our branches and other offices are also subject to local regulation.

As a participant in the banking industry, we are subject to extensive regulation of, among other things, our lending (including origination of credit card loans) and deposit-taking activities, derivatives activities for purposes of market making and risk management, payment activities, capital adequacy, liquidity, funding, inter-affiliate transactions, the establishment of new businesses and implementation of new activities and the formation of new subsidiaries by both federal and state regulators and by foreign regulators in jurisdictions in which we operate. The FRB, the NYDFS and the CFPB have significant discretion in connection with their supervisory, enforcement and examination policies. Any change in such policies, whether by the FRB, the NYDFS or the CFPB, or through legislation, could have a material adverse impact on our business, financial condition and operations.

New regulations have been adopted or are being considered by regulators and policy makers worldwide, as described below. Recent developments have added additional uncertainty to the implementation, scope and timing of regulatory reforms and potential for deregulation in some areas. The effects of any changes to the regulations affecting our businesses, including as a result of the proposals described below, are uncertain and will not be known until the changes are finalized and market practices and structures develop under the revised regulations. See "Management's Discussion and Analysis of Financial Condition and Results of Operations — Regulatory Matters and Other Developments" in Part II of this Annual Report for further information about regulatory developments impacting us.

Stress Tests. Under rules adopted by the U.S. federal bank regulatory agencies, implementing 2018 amendments to the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act), depository institutions with total consolidated assets between $100 billion and $250 billion, such as us, are no longer required to conduct annual company-run stress tests. We are still required to have our own capital planning process.

Prompt Corrective Action. The U.S. Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA) requires the U.S. federal bank regulatory agencies to take "prompt corrective action" in respect of depository institutions that do not meet specified capital requirements. FDICIA establishes five capital categories for FDIC-insured banks, such as us: well-capitalized, adequately capitalized, undercapitalized, significantly undercapitalized and critically undercapitalized.

An institution may be downgraded to, or deemed to be in, a capital category that is lower than is indicated by its capital ratios if it is determined to be in an unsafe or unsound condition or if it receives an unsatisfactory examination rating with respect to certain matters. FDICIA imposes progressively more restrictive constraints on operations, management and capital distributions, as the capital category of an institution declines. Failure to meet the capital requirements could also require a depository institution to raise capital. An institution also is prohibited from accepting, renewing or rolling over deposits by or through a "deposit broker" (as defined in FDICIA) unless the institution is well-capitalized. The FDIC may waive this prohibition if the institution is adequately capitalized; however, the prohibition cannot be waived if the institution is undercapitalized, significantly undercapitalized or critically undercapitalized.

An institution also is restricted with respect to the deposit interest rates it may offer if the institution is not well-capitalized. Ultimately, critically undercapitalized institutions are subject to the appointment of a receiver or conservator, as described in "Insolvency of an IDI" below.

See "Management's Discussion and Analysis of Financial Condition and Results of Operations — Equity Capital Management and Regulatory Capital" in Part II of this Annual Report and Note 19 to the consolidated financial statements in Part III of this Annual Report for information about the quantitative requirements for a depository institution to be considered "well-capitalized."

Dividends. Dividends are reviewed and approved in accordance with our capital management policy. In addition, U.S. federal and state laws impose limitations on the payment of dividends by banks to their shareholders. In general, the amount of dividends that may be paid by us is limited to the lesser of the amounts calculated under a "recent earnings" test and an "undivided profits" test.

Under the recent earnings test, a dividend may not be paid if the total of all dividends declared by the entity in any calendar year is in excess of the current year's net income combined with the retained net income of the two preceding years, unless the entity obtains prior regulatory approval. Under the undivided profits test, a dividend may not be paid in excess of the entity's undivided profits (generally, accumulated net profits that have not been paid out as dividends or transferred to surplus).

In addition to the recent earnings test and undivided profits test, capital management decisions are also driven by our capital management policy, which establishes guidelines to assist us in maintaining the appropriate level of capital in both business-as-usual and post-stress conditions.

The applicable U.S. banking regulators have authority to prohibit or limit the payment of dividends if, in the banking regulator's opinion, payment of a dividend would constitute an unsafe or unsound practice in light of the financial condition of the banking organization.

Insolvency of an IDI. Under the Federal Deposit Insurance Act of 1950 (FDIA), if the FDIC is appointed as conservator or receiver for an IDI such as us, upon its insolvency or in certain other events, the FDIC has broad powers, including the power:

- To transfer any of the IDI's assets and liabilities to a new obligor, including a newly formed "bridge" bank, without the approval of the depository institution's creditors;
- To enforce the IDI's contracts pursuant to their terms without regard to any provisions triggered by the appointment of the FDIC in that capacity; or
- To repudiate or disaffirm any contract or lease to which the IDI is a party, the performance of which is determined by the FDIC to be burdensome and the repudiation or disaffirmance of which is determined by the FDIC to promote the orderly administration of the IDI.

In addition, the claims of holders of domestic deposit liabilities and certain claims for administrative expenses against an IDI would be afforded a priority over other general unsecured claims, including claims of debtholders of the institution, in the "liquidation or other resolution" of such an institution by any receiver. As a result, whether or not the FDIC ever sought to repudiate any of our debt obligations, the debtholders (other than depositors at U.S. branches) would be treated differently from, and could receive, if anything, substantially less than, our depositors.

Resolution. We are required to submit to the FDIC a periodic plan for our rapid and orderly resolution in the event of material financial distress or failure (resolution plan). We submitted our resolution plan on June 28, 2018. The guidance applicable to covered IDIs, including us, requires that our resolution plan must, among other things, demonstrate that we are adequately protected from risks arising from Group Inc. and its other subsidiaries. The FDIC released an advanced notice of proposed rulemaking in April 2019 about potential changes to its resolution planning requirements for IDIs, including us, and delayed the next round of IDI resolution plan submissions until the rulemaking process is complete.

In addition, U.S. global systemically important banks (G-SIBs), including Group Inc., are required by the FRB and FDIC to submit resolution plans on a two-year cycle (alternating between full and targeted submissions). We are included as a material operating entity within Group Inc.'s 2019 resolution plan, which was submitted in June 2019, and will be included as a material operating entity within Group Inc.'s next required submission, which is a targeted submission due on July 1, 2021.

If the regulators jointly determine that a BHC has failed to remediate identified shortcomings in its resolution plan and that its resolution plan, after any permitted resubmission, is not credible or would not facilitate an orderly resolution under the U.S. Bankruptcy Code, the regulators may jointly impose more stringent capital, leverage or liquidity requirements or restrictions on growth, activities or operations or may jointly order a BHC to divest assets or operations, in order to facilitate orderly resolution in the event of failure, any of which may impact us.

The U.S. federal bank regulatory agencies have adopted rules imposing restrictions on qualified financial contracts (QFCs) entered into by G-SIBs, including their subsidiaries, which became fully effective on January 1, 2020. These rules are intended to facilitate the orderly resolution of a failed G-SIB by limiting the ability of the G-SIB to enter into a QFC unless (i) the counterparty waives certain default rights in such contract arising upon the entry of the G-SIB or one of its affiliates into resolution, (ii) the contract does not contain enumerated prohibitions on the transfer of such contract and/or any related credit enhancement, and (iii) the counterparty agrees that the contract will be subject to the special resolution regimes set forth in the Dodd-Frank Act orderly liquidation authority (OLA) and the FDIA. Compliance can be achieved by adhering to the International Swaps and Derivatives Association Universal Resolution Stay Protocol (ISDA Universal Protocol) or International Swaps and Derivatives Association 2018 U.S. Resolution Stay Protocol (U.S. ISDA Protocol) described below.

Group Inc. and certain of its subsidiaries (including us), along with those of a number of other major global banking organizations, have adhered to the ISDA Universal Protocol, which was developed and updated in coordination with the Financial Stability Board (FSB), an international body that sets standards and coordinates the work of national financial authorities and international standard-setting bodies. The ISDA Universal Protocol imposes a stay on certain cross-default and early termination rights within standard ISDA derivative contracts and securities financing transactions between adhering parties in the event that one of them is subject to resolution in its home jurisdiction, including a resolution under the OLA or the FDIA in the U.S. In addition, Group Inc. and certain of its subsidiaries (including us) adhere to the U.S. ISDA Protocol, which was based on the ISDA Universal Protocol and was created to allow market participants to comply with the final QFC rules adopted by the federal bank regulatory agencies.

Capital and Liquidity Requirements. We are subject to consolidated regulatory risk-based capital and leverage requirements that are calculated in accordance with the regulations of the FRB (Capital Framework). The Capital Framework is largely based on the Basel Committee on Banking Supervision's (Basel Committee) framework for strengthening the regulation, supervision and risk management of banks (Basel III). The Basel Committee is the primary global standard setter for prudential bank regulation and its member jurisdictions implement regulations based on its standards and guidelines. The Basel Committee's standards do not become effective in a jurisdiction until the relevant regulators have adopted rules to implement its standards. The Capital Framework also implements certain provisions of the Dodd-Frank Act. Under the tailoring rules adopted by the U.S. federal bank regulatory agencies in October 2019, we are subject to "Category I" standards because Group Inc. has been designated as a G-SIB and (with respect to liquidity requirements) because we have $10 billion or more in total consolidated assets. Accordingly, under the Capital Framework, we are an "Advanced approach" banking organization. We must meet specific regulatory capital requirements that involve quantitative measures of assets, liabilities and certain off-balance-sheet items. The sufficiency of our capital levels is also subject to qualitative judgments by regulators. We are also subject to liquidity requirements established by the U.S. federal bank regulatory agencies that require us to meet specified ratios.

Risk-Based Capital Ratios. We compute our Common Equity Tier 1 (CET1) capital, Tier 1 capital and Total capital ratios in accordance with the risk-based capital regulations as provided in the Capital Framework.

The Capital Framework, as applicable to us, provides for an additional capital ratio requirement that includes two components (commonly referred to as buffers): (i) for capital conservation (capital conservation buffer) and (ii) for countercyclicality (countercyclical capital buffer). The additional capital ratio requirement must be satisfied entirely with capital that qualifies as CET1.

The countercyclical capital buffer is designed to counteract systemic vulnerabilities and currently applies only to banking organizations subject to Category I, II or III standards, including us. The countercyclical capital buffer applicable to us could change in the future and, as a result, the minimum capital ratios to which we are subject could change.

The U.S. federal bank regulatory agencies adopted a rule in November 2019 that will implement the Basel Committee's standardized approach for measuring counterparty credit risk exposures in connection with derivative contracts (SA-CCR). Under the rule, beginning January 1, 2022, but with the option to adopt starting April 1, 2020, "Advanced approach" banking organizations will be required to use SA-CCR for purposes of calculating their standardized risk-weighted assets and, with some adjustments, for purposes of determining their supplementary leverage ratios (SLRs) discussed below.

The Basel Committee finalized revisions to the framework in January 2019 for calculating capital requirements for market risk, which is expected to increase market risk capital requirements for most banking organizations. The revised framework, among other things, revises the standardized approach and internal models used to calculate market risk requirements and clarifies the scope of positions subject to market risk capital requirements. The Basel Committee has proposed that national regulators implement the revised framework beginning January 1, 2022.

The Basel Committee published standards in December 2017 that it described as the finalization of the Basel III post-crisis regulatory reforms. These standards set a floor on internally modeled capital requirements at a percentage of the capital requirements under the standardized approach. They also revise the Basel Committee's standardized and model-based approaches for credit risk, provide a new standardized approach for operational risk capital and revise the frameworks for credit valuation adjustment (CVA) risk. The Basel Committee has proposed that national regulators implement these standards beginning January 1, 2022, and that the new floor be phased in through January 1, 2027. In November 2019, the Basel Committee proposed further revisions to the framework for CVA risk.

The Basel Committee has also published an updated framework for the regulatory capital treatment of securitization exposures. The U.S. federal bank regulatory agencies have not yet proposed rules implementing the December 2017 standards relating to risk-based requirements or the revised market risk and securitizations framework. See "Management's Discussion and Analysis of Financial Condition and Results of Operations — Equity Capital Management and Regulatory Capital" in Part II of this Annual Report and Note 19 to the consolidated financial statements in Part III of this Annual Report for information about our capital ratios.

Leverage Ratios. Under the Capital Framework, we are subject to a Tier 1 leverage ratio and SLR established by the FRB. In April 2018, the FRB and the Office of the Comptroller of the Currency (OCC) issued a proposed rule which would replace the current 6% SLR requirement for depository institution subsidiaries of G-SIBs, including us, to be considered "well-capitalized" with a requirement equal to 3% plus a buffer equal to 50% of the G-SIB parent's risk-based capital surcharge. This proposal, as it relates to the SLR buffer for Group Inc., together with the adopted rule requiring use of SA-CCR for purposes of calculating the SLR, would implement certain of the revisions to the leverage ratio framework published by the Basel Committee in December 2017.

The Basel Committee adopted changes in June 2019 to the leverage ratio treatment of margin related to client-cleared derivatives and adopted a requirement to publicly disclose daily average balances for certain components of leverage ratio calculations. See "Management's Discussion and Analysis of Financial Condition and Results of Operations — Equity Capital Management and Regulatory Capital" in Part II of this Annual Report and Note 19 to the consolidated financial statements in Part III of this Annual Report for information about our Tier 1 leverage ratio and SLR. The U.S. federal bank regulatory agencies' November 2019 rule implementing SA-CCR similarly allows for greater recognition of collateral in the calculation of leverage exposure relating to client-cleared derivative contracts.

Liquidity Ratios. The Basel Committee's framework for liquidity risk measurement, standards and monitoring requires banking organizations to measure their liquidity against two specific liquidity tests: the Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR).

The LCR rule issued by the U.S. federal bank regulatory agencies and applicable to us is generally consistent with the Basel Committee's framework and is designed to ensure that a banking organization maintains an adequate level of unencumbered high-quality liquid assets equal to or greater than the expected net cash outflows under an acute short-term liquidity stress scenario. See "Management's Discussion and Analysis of Financial Condition and Results of Operations — Risk Management — Liquidity Risk Management — Liquidity Regulatory Framework" in Part II of this Annual Report for further information about our LCR.

The NSFR is designed to promote medium- and long-term stable funding of the assets and off-balance-sheet activities of banking organizations over a one-year time horizon. The Basel Committee's NSFR framework requires banking organizations to maintain a minimum NSFR of 100%. The U.S. federal bank regulatory agencies issued a proposed rule in May 2016 that would implement the NSFR for large U.S. banking organizations, including us, but have not yet released a final rule.

The LCR and proposed NSFR are determined, in part, by applying prescribed supervisory factors to certain categories of liabilities, including deposits that are classified as "brokered."

The FDIC issued a proposed rule in December 2019 to revise the brokered deposit regulations, which, if adopted as proposed, could have an effect on the classification of certain types of deposits as "brokered." Any change to the classification of deposits as "brokered" could affect how regulatory liquidity ratios are calculated under the LCR rule and proposed NSFR rule.

Transactions between Affiliates. Transactions between us and Group Inc. or our affiliates are subject to restrictions under the Federal Reserve Act and regulations issued by the FRB. These laws and regulations generally limit the types and amounts of transactions (such as loans and other credit extensions, including credit exposure arising from repurchase and reverse repurchase agreements, securities borrowings and derivative transactions, from us to Group Inc. or its other subsidiaries and affiliates and purchases of assets by us from Group Inc. or its other subsidiaries and affiliates) that may take place and generally require those transactions to be on market terms or better to us. These laws and regulations generally do not apply to transactions within the Bank.

Total Loss-Absorbing Capacity. The FRB has issued a rule establishing loss-absorbency and related requirements for BHCs that have been designated as U.S. G-SIBs, such as Group Inc. The rule became effective in January 2019 with no phase-in period. Although it does not apply to depository institutions, the rule impacts aspects of the operations of depository institutions that are subsidiaries of U.S. G-SIBs, including us. For example, it prohibits Group Inc. from (i) guaranteeing our obligations if an insolvency or receivership of Group Inc. could give the counterparty the right to exercise a default right (for example, early termination) against us, subject to an exception for guarantees permitted by rules of the U.S. federal banking agencies imposing restrictions on QFCs; (ii) incurring liabilities guaranteed by us; and (iii) entering into QFCs with any person that is not a subsidiary of Group Inc.

Moreover, the FRB has indicated that it is considering whether it would be appropriate to propose regulations that would impose total loss absorbing capacity requirements on material operating subsidiaries of U.S. G-SIBs, which may include us.

Deposit Insurance. Our deposits have the benefit of FDIC insurance up to the applicable limits. The FDIC's Deposit Insurance Fund (DIF) is funded by assessments on IDIs. Our assessment (subject to adjustment by the FDIC) is currently based on our average total consolidated assets less our average tangible equity during the assessment period, our supervisory ratings and specified forward-looking financial measures used to calculate the assessment rate.

Lending and Credit Limits. New York Banking Law imposes lending limits (which also take into account credit exposure from derivative transactions and securities financing transactions of securities representing debt obligations) and other requirements that could impact the manner and scope of our activities.

We are also subject to limits under state and U.S. federal law that restrict the type and amount of investments we can make.

Effective January 1, 2020, U.S. G-SIBs, such as Group Inc., are required to comply with a rule regarding single counterparty credit limits, which imposes more stringent requirements for credit exposures among major financial institutions and apply in the aggregate to Group Inc. and its subsidiaries on a consolidated basis. Accordingly, although not applicable to us on a standalone basis, these limits could have the effect of constraining our management of our credit exposures because of the consolidated application of the limits, including with respect to hedges.

The U.S. federal bank regulatory agencies have issued guidance that focuses on transaction structures and risk management frameworks and that outlines high-level principles for safe-and-sound leveraged lending, including underwriting standards, valuation and stress testing. This guidance has, among other things, limited the percentage amount of debt that can be included in certain transactions. The agencies have also issued guidance relating to underwriting standards and general risk management standards in the area of commercial real estate addressing the need for prudent risk management practices by financial institutions engaging in commercial real estate lending activity.

Community Reinvestment Act (CRA). We are subject to the provisions of the CRA. Under the terms of the CRA, we have a continuing and affirmative obligation, consistent with safe and sound operation, to help meet the credit needs of our communities.

The CRA does not establish specific lending requirements or programs for financial institutions nor does it limit an institution's discretion to develop the types of products and services that it believes are best suited to its particular community, so long as they are consistent with the CRA. The CRA requires each appropriate federal bank regulatory agency, in connection with its examination of a depository institution, to assess such institution's record of meeting the credit needs of the community served by that institution, including low- and moderate-income neighborhoods, and to make such assessment available to the public.

The assessment also is part of the FRB's consideration of applications to acquire, merge or consolidate with another banking institution or its holding company, to assume deposits of or acquire assets from another depository institution, to establish a new branch office that will accept deposits or to relocate an office. In the case of a BHC applying for approval to acquire a bank or other BHC, the FRB will assess the records of performance under the CRA of the IDIs involved in the transaction, and such records may be the basis for denying the application.

If any IDI subsidiary of an FHC fails to maintain at least a "satisfactory" rating under the CRA, the FHC would be subject to restrictions on certain new activities and acquisitions.

We are also subject to provisions of the New York Banking Law that impose continuing and affirmative obligations upon a New York State-chartered bank to serve the credit needs of its local community (NYCRA). Such obligations are substantially similar to those imposed by the CRA. The NYCRA requires the NYDFS to make a periodic written assessment of an institution's compliance with the NYCRA, and to make such assessment available to the public. The NYCRA also requires the Superintendent to consider the NYCRA rating when reviewing an application to engage in certain transactions, including mergers, asset purchases and the establishment of branch offices, and provides that such assessment may serve as a basis for the denial of any such application.

The FRB, the federal regulator responsible for monitoring our CRA compliance, approved our designation as a "wholesale bank." A wholesale bank generally is a bank that is not in the business of extending home mortgage, small business, small farm or consumer loans to retail clients and for which a designation as a wholesale bank is in effect. As a result of this designation, we fulfill our CRA obligations through community development loans, qualified investments and community development services, rather than consumer loans.

In light of our lending to consumers, we may lose our designation as a wholesale bank and therefore may be required to satisfy CRA obligations through different or expanded activities. See "Risk Factors — We face enhanced risks as new business initiatives and acquisitions lead us to engage in new activities and transact with a broader array of clients and counterparties, and expose us to new assets, activities and markets" for further information about how new business initiatives could impact our CRA ratings.

Additionally, in December 2019, the OCC and the FDIC proposed a rule that would substantially modify the current CRA regulations and not retain the existing "wholesale" bank designation. The FRB did not join in the proposal, and the impact on the Bank of changes to the CRA regulations will depend on whether the FRB issues a proposal and, if it does, the final form of any such proposal and the way it is implemented and applied.

Consumer Protection Laws. We are subject to a number of federal and state consumer protection laws, including laws designed to protect clients and customers and promote lending to various sectors of the economy and population. These laws include the Equal Credit Opportunity Act, the Fair Credit Reporting Act, the Truth in Savings, the Electronic Funds Transfer, the Expedited Funds Availability, the Electronic Signatures in Global and National Commerce Act, the Truth in Lending Act, the Home Mortgage Disclosure Act, the Real Estate Settlement Procedures Act, the Flood Disaster Protection Act, the Military Lending Act, the Servicemembers Civil Relief Act, and their respective state law counterparts, as well as state and local laws regarding unfair, deceptive or abusive acts and practices in connection with the offer, sale or provision of consumer financial products and services. These laws, rules and regulations, among other things, impose obligations relating to our marketing, origination, servicing and collections activity in our consumer businesses.

The CFPB has broad rulemaking, supervisory and enforcement powers under various federal consumer financial protection laws, including the laws referenced above and certain other statutes. We are supervised by the CFPB, and we are also subject to oversight by the FRB and the NYDFS, with respect to one or more of the foregoing laws and activities.

We have expanded our existing risk management platform and controls and are continuing to enhance, as appropriate, our existing regulatory and legal compliance programs, policies, procedures and processes to cover the activities, products and customers associated with these activities.

Swaps, Derivatives and Commodities Regulation. The commodity futures, commodity options and swaps industry in the U.S. is subject to regulation under the U.S. Commodity Exchange Act (CEA). The CFTC is the federal agency charged with the administration of the CEA. In addition, the SEC is the U.S. federal agency charged with the regulation of security-based swaps.

Goldman Sachs Bank USA and our subsidiary Goldman Sachs Mitsui Marine Derivative Products, L.P. (MMDP) are registered swap dealers with the CFTC and are subject to CFTC regulations. The rules and regulations of various self-regulatory organizations, such as the Chicago Mercantile Exchange, other CFTC-registered clearing houses and exchanges and the National Futures Association, also govern commodity futures, commodity options and swaps activities.

The "swap push-out" provisions of Section 716 of the Dodd-Frank Act restrict the ability of an IDI to enter into "structured finance swaps," which are swaps referencing asset-backed securities, when such swaps are not entered into for hedging or other risk mitigation purposes. An IDI that fails to comply with Section 716 could face restrictions on the institution's access to the Federal Reserve's discount window or FDIC deposit insurance or guarantees.

The terms "swaps" and "security-based swaps" include a wide variety of derivative instruments in addition to those conventionally referred to as swaps (including certain forward contracts and options), and relate to a wide variety of underlying assets or obligations, including currencies, commodities, interest or other monetary rates, yields, indices, securities, credit events, loans and other financial obligations.

CFTC rules require registration of swap dealers, mandatory clearing and execution of interest rate and credit default swaps and real-time public reporting and adherence to business conduct standards for all in-scope swaps. The CFTC proposed revised capital regulations in December 2016 for swap dealers, such as MMDP, that are not subject to the capital rules of a prudential regulator, such as the FRB, as well as a liquidity requirement for those swap dealers.

SEC rules govern the registration and regulation of security-based swap dealers. The SEC adopted a number of rules and rule amendments for security-based swap dealers in 2019, including (i) capital, margin and segregation requirements, (ii) record-keeping, reporting and notification requirements and (iii) the application of risk mitigation techniques to uncleared portfolios of security-based swaps and the cross-border application of certain security-based swap requirements. The compliance date for these SEC rules, as well as SEC rules addressing registration requirements and business conduct standards, is generally October 2021.

We are subject to the margin rules issued by the FRB and MMDP is subject to margin rules issued by the CFTC.

The final margin rules issued by the U.S. federal bank regulatory agencies and the CFTC for uncleared swaps became effective in September 2016. The phase-in schedule of the initial and variation margin requirements applicable to a particular swap dealer depends on the level of swaps, security-based swaps and/or exempt foreign exchange derivative transaction activity of the swap dealer and the relevant counterparty. Under the final rules, the largest swap market counterparties, including us, were required to implement the initial margin requirements for uncleared swaps between those largest counterparties beginning in September 2016. The initial margin requirements will continue to be phased in through 2020. The variation margin requirements have become effective. In contrast to the FRB margin rules, inter-affiliate transactions under the CFTC margin rules are generally exempt from initial margin requirements. The FRB issued proposed rules in September 2019 to conform its margin rules on inter-affiliate transactions to the CFTC's margin rules and to allow initial margin requirements to phase in through September 2021 depending on certain activity levels of the swap dealer and the relevant counterparty. The CFTC issued proposed rules in October 2019 to similarly modify the phase-in of initial margin requirements.

The CFTC has proposed position limit rules that will limit the size of positions in physical commodity derivatives that can be held by any entity, or any group of affiliates or other parties trading under common control, subject to certain exemptions, such as for bona fide hedging positions. These proposed rules would apply to positions in swaps, as well as futures and options on futures. Currently, position limits on futures on physical commodities are administered by the relevant exchanges, with the exception of futures on agricultural commodities, which are administered by the CFTC. See "Risk Factors — Our business, and the businesses of our clients, are subject to extensive and pervasive regulation" for further information about how derivatives regulation could impact our business.

Compensation Practices. Our compensation practices, as a subsidiary of Group Inc., are subject to oversight by the FRB and other regulatory bodies worldwide.

The U.S. federal bank regulatory agencies have provided guidance designed to ensure that incentive compensation arrangements at banking organizations take into account risk and are consistent with safe and sound practices. The guidance sets forth the following three key principles with respect to incentive compensation arrangements: (i) the arrangements should provide employees with incentives that appropriately balance risk and financial results in a manner that does not encourage employees to expose their organizations to imprudent risk; (ii) the arrangements should be compatible with effective controls and risk management; and (iii) the arrangements should be supported by strong corporate governance. The guidance provides that supervisory findings with respect to incentive compensation will be incorporated, as appropriate, into the organization's supervisory ratings, which can affect its ability to make acquisitions or perform other actions. The guidance also provides that enforcement actions may be taken against a banking organization if its incentive compensation arrangements or related risk management, control or governance processes pose a risk to the organization's safety and soundness.

The Dodd-Frank Act requires the U.S. financial regulators, including the FRB, to adopt rules on incentive-based payment arrangements at specified regulated entities having at least $1 billion in total assets. The U.S. financial regulators proposed revised rules in 2016, which have not been finalized.

The NYDFS issued guidance in October 2016 emphasizing that its regulated banking institutions, including us, must ensure that any incentive compensation arrangements tied to employee performance indicators are subject to effective risk management, oversight and control.

Anti-Money Laundering and Anti-Bribery Rules and Regulations. The U.S. Bank Secrecy Act (BSA), as amended by the USA PATRIOT Act of 2001 (PATRIOT Act), contains anti-money laundering (AML) and financial transparency laws and mandates the implementation of various regulations applicable to all financial institutions, including standards for verifying client identification at account opening, and obligations to monitor client transactions and report suspicious activities.

Through these and other provisions, the BSA and the PATRIOT Act seek to promote the identification of parties that may be involved in terrorism, money laundering or other suspicious activities. AML laws outside the U.S. contain some similar provisions.

The NYDFS imposes requirements on regulated institutions, including us, regarding their BSA/AML and sanctions compliance programs and requires us to maintain transaction-monitoring and filtering programs reasonably designed to comply with BSA/AML requirements and to stop transactions prohibited under the sanctions programs of the U.S. Treasury's Office of Foreign Assets Control. The rule also requires us to provide a certification to the NYDFS annually that we are in compliance with the transaction-monitoring and filtering program requirements.

In addition, we are subject to laws and regulations worldwide, including the U.S. Foreign Corrupt Practices Act (FCPA) and the U.K. Bribery Act, relating to corrupt and illegal payments to, and hiring practices with regard to, government officials and others. The scope of the types of payments or other benefits covered by these laws is very broad and regulators are frequently using enforcement proceedings to define the scope of these laws. The obligation of financial institutions, including us, to identify their clients, to monitor for and report suspicious transactions, to monitor direct and indirect payments to government officials, to respond to requests for information by regulatory authorities and law enforcement agencies, and to share information with other financial institutions, has required the implementation and maintenance of internal practices, procedures and controls. See "Risk Factors — Substantial civil or criminal liability or significant regulatory action against us or our affiliates could have material adverse financial effects or cause us significant reputational harm, which in turn could seriously harm our business prospects" for further information about how these laws and regulations could impact us.

Volcker Rule. The Volcker Rule prohibits "proprietary trading," but permits activities such as market making and risk-mitigation hedging, which we currently engage in and will continue to engage in, and requires an extensive compliance program and includes additional reporting and record-keeping requirements.

In addition, the Volcker Rule limits the sponsorship of, and investment in, "covered funds" (as defined in the rule) by banking entities, including us. Collateralized loan obligations and other vehicles in which we invest, subject to certain exclusions, including an exclusion for certain loan securitizations, may be considered "covered funds" under the rule. The rule also limits certain types of transactions between us and covered funds sponsored or advised by Group Inc. and its subsidiaries, similar to the limitations on transactions between depository institutions and their affiliates. The limitation on investments in covered funds requires Group Inc. and its subsidiaries, including us, to limit their investments in each such fund to 3% or less of the fund's net asset value, and to limit their aggregate investments in all such funds to 3% or less of the GS Group's Tier 1 capital.

The FRB, OCC, FDIC, CFTC and SEC (Volcker Rule regulators) finalized amendments in October 2019 to their regulations implementing the Volcker Rule, tailoring compliance requirements based on the size and scope of a banking entity's trading activities and clarifying and amending certain definitions, requirements and exemptions. These amendments became effective on January 1, 2020 but with a required compliance date of January 1, 2021. In January 2020, the Volcker Rule regulators issued a proposal to clarify and amend certain definitions, requirements and exceptions with respect to covered funds. The ultimate impact of any amendments to the Volcker Rule regulations will depend on, among other things, further rulemaking and implementation guidance from the Volker Rule regulators.

Privacy and Cyber Security Regulation. We are subject to laws and regulations enacted by U.S. federal and state governments and by various regulatory organizations or exchanges relating to the privacy of the information of clients, employees or others. The NYDFS also requires financial institutions regulated by the NYDFS, including us, to, among other things, (i) establish and maintain a cyber security program designed to ensure the confidentiality, integrity and availability of their information systems; (ii) implement and maintain a written cyber security policy setting forth policies and procedures for the protection of their information systems and nonpublic information; and (iii) designate a Chief Information Security Officer. In addition, the U.S. federal bank regulatory agencies issued an advance notice of proposed rulemaking in October 2016 on potential enhanced cyber risk management standards for large financial institutions.

We are also subject to the E.U.'s General Data Protection Regulation (GDPR). The GDPR has heightened our privacy compliance obligations, impacted our businesses' collection, processing and retention of personal data and imposed strict standards for reporting data breaches. The GDPR also provides for significant penalties for non-compliance. In addition, California and several other states have recently enacted, or are actively considering, consumer privacy laws that impose compliance obligations with regard to the collection, use and disclosure of personal information.

Securitizations. We are also subject to rules adopted by federal agencies pursuant to the Dodd-Frank Act that require any person who organizes or initiates certain asset-backed securities transactions to retain a portion (generally, at least five percent) of any credit risk that the person conveys to a third party. For certain securitization transactions, retention by third-party purchasers may satisfy this requirement. The E.U. capital rules set out in the Capital Requirements Regulation also provide that no credit institution may be exposed to a securitization position unless the issuer retains a material net economic interest of at least five percent, which may impact us in the context of our cross-border transactions.

Other Regulation. A number of our activities, including our cross-border lending and derivatives activities, require us to obtain licenses, adhere to applicable regulations and be subject to the oversight of various regulators in the jurisdictions in which we conduct these activities.

The following changes or proposed changes to rules or guidance are directly or indirectly applicable to us:

- The FRB has established a rating system for large financial institutions (LFIs), such as Group Inc., and proposed related guidance for the governance and controls component. The guidance would also apply directly to state member banks, including us; and
- The U.S. federal bank regulatory agencies adopted a rule in December 2018 that provides an optional three-year phase-in period for the day-one regulatory capital effects of the adoption of the Current Expected Credit Losses (CECL) accounting standard. The FRB also released a statement indicating that it will not incorporate CECL into the calculation of the allowance for credit losses in supervisory stress tests, applicable to certain BHCs, including Group Inc., through the 2021 stress test cycle. See Note 3 to the consolidated financial statements in Part III of this Annual Report for further information about CECL.

Available Information

This Annual Report is available at www.goldmansachs.com/investor-relations/financials/. We also make available annual and periodic reports for prior periods on our website at www.goldmansachs.com/investor-relations/financials/archived/. In addition, certain of our affiliates, including Group Inc., provide annual and periodic reports relating to their businesses and activities, which are available at www.goldmansachs.com/investor-relations/financials/. Information contained on such website is not part of, nor is it incorporated by reference into, this Annual Report.

Cautionary Statement Regarding Forward-Looking Statements

In this Annual Report, we have included statements that may constitute "forward-looking statements." Forward-looking statements are not historical facts or statements of current conditions, but instead represent only our beliefs regarding future events, many of which, by their nature, are inherently uncertain and outside our control.

These statements may relate to, among other things, (i) our future plans and objectives, (ii) various legal proceedings, governmental investigations or other contingencies as set forth in Notes 18 and 24 to the consolidated financial statements in Part III of this Annual Report, (iii) the objectives and effectiveness of our risk management and liquidity policies, (iv) our resolution plan and resolution strategy, (v) the impact of regulatory changes applicable to us, as well as our future status, activities or reporting under banking and financial regulation, (vi) our expected provisions for credit losses, (vii) GS Group's preparations for Brexit, including a hard Brexit scenario, (viii) the replacement of LIBOR and other IBORs and our program for the transition to alternative risk-free reference rates, (ix) the adequacy of our allowance for credit losses, (x) the growth of our deposits, (xi) the projected growth of our consumer loan and credit card businesses, (xii) our business initiatives, including those related to transaction banking and new consumer financial products (xiii) our expense savings initiatives and increasing use of strategic locations and (xiv) expenses we may incur, including those associated with investing in our consumer lending, credit card and transaction banking activities.

By identifying these statements for you in this manner, we are alerting you to the possibility that our actual results and financial condition may differ, possibly materially, from the anticipated results and financial condition in these forward-looking statements. Important factors that could cause our results and financial condition to differ from those in these statements include, among others, those described below and in "Risk Factors" in this Annual Report.

Statements about our expected provisions for credit losses are subject to the risk that actual credit losses may differ and our expectations may change, possibly materially, from that currently anticipated due to, among other things, changes to the composition of our loan portfolio and changes in the economic environment in future periods and our forecasts of future economic conditions, as well as changes in our models, policies and other management judgments.

Statements about the growth of our deposits and our consumer loan and credit card businesses are subject to the risk that actual growth may differ, possibly materially, from that currently anticipated due to, among other things, changes in interest rates and competition from other similar products.

Statements about the timing, costs and benefits of our business and expense savings initiatives and increases in market share are based on our current expectations regarding our ability to implement these initiatives and actual results may differ, possibly materially, from current expectations due to, among other things, a delay in the timing of these initiatives, increased competition and an inability to reduce expenses and grow businesses.

Risk Factors

We face a variety of risks that are substantial and inherent in our business, including liquidity, market, credit, operational, model, legal, regulatory and reputational risks. The following are some of the more important factors that could affect our business.

Our business has been and may continue to be adversely affected by conditions in the global financial markets and economic conditions generally.

Our business, by its nature, does not produce predictable earnings. We generate a substantial amount of our revenue and earnings from transactions in financial instruments, including in connection with our market-making activities in interest rate and other derivatives and related products, and interest we charge on our lending portfolio.

Our financial performance is highly dependent on the environment in which we operate. A favorable business environment is generally characterized by, among other factors, high global gross domestic product growth, regulatory and market conditions that result in transparent, liquid and efficient capital markets, low inflation, high business and investor confidence, stable geopolitical conditions, clear regulations and strong business earnings.

Unfavorable or uncertain economic and market conditions can be caused by: declines in economic growth, business activity or investor, business or consumer confidence; limitations on the availability or increases in the cost of credit and capital; illiquid markets; increases in inflation, interest rates, exchange rate or basic commodity price volatility or default rates; concerns about sovereign defaults; uncertainty concerning fiscal or monetary policy, government shutdowns, debt ceilings or funding; the extent of and uncertainty about tax and other regulatory changes; the imposition of tariffs or other limitations on international trade and travel; outbreaks of domestic or international tensions or hostilities, terrorism, nuclear proliferation, cyber security threats or attacks and other forms of disruption to or curtailment of global communication, energy transmission or transportation networks or other geopolitical instability or uncertainty, such as Brexit; corporate, political or other scandals that reduce investor confidence in capital markets; extreme weather events or other natural disasters or pandemics; or a combination of these or other factors.

The financial services industry and the securities and other financial markets have been materially and adversely affected in the past by significant declines in the values of nearly all asset classes, by a serious lack of liquidity and by high levels of borrower defaults. In addition, concerns about European sovereign debt risk and its impact on the European banking system, the impact of Brexit, the imposition of tariffs and actions taken by other countries in response, and changes in interest rates and other market conditions have resulted, at times, in significant volatility while negatively impacting the levels of activity of our clients. Actual changes in interest rates and other market conditions, have also resulted, at times, in significant volatility and negative impact to client activity levels and creditworthiness.

General uncertainty about economic, political and market activities, and the scope, timing and impact of regulatory reform, as well as weak consumer, investor and CEO confidence resulting in large part from such uncertainty, has in the past negatively impacted the activity of GS Group's or our clients, which can adversely affect our business. Periods of low volatility and periods of high volatility combined with a lack of liquidity, have at times had an unfavorable impact on our market-making business.

Our revenues and profitability and those of our competitors have been and will continue to be impacted by current and future requirements relating to capital, leverage, minimum liquidity and long-term funding levels, requirements related to resolution and recovery planning, derivatives clearing and margin rules and levels of regulatory oversight, as well as limitations on which and, if permitted, how certain business activities may be carried out by financial institutions. Financial institution returns in many countries may be negatively impacted by increased funding costs due in part to the lack of perceived government support of such institutions in the event of future financial crises relative to financial institutions in countries in which governmental support is maintained. In addition, liquidity in the financial markets has also been negatively impacted as market participants and market practices and structures continue to adjust to new regulations.

In addition, a significant portion of our business involves transactions with, through, arising from, involving, or otherwise related to other GS Group entities, and any adverse change in the businesses or activity levels of GS Group more broadly can have an adverse impact on us. Accordingly, we are materially affected by conditions in the global financial markets and economic conditions generally, both directly and through their impact on our business levels and the business levels of our affiliates. These conditions can change suddenly and negatively.

Our business, and the businesses of our clients, are subject to extensive and pervasive regulation.

As an FDIC-insured New York State-chartered bank, member of the Federal Reserve System, regulated swap dealer and subsidiary of a systemically important financial institution subject to "Category I" requirements under the tailoring rules adopted by the U.S. federal bank regulatory agencies in October 2019, we are subject to extensive regulation. Among other things, as a result of regulators, taxing authorities, law enforcement authorities or private parties challenging our compliance with existing laws and regulations, GS Group or its employees have been and could be, fined, criminally charged or sanctioned, prohibited from engaging in some of our activities, prevented from engaging in new activities; subjected to limitations or conditions on activities, including higher capital requirements, or subjected to new or substantially higher taxes or other governmental charges in connection with the conduct of our business or with respect to our and GS Group's other employees. These limitations or conditions may limit our business activities and negatively impact our profitability.

In addition to the impact on the scope and profitability of our business activities, day-to-day compliance with existing laws and regulations has involved and will, except to the extent that some of these regulations are modified or otherwise repealed, continue to involve significant amounts of time, including that of our senior leaders and that of a large number of dedicated compliance and other reporting and operational personnel, all of which may negatively impact our profitability.

If there are new laws or regulations or changes in the enforcement of existing laws or regulations applicable to us specifically, GS Group generally or the business activities of either of our or GS Group's clients, including capital, liquidity, leverage and margin requirements, restrictions on leveraged lending or other business practices, reporting requirements, requirements relating to recovery and resolution planning, higher FDIC deposit insurance assessments, tax burdens and compensation restrictions, that are imposed on a limited subset of financial institutions (whether based on size, method of funding, activities, geography or other criteria), compliance with these new laws or regulations, or changes in the enforcement of existing laws or regulations, could adversely affect our or GS Group's ability to compete effectively with other institutions that are not affected in the same way. In addition, regulation imposed on financial institutions or market participants generally, such as taxes on financial transactions, could adversely impact levels of market activity more broadly, and thus impact our business.

We are also subject to regulations based on our derivatives activities. The application of new derivatives rules across different national and regulatory jurisdictions has not yet been fully established and specific determinations of the extent to which regulators in each of the relevant jurisdictions will defer to regulations in other jurisdictions have not yet been completed. The full impact of the various U.S. and non-U.S. regulatory developments in this area will not be known with certainty until all the rules are finalized and implemented and market practices and structures develop under the final rules. For example, the Dodd-Frank Act imposes entity-level capital requirements for swap dealers, major swap participants, security-based swap dealers, and major security-based swap participants, but the implementing rules have not been finalized. However, in general, the imposition of these various regulatory schemes could adversely affect our derivatives business by increasing costs, reducing counterparty demand for derivative products and reducing general market liquidity, which could in turn lead to greater volatility.

These factors could make it more difficult or more costly to establish and maintain hedging or trading strategies and could increase the risk, and reduce the profitability, of our derivatives business.

U.S. and non-U.S. regulatory developments, in particular the Dodd-Frank Act and Basel III, have significantly altered the regulatory framework within which we operate and have adversely affected and may in the future affect our profitability.

Among the aspects of the Dodd-Frank Act that have affected or may affect us in the future are: increased capital, liquidity and reporting requirements; limitations on activities in which we may engage; increased regulation of and restrictions on OTC derivatives markets and transactions; limitations on incentive compensation; limitations on affiliate transactions; limitations on credit exposure to any unaffiliated company; requirements to reorganize or limit activities in connection with recovery and resolution planning; and increased deposit insurance assessments. The implementation of higher capital requirements, more stringent requirements relating to liquidity and requirements relating to the prohibition on proprietary trading and lending to covered funds by the Volcker Rule may adversely affect our profitability and competitive position, particularly if these requirements do not apply equally to our and GS Group's competitors or are not implemented uniformly across jurisdictions. Such requirements could reduce the amount of funds available to meet our obligations, including debt obligations.

The requirements for us to develop and submit resolution plans to the FDIC, and the incorporation of feedback received from the FDIC, may require us to increase our capital or liquidity levels or otherwise incur additional costs, and may reduce our ability to raise additional debt. Resolution planning may also impair GS Group's ability to structure its intercompany and external activities in a manner that it may otherwise deem most operationally efficient, which may affect our business.

The Fixing America's Surface Transportation Act (FAST Act) enacted in 2015 reduced the dividend rate applicable to Federal Reserve Bank depository institution stockholders with total assets of more than $10 billion (large member banks), including us. The dividend rate for large member banks has been reduced to the lesser of 6.0% or the most recent 10-year U.S. Treasury auction rate prior to the dividend payment. The change in the applicable dividend rate for large member banks has reduced the semi-annual dividend we receive from the Federal Reserve Bank and may in the future introduce volatility in the dividends we receive, which may adversely affect our results of operations.

We are also subject to laws and regulations, such as the GDPR, the NYDFS cyber security rules and the California Consumer Privacy Act, relating to the privacy of the information of clients, employees or others, and any failure to comply with these laws and regulations could expose us to liability and/or reputational damage. As new privacy-related laws and regulations are implemented, the time and resources needed for us to comply with such laws and regulations, as well as our potential liability for non-compliance and reporting obligations in the case of data breaches, may significantly increase.

In addition, our business is increasingly subject to laws and regulations relating to surveillance, encryption and data on-shoring. Compliance with these and other laws and regulations may require us to change our policies, procedures and technology for information security, which could, among other things, make us more vulnerable to cyber attacks and misappropriation, corruption or loss of information or technology.

We have entered into deposit-taking, lending, market-making and other businesses and activities, and we expect to expand the product and geographic scope of our offerings. Entering into these businesses subjects us to numerous additional regulations in the jurisdictions in which these businesses operate. Not only are these regulations extensive, but they involve types of regulations and supervision, as well as regulatory compliance risks, that we have not previously encountered. The level of regulatory scrutiny and the scope of regulations affecting financial interactions with consumers is often much greater than that associated with doing business with institutions and high-net-worth individuals. Complying with these regulations is time-consuming, costly and presents new and increased risks.

Any failure to implement or maintain associated enhancements to our existing regulatory and legal compliance programs and policies or to comply with these laws and regulations could expose us to liability and/or reputational damage.

Increasingly, regulators and courts have sought to hold financial institutions liable for the misconduct of their clients where such regulators and courts have determined that the financial institution should have detected that the client was engaged in wrongdoing, even though the financial institution had no direct knowledge of the activities engaged in by its client. Regulators and courts continue to seek to establish "fiduciary" obligations to counterparties to which no such duty had been assumed to exist. To the extent that such efforts are successful, the cost of, and liabilities associated with, engaging in market making and other similar activities could increase significantly. Any such wrongdoing by our clients could have materially negative legal, regulatory and reputational consequences.

For information about the extensive regulation to which our business is subject, see "Regulation" in Part I of this Annual Report.

We are a wholly-owned subsidiary of Group Inc. and are dependent on Group Inc. and certain of our affiliates for client business, various services and capital.

We are a wholly-owned subsidiary of Group Inc. As a wholly-owned subsidiary, we rely on various business relationships of Group Inc. and our affiliates generally, including the ability to receive various services, as well as, in part, the capital and liquidity of our parent, Group Inc., as well as the liquidity of Funding IHC. Although we have taken steps to reduce our reliance on our affiliates, we remain an operating subsidiary of a larger organization and therefore our interconnectedness within the organization will continue. Because our business relies upon Group Inc. and our affiliates to a significant extent, risks that could affect these entities could also have a significant impact on us.

We are the primary lender of GS Group, and many of the individuals and corporations to which we lend become our clients based on their other relationships with our affiliates. Similarly, clients of our affiliates, as well as the affiliates themselves, often serve as our counterparties to derivative transactions.

Furthermore, we rely upon certain of our affiliates for various support services, including, but not limited to, trade execution, relationship management, loan origination, settlement and clearing, loan servicing, risk management and other technical, operational and administrative services. Such services are provided to us pursuant to the Master Services Agreement, which is generally terminable upon mutual agreement of Group Inc. and its subsidiaries, subject to certain exceptions, including material breach of the agreement. For example, Group Inc. provides foreign exchange services to us. If Group Inc. were to cease to provide such services, we would be required to seek alternative sources, which could be difficult to obtain on the same terms or result in increased foreign exchange rates paid by us.

As a consequence of the foregoing, in the event our relationships with our affiliates are not maintained, for any reason, including as a result of possible strategic decisions that Group Inc. may make from time-to-time or as a result of material adverse changes in Group Inc.'s performance, our interest and non-interest revenues may decline, the cost of operating and funding our business may increase and our business, financial condition and earnings may be materially and adversely affected.

As of December 2019, 27% of our total deposits consisted of deposits from private bank clients of GS&Co. If clients terminate their relationships with GS&Co. or such relationships become impaired, we may lose the funding benefits of such relationships as well. Furthermore, we receive a portion of our funding in the form of unsecured funding from Group Inc. and from Funding IHC, and collateralized financings from other affiliates. To the extent such funding is not available to us, our growth could be constrained and/or our cost of funding could increase.

A failure by Group Inc. to guarantee certain of our obligations could adversely affect our financial condition.

Group Inc. has guaranteed our payment obligations, other than nonrecourse payment obligations and payment obligations arising in connection with CDs issued by us (unless the applicable governing documents of the CD expressly state otherwise) and outstanding notes evidencing senior unsecured debt. If Group Inc. terminates the guarantee, we may have difficulty entering into future contractual arrangements with other counterparties who may request or require such guarantees.

Our business has been and may be adversely affected by declining asset values. This is particularly true for those activities in which we have net "long" positions or receive or post collateral.

We have net "long" positions in loans, derivatives, mortgages and other asset classes, including U.S. government and agency obligations, and may in the future take net long positions in other asset classes. These include positions we take when we commit capital to our clients as part of our lending activities or when we act as a principal to facilitate the activities of our clients or counterparties (including our affiliates) through our market-making activities relating to interest rate and currency derivatives and other derivatives and related products. Because our market-making positions are marked-to-market on a daily basis, declines in asset values directly and immediately impact our earnings, unless we have effectively "hedged" our exposures to those declines.

See "Management's Discussion and Analysis of Financial Condition and Results of Operations — Critical Accounting Policies" in Part II of this Annual Report and Note 4 to the consolidated financial statements in Part III of this Annual Report for further information about fair value measurements.

In certain circumstances (particularly in the case of credit products, including leveraged loans or other securities that are not freely tradable or lack established and liquid trading markets), it may not be possible or economic to hedge our exposures and to the extent that we do so the hedge may be ineffective or may greatly reduce our ability to profit from increases in the values of the assets. Sudden declines and significant volatility in the prices of assets have in the past and may in the future substantially curtail or eliminate the trading markets for certain assets, which may make it difficult to sell, hedge or value such assets. The inability to sell or effectively hedge assets reduces our ability to limit losses in such positions and the difficulty in valuing assets may negatively affect our capital, liquidity or leverage ratios, increase our funding costs and generally require us to maintain additional capital.

We post collateral to support our obligations and receive collateral to support the obligations of our clients and counterparties in connection with market making. When the value of the assets posted as collateral or the credit ratings of the party posting collateral decline, the party posting the collateral may need to provide additional collateral or, if possible, reduce its position. Therefore, declines in the value of asset classes used as collateral mean that either the cost of funding positions is increased or the size of positions is decreased.

If we are the party providing collateral, this can increase our costs and reduce our profitability and if we are the party receiving collateral, this can also reduce our profitability by reducing the level of business done with our clients and counterparties. In our capacity as an agency lender, we indemnify all of our securities lending customers against losses incurred in the event that borrowers do not return securities and the collateral held is insufficient to cover the market value of the securities borrowed, and, therefore, declines in the value of collateral can subject us to additional costs. In addition, volatile or less liquid markets increase the difficulty of valuing assets, which can lead to costly and time-consuming disputes over asset values and the level of required collateral, as well as increased credit risk to the recipient of the collateral due to delays in receiving adequate collateral.

In cases where we foreclose on collateral, sudden declines in the value or liquidity of the collateral may, despite credit monitoring, over-collateralization, the ability to call for additional collateral or the ability to force repayment of the underlying obligation, result in significant losses to us, especially where there is a single type of collateral supporting the obligation.

Our market-making activities have been and may be affected by changes in the levels of market volatility.

Certain of our market-making activities depend on market volatility to provide trading and arbitrage opportunities to our clients, and decreases in volatility have reduced and may in the future reduce these opportunities and the level of client activity associated with them and adversely affect the results of these activities, which could adversely impact our revenues. Increased volatility, while it can increase trading volumes and spreads, also increases risk as measured by Value-at-Risk (VaR) and may expose us to increased risks in connection with our market-making activities or cause us to reduce our inventory in order to avoid increasing our VaR. Limiting the size of our market-making positions can adversely affect our profitability. In periods when volatility is increasing, but asset values are declining significantly, it may not be possible to sell assets at all or it may only be possible to do so at steep discounts. In those circumstances we may be forced to either take on additional risk or to realize losses in order to decrease our VaR. In addition, increases in volatility increase the level of our RWAs, which increases our capital requirements.

Our business, profitability and liquidity may be adversely affected by deterioration in the credit quality of, or defaults by, third parties who owe us money, securities or other assets or whose securities or obligations we hold.

A number of our products and activities expose us to credit risk, including loans, lending commitments, derivatives and credit cards. We are exposed to the risk that third parties that owe us money, securities or other assets will not perform on their obligations. These parties may default on their obligations to us due to bankruptcy, lack of liquidity, operational failure or other reasons. The provision of payment services in our transaction banking business may expose us to intraday liquidity and credit risks, to the extent our clients and affiliates experience delays in making payments, or are unable to repay amounts that are extended in the normal course of business. A failure of a significant market participant, or even concerns about a default by such an institution could lead to significant liquidity problems, losses or defaults by other institutions, which in turn could adversely affect us.

We are also subject to the risk that our rights against third parties may not be enforceable in all circumstances. In addition, deterioration in the credit quality of third parties whose securities or obligations we hold, including a deterioration in the value of collateral posted by clients and other third parties to secure their obligations to us under derivative contracts and loan agreements, could result in losses and/or adversely affect our ability to rehypothecate or otherwise use those securities or obligations for liquidity purposes.

A significant downgrade in the credit ratings of our counterparties could also have a negative impact on our results. While in many cases we are permitted to require additional collateral from counterparties that experience financial difficulty, disputes may arise as to the amount of collateral we are entitled to receive and the value of pledged assets. The termination of contracts and the foreclosure on collateral may subject us to claims for the improper exercise of our rights, including that the foreclosure was not permitted under the legal documents, was conducted in an improper manner or caused a client or counterparty to go out of business. Default rates, downgrades and disputes with counterparties as to the valuation of collateral typically increase significantly in times of market stress, increased volatility and illiquidity.

We rely on information furnished by or on behalf of clients and counterparties in deciding whether to extend credit or enter into other transactions. This information could include financial statements, credit reports and other financial information. We also rely on representations of those clients, counterparties or other third parties, such as independent auditors, as to the accuracy and completeness of that information. Reliance on inaccurate or misleading financial statements, credit reports or other financial information could have a material adverse impact on our business, financial condition and results of operations.

Although we regularly review credit exposures to specific clients and counterparties and to specific industries, countries and regions that we believe may present credit concerns, default risk may arise from events or circumstances that are difficult to detect or foresee.

Concentration of risk increases the potential for significant losses in our lending, market-making and other activities.

Concentration of risk increases the potential for significant losses in our lending, market-making and other activities. The number and size of these transactions has affected and may in the future affect our results of operations in a given period. In particular, we extend large commitments as part of our lending activities. Because of concentration of risk, we may suffer losses even when economic and market conditions are generally favorable for our competitors. Disruptions in the credit markets can make it difficult to hedge these credit exposures effectively or economically.

Rules adopted under the Dodd-Frank Act, and similar rules adopted in other jurisdictions, require issuers of certain asset-backed securities and any person who organizes and initiates certain asset-backed securities transactions to retain economic exposure to the asset, which has affected the cost of and structures used in connection with these securitization activities. See "Regulation — Securitizations" in Part I of this Annual Report and Note 16 to the consolidated financial statements in Part III of this Annual Report for further information about our securitization activities. Our inability to reduce our credit risk by selling, syndicating or securitizing these positions, including during periods of market stress, could negatively affect our results of operations due to a decrease in the fair value of the positions, including due to the insolvency or bankruptcy of the borrower, as well as the loss of revenues associated with selling such securities or loans.

In the ordinary course of business, we may be subject to a concentration of credit risk to a particular counterparty, borrower, issuer (including sovereign issuers) clearing house or exchange, geographic area or group of related countries, such as the E.U., or industry. A failure or downgrade of, or default by, an entity to which we have a concentration of credit risk could negatively impact our business, perhaps materially, and the systems by which we set limits and monitor the level of our credit exposure to individual entities, industries, countries and regions may not function as we have anticipated. Regulatory reform, including the Dodd-Frank Act, has led to increased centralization of trading activity through particular clearing houses, central agents or exchanges, which has significantly increased our concentration of risk with respect to these entities. While our activities expose us to many different industries, counterparties and countries, we routinely execute a high volume of transactions with counterparties engaged in financial services activities, including asset managers, investment funds, commercial banks, brokers and dealers, clearing houses and exchanges. This has resulted in significant credit concentration with respect to these counterparties. See "Management's Discussion and Analysis of Financial Condition and Results of Operations — Risk Management — Credit Risk Management — Credit Exposures" in Part II of this Annual Report and Note 23 to the consolidated financial statements in Part III of this Annual Report for further information about our credit concentration and exposure.

Changes in market interest rates could adversely affect our revenues and expenses, the value of assets and obligations, and the availability and cost of funding.

As a result of our lending and deposit-taking activities, we have exposure to market interest rate movements. In addition to the impact on the general economy, changes in interest rates could directly impact us in one or more of the following ways:

- The yield on interest-earning assets, primarily on our loan portfolio, and rates paid on interest-bearing liabilities, primarily our deposit-taking activities, may change in disproportionate ways;
- The value of certain balance sheet and off-balance-sheet financial instruments that we hold could decline; or
- The cost of funding from affiliates or third parties may increase and the ability to raise funding could become more difficult.

Our profitability depends to a significant extent on our net interest income, which is the difference between the interest income we earn on our interest-earning assets, such as loans and securities, and our interest expense on interest-bearing liabilities, such as deposits and borrowed funds. Accordingly, our results of operations depend to a significant extent on movements in market interest rates and our ability to manage our interest-rate-sensitive assets and liabilities in response to these movements. Factors such as inflation, recession and instability in financial markets, among other factors beyond our control, may affect interest rates.

Any substantial, unexpected, prolonged change in market interest rates could have a material adverse effect on our financial condition, liquidity and results of operations. Changes in the level of interest rates also may negatively affect our ability to originate loans, the value of our assets and our ability to realize gains from the sale of our assets, all of which ultimately affect our earnings.

We might underestimate the credit losses inherent in our loan portfolio and have credit losses in excess of the amount reserved.

The credit quality of our loan portfolio can have a significant impact on its earnings. CECL, which became effective January 1, 2020, substantially changes the accounting for credit losses on loans and other financial assets held by banks, financial institutions and other organizations. Under CECL, the existing incurred loss model in GAAP for recognizing credit losses is replaced by a requirement that companies reflect their estimate of credit losses over the life of the financial assets. The adoption of the standard has resulted, and may in the future result in, a significant increase in our allowance for credit losses. Companies, such as us, must consider all relevant information when estimating expected credit losses, including details about past events, current conditions, and reasonable and supportable forecasts. This process requires difficult, subjective and complex judgments by management in order to estimate credit losses over the life of the financial assets. As is the case with any such assessments, there is always the chance that we will fail to identify the proper factors or that we will fail to accurately estimate the impacts of factors that we do identify.

Through the process of estimating credit losses over the life of our loans, we might underestimate the credit losses inherent in our loan portfolio and have credit losses in excess of the amount reserved. While management uses the best information available to determine this estimate, we have made and may make future adjustments to the allowance based on, among other things, changes in the economic environment, the quality of the loan portfolio or the values of the underlying collateral.

We may incur losses as a result of ineffective risk management processes and strategies.

We seek to monitor and control our risk exposure through a risk and control framework encompassing a variety of separate but complementary financial, credit, operational, compliance and legal reporting systems, internal controls, management review processes and other mechanisms that cover risks associated with our own activities, as well as activities conducted through third-party relationships. In doing so, we use and benefit from the risk management processes of GS Group. Our risk management process seeks to balance our ability to profit from lending, market-making or other positions with our exposure to potential losses. While we employ a broad and diversified set of risk monitoring and risk mitigation techniques, those techniques and the judgments that accompany their application cannot anticipate every economic and financial outcome or the specifics and timing of such outcomes. Thus, in the course of our activities, we have incurred and may in the future incur losses. Market conditions in recent years have involved unprecedented dislocations and highlight the limitations inherent in using historical data to manage risk.

The models that we use to assess and control our risk exposures reflect assumptions about the degrees of correlation or lack thereof among prices of various asset classes or other market indicators. In times of market stress or other unforeseen circumstances, previously uncorrelated indicators may become correlated, or conversely previously correlated indicators may move in different directions. These types of market movements have at times limited the effectiveness of our hedging strategies and have caused us to incur significant losses, and they may do so in the future. These changes in correlation have been and may in the future be exacerbated where other market participants are using models with assumptions or algorithms that are similar to ours. In these and other cases, it may be difficult to reduce our risk positions due to the activity of other market participants or widespread market dislocations, including circumstances where asset values are declining significantly or no market exists for certain assets.

In addition, the use of models in connection with risk management and numerous other critical activities presents risks that such models may be ineffective, either because of poor design, ineffective testing, or improper or flawed inputs, as well as unpermitted access to such models resulting in unapproved or malicious changes to the model or its inputs.

To the extent that we have positions through our lending, market-making or other activities that do not have an established liquid trading market or are otherwise subject to restrictions on sale or hedging, we may not be able to reduce our positions and therefore reduce our risk associated with those positions.

Prudent risk management, as well as regulatory restrictions, may cause us to limit our exposure to counterparties, geographic areas or markets, which may limit our business opportunities and increase the cost of our funding or hedging activities.

As we have expanded and intend to continue to expand the product and geographic scope of our offerings of credit products to consumers, we are presented with different credit risks and must expand and adapt our credit risk monitoring and mitigation activities to account for these business activities. A failure to adequately assess and control such risk exposures could result in losses to us.

For further information about our risk management structure and processes, see "Management's Discussion and Analysis of Financial Condition and Results of Operations — Risk Management — Overview and Structure of Risk Management" in Part II of this Annual Report.

Loss of deposits could increase our funding costs and adversely affect our liquidity and ability to grow our business.

We rely primarily on deposits to be a low cost and stable source of funding for the loans we make and the financial transactions in which we engage. We accept savings, demand and time deposits from private bank clients, U.S. consumers, clients of third-party broker-dealers, institutions, corporations and affiliates. Certain deposit accounts do not have significant restrictions on withdrawal, and depositors can generally withdraw some or all of the funds in their accounts with little or no notice.

Furthermore, we compete with banks and other financial services companies for deposits. Competitors may raise the rates they pay on deposits and we may be required to raise our rates to avoid losing deposits.

If we experience significant withdrawals, for any reason, our funding costs may increase as we may be required to rely on more expensive sources of funding. If we are required to fund our operations at a higher cost, these conditions may require us to curtail our activities, which also could reduce our profitability.

All of our deposits held under external deposit sweep program agreements are placed through third-party brokers. As of December 2019, those programs accounted for approximately 11% of our total deposits. These brokers may not unilaterally terminate the currently-existing sweep agreements; however, they could determine not to engage in additional sweep agreements with us in the future. The termination of these broker relationships could result in a significant decrease in deposits and adversely affect our liquidity if we cannot extend such agreements with third-party brokers.

The FDIA prohibits an insured bank from accepting brokered deposits or offering interest rates on any deposits significantly higher than the prevailing rate in the bank's normal market area or nationally (depending upon where the deposits are solicited), unless it is "well-capitalized" for prompt corrective action purposes or it is "adequately capitalized" and receives a waiver from the FDIC. A bank that is "adequately capitalized" and accepts brokered deposits under a waiver from the FDIC may not pay an interest rate on any deposit in excess of 75 basis points over certain prevailing market rates. There are no such restrictions under the FDIA on a bank that is "well-capitalized."

However, there can be no assurance that we will continue to meet all applicable requirements. In the event that we do not continue to meet those requirements in the future, we may be prohibited from accepting brokered deposits, including brokered CDs, pursuant to our deposit sweep agreements. Restrictions or limitations on our ability to accept brokered deposits for any reason (including regulatory limitations on the amount of brokered deposits in total or as a percentage of total assets) in the future could materially and adversely impact our funding costs and liquidity because a substantial portion of our deposits are "brokered deposits" for prompt corrective action purposes.

Any limitation on the interest rates we can pay on deposits could competitively disadvantage us in attracting and retaining deposits and have a material adverse effect on our business.

Our business has been and may be adversely affected by disruptions in the credit markets, including reduced access to credit and higher costs of obtaining credit.

Widening credit spreads for us or Group Inc., as well as significant declines in the availability of credit, may adversely affect our ability to borrow. We obtain a portion of our funding directly or indirectly from Group Inc., which funds itself on an unsecured basis by issuing debt and a variety of financial instruments. We also seek to finance certain of our assets on a secured basis. Any disruptions in the credit markets may make it harder and more expensive for us to obtain secured funding, whether from third parties or affiliates.

If our available funding is limited or we are forced to fund our operations at a higher cost, these conditions may require us to curtail our activities and increase our cost of funding, both of which could reduce our profitability, particularly with respect to our activities that involve lending and market making.

We may also syndicate credit transactions to other financial institutions. Market volatility, a lack of available credit or an increased cost of credit can negatively impact our ability to syndicate financing, and, as a result, can adversely affect our business.

Our liquidity, profitability and business may be adversely affected by an inability to obtain funding or to sell assets or by a reduction in our or Group Inc.'s credit ratings or by an increase in our or Group Inc.'s credit spreads.

Liquidity is essential to our business. It is of critical importance to us, as most of the failures of financial institutions have occurred in large part due to insufficient liquidity. Our liquidity may be impaired by an inability to obtain or maintain sufficient funding — whether through deposits or funding from our affiliates, access to the debt capital markets, sales of assets or access to Federal Home Loan Bank of New York advances — or by unforeseen outflows of cash or collateral. Any such constraints on liquidity may arise due to circumstances that we may be unable to control, such as a general market disruption or an operational problem that affects third parties or us, or GS Group more broadly, or even by the perception among market participants that we, or other market participants, are experiencing greater liquidity risk.

We employ structured products to benefit our clients and hedge our own risks and risks incurred by our affiliates. The financial instruments that we hold and the contracts to which we are a party are often complex, and these complex structured products often do not have readily available markets to access in times of liquidity stress. In addition, our financing activities may lead to situations where the holdings from these activities represent a significant portion of specific markets, which could restrict liquidity for our positions.

Further, our ability to sell assets may be impaired if there is not generally a liquid market for such assets, as well as in circumstances where other market participants are seeking to sell similar otherwise generally liquid assets at the same time, as is likely to occur in a liquidity or other market crisis or in response to changes to rules or regulations. In addition, financial institutions with which we interact may exercise set-off rights or the right to require additional collateral, including in difficult market conditions, which could further impair our liquidity.

Our credit ratings, as well as the credit ratings of Group Inc. (as described further below), are important to our liquidity. A reduction in our or Group Inc.'s credit ratings could adversely affect our liquidity and competitive position, increase our borrowing costs (including borrowing from our affiliates), limit our access to the capital markets or trigger our obligations under certain provisions in some of our derivatives or collateralized financing contracts. Under these provisions, counterparties could be permitted to terminate contracts with us or require us to post additional collateral or make termination payments. Termination of our derivatives and collateralized financing contracts could cause us to sustain losses and impair our liquidity by requiring us to find other sources of financing or to make significant cash payments or securities movements.

A downgrade by any one rating agency, depending on the agency's relative ratings of us or Group Inc. at the time of the downgrade, may have an impact which is comparable to the impact of a downgrade by all rating agencies. For further information about our credit ratings, see "Management's Discussion and Analysis of Financial Condition and Results of Operations — Risk Management — Liquidity Risk Management — Credit Ratings" in Part II of this Annual Report.

As noted above, Group Inc.'s credit ratings also are important to our liquidity. Group Inc. generally guarantees our payment obligations, subject to certain limitations. Group Inc. generally raises the majority of non-deposit unsecured funding of GS Group and then lends to Funding IHC and other subsidiaries, including us, to meet subsidiaries' funding needs. Any increase in Group Inc.'s borrowing costs may require us to seek alternative sources of funding, which could result in an increase in borrowing costs for us.

Our cost of obtaining long-term unsecured funding is directly related to our credit spreads (the amount in excess of the interest rate of benchmark securities that we need to pay). Increases in our credit spreads can significantly increase the cost of this funding. Changes in credit spreads are continuous, market-driven, and subject at times to unpredictable and highly volatile movements. Our credit spreads are also influenced by market perceptions of our creditworthiness and movements in the costs to purchasers of credit default swaps referenced to our long-term debt. The market for credit default swaps has proven to be extremely volatile and at times has lacked a high degree of transparency or liquidity. Increases in Group Inc.'s credit spreads and negative market perceptions of Group Inc.'s creditworthiness could also impact our ability to obtain long-term unsecured funding, and Group Inc.'s inability to obtain long-term unsecured funding could negatively impact our operations.

Regulatory changes relating to liquidity may also negatively impact our results of operations and competitive position. Numerous regulations have been adopted or proposed to introduce more stringent liquidity requirements for large financial institutions, such as us or Group Inc. These regulations address, among other matters, liquidity stress testing, minimum liquidity requirements, wholesale funding, limitations on the issuance of short-term debt and structured notes and prohibitions on parent guarantees that are subject to certain cross-defaults. New and prospective liquidity-related regulations may overlap with, and be impacted by, other regulatory changes, which could result in unintended cumulative effects, and their full impact will remain uncertain as long as regulatory reforms continue to be adopted and market practices continue to develop.

A failure to appropriately identify and address potential conflicts of interest could adversely affect our business.

Due to the broad scope of GS Group's businesses and client base, we regularly address potential conflicts of interest within the organization, including situations where our products or services to a particular client or GS Group's investments or other interests conflict, or are perceived to conflict, with the interests of that client or another client, as well as situations where one or more of GS Group's businesses have access to material non-public information that may not be shared within GS Group and situations where we may be a creditor of an entity with which we or one of our affiliates also has an advisory or other relationship.

In addition, in certain areas we or one or more of our affiliates may act as a fiduciary which could give rise to a conflict if we also act as a principal in the same business.

We have extensive procedures and controls that are designed to identify and address conflicts of interest, including those designed to prevent the improper sharing of information among us and our affiliates. However, appropriately identifying and dealing with conflicts of interest is complex and difficult, particularly as we expand our activities, and our reputation, which is one of our most important assets, could be damaged and the willingness of clients to enter into transactions with us may be affected if we or our affiliates fail, or appear to fail, to identify, disclose and deal appropriately with conflicts of interest. In addition, potential or perceived conflicts could give rise to litigation or regulatory enforcement actions. Additionally, GS Group's *One Goldman Sachs* initiative aims to increase collaboration among its businesses, including ours, which may increase the potential for actual or perceived conflicts of interest and improper information sharing.

A failure in our or our affiliates' operational systems or infrastructure, or those of third parties, as well as human error, malfeasance or other misconduct, could impair our liquidity, disrupt our business, result in the disclosure of confidential information, damage our reputation and cause losses.

Our business is highly dependent on our ability to process and monitor, on a daily basis, a very large number of transactions, many of which are highly complex and occur at high volumes and frequencies, across numerous and diverse markets in many currencies. These transactions, as well as the information technology services we provide to clients, often must adhere to client-specific guidelines, as well as legal and regulatory standards.

Many rules and regulations govern our obligations to execute transactions and report such transactions and other information to regulators and exchanges. Compliance with these legal and reporting requirements can be challenging, and GS Group has been, and may in the future be, subject to regulatory fines and penalties for failing to follow these rules or to report timely, accurate and complete information in accordance with these rules. As such requirements expand, compliance with these rules and regulations has become more challenging.

As our client base, including through our consumer businesses, expands, and the volume, speed, frequency and complexity of transactions, especially electronic transactions (as well as the requirements to report such transactions on a real-time basis to clients, regulators and exchanges) increase, developing and maintaining our operational systems and infrastructure becomes more challenging, and the risk of systems or human error in connection with such transactions increases, as well as the potential consequences of such errors due to the speed and volume of transactions involved and the potential difficulty associated with discovering errors quickly enough to limit the resulting consequences. As with other similarly situated institutions, we utilize credit underwriting models in connection with our businesses, including our consumer-oriented activities. Allegations, whether or not accurate, that the ultimate underwriting decisions do not treat consumers or clients fairly, or comply with the applicable law or regulation, can result in negative publicity, reputational damage and governmental and regulatory scrutiny.

Our financial, accounting, data processing or other operational systems and facilities, or operational systems or facilities of affiliates on which we depend, may fail to operate properly or become disabled as a result of events that are wholly or partially beyond our control, such as a spike in transaction volume, adversely affecting our ability to process these transactions or provide these services. These systems must be continuously updated to support our operations and growth and to respond to changes in regulations and markets.

We and our affiliates invest heavily in systemic controls and training to pursue our objective of ensuring that those transactions do not violate applicable rules and regulations or, due to errors in processing such transactions, adversely affect markets, our clients and counterparties or us.

Enhancements and updates to systems, as well as the requisite training, including in connection with the integration of new businesses, entail significant costs and create risks associated with implementing new systems and integrating them with existing ones.

The use of computing devices and phones is critical to the work done by our employees and the operation of our systems and businesses and those of our clients and our third-party service providers and vendors. Computers and computer networks are subject to various risks, including, among others, cyber attacks, inherent technological defects, system failures and errors by human operation. For example, fundamental security flaws in computer chips found in many types of these computing devices and phones have been reported in the past and may be discovered in the future. Cloud technologies are also critical to the operation of our systems and platforms and our reliance on cloud technologies is growing. Service disruptions may lead to delays in accessing, or the loss of, data that is important to our businesses and may hinder our clients' access to our platforms. Addressing these and similar issues could be costly and affect the performance of these computing devices and phones. Operational risks may be incurred in implementing fixes and even after the fix is implemented, there may still be residual security risks.

Additionally, although the prevalence and scope of applications of distributed ledger technology and similar technologies is growing, the technology is also nascent and may be vulnerable to cyber attacks or have other inherent weaknesses that may or may not have been identified, such as the risk that underlying encryption measures may be defeated. We may be, or may become, exposed to technological, legal, regulatory, third-party and other risks related to distributed ledger technology through GS Group's facilitation of clients' activities involving financial products linked to distributed ledger technology, such as blockchain or cryptocurrencies, and the use of distributed ledger technology in GS Group's systems, as well as by third-party vendors, clients, counterparties, clearing houses and other financial intermediaries.

Notwithstanding the proliferation of technology and technology-based risk and control systems, our business ultimately relies on people as our greatest resource, and, from time to time, they make mistakes or engage in violations of applicable policies, laws, rules or procedures that are not always caught immediately by our technological processes or by our controls and other procedures, which are intended to prevent and detect such errors or violations. These can include calculation errors, mistakes in addressing emails, errors in software or model development or implementation, or simple errors in judgment, as well as intentional efforts to ignore or circumvent applicable policies, laws, rules or procedures. Human errors, malfeasance and other misconduct, including the intentional misuse of client information in connection with insider trading or for other purposes, even if promptly discovered and remediated, can result in reputational damage and material losses and liabilities for us.

In addition, we face the risk of operational failure or significant operational delay, termination or capacity constraints of any of the clearing agents, exchanges, clearing houses or other financial intermediaries we use to facilitate our derivatives transactions and transaction banking activities, and as our interconnectivity with our clients grows, we increasingly face the risk of operational failure or significant operational delay with respect to our clients' systems.

There has been significant consolidation among clearing agents, exchanges and clearing houses and an increasing number of derivative transactions are now, or in the near future will be, cleared on exchanges, which has increased our exposure to operational failure or significant operational delay, termination or capacity constraints of the particular financial intermediaries that we use and could affect our ability to find adequate and cost-effective alternatives in the event of any such failure, delay, termination or constraint. Industry consolidation, whether among market participants or financial intermediaries, increases the risk of operational failure or significant operational delay as disparate complex systems need to be integrated, often on an accelerated basis.

The interconnectivity of multiple financial institutions with central agents, exchanges and clearing houses, and the increased centrality of these entities, increases the risk that an operational failure at one institution or entity may cause an industry-wide operational failure that could materially impact our ability to conduct business. Any such failure, termination or constraint could adversely affect our ability to effect transactions, service our clients, manage our exposure to risk or expand our business or result in financial loss or liability to our clients, impairment of our liquidity, disruption of our business, regulatory intervention or reputational damage.

We also rely on third-party vendors and are ultimately responsible for activities conducted by any third-party service provider and adverse regulatory consequences. Although we take actions to manage the risks associated with activities conducted through third-party relationships, any problems caused by a third-party service provider could adversely affect our ability to deliver products and services to our customers and to conduct our business.

Despite our resiliency plans and facilities, our ability to conduct business may be adversely impacted by a disruption in the infrastructure that supports our business and the communities where we are is located. This may include a disruption involving electrical, satellite, undersea cable or other communications, internet, transportation or other facilities used by us, our employees or third parties with which we conduct business, including cloud service providers. These disruptions may occur as a result of events that affect only GS Group's buildings or systems or those of such third parties, or as a result of events with a broader impact globally, regionally or in the cities where those buildings or systems are located, including, but not limited to, natural disasters, war, civil unrest, terrorism, economic or political developments, pandemics and weather events.

In addition, although we seek to diversify our third-party vendors to increase our resiliency, we are also exposed to the risk that a disruption or other information technology event at a common service provider to our vendors could impede their ability to provide products or services to us. We may not be able to effectively monitor or mitigate operational risks relating to our vendors' use of common service providers.

Many of our and other GS Group employees work in close proximity to one another in GS Group's facilities in New York and New Jersey. Notwithstanding our and GS Group's efforts to maintain business continuity, given that GS Group's headquarters and many of its employees are in the New York metropolitan area, and GS Group's two principal office buildings in the New York area both are located on the waterfront of the Hudson River, depending on the intensity and longevity of the event, a catastrophic event impacting the New York metropolitan area offices, including a terrorist attack, extreme weather event or other hostile or catastrophic event, could negatively affect our business. If a disruption occurs in one location and our employees in that location are unable to occupy the offices or communicate with or travel to other locations, our ability to service and interact with our clients may suffer, and we may not be able to successfully implement contingency plans that depend on communication or travel.

A failure to protect our computer systems, networks and information, and our clients' information, against cyber attacks and similar threats could impair our ability to conduct our business, result in the disclosure, theft or destruction of confidential information, damage our reputation and cause losses.

Our operations rely on the secure processing, storage and transmission of confidential and other information in GS Group's computer systems and networks and those of its vendors, and our technology risk function uses and benefits from the processes and resources of the GS Group technology risk function. There have been a number of highly publicized cases involving financial services companies, consumer-based companies, governmental agencies and other organizations reporting the unauthorized disclosure of client, customer or other confidential information in recent years, as well as cyber attacks involving the dissemination, theft and destruction of corporate information or other assets, as a result of failure to follow procedures by employees or contractors or as a result of actions by third parties, including actions by foreign governments. There have also been several highly publicized cases where hackers have requested "ransom" payments in exchange for not disclosing customer information or for restoring access to information or systems.

We and our affiliates are regularly the targets of attempted cyber attacks, including denial-of-service attacks, and must continuously monitor and develop systems to protect the integrity and functionality of our technology infrastructure and access to and the security of our data. We and our affiliates may face an increasing number of attempted cyber attacks as we and our affiliates expand our mobile- and other internet-based products and services, as well as usage of mobile and cloud technologies and as we provide more of these services to a greater number of consumers. The increasing migration of our communication from devices we provide to employee-owned devices presents additional risks of cyber attacks. In addition, due to our interconnectivity with other GS Group entities, third-party vendors (and their respective service providers), central agents, exchanges, clearing houses and other financial institutions, we could be adversely impacted if any of them is subject to a successful cyber attack or other information security event. These impacts could include the loss of access to information or services from the third party subject to the cyber attack or other information security event, which could, in turn, interrupt our business.

Despite efforts to ensure the integrity of our systems and information, we and our affiliates may not be able to anticipate, detect or implement effective preventive measures against all cyber threats, especially because the techniques used are increasingly sophisticated, change frequently and are often not recognized until launched. Cyber attacks can originate from a variety of sources, including third parties who are affiliated with or sponsored by foreign governments or are involved with organized crime or terrorist organizations. Third parties may also attempt to place individuals within GS Group or induce employees, clients or other users of GS Group's systems to disclose sensitive information or provide access to GS Group's data or that of GS Group's clients, and these types of risks may be difficult to detect or prevent.

Although we and GS Group take protective measures proactively and endeavor to modify them as circumstances warrant, our and GS Group's computer systems, software and networks may be vulnerable to unauthorized access, misuse, computer viruses or other malicious code, cyber attacks on our vendors and other events that could have a security impact. Due to the complexity and interconnectedness of GS Group's systems, the process of enhancing GS Group's protective measures can itself create a risk of systems disruptions and security issues. In addition, protective measures that GS Group employs to compartmentalize its data may reduce its visibility into, and adversely affect its ability to respond to, systems issues and cyber threats.

If one or more of such events occur, this potentially could jeopardize GS Group's or its clients' or counterparties' confidential and other information processed, stored in, or transmitted through its computer systems and networks, or otherwise cause interruptions or malfunctions in GS Group's operations or those of its clients, counterparties or third parties, which could impact their ability to transact with us or otherwise result in legal or regulatory action, significant losses or reputational damage. In addition, such an event could persist for an extended period of time before being detected, and, following detection, it could take considerable time for us to obtain full and reliable information about the extent, amount and type of information compromised. During the course of an investigation, we may not know the full impact of the event and how to remediate it, and actions, decisions and mistakes that are taken or made may further increase the negative effects of the event on our business, results of operations and reputation.

GS Group has expended, and expects to continue to expend, significant resources on an ongoing basis to modify its protective measures and to investigate and remediate vulnerabilities or other exposures, but these measures may be ineffective and GS Group, including us, may be subject to legal or regulatory action, as well as financial losses that are either not insured against or not fully covered through any insurance that it maintains.

GS Group's clients' confidential information may also be at risk from the compromise of clients' personal electronic devices or as a result of a data security breach at an unrelated company. Losses due to unauthorized account activity could harm our reputation and may have adverse effects on our business, financial condition and results of operations. The increased use of mobile and cloud technologies can heighten these and other operational risks. Certain aspects of the security of such technologies are unpredictable or beyond GS Group's control, and the failure by mobile technology and cloud service providers to adequately safeguard their systems and prevent cyber attacks could disrupt GS Group's operations and result in misappropriation, corruption or loss of confidential and other information.

In addition, there is a risk that encryption and other protective measures, despite their sophistication, may be defeated, particularly to the extent that new computing technologies vastly increase the speed and computing power available.

In addition, the issue of cyber security has been the subject of heightened regulatory scrutiny. NYDFS cyber security regulations require that covered entities, including us, among other things, implement and maintain written cyber security policies and procedures covering a wide range of areas, including ensuring the security of sensitive data or systems accessible to third-party service providers, and provide notice to the NYDFS of certain material cyber security incidents.

We routinely transmit and receive personal, confidential and proprietary information by email and other electronic means. GS Group has discussed and worked with clients, vendors, service providers, counterparties and other third parties to develop secure transmission capabilities and protect against cyber attacks, but it does not have, and may be unable to put in place, secure capabilities with all of its clients, vendors, service providers, counterparties and other third parties and GS Group may not be able to ensure that these third parties have appropriate controls in place to protect the confidentiality of the information. An interception, misuse or mishandling of personal, confidential or proprietary information being sent to or received from a client, vendor, service provider, counterparty or other third party could result in legal liability, regulatory action and reputational harm.

The application of regulatory strategies and requirements to facilitate the orderly resolution of large financial institutions could negatively affect us and create risk of loss for our security holders.

As described further in "Regulation — Insolvency of an IDI" above, if the FDIC is appointed as receiver under the FDIA, the rights of our creditors would be determined under the FDIA, and the claims of our creditors (other than our depositors) generally will be subordinated in right of payment to the claims of deposit holders.

In addition, rules adopted by the FRB and the FDIC under the Dodd-Frank Act require us, as well as Group Inc., to submit periodic resolution plans. If the FDIC finds our resolution plan not credible, the FDIC will notify us in writing, and we then have 90 days to submit a revised resolution plan that corrects the deficiencies identified by the FDIC.

If the FRB and the FDIC find that Group Inc.'s resolution plan is not credible or would not facilitate an orderly resolution under the U.S. Bankruptcy Code, they may jointly require Group Inc. to hold more capital, change its business structure or dispose of businesses, any of which could have a negative impact on our financial condition, results of operations or competitive position.

The financial services industry is both highly competitive and interrelated.

The financial services industry and our activities are intensely competitive, and we expect them to remain so. We compete on the basis of a number of factors, including our products and services, innovation, reputation, creditworthiness and price. To the extent we expand our activities, we will face competitors with more experience and more established relationships with clients, regulators and industry participants in the relevant market, which could adversely affect our ability to expand.

Governments and regulators have recently adopted regulations, imposed taxes, adopted compensation restrictions or otherwise put forward various proposals that have impacted or may impact our ability to conduct certain of our activities in a cost-effective manner or at all in certain or all jurisdictions, including proposals relating to restrictions on the type of activities in which financial institutions are permitted to engage. These or other similar rules, many of which do not apply to all of our U.S. or non-U.S. competitors, could impact our ability to compete effectively.

Pricing and other competitive pressures in our business have continued to increase, particularly in situations where some of our competitors may seek to increase market share by reducing prices.

The financial services industry is highly interrelated in that a significant volume of transactions occur among a limited number of members of that industry. Many of our and GS Group's transactions are syndicated to other financial institutions and financial institutions are often counterparties in transactions. This has led to claims by other market participants and regulators that such institutions have colluded in order to manipulate markets or market prices, including allegations that antitrust laws have been violated. While GS Group has extensive procedures and controls that are designed to identify and prevent such activities, allegations of such activities, particularly by regulators, can have a negative reputational impact and can subject us to large fines and settlements, and potentially significant penalties, including treble damages.

We face enhanced risks as new business initiatives and acquisitions lead us to engage in new activities and transact with a broader array of clients and counterparties, and expose us to new assets, activities and markets.

A number of our recent and planned business initiatives and expansions of existing businesses, including through acquisitions, have and may continue to bring us into contact, directly or indirectly, with consumers and entities that are not within our traditional client and counterparty base, expose us to new asset classes, activities and markets, and present us with integration challenges. We also continue to lend and transact business in new regions, including a wide range of emerging and growth markets.

We have increased and intend to further increase our consumer-oriented deposit-taking and lending activities. For example, during 2019, we started to issue credit cards to consumers. To the extent we engage in those and other consumer-oriented activities, we have faced, and will continue to face, additional compliance, legal and regulatory risk, increased reputational risk and increased operational risk due to, among other things, higher transaction volumes, greater reliance on third-party vendors, increased volume of customer complaints, collections practices in relation to consumer-oriented lending activities, significantly increased retention requirements and transmission of consumer and client information and increased regulatory compliance obligations (including under the CRA as noted below). We are also subject to additional legal requirements, including with respect to suitability and consumer protection (for example, fair lending laws and regulations and privacy laws and regulations). Further, identity fraud may increase and credit reporting practices may change in a manner that makes it more difficult for financial institutions, such as us, to evaluate the creditworthiness of consumers.

We have increased and intend to further increase our transaction banking activities. As a result, we expect to face additional compliance, legal and regulatory risk, including with respect to know-your-customer, anti-money laundering and reporting requirements and prohibitions on transfers of property belonging to countries, entities and individuals subject to sanctions by U.S. or other governmental authorities. See "Risk Factors — Substantial civil or criminal liability or significant regulatory action against us or our affiliates could have material adverse financial effects or cause us significant reputational harm, which in turn could seriously harm our business prospects," for further information about legal, regulatory and compliance risks that we face.

In addition, our expansion into consumer-oriented activities or changes in law could result in a change to our CRA requirements. Any failure to comply with different or expanded CRA requirements could negatively impact our CRA ratings, cause reputational harm and result in limits on GS Group's ability to make future acquisitions or further expand its activities. See "Regulation — Community Reinvestment Act (CRA)" in Part I of this Annual Report for further information about our CRA requirements.

New business initiatives expose us to new and enhanced risks, including risks associated with dealing with governmental entities, reputational concerns arising from dealing with different types of counterparties, clients and consumers, greater regulatory scrutiny of these activities, increased credit-related, compliance, fraud, market, sovereign and operational risks, risks arising from accidents or acts of terrorism, and reputational concerns with the manner in which we engage in these activities, interact with these counterparties or address the product or service requirements of these new types of clients. Legal, regulatory and reputational risks may also exist in connection with activities and transactions involving new products or markets where there is regulatory uncertainty or where there are different or conflicting regulations depending on the regulator or the jurisdiction involved, particularly where transactions in such products may involve multiple jurisdictions.

We have developed and pursued new business and strategic initiatives, and expect to continue to do so. If and to the extent we are unable to successfully execute those initiatives, we may incur unanticipated costs and losses, and face other adverse consequences, such as negative reputational effects. In addition, the actual effects of pursuing those initiatives may differ, possibly materially, from the benefits that we expect to realize from them, such as generating additional revenues, achieving expense savings, reducing operational risk exposures or using capital and funding more efficiently.

Engaging in new activities exposes us to a variety of risks, including that we may be unable to successfully develop new, competitive, efficient and effective systems and processes, and hire and retain the necessary personnel. Due to our lack of historical experience with unsecured retail lending (including with respect to credit cards), our loan loss assumptions may prove to be incorrect and we may incur losses significantly above those which we originally anticipated in entering the business.

In order to develop and be able to offer competitive consumer financial products that compete effectively, we have made and expect to continue to make significant investments in technology and human capital resources in connection with our consumer-oriented activities.

Derivative transactions and delayed settlements may expose us to unexpected risk and potential losses.

We are party to a large number of derivative transactions, including interest rate, currency, credit and other derivatives. Many of these derivative instruments are individually negotiated and non-standardized, which can make exiting, transferring or settling positions difficult. Many credit derivatives require that we deliver to the counterparty the underlying security, loan or other obligation in order to receive payment. In a number of cases, we do not hold the underlying security, loan or other obligation and may not be able to obtain the underlying security, loan or other obligation. This could cause us to forfeit the payments due to us under these contracts or result in settlement delays with the attendant credit and operational risk, as well as increased costs.

Derivative transactions may also involve the risk that documentation has not been properly executed, that executed agreements may not be enforceable against the counterparty, or that obligations under such agreements may not be able to be "netted" against other obligations with such counterparty. In addition, counterparties may claim that such transactions were not appropriate or authorized.

As a signatory to the ISDA Universal Protocol and the U.S. ISDA Protocol (ISDA Protocols) and being subject to the FRB's rules on QFCs and similar rules in other jurisdictions, we may not be able to exercise remedies against counterparties and, as this new regime has not yet been tested, we may suffer risks or losses that we would not have expected to suffer if we could immediately close out transactions upon a termination event. Various non-U.S. regulators have also proposed regulations contemplated by the ISDA Universal Protocol, and those implementing regulations may result in additional limitations on our ability to exercise remedies against counterparties. The ISDA Protocols and these rules and regulations extend to repurchase agreements and other instruments that are not derivative contracts, and their impact will depend on the development of market practices and structures.

Derivative contracts and other transactions, including secondary bank loan purchases and sales, entered into with third parties are not always confirmed by the counterparties or settled on a timely basis. While the transaction remains unconfirmed or during any delay in settlement, we are subject to heightened credit and operational risk and in the event of a default may find it more difficult to enforce our rights.

In addition, as new complex derivative products are created, covering a wider array of underlying credit and other instruments, disputes about the terms of the underlying contracts could arise, which could impair our ability to effectively manage our risk exposures from these products and subject us to increased costs. The provisions of the Dodd-Frank Act requiring central clearing of credit derivatives and other OTC derivatives, or a market shift toward standardized derivatives, could reduce the risk associated with these transactions, but under certain circumstances could also limit our ability to develop derivatives that best suit the needs of our clients and to hedge our own risks, and could adversely affect our profitability and increase our credit exposure to central clearing platforms.

Certain of our businesses, our funding and our financial products may be adversely affected by changes in or the discontinuance of Interbank Offered Rates (IBORs), in particular LIBOR.

The FCA, which regulates LIBOR, has announced that it will not compel panel banks to contribute to LIBOR after 2021. It is likely that banks will not continue to provide submissions for the calculation of LIBOR after 2021 and possibly prior to then. Similarly, it is not possible to know whether LIBOR will continue to be viewed as an acceptable market benchmark, what rate or rates may become accepted alternatives to LIBOR, or what the effect of any such changes in views or alternatives may have on the financial markets for LIBOR-linked financial instruments. Similar statements have been made with respect to other IBORs.

Uncertainty regarding IBORs and the taking of discretionary actions or negotiation of fallback provisions could result in pricing volatility, loss of market share in certain products, adverse tax or accounting impacts, compliance, legal and operational costs and risks associated with client disclosures, as well as systems disruption, model disruption and other business continuity issues. In addition, uncertainty relating to IBORs could result in increased capital requirements for GS Group, and us, given potential low transaction volumes, a lack of liquidity or limited observability for exposures linked to IBORs or any emerging successor rates and operational incidents associated with changes in and the discontinuance of IBORs.

The language in our and our affiliates' contracts and financial instruments that define IBORs, in particular LIBOR, have developed over time and have various events that trigger when a successor rate to the designated rate would be selected. If a trigger is satisfied, contracts and financial instruments often give the calculation agent (which may be one of our affiliates) discretion over the successor rate or benchmark to be selected. As a result, there is considerable uncertainty as to how the financial services industry will address the discontinuance of designated rates in contracts and financial instruments or such designated rates ceasing to be acceptable reference rates. This uncertainty could ultimately result in client disputes and litigation surrounding the proper interpretation of our IBOR-based contracts and financial instruments.

Further, the discontinuation of an IBOR, changes in an IBOR or changes in market acceptance of any IBOR as a reference rate may also adversely affect the yield on loans or securities held by us, amounts paid on securities and other instruments we have issued, amounts received and paid on derivative instruments we have entered into, the value of such loans, securities or derivative instruments, the trading market for securities, the terms of new loans being made using different or modified reference rates, our ability to effectively use derivative instruments to manage risk, or the availability or cost of our floating-rate funding and our exposure to fluctuations in interest rates.

Certain of our activities and funding may be adversely affected by changes in other reference rates, currencies, indexes or baskets to which products we offer or funding that we raise are linked.

Certain of our funding, including funding raised from affiliates and third parties, is floating rate and pays interest by reference to a rate, such as LIBOR, Federal Funds or the Secured Overnight Financing Rate. In addition, certain of the products that we own or that we offer, such as swaps or security-based swaps, pay interest or determine the principal amount to be paid at maturity or in the event of default by reference to rates or by reference to an index, currency, basket or other financial metric (the underlier). In the event that the composition of the underlier is significantly changed, by reference to rules governing such underlier or otherwise, the underlier ceases to exist (for example, in the event that a country withdraws from the Euro or links its currency to or delinks its currency from another currency or benchmark, or an index) or the underlier ceases to be recognized as an acceptable market benchmark, we may experience adverse effects consistent with those described above for IBORs.

Our business may be adversely affected if we are unable to hire and retain qualified employees.

Our performance is largely dependent on the talents and efforts of highly skilled people; therefore, our continued ability to compete effectively in our business, to manage our business effectively and to expand into new lines of business depends on our ability, and GS Group's ability, to attract new talented and diverse employees and to retain and motivate existing employees. Factors that affect our and GS Group's ability to attract and retain such employees include the level and composition of GS Group's compensation and benefits, and GS Group's reputation as a successful business with a culture of fairly hiring, training and promoting qualified employees. As a significant portion of the compensation that GS Group pays to its employees is in the form of year-end discretionary compensation, a significant portion of which is in the form of deferred equity-related awards, declines in GS Group's profitability, or in the outlook for its future profitability, as well as regulatory limitations on compensation levels and terms, can negatively impact our and GS Group's ability to hire and retain highly qualified employees. Although we have our own employees, employees of affiliates also provide services to us under the Master Services Agreement.

Accordingly, negative impacts on GS Group's general ability to hire and retain qualified employees can adversely impact us both directly and indirectly.

Competition from within the financial services industry and from businesses outside the financial services industry, including the technology industry, for qualified employees has often been intense. GS Group (including us) has experienced increased competition in hiring and retaining employees to address the demands of new regulatory requirements, expanding consumer-oriented businesses and technology initiatives.

Changes in law or regulation in jurisdictions in which our operations are located that affect taxes on our employees' income, or the amount or composition of compensation, may also adversely affect our ability to hire and retain qualified employees in those jurisdictions.

As described further in "Regulation — Compensation Practices" above, GS Group's compensation practices are subject to review by, and the standards of, the FRB. As a large global financial and banking institution, GS Group is subject to limitations on compensation practices (which may or may not affect GS Group's competitors) by the FRB, the Prudential Regulation Authority, the FCA, the FDIC and other regulators worldwide. These limitations, including any imposed by or as a result of future legislation or regulation, may require GS Group to alter its compensation practices in ways that could adversely affect its ability to attract and retain talented employees, which in turn could adversely affect us.

The ability-to-repay requirement for residential mortgage loans may limit our ability to sell certain of our mortgage loans and give borrowers potential claims against us.

The Dodd-Frank Act amended the Truth in Lending Act to require that mortgage lenders show that they have verified the borrower's ability to repay a residential mortgage loan.

Borrowers could possibly claim statutory damages against us for violations of this requirement. Lenders of mortgages that meet a "qualified mortgage" standard have a safe harbor or a presumption of compliance with the requirement. Under final rules issued by the CFPB that became effective in January 2014, qualified mortgages cannot have negative amortization, interest-only payments, or balloon payments, terms over 30 years, or points and fees over certain thresholds. If institutional mortgage investors limit their mortgage purchases, demand for our non-qualifying mortgages in the secondary market may be significantly limited in the future.

We do not currently intend to discontinue originating non-qualifying mortgages and warehouse loans, or engaging in securitization activities, and we may be liable to borrowers under non-qualifying mortgages for violations of the ability-to-repay requirement. Moreover, we do not yet know how the qualifying mortgage requirements will impact the secondary market for sales of such mortgage loans.

Demand for our non-qualifying mortgages in the secondary market may therefore decline significantly in the future, which would limit the amount of loans we can originate and in turn limit our ability to create new relationships and opportunities to offer other products, manage our growth and earn revenue from loan sales and servicing, all of which could adversely affect our financial condition and net earnings.

Increases in FDIC insurance premiums may adversely affect our earnings.

Our deposits are insured by the FDIC to the extent provided by law and, accordingly, we are subject to FDIC deposit insurance assessments. We generally cannot control the amount of premiums we will be required to pay for FDIC insurance. If there are financial institution failures or future losses that the DIF may suffer, we may be required to pay higher FDIC premiums, or the FDIC may charge special assessments or require future prepayments. Further, the FDIC increased the DIF's long-term target reserve ratio to 2.0% of insured deposits following the Dodd-Frank Act's elimination of the 1.5% cap on the DIF's reserve ratio, and redefined the assessment base used to calculate deposit insurance premiums as the depository institution's average consolidated assets minus tangible equity, instead of the previous deposit-based assessment base.

The FDIC has previously applied an annual surcharge on all banks with at least $10 billion in assets as a method of increasing its DIF reserve ratio.

Increases in our assessment rate may be required in the future to achieve the targeted reserve ratio. These increases in deposit assessments and any future increases, required prepayments or special assessments of FDIC insurance premiums may adversely affect our business, financial condition or results of operations. See "Regulation — Deposit Insurance" in Part I of this Annual Report for further information about FDIC insurance.

We may be adversely affected by increased governmental and regulatory scrutiny or negative publicity.

Governmental scrutiny from regulators, legislative bodies and law enforcement agencies with respect to matters relating to our or GS Group's business practices, past actions, compensation and other matters has increased dramatically in the past several years. The financial crisis and the current political and public sentiment regarding financial institutions has resulted in a significant amount of adverse press coverage, as well as adverse statements or charges by regulators or other government officials. Press coverage and other public statements that assert some form of wrongdoing (including, in some cases, press coverage and public statements that do not directly involve us, Group Inc. or GS Group's other subsidiaries) often result in some type of investigation by regulators, legislators and law enforcement officials or in lawsuits.

Responding to these investigations and lawsuits, regardless of the ultimate outcome of the proceeding, is time-consuming and expensive and can divert the time and effort of our senior management from our business. Penalties and fines sought by regulatory authorities have increased substantially over the last several years, and certain regulators have been more likely in recent years to commence enforcement actions or to advance or support legislation targeted at the financial services industry. Adverse publicity, governmental scrutiny and legal and enforcement proceedings can also have a negative impact on our reputation and on the morale and performance of our employees, which could adversely affect our business and results of operations.

The financial services industry generally and our business in particular have been subject to negative publicity. Our reputation and business may be adversely affected by negative publicity or information regarding our business and personnel, whether or not accurate or true, that may be posted on social media or other internet forums or published by news organizations. The speed and pervasiveness with which information can be disseminated through these channels, in particular social media, may magnify risks relating to negative publicity.

Substantial civil or criminal liability or significant regulatory action against us or our affiliates could have material adverse financial effects or cause us significant reputational harm, which in turn could seriously harm our business prospects.

We are involved in a number of judicial, regulatory and other proceedings concerning matters arising in connection with the conduct of our business. See Notes 18 and 24 to the consolidated financial statements in Part III of this Annual Report for information about certain legal and regulatory proceedings and investigations that impact us. In addition, GS Group is involved in a number of judicial, regulatory and other proceedings, as well as investigations and reviews by various governmental and regulatory bodies and self-regulatory organizations, including the matters referred to in Note 24. Proceedings by regulatory or other governmental authorities could result in the imposition of significant fines, penalties and other sanctions against GS Group, including restrictions on GS Group's activities. As a subsidiary of Group Inc., any such fines, penalties or other sanctions, including any that could be imposed on us directly, could adversely affect us, possibly materially.

We face the risk of investigations and proceedings by governmental and self-regulatory organizations in all jurisdictions in which we conduct our business. Interventions by authorities may result in adverse judgments, settlements, fines, penalties, injunctions or other relief. In addition to the monetary consequences, these measures could, for example, impact our ability to engage in, or impose limitations on, certain aspects of our business. Litigation or regulatory action at the level of other GS Group entities may also have an impact on us, including limitations on activities and reputational harm. The number of these investigations and proceedings, as well as the amount of penalties and fines sought, has increased substantially in recent years with regard to many firms in the financial services industry, including GS Group.

The trend of large settlements with governmental entities may adversely affect the outcomes for other financial institutions in similar actions, especially where governmental officials have announced that the large settlements will be used as the basis or a template for other settlements. The uncertain regulatory enforcement environment makes it difficult to estimate probable liabilities, and settlements of matters therefore frequently exceed the amount of any reserve established.

Claims of collusion or anti-competitive conduct have become more common. Civil cases have been brought against financial institutions (including us) alleging bid rigging, group boycotts or other anti-competitive practices. Antitrust laws generally provide for joint and several liability and treble damages. These claims have resulted in significant settlements in the past and may do so in the future.

We are subject to laws and regulations relating to corrupt and illegal payments, hiring practices and money laundering, as well as laws relating to doing business with certain individuals, groups and countries, such as the FCPA, the PATRIOT Act and U.K. Bribery Act. While we and GS Group have invested and continue to invest significant resources in training and in compliance monitoring, the geographical diversity of GS Group's operations, employees, clients and consumers, as well as the vendors and other third parties that we deal with, greatly increases the risk that we may be found in violation of such rules or regulations and any such violation could subject us to significant penalties or adversely affect our reputation.

In addition, there have been a number of highly publicized cases around the world, involving actual or alleged fraud or other misconduct by employees in the financial services industry in recent years, and GS Group has had, and may in the future have, employee misconduct. This misconduct has included and may also in the future include intentional efforts to ignore or circumvent applicable policies, rules or procedures or misappropriation of funds and the theft of proprietary information, including proprietary software. It is not always possible to deter or prevent employee misconduct and the precautions we and GS Group take to prevent and detect this activity have not been and may not be effective in all cases.

Certain law enforcement authorities have recently required admissions of wrongdoing, and, in some cases, criminal pleas, as part of the resolutions of matters brought against financial institutions or their employees. Any such resolution of a criminal matter involving us or our employees, or GS Group or its employees could lead to increased exposure to civil litigation, could adversely affect our reputation, could result in penalties or limitations on our ability to conduct our activities generally or in certain circumstances and could have other negative effects.

We may incur losses as a result of unforeseen or catastrophic events, including the emergence of a pandemic, terrorist attacks, extreme weather events or other natural disasters.

The occurrence of unforeseen or catastrophic events, including the emergence of a pandemic, such as coronavirus, or other widespread health emergency (or concerns over the possibility of such an emergency), terrorist attacks, extreme terrestrial or solar weather events or other natural disasters, could create economic and financial disruptions, and could lead to operational difficulties (including travel limitations) that could impair our ability to manage our business.

Climate change concerns could disrupt our businesses, affect client activity levels and creditworthiness and damage our reputation.

Climate change may cause extreme weather events that disrupt operations at one or more of our or GS Group's primary locations, which may negatively affect our ability to service and interact with our clients, and also may adversely affect the value of our investments, including our real estate investments. Climate change may also have a negative impact on the financial condition of our clients, which may decrease revenues from those clients and increase the credit risk associated with loans and other credit exposures to those clients. Additionally, our reputation may be damaged as a result of our involvement, or our clients' involvement, in certain industries or projects associated with climate change.

PART II. Management's Discussion and Analysis of Financial Condition and Results of Operations

Introduction

Goldman Sachs Bank USA, together with its consolidated subsidiaries (collectively, the Bank), is a New York State-chartered bank and a member of the Federal Reserve System. The Bank is supervised and regulated by the Board of Governors of the Federal Reserve System (FRB), the New York State Department of Financial Services (NYDFS) and the Consumer Financial Protection Bureau (CFPB), and is a member of the Federal Deposit Insurance Corporation (FDIC). The Bank's deposits are insured by the FDIC up to the maximum amount provided by law. The Bank is registered as a swap dealer with the U.S. Commodity Futures Trading Commission (CFTC). The Bank is also a government securities dealer subject to the rules and regulations of the U.S. Department of the Treasury.

The Bank is a wholly-owned subsidiary of The Goldman Sachs Group, Inc. (Group Inc.). Group Inc. is a bank holding company (BHC) under the U.S. Bank Holding Company Act of 1956 (BHC Act), a financial holding company under amendments to the BHC Act effected by the U.S. Gramm-Leach-Bliley Act of 1999, and is subject to supervision and examination by the FRB.

When we use the terms "we," "us" and "our," we mean Goldman Sachs Bank USA and its consolidated subsidiaries. When we use the term "GS Group," or "firmwide" we are referring to Group Inc. and its consolidated subsidiaries, including us. References to revenue-producing units and control and support functions include activities performed by our employees, by dual employees (who are employees who perform services for both us and another GS Group subsidiary) and by affiliate employees under Bank supervision pursuant to Master Services Agreements supplemented by Service Level Agreements (collectively, the Master Services Agreement) between us and our affiliates.

All references to "this Annual Report," of which this Management's Discussion and Analysis forms a part, refers to the report dated March 9, 2020 and includes information relating to our business, the supervision and regulation to which we are subject, risk factors affecting our business, our results of operations and financial condition, as well as our consolidated financial statements.

References to "the consolidated financial statements" or "Supplemental Financial Information" are to Part III of this Annual Report. All references to 2019 and 2018 refer to our years ended, or the dates, as the context requires, December 31, 2019 and December 31, 2018, respectively. Any reference to a future year refers to a year ending on December 31 of that year. Certain reclassifications have been made to previously reported amounts to conform to the current presentation.

Our principal office is located in New York, New York. We operate two domestic branches, which are located in Salt Lake City, Utah and Draper, Utah. Both branches are regulated by the Utah Department of Financial Institutions. We also have a foreign branch in London, United Kingdom, which is regulated by the Financial Conduct Authority and the Prudential Regulation Authority.

We are a financial services provider that engages in banking activities. We are GS Group's primary lending entity, serving corporate and private bank clients, as well as U.S. consumers through our digital platform, *Marcus by Goldman Sachs* (Marcus), and by issuing credit cards. We are also GS Group's primary deposit-taking entity. Our depositors include private bank clients, U.S. consumers, clients of third-party broker-dealers, institutions, corporations and our affiliates. Our consumer deposit-taking activities are conducted through Marcus. We also provide transaction banking services, which includes deposit taking and payment services. In addition, we enter into interest rate, currency, credit and other derivatives, and transact in certain related cash products, for the purpose of market making and risk management.

In this Annual Report, we have included statements that may constitute "forward-looking statements." Forward-looking statements are not historical facts or statements of current conditions, but instead represent only our beliefs regarding future events, many of which, by their nature, are inherently uncertain and outside our control.

By identifying the following statements for you in this manner, we are alerting you to the possibility that our actual results and financial condition may differ, possibly materially, from the anticipated results and financial condition in these forward-looking statements. Important factors that could cause our results and financial condition to differ from those in these statements include, among others, those described below and in "Risk Factors" in Part I of this Annual Report.

These statements may relate to, among other things, (i) our future plans and objectives, (ii) various legal proceedings, governmental investigations or other contingencies as set forth in Notes 18 and 24 to the consolidated financial statements in Part III of this Annual Report, (iii) the objectives and effectiveness of our risk management and liquidity policies, (iv) our resolution plan and resolution strategy, (v) the impact of regulatory changes applicable to us, as well as our future status, activities or reporting under banking and financial regulation, (vi) our expected provisions for credit losses, (vii) GS Group's preparations for Brexit, including a hard Brexit scenario, (viii) the replacement of LIBOR and other IBORs and our program for the transition to alternative risk-free reference rates, (ix) the adequacy of our allowance for credit losses, (x) the growth of our deposits, (xi) projected growth of our consumer loan and credit card businesses, (xii) our business initiatives, including those related to transaction banking and new consumer financial products, (xiii) our expense savings initiatives and increasing use of strategic locations and (xiv) expenses we may incur, including those associated with investing in our consumer lending, credit card and transaction banking activities.

Executive Overview

We generated net earnings of $1.62 billion for 2019, a decrease of 24% compared with $2.13 billion for 2018.

Net revenues were $5.15 billion for 2019, essentially unchanged compared with $5.20 billion for 2018.

Net interest income was $2.88 billion for 2019, an increase of 5% compared with $2.75 billion for 2018. This increase was primarily driven by higher interest income on loans, trading assets, other interest-earning assets and collateralized agreements, partially offset by increased interest expense on interest-bearing deposits and other interest-bearing liabilities.

Non-interest revenues were $2.27 billion for 2019, a decrease of 7% compared with $2.45 billion for 2018, primarily reflecting lower gains from financial assets and liabilities.

Provision for credit losses was $655 million for 2019, an increase of 39% compared with $470 million for 2018, primarily reflecting higher provisions on corporate loans and lending commitments and credit card loans.

Operating expenses were $2.41 billion for 2019, an increase of 20% compared with $2.01 billion for 2018, primarily reflecting higher compensation and benefits, professional fees, communications and technology expenses and lending related expenses.

As of December 2019, our Common Equity Tier 1 (CET1) capital ratio as calculated in accordance with the Standardized Capital Rules was 11.3% and as calculated in accordance with the Advanced Capital Rules was 21.5%. See Note 19 to the consolidated financial statements for further information about our capital ratios.

As part of our strategic initiatives, we have continued to invest in the growth of Marcus and have launched our credit card and transaction banking activities. We expect operating expenses will continue to increase as we pursue our strategic initiatives.

Business Environment

During 2019, global real gross domestic product (GDP) growth appeared to decrease compared with 2018, reflecting decreased growth in both emerging markets and advanced economies, including in the U.S. Concerns about future global growth and a mixed macroeconomic environment led to accommodative monetary policies by global central banks, including three cuts to the federal funds rate by the U.S. Federal Reserve during the year to a target range of 1.5% to 1.75%. The market sentiment in 2019 was also impacted by geopolitical uncertainty, including ongoing trade concerns between the U.S. and China and multiple extensions of the deadline related to the U.K.'s decision to leave the E.U. (Brexit).

Critical Accounting Policies

Allowance for Credit Losses

We estimate and record an allowance for credit losses related to our loans held for investment and accounted for at amortized cost. The allowance for loan losses consists of specific loan-level reserves and portfolio-level reserves. The determination of each of these components entails significant judgment on various risk factors, including industry default and loss data, current macroeconomic indicators, borrower's capacity to meet its financial obligations, borrower's country of risk, loan seniority and collateral type. In addition, for loans backed by real estate, risk factors include loan-to-value ratio, debt service ratio and home price index. Risk factors for consumer and credit card loans include Fair Isaac Corporation (FICO) credit scores and delinquency status.

Our estimate of credit losses entails judgment about collectability at the reporting dates, and there are uncertainties inherent in those judgments. While we use the best information available to determine this estimate, future adjustments to the allowance may be necessary based on, among other things, changes in the economic environment or variances between actual results and the original assumptions used. Loans are charged off against the allowance for loan losses when deemed to be uncollectible. See Note 3 to the consolidated financial statements for further information about adoption of ASU No. 2016-13, "Financial Instruments — Credit Losses (Topic 326) — Measurement of Credit Losses on Financial Instruments."

We also record an allowance for losses on lending commitments which are held for investment and accounted for at amortized cost. Such allowance is determined using the same methodology as the allowance for loan losses, while also taking into consideration the probability of drawdowns or funding, and is included in other liabilities. See Note 9 to the consolidated financial statements for further information about the allowance for credit losses.

Fair Value

Fair Value Hierarchy. Trading assets and liabilities, certain investments and loans and certain other financial assets and liabilities, are included in our consolidated balance sheets at fair value (i.e., marked-to-market), with related gains or losses generally recognized in our consolidated statements of earnings.

The fair value of a financial instrument is the amount 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. We measure certain financial assets and liabilities as a portfolio (i.e., based on its net exposure to market and/or credit risks). In determining fair value, the hierarchy under U.S. generally accepted accounting principles (U.S. GAAP) gives (i) the highest priority to unadjusted quoted prices in active markets for identical, unrestricted assets or liabilities (level 1 inputs), (ii) the next priority to inputs other than level 1 inputs that are observable, either directly or indirectly (level 2 inputs), and (iii) the lowest priority to inputs that cannot be observed in market activity (level 3 inputs). In evaluating the significance of a valuation input, we consider, among other factors, a portfolio's net risk exposure to that input. Assets and liabilities are classified in their entirety based on the lowest level of input that is significant to their fair value measurement.

The fair values for substantially all of our financial assets and for the majority of our financial liabilities are based on observable prices and inputs and are classified in levels 1 and 2 of the fair value hierarchy. Certain level 2 and level 3 financial assets and liabilities may require appropriate valuation adjustments that a market participant would require to arrive at fair value for factors, such as counterparty and our or our affiliates' credit quality, funding risk, transfer restrictions, liquidity and bid/offer spreads.

Instruments classified in level 3 of the fair value hierarchy are those which require one or more significant inputs that are not observable. Level 3 financial assets represented 0.9% as of December 2019 and 1.2% as of December 2018, of our total assets. See Notes 4 through 10 to the consolidated financial statements for further information about level 3 financial assets, including changes in level 3 financial assets and related fair value measurements. Absent evidence to the contrary, instruments classified in level 3 of the fair value hierarchy are initially valued at transaction price, which is considered to be the best initial estimate of fair value. Subsequent to the transaction date, we use other methodologies to determine fair value, which vary based on the type of instrument. Estimating the fair value of level 3 financial instruments requires judgments to be made. These judgments include:

- Determining the appropriate valuation methodology and/or model for each type of level 3 financial instrument;
- Determining model inputs based on an evaluation of all relevant empirical market data, including prices evidenced by market transactions, interest rates, credit spreads, volatilities and correlations; and
- Determining appropriate valuation adjustments, including those related to illiquidity or counterparty credit quality.

Regardless of the methodology, valuation inputs and assumptions are only changed when corroborated by substantive evidence.

Controls Over Valuation of Financial Instruments. We leverage GS Group's control infrastructure over valuation of financial instruments, which is described below. Market makers and investment professionals in revenue-producing units are responsible for pricing our financial instruments. GS Group's control infrastructure is independent of the revenue-producing units and is fundamental to ensuring that all of our financial instruments are appropriately valued at market-clearing levels. In the event that there is a difference of opinion in situations where estimating the fair value of financial instruments requires judgment (e.g., calibration to market comparables or trade comparison, as described below), the final valuation decision is made by senior managers in independent risk oversight and control functions. This independent price verification is critical to ensuring that our financial instruments are properly valued.

Price Verification. All financial instruments at fair value classified in levels 1, 2 and 3 of the fair value hierarchy are subject to an independent price verification process. The objective of price verification is to have an informed and independent opinion with regard to the valuation of financial instruments under review. Instruments that have one or more significant inputs which cannot be corroborated by external market data are classified in level 3 of the fair value hierarchy. Price verification strategies utilized by our independent risk oversight and control functions include:

- **Trade Comparison.** Analysis of trade data (both internal and external, where available) is used to determine the most relevant pricing inputs and valuations.
- **External Price Comparison.** Valuations and prices are compared to pricing data obtained from third parties (e.g., brokers or dealers, Markit, Bloomberg, IDC, TRACE). Data obtained from various sources is compared to ensure consistency and validity. When broker or dealer quotations or third-party pricing vendors are used for valuation or price verification, greater priority is generally given to executable quotations.
- **Calibration to Market Comparables.** Market-based transactions are used to corroborate the valuation of positions with similar characteristics, risks and components.
- **Relative Value Analyses.** Market-based transactions are analyzed to determine the similarity, measured in terms of risk, liquidity and return, of one instrument relative to another or, for a given instrument, of one maturity relative to another.
- **Collateral Analyses.** Margin calls on derivatives are analyzed to determine implied values, which are used to corroborate our valuations.
- **Execution of Trades.** Where appropriate, market-making desks are instructed to execute trades in order to provide evidence of market-clearing levels.
- **Backtesting.** Valuations are corroborated by comparison to values realized upon sales.

See Note 4 to the consolidated financial statements for further information about fair value measurements.

Review of Net Revenues. Independent risk oversight and control functions ensure adherence to GS Group's pricing policy through a combination of daily procedures, including the explanation and attribution of net revenues based on the underlying factors. Through this process, we independently validate net revenues, identify and resolve potential fair value or trade booking issues on a timely basis and seek to ensure that risks are being properly categorized and quantified.

Review of Valuation Models. A model risk management group (Model Risk), consisting of quantitative professionals who are separate from model developers, performs an independent model review and validation process of valuation models. New or changed models are reviewed and approved prior to implementation. Models are reviewed annually to assess the impact of any changes in the product or market and any market developments in pricing theories. See "Risk Management — Model Risk Management" for further information about the review and validation of valuation models.

Use of Estimates

U.S. GAAP requires us to make certain estimates and assumptions. In addition to the estimates we make in connection with the allowance for credit losses on loans and lending commitments, held for investment and accounted for at amortized cost and fair value measurements, the use of estimates and assumptions is also important in determining provisions for losses that may arise from litigation and regulatory proceedings (including governmental investigations), and provisions for losses that may arise from tax audits.

Any estimated liability in respect of litigation and regulatory proceedings is determined on a case-by-case basis and represents an estimate of probable losses after considering, among other factors, the progress of each case, proceeding or investigation, our experience and the experience of others in similar cases, proceedings or investigations, and the opinions and views of legal counsel. Significant judgment is required in making these estimates and our final liabilities may ultimately be materially different. See Note 24 to the consolidated financial statements for further information about certain judicial, litigation and regulatory proceedings.

In accounting for income taxes, we recognize tax positions in the financial statements only when it is more likely than not that the position will be sustained on examination by the relevant taxing authority based on the technical merits of the position. See Note 22 to the consolidated financial statements for further information about income taxes.

Recent Accounting Developments

See Note 3 to the consolidated financial statements for information about Recent Accounting Developments.

Results of Operations

The composition of our net revenues has varied over time as financial markets and the scope of our operations have changed. The composition of net revenues can also vary over the shorter term due to fluctuations in economic and market conditions. In addition to transactions entered into with third parties, we also enter into transactions with affiliates in the normal course of business, primarily as part of our market-making activities. See "Risk Factors" in Part I of this Annual Report for further information about the impact of economic and market conditions on our results of operations.

Financial Overview

The table below presents an overview of our financial results and selected financial ratios.

	Year Ended December	
$ in millions	**2019**	2018
Net revenues	**$ 5,146**	$ 5,196
Pre-tax earnings	**$ 2,081**	$ 2,721
Net earnings	**$ 1,616**	$ 2,133
Net earnings to average total assets	**0.8%**	1.2%
Return on average shareholder's equity	**5.7%**	8.1%
Average shareholder's equity to average total assets	**13.8%**	14.7%

In the table above, return on average shareholder's equity is calculated by dividing net earnings by average monthly shareholder's equity.

Net Revenues

The table below presents our net revenues by line item, as well as net interest margin.

	Year Ended December	
$ in millions	**2019**	2018
Interest income	**$ 7,552**	$ 5,812
Interest expense	**4,675**	3,065
Net interest income	**2,877**	2,747
Non-interest revenues	**2,269**	2,449
Net revenues	**$ 5,146**	$ 5,196
Net interest margin	**1.48%**	1.62%

In the table above:

- Interest income includes interest earned from our lending portfolio, consisting of corporate lending, wealth management lending, commercial real estate lending, residential real estate lending, consumer lending, credit card lending and other lending. Interest income is also earned from cash deposits held primarily at the Federal Reserve Bank of New York (FRBNY). In addition, interest is earned primarily from certain trading assets, investments, collateralized agreements, collateral balances posted to counterparties and foreign currency funding facilities.

- Interest expense includes interest related to deposit-taking activities. Interest expense also includes interest related to certain trading liabilities, collateralized financings, unsecured borrowings, collateral balances received from counterparties and foreign currency funding facilities. We apply hedge accounting to certain interest rate swaps used to manage the interest rate exposure of certain fixed-rate unsecured borrowings and certain fixed-rate term certificates of deposit (CDs). For qualifying fair value hedges, gains and losses on derivatives are included in interest expense. See Note 7 to the consolidated financial statements for further information about hedge accounting.

- Non-interest revenues includes gains and losses from financial assets and liabilities related to market-making and risk management activities in interest rate, currency, credit and other derivatives and certain related products which are primarily accounted for at fair value. Non-interest revenues also includes net gains and losses from loans and lending commitments primarily accounted for at fair value. In addition, non-interest revenues includes fees earned from relationships with affiliates, loan syndication fees and other fees.

2019 versus 2018. Net revenues in the consolidated statements of earnings were $5.15 billion for 2019, essentially unchanged compared with $5.20 billion for 2018.

Net Interest Income

Net interest income in the consolidated statements of earnings was $2.88 billion for 2019, 5% higher than 2018, primarily driven by higher interest income, partially offset by higher interest expense. Net interest income was 56% of net revenues in 2019, compared with 53% in 2018.

Net Interest Margin

Net interest margin was 148 basis points for 2019, a decrease of 14 basis points compared with 162 basis points for 2018, primarily driven by increased interest expense from deposits due to higher interest rates and higher average balances, partially offset by increased interest income due to higher average balances and higher rates.

Non-Interest Revenues

Non-interest revenues were $2.27 billion for 2019, 7% lower than 2018, primarily reflecting lower gains from financial assets and liabilities.

Interest Income

The table below presents our sources of interest income.

	Year Ended December	
$ in millions	**2019**	2018
Loans	**$ 3,687**	$ 3,094
Trading assets	**1,094**	571
Collateralized agreements	**815**	397
Deposits with banks	**778**	1,127
Investments	**116**	53
Other	**1,062**	570
Total interest income	**$ 7,552**	$ 5,812

2019 versus 2018. Interest income in the consolidated statements of earnings was $7.55 billion for 2019, 30% higher than 2018. See below and "Supplemental Financial Information — Distribution of Assets, Liabilities and Shareholder's Equity" for further information about our sources of interest income, including average balances and rates.

Interest income from loans was $3.69 billion for 2019, 19% higher than 2018, due to higher average balances and higher rates. See Note 9 to the consolidated financial statements for further information about loans.

Interest income from trading assets was $1.09 billion for 2019, 92% higher than 2018, due to higher average balances, partially offset by lower rates. See Note 5 to the consolidated financial statements for further information about trading assets.

Interest income from collateralized agreements was $815 million for 2019, 105% higher than 2018, primarily due to higher average balances. See Note 11 to the consolidated financial statements for further information about collateralized agreements.

Interest income from deposits with banks was $778 million for 2019, 31% lower than 2018, due to lower average balances, partially offset by higher interest rates. See Note 3 to the consolidated financial statements for further information about our cash.

Interest income from investments was $116 million for 2019, 119% higher than 2018, primarily due to higher average balances. See Note 8 to the consolidated financial statements for further information about investments.

Other interest income was $1.06 billion for 2019, 86% higher than 2018, primarily due to higher interest rates. Other interest income primarily includes interest income on loans held for sale that are accounted for at the lower of cost or fair value, collateral balances posted to counterparties and foreign currency funding facilities.

Interest Expense

The table below presents our sources of interest expense.

	Year Ended December	
$ in millions	**2019**	2018
Deposits	**$ 3,422**	$ 2,437
Borrowings	**266**	220
Collateralized financings	**270**	78
Trading liabilities	**58**	57
Other	**659**	273
Total interest expense	**$ 4,675**	$ 3,065

2019 versus 2018. Interest expense in the consolidated statements of earnings was $4.68 billion for 2019, 53% higher than 2018. See below and "Supplemental Financial Information — Distribution of Assets, Liabilities and Shareholder's Equity" for further information about our sources of interest expense, including average balances and rates.

Interest expense from deposits was $3.42 billion for 2019, 40% higher than 2018, due to higher average balances and higher rates.

Interest expense from borrowings was $266 million for 2019, 21% higher than 2018, due to higher rates and higher average balances.

Interest expense from collateralized financings was $270 million for 2019, 246% higher than 2018, primarily due to higher average balances.

Interest expense from trading liabilities was $58 million for 2019, essentially unchanged compared with 2018.

Other interest expense was $659 million for 2019, 141% higher than 2018, primarily due to higher rates. Other interest expense primarily includes interest expense on collateral balances received from counterparties and interest expense on foreign currency funding facilities.

Provision for Credit Losses

Provision for credit losses consists of provision for credit losses on loans and lending commitments held for investment and accounted for at amortized cost. See Note 9 to the consolidated financial statements for further information about the provision for credit losses.

The table below presents our provision for credit losses.

	Year Ended December	
$ in millions	**2019**	2018
Provision for credit losses	**$ 655**	$ 470

2019 versus 2018. Provision for credit losses in the consolidated statements of earnings was $655 million for 2019, 39% higher than 2018, primarily reflecting higher provisions on corporate loans and lending commitments and credit card loans.

Operating Expenses

Our operating expenses are primarily influenced by compensation, headcount and levels of business activity. Compensation and benefits includes salaries, year-end discretionary compensation, amortization of equity awards and other items such as benefits. Compensation and benefits relate to direct Bank employees. Discretionary compensation is significantly impacted by, among other factors, GS Group's overall financial performance, prevailing labor markets, business mix, the structure of GS Group's share-based compensation programs and the external environment. Another component of our operating expenses is service charges, which includes employment related costs of dual employees and employees of affiliates pursuant to the Master Services Agreement.

The table below presents our operating expenses by line item and headcount.

	Year Ended December	
$ in millions	**2019**	2018
Compensation and benefits	**$ 528**	$ 408
Service charges	**522**	506
Professional fees	**263**	181
Market development	**205**	238
Communications and technology	**169**	87
Brokerage, clearing, exchange and distribution fees	**103**	100
Other expenses	**620**	485
Total operating expenses	**$ 2,410**	$ 2,005
Headcount at period-end	**2,185**	1,805

In the table above:

- Compensation and benefits and service charges include employee-related expenses. As described above, compensation and benefits are expenses of direct Bank employees. Service charges include expenses related to dual employees and employees of affiliates who provide services to us pursuant to the Master Services Agreement.
- Other expenses primarily includes expenses related to loan securitizations, non-compensation expenses charged by affiliates to us pursuant to the Master Services Agreement, regulatory and agency fees and lending related expenses. Expenses related to communications and technology were previously reported in Other expenses. Reclassifications have been made to previously reported amounts to conform to the current presentation.

2019 versus 2018. Operating expenses in the consolidated statements of earnings were $2.41 billion for 2019, 20% higher than 2018.

Compensation and benefits expenses in the consolidated statements of earnings were $528 million for 2019, 29% higher than 2018, primarily related to increased headcount.

Service charges in the consolidated statements of earnings were $522 million for 2019, essentially unchanged compared with 2018.

Professional fees in the consolidated statements of earnings were $263 million for 2019, 45% higher than 2018, primarily due to higher consultant expenses related to our credit card business.

Market development expenses in the consolidated statements of earnings were $205 million for 2019, 14% lower than 2018, due to lower advertising expenses.

Communications and technology expenses in the consolidated statements of earnings were $169 million for 2019, 94% higher than 2018, primarily due to new business initiatives.

Brokerage, clearing, exchange and distribution fees in the consolidated statements of earnings were $103 million for 2019, essentially unchanged compared with 2018.

Other expenses in the consolidated statements of earnings were $620 million for 2019, 28% higher than 2018, primarily due to an increase in non-compensation expenses charged by affiliates to us pursuant to the Master Services Agreement, lending related expenses and expenses related to loan securitizations, partially offset by a decrease in regulatory and agency fees.

Provision for Taxes

The effective income tax rate for 2019 was 22.3%, up from 21.6% for 2018, which included a $22 million income tax benefit in 2018 related to the finalization of the impact of the Tax Cuts and Jobs Act (Tax Legislation).

In June 2019, the U.S. Internal Revenue Service (IRS) and the U.S. Department of the Treasury (U.S. Treasury) released final, temporary and proposed regulations relating to the implementation of Global Intangible Low Taxed Income (GILTI). In December 2019, the IRS and U.S. Treasury released final and proposed regulations relating to the implementation of Base Erosion and Anti-Abuse Tax (BEAT). During both the year ended December 2019 and the year ended December 2018, we were not subject to BEAT and GILTI.

Balance Sheet and Funding Sources

Balance Sheet Management

One of the risk management disciplines for a financial institution is its ability to manage the size and composition of its balance sheet. We leverage GS Group's balance sheet management process. While our asset base changes due to client activity, market fluctuations and business opportunities, the size and composition of the balance sheet also reflects factors including (i) overall risk tolerance, (ii) the amount of equity capital held and (iii) the funding profile, among other factors. See "Equity Capital Management and Regulatory Capital — Equity Capital Management" for information about our equity capital management process.

In order to ensure appropriate risk management, we seek to maintain a sufficiently liquid balance sheet and, together with GS Group, have processes in place to dynamically manage our assets and liabilities, which include (i) balance sheet planning, (ii) balance sheet and funding limits for the businesses of GS Group, which include our activities, (iii) monitoring of key metrics and (iv) scenario analyses.

Balance Sheet Planning. GS Group prepares a balance sheet plan that combines projected total assets and composition of assets with its expected funding sources over a three-year time horizon. This plan is reviewed quarterly and may be adjusted in response to changing business needs or market conditions. Within this process and with the involvement of Treasury, GS Group also considers which businesses operate within the Bank and the availability of Bank-specific funding sources. The objectives of this planning process are:

- To develop asset and liability projections, taking into account the general state of the financial markets and expected business activity levels, as well as regulatory requirements;
- To allow Treasury and independent risk oversight and control functions to objectively evaluate balance sheet and funding limit requests from revenue-producing units in the context of GS Group's overall balance sheet constraints, including our and GS Group's liability profile and equity capital levels, and key metrics; and
- To inform the target amount, tenor and type of funding to raise, based on projected assets and contractual maturities.

Treasury and independent risk oversight and control functions, along with revenue-producing units, review current and prior period information and expectations for the year to prepare our balance sheet plan. The specific information reviewed includes asset and liability size and composition, limit utilization, risk and performance measures, and capital usage. Within this process, GS Group also considers which businesses operate within the Bank and the availability of Bank-specific funding sources and capital constraints.

As part of GS Group's process, the consolidated balance sheet plan is reviewed quarterly and approved by the Firmwide Asset Liability Committee and the GS Group Risk Governance Committee, which includes Bank representatives. The review includes balance sheet plans by businesses of GS Group, including planned activities in the Bank, funding projections and projected key metrics. See "Risk Management — Overview and Structure of Risk Management" for an overview of our risk management structure.

Balance Sheet Limits. The Firmwide Asset Liability Committee and the GS Group Risk Governance Committee, as well as the Bank Risk and Asset Liability Committee where applicable to us, have the responsibility to review and approve balance sheet limits, which include our activities. These limits are set at levels which are close to actual operating levels, rather than at levels which reflect GS Group's or our maximum risk appetite, in order to ensure prompt escalation and discussion among revenue-producing units, Treasury and independent risk oversight and control functions on a routine basis. Additionally, the GS Group Risk Governance Committee sets aged limits for certain financial instruments, including our financial instruments, as a disincentive to hold such positions over longer periods of time. Requests for changes in limits are evaluated after giving consideration to their impact on key metrics. Compliance with limits is monitored by revenue-producing units and Treasury, as well as independent risk oversight and control functions.

Monitoring of Key Metrics. Key balance sheet metrics are monitored as part of the GS Group process, both by businesses of GS Group, which include our activities, and on a consolidated basis, including limit utilization and risk measures. This includes allocating assets to businesses and reviewing movements resulting from new business activity, as well as market fluctuations.

Scenario Analyses. We conduct scenario analyses as part of stress testing and resolution planning, as well as for other regulatory and business planning purposes. See "Equity Capital Management and Regulatory Capital — Equity Capital Management" for further information about these scenario analyses. These scenarios cover short- and long-term time horizons using various macroeconomic and Bank-specific assumptions, based on a range of economic scenarios. We use these analyses to assist us in developing our longer-term balance sheet management strategy, including the level and composition of assets, funding and equity capital. Additionally, these analyses help us develop approaches for maintaining appropriate funding, liquidity and capital across a variety of situations, including a severely stressed environment.

Balance Sheet Analysis

As of December 2019, total assets in our consolidated balance sheets were $228.84 billion, an increase of $37.35 billion from December 2018, primarily reflecting increases in trading assets of $41.77 billion and cash of $22.18 billion, partially offset by a decrease in securities purchased under agreements to resell (resale agreements) of $32.10 billion. The increase in trading assets primarily reflected an increase in U.S. government obligations. The increase in cash and decrease in resale agreements reflects a change in the composition of our global core liquid assets (GCLA).

As of December 2019, total liabilities in our consolidated balance sheets were $199.50 billion, an increase of $35.73 billion from December 2018, primarily reflecting an increase in deposits of $30.65 billion. The increase in deposits primarily reflected an increase in consumer and institutional deposits.

Funding Sources

Our primary sources of funding are deposits, collateralized financings, unsecured borrowings and shareholder's equity. We seek to maintain broad and diversified funding sources across products, programs, tenors and creditors to avoid funding concentrations.

The table below presents information about our funding sources.

	As of December			
$ in millions	**2019**		2018	
Deposits	**$ 168,398**	**78%**	$ 137,752	78%
Collateralized financings	**10,548**	**5%**	4,475	2%
Unsecured borrowings	**7,258**	**3%**	6,947	4%
Total shareholder's equity	**29,332**	**14%**	27,718	16%
Total funding sources	**$ 215,536**	**100%**	$ 176,892	100%

We generally raise funding, substantially all of which is in U.S. dollars, through a variety of channels, including deposits from private bank clients, U.S. consumers, clients of third-party broker-dealers, institutions, corporations and affiliates. We believe that our relationships with our creditors are critical to our liquidity. Our creditors include individuals, financial institutions, nonfinancial institutions, corporations and asset managers. We have imposed various internal guidelines to monitor creditor concentration across our funding programs.

Deposits. Our deposits provide us with a diversified source of funding and reduce our reliance on wholesale funding. A growing portion of our deposit base consists of consumer deposits. We accept deposits, including savings, demand and time deposits. Our depositors include private bank clients, U.S. consumers, clients of third-party broker-dealers, institutions, corporations and affiliates.

We also accept deposits from Funding IHC and Group Inc.

The average interest rate on our interest-bearing deposits was 2.41% for 2019 and 1.94% for 2018.

The table below presents our average interest rate on each type of deposit.

	Year Ended December	
	2019	2018
Savings and demand	**2.18%**	1.88%
Time	**2.83%**	1.99%

See "Supplemental Financial Information — Distribution of Assets, Liabilities, and Shareholder's Equity" and Note 13 to the consolidated financial statements for further information about deposits.

Collateralized Financings. We fund certain of our inventory and a portion of investments on a secured basis by entering into collateralized financing agreements, such as repurchase agreements. We are also a member of the Federal Home Loan Bank of New York (FHLB). Outstanding borrowings from the FHLB were $527 million as of December 2019 and $528 million as of December 2018. See Note 11 to the consolidated financial statements for further information about collateralized financings.

We also have access to funding through the Federal Reserve Bank discount window. While we do not rely on this funding in our liquidity planning and stress testing, we maintain policies and procedures necessary to access this funding and test discount window borrowing procedures.

Unsecured Borrowings. We may raise funding through unsecured borrowings, primarily from Funding IHC and Group Inc. Group Inc. raises non-deposit unsecured funding and lends to Funding IHC and other affiliates, including consolidated subsidiaries, such as us, to meet those entities' funding needs. This approach enhances the flexibility with which Funding IHC and Group Inc. can meet our and other Group Inc. subsidiaries' funding requirements. We may also raise funding through issuing senior unsecured debt. See Note 14 to the consolidated financial statements for further information about our unsecured borrowings.

Shareholder's Equity. Shareholder's equity is a stable and perpetual source of funding. See the consolidated statements of changes in shareholder's equity in the consolidated financial statements for further information about our equity transactions.

Equity Capital Management and Regulatory Capital

Capital adequacy is of critical importance to us. We have in place a comprehensive capital management policy that provides a framework, defines objectives and establishes guidelines to assist us in maintaining the appropriate level and composition of capital in both business-as-usual and stressed conditions.

Equity Capital Management

We have established a comprehensive governance structure for capital management, where capital management activity is overseen by our Board of Directors (Board) and the Bank Risk and Asset Liability Committee reviews capital levels monthly. Levels of capital usage are controlled principally by setting limits on our unsecured funding utilization and/or limits on risk at both the Bank and business levels.

We determine the appropriate amount and composition of our equity capital by considering multiple factors, including our current and future regulatory capital requirements, the results of our capital planning and stress testing processes, capital requirements for resolution planning and other factors, such as rating agency guidelines, the business environment and conditions in the financial markets.

As part of our capital management policy, we maintain a contingency capital plan. Our contingency capital plan provides a framework for evaluating and remediating capital deficiencies, specifying potential drivers, mitigants and actions that can be taken to address such deficiencies. Our contingency capital plan also outlines the communication and escalation procedures for internal and external stakeholders in the event of a capital shortfall.

Restrictions on Payments

Our payment of dividends to Group Inc. is subject to certain restrictions. In addition to limitations on the payment of dividends imposed by federal and state laws, the FRB and the FDIC have the authority to prohibit or limit the payment of dividends by the banking organizations they supervise if, in their opinion, payment of a dividend would constitute an unsafe or unsound practice in light of the financial condition of the banking organization, pursuant to applicable FRB regulations (the amount of dividends paid should be limited to the lesser of the amounts calculated under a recent earnings test and an undivided profits test). We did not pay a dividend to Group Inc. in either 2019 or 2018. Under the FRB regulations referenced above, we could have declared dividends up to $5.16 billion as of December 2019, and $5.00 billion as of December 2018, to Group Inc.

Capital Planning and Stress Testing Process

As part of capital planning, we project sources and uses of capital given a range of business environments, including stressed conditions. Our stress testing process is designed to identify and measure material risks associated with our business activities, including market risk, credit risk and operational risk, as well as our ability to generate revenues.

Our capital planning process incorporates an internal capital adequacy assessment with the objective of ensuring that we are appropriately capitalized relative to the risks in our businesses. We incorporate stress scenarios into our capital planning process with a goal of holding sufficient capital to ensure we remain adequately capitalized in baseline and stressed conditions.

Our stress tests incorporate our internally designed stress scenarios, including our internally developed severely adverse scenario, and are designed to capture our specific vulnerabilities and risks.

We were not required by our primary regulators to conduct the annual stress test in 2019.

Rating Agency Guidelines

The credit rating agencies assign us long- and short-term issuer ratings, as well as ratings on our long- and short-term bank deposits. They also assign credit ratings to the obligations of Group Inc., which guarantees substantially all of our senior unsecured obligations and deposits outstanding as of December 2019, excluding most CDs and certain notes evidencing senior unsecured debt.

The level and composition of our equity capital are among the many factors considered in determining our credit ratings. Each agency has its own definition of eligible capital and methodology for evaluating capital adequacy, and assessments are generally based on a combination of factors rather than a single calculation. See "Risk Management — Liquidity Risk Management — Credit Ratings" for further information about our credit ratings.

Consolidated Regulatory Capital

We are subject to consolidated regulatory capital requirements and calculate our capital ratios in accordance with the regulatory capital requirements applicable to state member banks, which are based on the FRB's regulations (Capital Framework). Under the Capital Framework, we are an "Advanced approach" banking organization.

The capital requirements calculated in accordance with the Capital Framework include risk-based capital buffers. The risk-based capital buffers, applicable to us for 2019, include the capital conservation buffer of 2.5% and the countercyclical capital buffer, which the FRB has set to zero percent. The countercyclical capital buffer in the future may differ due to additional guidance from our regulators and/or positional changes. See Note 19 to the consolidated financial statements for further information about our risk-based capital ratios and leverage ratios, and the Capital Framework.

Regulatory Matters and Other Developments

Regulatory Matters

See "Regulation" in Part I of this Annual Report for further information about the laws, rules and regulations and proposed laws, rules and regulations that apply to us and our operations. In addition, see Note 19 to the consolidated financial statements for information about our risk-based capital ratios and leverage ratios.

Community Reinvestment Act (CRA). We are subject to the provisions of the CRA. Under the terms of the CRA, we have a continuing and affirmative obligation, consistent with safe and sound operation, to help meet the credit needs of our communities. The regulatory agencies' assessment of our CRA record is made available to the public. We received "Outstanding" CRA ratings from the FRBNY and the NYDFS in their last completed examinations of us in 2015 and 2014, respectively. See "Regulation" in Part I of this Annual Report for further information about the CRA.

Other Developments

Brexit. In March 2017, the U.K. government commenced the formal proceedings to withdraw from the E.U. The E.U. and the U.K. agreed to a withdrawal agreement (the Withdrawal Agreement), which became effective on January 31, 2020. The transition period under the Withdrawal Agreement will last until the end of December 2020 to allow the two sides to negotiate a future trade agreement. During the transition period, the U.K. will be treated as if it were a member state of the E.U. and therefore the existing arrangements between the U.K. and the E.U. will not change. The Withdrawal Agreement provides for the possibility of an extension of the transition period for either one or two more years. However, the U.K. has pledged not to extend the transition period beyond December 31, 2020.

Based upon the existing non-E.U. country equivalence regimes, the E.U. and the U.K. have agreed to complete their assessments of equivalence by the end of June 2020. There is significant uncertainty as to whether the outcome of those assessments will be published before the end of the transition period, and whether U.K. firms can rely upon the availability of equivalence in their post-transition planning. GS Group continues to prepare for a scenario where the U.K. financial services firms will lose access to E.U. markets on December 31, 2020 (a "hard" Brexit) while ensuring it remains flexible and well positioned to allow its clients to benefit from any more favorable scenarios. GS Group's planning also recognizes that after the end of the transition period, GS Group can rely on a degree of continuing access for its U.K. entities pursuant to national cross-border access regimes in certain jurisdictions (for example, based on specific licenses or exemptions).

Replacement of Interbank Offered Rates (IBORs), including LIBOR. Central banks and regulators in a number of major jurisdictions (for example, U.S., U.K., E.U., Switzerland and Japan) have convened working groups to find, and implement the transition to, suitable replacements for IBORs. The U.K. Financial Conduct Authority, which regulates LIBOR, has announced that it will not compel panel banks to contribute to LIBOR after 2021. The E.U. Benchmarks Regulation imposed conditions under which only compliant benchmarks may be used in new contracts after 2021. GS Group has created a program that focuses on achieving an orderly transition from IBORs to alternative risk-free reference rates for us and our clients. As part of this transition, GS Group continues to actively engage with regulators and clients, as well as participate in central bank and sector working groups. In addition, the NYDFS announced on December 23, 2019 that it is requiring its regulated non-depository and depository institutions (including us), insurers, and pension funds to submit plans to address each individual institution's LIBOR cessation and transition risk by March 23, 2020.

Market-led working groups in major jurisdictions, noted above, have already selected their preferred alternative risk-free reference rates and have published and are expected to continue to publish consultations on issues, including methodologies for fallback provisions in contracts and financial instruments linked to IBORs and the development of term structures for alternative risk-free reference rates, which will be critical for financial markets to transition to the use of alternative risk-free reference rates in place of IBORs.

We have exposure to IBORs, including in financial instruments and contracts that mature after 2021. Our exposures arise from securities and loans we hold for investment or in connection with derivatives we enter into to make markets for our clients and hedge our risks. We also have exposure to IBORs in the floating-rate securities and other funding products we issue.

GS Group is seeking to facilitate an orderly transition from IBORs to alternative risk-free reference rates for itself and its clients. Accordingly, GS Group has created a program that focuses on:

- Evaluating and monitoring the impacts across its businesses, including transactions and products;
- Identifying and evaluating the scope of existing financial instruments and contracts that may be affected, and the extent to which those financial instruments and contracts already contain appropriate fallback language or would require amendment, either through bilateral negotiation or using industry-wide tools, such as protocols;
- Enhancements to infrastructure (for example, models and systems) to prepare for a smooth transition to alternative risk-free reference rates;
- Active participation in central bank and sector working groups, including responding to industry consultations; and
- Client education and communication.

As part of this program, GS Group has sought to systematically identify the risks inherent in this transition, including financial risks (for example, earnings volatility under stress due to widening swap spreads and the loss of funding sources as a result of counterparties' reluctance to participate in transitioning their positions) and nonfinancial risks (for example, the inability to negotiate fallbacks with clients and/or counterparties, the potential for disputes relating to the interpretation and implementation of fallback provision and operational impediments to the transition). GS Group is engaged with a range of industry and regulatory working groups (for example, ISDA, the Bank of England's Working Group on Sterling Risk Free Reference Rates and the Federal Reserve's Alternative Reference Rates Committee) and will continue to engage with its clients and counterparties to facilitate an orderly transition to alternative risk-free reference rates.

The markets for alternative risk-free reference rates continue to develop and as they develop we expect to transition to these alternative risk-free reference rates. Where liquidity allows, we have begun this transition. In particular, during 2019 GS Group has:

- Issued debt and deposits linked to the Secured Overnight Financing Rate (SOFR) and Sterling Overnight Index Average (SONIA), as well as preferred stock with the rate reset based on 5-year U.S. Treasury rates.
- Executed SOFR- and SONIA-based derivative contracts to make markets and facilitate client activities.
- Executed transactions in the market to reduce its LIBOR exposures arising from hedges to its fixed-rate debt issuances and replace with alternative risk-free reference rates exposures.

Off-Balance-Sheet Arrangements and Contractual Obligations

Off-Balance-Sheet Arrangements

In the ordinary course of business, we enter into various types of off-balance-sheet arrangements. Our involvement in these arrangements can take many different forms, including:

- Holding interests in special purpose entities such as mortgage-backed and other asset-backed securitization vehicles;
- Providing guarantees, indemnifications, commitments, and representations and warranties; and
- Entering into interest rate, currency, credit and other derivatives, including total return swaps.

We enter into these arrangements primarily in connection with our lending and market-making activities, and securitizations.

The table below presents where information about our various off-balance-sheet arrangements may be found in this Annual Report. In addition, see Note 3 to the consolidated financial statements for information about our consolidation policies.

Off-Balance-Sheet Arrangement	Disclosure in this Annual Report
Variable interests and other obligations, including contingent obligations, arising from variable interests in nonconsolidated variable interest entities (VIEs)	See Note 17 to the consolidated financial statements.
Guarantees and lending and other commitments	See Note 18 to the consolidated financial statements.
Derivatives	See "Risk Management — Credit Risk Management — Credit Exposures — OTC Derivatives" and Notes 4, 5, 7 and 18 to the consolidated financial statements.

Contractual Obligations

We have certain contractual obligations which require us to make future cash payments. These contractual obligations include our time deposits, secured long-term financings, unsecured long-term borrowings and interest payments.

Our obligations to make future cash payments also include our commitments and guarantees related to off-balance-sheet arrangements, which are excluded from the table below. See Note 18 to the consolidated financial statements for further information about such commitments and guarantees.

Due to the uncertainty of the timing and amounts that will ultimately be paid, our liability for unrecognized tax benefits has been excluded from the table below. See Note 22 to the consolidated financial statements for further information about our unrecognized tax benefits.

The table below presents our contractual obligations by type.

	As of December	
$ in millions	**2019**	2018
Time deposits	**$ 30,757**	$ 26,522
Financings and borrowings:		
Secured long-term	**$ –**	$ 632
Unsecured long-term	**$ 6,205**	$ 6,755
Interest payments	**$ 2,361**	$ 2,292

The table below presents our contractual obligations by expiration.

	As of December 2019			
$ in millions	**2020**	**2021 - 2022**	**2023 - 2024**	**2025 - Thereafter**
Time deposits	**$ –**	**$ 16,910**	**$ 10,219**	**$ 3,628**
Financings and borrowings:				
Secured long-term	**$ –**	**$ –**	**$ –**	**$ –**
Unsecured long-term	**$ –**	**$ 1,000**	**$ 2,955**	**$ 2,250**
Interest payments	**$ 703**	**$ 1,112**	**$ 432**	**$ 114**

In the table above:

- Obligations maturing within one year of our financial statement date or redeemable within one year of our financial statement date at the option of the holders are excluded as they are treated as short-term obligations. See Notes 11 and 14 to the consolidated financial statements for further information about our short-term borrowings.
- Obligations that are repayable prior to maturity at our option are reflected at their contractual maturity dates and obligations that are redeemable prior to maturity at the option of the holders are reflected at the earliest dates such options become exercisable.
- Interest payments represents estimated future contractual interest payments related to unsecured long-term borrowings and time deposits based on applicable interest rates as of December 2019.

Risk Management

Risks are inherent in our businesses and include liquidity, market, credit, operational, model, legal, compliance, conduct, regulatory and reputational risks. Our risks include the risks across our risk categories, regions or businesses, as well as those which have uncertain outcomes and have the potential to materially impact our financial results, our liquidity and our reputation. For further information about our risk management processes, see "Overview and Structure of Risk Management" below and for information about our areas of risk, see "Liquidity Risk Management," "Market Risk Management," "Credit Risk Management," "Operational Risk Management" and "Model Risk Management" below and "Risk Factors" in Part I of this Annual Report.

Certain risk management processes as described in the "Liquidity Risk Management," "Market Risk Management," "Credit Risk Management," "Operational Risk Management" and "Model Risk Management" sections below are performed by GS Group at the level of its businesses, products, and revenue producing units which encompass all our activities. These processes are subject to Bank oversight, either pursuant to a Service Level Agreement between us and certain affiliates, or inclusive of Bank activities. All references in the sections below to businesses, products, and revenue-producing units refer to those of GS Group.

Overview and Structure of Risk Management

Overview

We believe that effective risk management is critical to our success. Accordingly, GS Group has established an enterprise risk management framework that employs a comprehensive, integrated approach to risk management, and is designed to enable comprehensive risk management processes to assess, monitor and manage the risks faced by GS Group, including us. Our risk management structure, consistent with GS Group, is built around three core components: governance, processes and people.

Governance. Risk management governance starts with the Board, which both directly and through its committees, including its Risk Committee, oversees the risk management policies and practices implemented through the enterprise risk management framework. The Board Risk Committee is also responsible for the annual review and approval of our risk appetite statement. The risk appetite statement describes the levels and types of risk we are willing to accept or to avoid, in order to achieve our objectives, included in our strategic business objectives, while remaining in compliance with regulatory requirements. The Board reviews our strategic business objectives and is ultimately responsible for overseeing and providing direction about our strategy and risk appetite.

The Board, either directly or through its committees, receives regular briefings on our risks, including liquidity risk, market risk, credit risk, operational risk and model risk from our independent risk oversight and control functions, including our chief risk officer and chief financial officer, on compliance risk and conduct risk from our chief compliance officer, on legal and regulatory matters from our general counsel, and on other matters impacting our reputation from our general counsel. Our chief risk officer reports to our chief executive officer and to the Board Risk Committee. As part of the review of our risk portfolio, our chief risk officer regularly advises the Board Risk Committee of relevant risk metrics and material exposures, including risk limits and thresholds established in our risk appetite statement.

The implementation of risk governance structure and core risk management processes are overseen by Enterprise Risk. We utilize the enterprise risk management framework which provides the Board, our risk committees and senior management with a consistent and integrated approach to managing our various risks in a manner consistent with our risk appetite.

Revenue-producing units, as well as Treasury, Engineering, Human Capital Management, Operations and Services, are considered our first line of defense. They are accountable for the outcomes of our risk-generating activities, as well as for assessing and managing those risks within our risk appetite.

Independent risk oversight and control functions are considered our second line of defense and provide independent assessment, oversight and challenge of the risks taken by our first line of defense, as well as lead and participate in risk committees. Independent risk oversight and control functions include Compliance, Conflicts Resolution, Controllers, Credit Risk, Enterprise Risk, Legal, Liquidity Risk, Market Risk, Model Risk, Operational Risk and Tax.

Internal Audit is considered our third line of defense and is accountable to the Audit Committee of the Board. Internal Audit includes professionals with a broad range of audit and industry experience, including risk management expertise. Internal Audit is responsible for independently assessing and validating the effectiveness of key controls, including those within the risk management framework, and providing timely reporting to the Audit Committee of the Board, senior management and regulators.

The three lines of defense structure promotes the accountability of first line risk takers, provides a framework for effective challenge by the second line and empowers independent review from the third line.

Processes. We maintain various processes that are critical components of our risk management framework, including (i) risk identification and assessment, (ii) risk appetite, limit and threshold setting, (iii) risk reporting and monitoring, and (iv) risk decision-making.

- **Risk Identification and Assessment.** We believe that the identification and assessment of our risks is a critical step in providing our Board and senior management transparency and insight into the range and materiality of our risks. We have a comprehensive data collection process, including policies and procedures that require all employees to report and escalate risk events. Our approach for risk identification and assessment is comprehensive across all risk types, is dynamic and forward-looking to reflect and adapt to our changing risk profile and business environment, leverages subject matter expertise, and allows for prioritization of our most critical risks.

  An important part of our risk management process is stress testing. It allows us to quantify our exposure to tail risks, highlight potential loss concentrations, undertake risk/reward analysis, and assess and mitigate our risk positions. Stress tests are performed on a regular basis and are designed to ensure a comprehensive analysis of our vulnerabilities and idiosyncratic risks combining financial and nonfinancial risks, including, but not limited to, credit, market, liquidity and funding, operational and compliance, strategic, systemic and emerging risks into a single combined scenario. We also perform ad hoc stress tests in anticipation of market events or conditions. Stress tests are also used to assess capital adequacy as part of our capital planning and stress testing process. See "Equity Capital Management and Regulatory Capital — Equity Capital Management" for further information.

- **Risk Appetite, Limit and Threshold Setting.** We apply a rigorous framework of limits and thresholds to control and monitor risk across transactions, products, businesses and markets. Bank-wide limits are set by the Board and its committees, with certain levels set by the Bank Risk and Asset Liability Committee and monitored on a regular basis. Certain limits, other than regulatory and our Board-level limits, may be set at levels that will require periodic adjustment, rather than at levels that reflect our maximum risk appetite. This fosters an ongoing dialogue about risk among our first and second lines of defense, committees, senior management, and the Board, as well as rapid escalation of risk-related matters. Additionally, through delegated authority from the Bank Risk and Asset Liability Committee, Market Risk sets market risk limits at certain product and desk levels. Through delegated authority from the GS Group Risk Governance Committee, and through its Service Level Agreement with us, Credit Risk sets limits for individual counterparties and their subsidiaries, including affiliates, industries and countries. Limits are reviewed frequently and amended, with required approvals, on a permanent and temporary basis, as appropriate, to reflect changing market or business conditions.

- **Risk Reporting and Monitoring.** Effective risk reporting and risk decision-making depends on our ability to get the right information to the right people at the right time. As such, we focus on the rigor and effectiveness of our risk systems, with the objective of ensuring that our risk management technology systems provide us with complete, accurate and timely information. Our risk reporting and monitoring processes are designed to take into account information about both existing and emerging risks, thereby enabling our risk committees and senior management to perform their responsibilities with the appropriate level of insight into risk exposures. Furthermore, our limit and threshold breach processes provide means for timely escalation. We evaluate changes in our risk profile and our businesses, including changes in business mix or jurisdictions in which we operate, by monitoring risk factors at a Bank-wide level.

- **Risk Decision-Making.** Our governance structure provides the protocol and responsibility for decision-making on risk management issues and ensures implementation of those decisions. We make extensive use of our risk committees that meet regularly and serve as an important means to facilitate and foster ongoing discussions to manage and mitigate risks.

  We maintain strong and proactive communication about risk and we have a culture of collaboration in decision-making among our first and second lines of defense, committees and senior management. While our first line of defense is responsible for management of their risk, we dedicate extensive resources to our second line of defense in order to ensure a strong oversight structure and an appropriate segregation of duties. GS Group regularly reinforces its strong culture of escalation and accountability across GS Group subsidiaries and functions, including us.

People. Even the best technology serves only as a tool for helping to make informed decisions in real time about the risks we are taking. Ultimately, effective risk management requires our people to interpret our risk data on an ongoing and timely basis and adjust risk positions accordingly. The experience of the professionals, and their understanding of the nuances and limitations of each risk measure, guides us in assessing exposures and maintaining them within prudent levels.

We reinforce a culture of effective risk management, consistent with our risk appetite, through GS Group's training and development programs, inclusive of us, as well as in the way we evaluate performance, and recognize and reward our people. The training and development programs, including certain sessions led by GS Group's most senior leaders, are focused on the importance of risk management, client relationships and reputational excellence. As part of GS Group's annual performance review process, we assess reputational excellence, including how an employee exercises good risk management and reputational judgment, and adheres to the code of conduct and compliance policies. We are included in GS Group's review and reward processes which are designed to communicate and reinforce to our professionals the link between behavior and how people are recognized, the need to focus on our clients and our reputation, and the need to always act in accordance with the highest standards.

Structure

Ultimate oversight of risk is the responsibility of the Board. The Board oversees risk both directly and through its Audit Committee and its Risk Committee. Our management has established committees for risk oversight and committee membership generally consists of senior managers from both our first and second lines of defense. We have established procedures for these committees to ensure that appropriate information barriers are in place. Our primary risk committees are described below. All chairs of our management-level committees are our employees or dual employees.

We leverage GS Group's firmwide and divisional committees, where appropriate, for advice on certain of our activities. Bank officers, who are members of such committees, understand their responsibility to review any proposed products, transactions or activities and to act in our interest. In addition, both our committees and GS Group's committees have responsibility for considering the impact of transactions and activities on our reputation.

Membership of our risk committees is reviewed regularly and updated to reflect changes in the responsibilities of the committee members. Accordingly, the length of time that members serve on the respective committees varies as determined by the committee chairs and based on the responsibilities of the members.

Our risk management governance structure includes the Board Risk Committee, which has ultimate risk management oversight for us, our key risk-related committees, which are described in further detail below, and the independence of our three lines of defense. We operate as a subsidiary of Group Inc. and, when applicable, we utilize the structure and expertise of GS Group's committees, including its firmwide, divisional and regional committees for risk management, such as the Firmwide Client and Business Standards Committee, Firmwide Risk Committee, Firmwide Enterprise Risk Committee, GS Group's Risk Governance Committee (through delegated authority from the Firmwide Enterprise Risk Committee), the Consumer Lending Credit Policy Committee (CLCPC), the Private Wealth Management Capital Committee (PWMCC), and the Firmwide Capital Committee, and related sub-committees.

The CLCPC supervises consumer credit risk exposures for all unsecured consumer loans, credit card loans, and secured *Goldman Sachs Private Bank Select* (GS Select) loans that are originated by the Bank, and is responsible for establishing the credit risk management underwriting policies and framework for all unsecured consumer lending, credit card lending, and secured GS Select lending. The CLCPC has three control side co-chairs, including two of our deputy chief credit risk officers for consumer lending.

Committee Structure

Our committee structure is described as follows:

Bank Management Committee. The Bank Management Committee oversees our activities, including our risk control functions. It provides this oversight directly and through authority delegated to committees it has established. This committee consists of our most senior leaders, and is chaired by our chief executive officer. The Bank Management Committee is accountable for business standards and practices, including reputational risk management and client services.

The following are the committees that are principally involved in our risk management:

Bank New Activity Committee. The Bank New Activity Committee (BNAC) is responsible for the review and approval of proposed new activities to be conducted in the Bank. In addition, BNAC may review, at its discretion, previously approved activities that are significant and that have changed in complexity and/or structure or present different reputational and suitability concerns over time to consider whether these activities remain appropriate. The review process may utilize the expertise of the Firmwide New Activity Committee and the Regional New Activity Committees.

Bank Risk and Asset Liability Committee. The Bank Risk and Asset Liability Committee, either directly or through its sub-committees, is responsible for the ongoing monitoring and management of our risks, including but not limited to, market risk, credit risk, liquidity and funding risk, foreign currency risk, model risk, legal risk, operational risk, settlement risk and investments risk. The Bank Risk and Asset Liability Committee is also responsible for the ongoing monitoring and management of compliance with minimum regulatory capital ratios; internal capital adequacy assessment processes; balance sheet planning and asset liability management; interest rate risk monitoring and management; and resolution planning. The risk management methodologies of the Bank Risk and Asset Liability Committee and its sub-committees are consistent with those of GS Group's Risk Governance Committee, the Firmwide Asset Liability Committee and the Bank Management Committee, as appropriate.

Liquidity Risk Management

Overview

Liquidity risk is the risk that we will be unable to fund ourselves or meet our liquidity needs in the event of Bank-specific, GS Group, broader industry or market liquidity stress events. We have in place a comprehensive and conservative set of liquidity and funding policies. Our principal objective is to be able to fund ourselves and to enable our core businesses to continue to serve clients and generate revenues, even under adverse circumstances.

Treasury has primary responsibility for developing, managing and executing our liquidity and funding strategy within our risk appetite.

Liquidity Risk, which is independent of the revenue-producing units and Treasury, and reports to our chief risk officer, has primary responsibility for assessing, monitoring and managing our liquidity risk through oversight across our businesses and the establishment of stress testing and limits frameworks. Liquidity Risk fulfills these responsibilities both directly and through use of a Service Level Agreement with GS Group's Liquidity Risk function, which reports to GS Group's chief risk officer. Services provided by GS Group's Liquidity Risk function are subject to our risk management policies for any work it performs for us under a Service Level Agreement.

Liquidity Risk Management Principles

We manage liquidity risk according to three principles: (i) hold sufficient excess liquidity in the form of GCLA to cover outflows during a stressed period, (ii) maintain appropriate Asset-Liability Management and (iii) maintain a viable Contingency Funding Plan.

GCLA. GCLA is liquidity that we maintain to meet a broad range of potential cash outflows and collateral needs in a stressed environment. A primary liquidity principle is to pre-fund our estimated potential cash and collateral needs during a liquidity crisis and hold this liquidity in the form of unencumbered, highly liquid securities and cash. We believe that the securities held in our GCLA would be readily convertible to cash in a matter of days, through liquidation, by entering into repurchase agreements or from maturities of resale agreements, and that this cash would allow us to meet immediate obligations without needing to sell other assets or depend on additional funding from credit-sensitive markets.

Our GCLA reflects the following principles:

- The first days or weeks of a liquidity crisis are the most critical to a company's survival;
- Focus must be maintained on all potential cash and collateral outflows, not just disruptions to financing flows. Liquidity needs are determined by many factors, including market movements, collateral requirements and client commitments, all of which can change dramatically in a difficult funding environment;
- During a liquidity crisis, credit-sensitive funding, including unsecured borrowings, certain deposits and some types of secured financing agreements, may be unavailable, and the terms (e.g., interest rates, collateral provisions and tenor) or availability of other types of secured financing may change and certain deposits may be withdrawn; and
- As a result of our policy to pre-fund liquidity that we estimate may be needed in a crisis, we hold more cash and unencumbered securities and have larger funding balances than we would otherwise require. We believe that our liquidity is stronger with greater balances of cash and highly liquid unencumbered securities, even though it increases our total assets and our funding costs.

Asset-Liability Management. Our liquidity risk management policies are designed to ensure we have a sufficient amount of financing, even when funding markets experience persistent stress. We seek to maintain a diversified funding profile with an appropriate tenor, taking into consideration the characteristics and liquidity profile of our assets and modeled tenor of deposits with no stated maturity.

Our approach to asset-liability management includes:

- Conservatively managing the overall characteristics of our funding book, with a focus on maintaining long-term, diversified sources of funding in excess of our current requirements. See "Balance Sheet and Funding Sources — Funding Sources" for further information;
- Actively managing and monitoring our asset base, with particular focus on the liquidity, holding period and our ability to fund assets on a secured basis. We assess our funding requirements and our ability to liquidate assets in a stressed environment while appropriately managing risk. This enables us to determine the most appropriate funding products and tenors. See "Balance Sheet and Funding Sources — Balance Sheet Management" for further information about our balance sheet management process; and
- Raising deposits and obtaining other secured and unsecured funding sources that have a long contractual or modeled tenor relative to the liquidity profile of our assets. This reduces the risk that our liabilities will come due in advance of our ability to generate liquidity from the sale of our assets.

Our goal is to ensure that we maintain sufficient liquidity to fund our assets and meet our contractual and contingent obligations in normal times, as well as during periods of market stress. Funding plans are reviewed and approved by the Bank Risk and Asset Liability Committee and Firmwide Asset Liability Committee. In a liquidity crisis, we would first use our GCLA in order to avoid reliance on asset sales (other than our GCLA). However, we recognize that orderly asset sales may be prudent or necessary in a severe or persistent liquidity crisis.

Contingency Funding Plan. We maintain a contingency funding plan to provide a framework for analyzing and responding to a liquidity crisis situation or periods of market stress. The contingency funding plan outlines a list of potential risk factors, key reports and metrics that are reviewed on an ongoing basis to assist in assessing the severity of, and managing through, a liquidity crisis and/or market dislocation. The contingency funding plan also describes in detail the potential responses if our assessments indicate that we have entered a liquidity crisis, which include pre-funding for what we estimate will be the potential cash and collateral needs, as well as utilizing secondary sources of liquidity. Mitigants and action items to address specific risks which may arise are also described and assigned to individuals responsible for execution.

The contingency funding plan identifies key groups of individuals and their responsibilities, which include fostering effective coordination, control and distribution of information, implementing liquidity maintenance activities and managing internal and external communication, all of which are critical in the management of a crisis or period of market stress.

Stress Tests

In order to determine the appropriate size of our GCLA, we model liquidity outflows over a range of scenarios and time horizons using one of GS Group's primary internal liquidity risk models, referred to as the Modeled Liquidity Outflow, which quantifies our liquidity risks over a 30-day stress scenario. We also consider other factors, including, but not limited to, an assessment of our potential intraday liquidity needs through an additional internal liquidity risk model, referred to as the Intraday Liquidity Model, the results of GS Group's long-term stress testing models, our resolution liquidity models and other applicable regulatory requirements and a qualitative assessment of GS Group's, inclusive of our, condition, as well as the financial markets. The results of the Modeled Liquidity Outflow, the Intraday Liquidity Model, the long-term stress testing models and the resolution liquidity models are reported to senior management on a regular basis. We also perform Bank-wide stress tests. See "Overview and Structure of Risk Management" for information about stress tests.

Modeled Liquidity Outflow. Our Modeled Liquidity Outflow is based on conducting multiple scenarios that include combinations of market-wide and GS Group specific stress, including those scenarios applicable to us. These scenarios are characterized by the following qualitative elements:

- Severely challenged market environments, including low consumer and corporate confidence, financial and political instability, adverse changes in market values, including potential declines in equity markets and widening of credit spreads; and
- A GS Group-specific crisis potentially triggered by material losses, reputational damage, litigation and/or a ratings downgrade.

The following are key modeling elements of our Modeled Liquidity Outflow:

- Liquidity needs over a 30-day scenario;
- A two-notch downgrade of our and/or Group Inc.'s long-term senior unsecured credit ratings;
- Changing conditions in funding markets, which limit our access to unsecured and secured funding;
- No support from additional government funding facilities. Although we have access to funding through the Federal Reserve Bank discount window, we do not assume reliance on additional sources of funding in a liquidity crisis; and
- A combination of contractual outflows, such as upcoming maturities of unsecured borrowings, and contingent outflows, including but not limited to an increase in variation margin requirements due to adverse changes in the value of our exchange-traded and over-the-counter (OTC) derivatives that are cleared and settled through central counterparties (OTC-cleared) and withdrawals of deposits that have no contractual maturity.

Intraday Liquidity Model. Our Intraday Liquidity Model measures our intraday liquidity needs using a scenario analysis characterized by the same qualitative elements as our Modeled Liquidity Outflow. The model assesses the risk of increased intraday liquidity requirements during a scenario where access to sources of intraday liquidity may become constrained.

Long-Term Stress Testing. We utilize longer-term stress tests to take a forward view on our liquidity position through prolonged stress periods in which we experience a severe liquidity stress and recover in an environment that continues to be challenging. We are focused on ensuring conservative asset-liability management to prepare for a prolonged period of potential stress, seeking to maintain a diversified funding profile with an appropriate tenor, taking into consideration the characteristics and liquidity profile of our assets.

Limits

We use liquidity risk limits at various levels and across liquidity risk types to manage the size of our liquidity exposures. Limits are measured relative to acceptable levels of risk given our liquidity risk tolerance. See "Overview and Structure of Risk Management" for information about the limit approval process.

Limits are monitored by Treasury and Liquidity Risk. Treasury and Liquidity Risk are responsible for identifying and escalating to senior management and/or the appropriate risk committee, on a timely basis, instances where limits have been exceeded.

GCLA Metrics

Based on the results of our internal liquidity risk models, as well as our consideration of other factors including, but not limited to, a qualitative assessment of GS Group's, inclusive of our, condition, as well as the financial markets, we believe our liquidity position as of both December 2019 and December 2018 was appropriate. We strictly limit our GCLA to a narrowly defined list of securities and cash because they are highly liquid, even in a difficult funding environment. We do not include other potential sources of excess liquidity in our GCLA, such as less liquid unencumbered securities or committed credit facilities.

The table below presents information about our GCLA by asset class.

	Average for the Year Ended December	
$ in millions	**2019**	2018
Overnight cash deposits	**$ 35,292**	$ 59,903
U.S. government obligations	**44,036**	13,241
U.S. agency obligations	**7,528**	7,766
Non-U.S. government obligations	**220**	163
Total	**$ 87,076**	$ 81,073

GCLA consists of (i) certain overnight U.S. dollar cash deposits, (ii) unencumbered U.S. government and agency obligations (including highly liquid U.S. agency mortgage-backed obligations), all of which are eligible as collateral in Federal Reserve open market operations and (iii) certain non-U.S. dollar-denominated government obligations.

We maintain our GCLA to enable us to meet current and potential liquidity requirements. Our Modeled Liquidity Outflow and Intraday Liquidity Model incorporate our consolidated requirements. Funding IHC is required to provide the necessary liquidity to Group Inc. during the ordinary course of business, and is also obligated to provide capital and liquidity support to certain major subsidiaries, including us, in the event of GS Group's material financial distress or failure. Liquidity held directly by us is intended for use only by us to meet our liquidity requirements and is assumed not to be available to our affiliates, including Group Inc. or Funding IHC, unless (i) legally provided for and (ii) there are no additional regulatory, tax or other restrictions.

Liquidity Regulatory Framework

We are subject to a minimum Liquidity Coverage Ratio (LCR) under the LCR rule approved by the U.S. federal bank regulatory agencies. The LCR rule requires organizations to maintain an adequate ratio of eligible high-quality liquid assets to expected net cash outflows under an acute short-term liquidity stress scenario. We are required to maintain a minimum LCR of 100%. As of December 2019, our LCR exceeded the minimum requirement.

The U.S. federal bank regulatory agencies have issued a proposed rule that calls for a net stable funding ratio (NSFR) for large U.S. banking organizations. The proposal would require banking organizations to ensure they have access to stable funding over a one-year time horizon. The U.S. federal bank regulatory agencies have not released the final rule. We expect that we will be compliant with the NSFR requirement when it is effective.

The implementation of these rules and any amendments adopted by the regulatory authorities, could impact our liquidity and funding requirements and practices in the future.

Credit Ratings

Credit ratings are important when we are competing in certain markets, such as OTC derivatives, and when we seek to engage in longer-term transactions. See "Risk Factors" in Part I of this Annual Report for information about the risks associated with a reduction in our credit ratings.

The table below presents our unsecured credit ratings and outlook by Fitch, Inc. (Fitch), Moody's Investors Service (Moody's), and Standard & Poor's Ratings Services (S&P).

	As of December 2019		
	Fitch	**Moody's**	**S&P**
Short-term debt	**F1**	**P-1**	**A-1**
Long-term debt	**A+**	**A1**	**A+**
Short-term bank deposits	**F1+**	**P-1**	**N/A**
Long-term bank deposits	**AA-**	**A1**	**N/A**
Ratings outlook	**Stable**	**Stable**	**Stable**

We believe our credit ratings are primarily based on the credit rating agencies' assessment of:

- Our status within GS Group and likelihood of GS Group support;
- Our liquidity, market, credit and operational risk management practices;
- The level and variability of our earnings;
- Our capital base;
- Our primary businesses, reputation and management;
- Our corporate governance; and
- The external operating and economic environment, including, in some cases, the assumed level of government support or other systemic considerations, such as potential resolution.

Certain of our derivatives have been transacted under bilateral agreements with counterparties who may require us to post collateral or terminate the transactions based on changes in our and/or Group Inc.'s credit ratings. We manage our GCLA to ensure we would, among other potential requirements, be able to make the additional collateral or termination payments that may be required in the event of a two-notch reduction in our and/or Group Inc.'s long-term credit ratings, as well as collateral that has not been called by counterparties, but is available to them.

See Note 7 to the consolidated financial statements for further information about derivatives with credit-related contingent features and the additional collateral or termination payments related to our net derivative liabilities under bilateral agreements that could have been called by counterparties in the event of a one- or two-notch downgrade in our and/or Group Inc.'s credit ratings.

Cash Flows

Our cash flows are complex and bear little relation to our net earnings and net assets. Consequently, we believe that traditional cash flow analysis is less meaningful in evaluating our liquidity position than the liquidity and asset-liability management policies described above. Cash flow analysis may, however, be helpful in highlighting certain macro trends and strategic initiatives in our businesses.

Year Ended December 2019. Our cash increased by $22.18 billion to $52.80 billion at the end of 2019, primarily due to net cash provided by financing activities and operating activities, partially offset by net cash used for investing activities. The net cash provided by financing activities primarily reflected increases in consumer and institutional deposits. The net cash provided by operating activities primarily reflected cash provided by collateralized transactions (a decrease in collateralized agreements and an increase in collateralized financings) as a result of our and our clients' activities and a decrease in net customer and other receivables and payables, partially offset by an increase in trading assets. The net cash used for investing activities primarily reflected purchases of investments and an increase in loans.

Year Ended December 2018. Our cash decreased by $20.91 billion to $30.62 billion at the end of 2018, primarily due to net cash used for operating activities and investing activities, partially offset by net cash provided by financing activities. The net cash used for operating activities primarily reflected increases in collateralized agreements and trading assets. The net cash used for investing activities primarily reflected an increase in loans. The net cash provided by financing activities primarily reflected an increase in deposits.

Market Risk Management

Overview

Market risk is the risk of loss in the value of our positions, investments, loans and other financial assets and liabilities, due to changes in market conditions. We hold such positions primarily for market making for our clients and for our investing and financing activities, and therefore, these positions change based on client demands and our investment opportunities. We employ a variety of risk measures, each described in the respective sections below, to monitor market risk.

Categories of market risk include the following:

- Interest rate risk: results from exposures to changes in the level, slope and curvature of yield curves, the volatilities of interest rates, prepayment speeds and credit spreads; and
- Currency rate risk: results from exposures to changes in spot prices, forward prices and volatilities of currency rates.

Market Risk, which is independent of the revenue-producing units and reports to our chief risk officer, has primary responsibility for assessing, monitoring and managing our market risk through oversight across our businesses. Market Risk fulfills these responsibilities both directly and through use of a Service Level Agreement with GS Group's Market Risk function, which reports to GS Group's chief risk officer. Services provided by GS Group's Market Risk function are subject to our risk management policies for any work it performs for us under a Service Level Agreement.

Managers in revenue-producing units and Market Risk discuss market information, positions and estimated loss scenarios on an ongoing basis. Managers in revenue-producing units are accountable for managing risk within prescribed limits. These managers have in-depth knowledge of their positions, markets and the instruments available to hedge their exposures.

Market Risk Management Process

Our process for managing market risk includes the critical components of our risk management framework described in the "Overview and Structure of Risk Management," as well as the following:

- Monitoring compliance with established market risk limits and reporting our exposures;
- Diversifying exposures;
- Controlling position sizes; and
- Evaluating mitigants, such as economic hedges in related securities or derivatives.

Our market risk management systems enable us to perform an independent calculation of Value-at-Risk (VaR) and stress measures, capture risk measures at individual position levels, attribute risk measures to individual risk factors of each position, report many different views of the risk measures (e.g., by desk, business or product type), and produce ad hoc analyses in a timely manner.

Risk Measures

We produce risk measures and monitor them against established market risk limits. These measures reflect an extensive range of scenarios and the results are aggregated at product, business and Bank levels.

We use a variety of risk measures to estimate the size of potential losses for both moderate and more extreme market moves over both short and long-term time horizons. Our primary risk measures are VaR, which is used for shorter-term periods, and stress tests. Risk reports detail key risks, drivers and changes for each desk and business, and are distributed daily to senior management of both the revenue-producing units and the independent risk oversight and control functions.

Value-at-Risk. VaR is the potential loss in value due to adverse market movements over a defined time horizon with a specified confidence level. We typically employ a one-day time horizon with a 95% confidence level. We use a single VaR model, which captures risks including interest rates, currency rates and equity prices. As such, VaR facilitates comparison across portfolios of different risk characteristics. VaR also captures the diversification of aggregated risk at the Bank level.

We are aware of the inherent limitations to VaR and therefore use a variety of risk measures in our market risk management process. Inherent limitations to VaR include:

- VaR does not estimate potential losses over longer time horizons where moves may be extreme;
- VaR does not take account of the relative liquidity of different risk positions; and
- Previous moves in market risk factors may not produce accurate predictions of all future market moves.

To comprehensively capture our exposures and relevant risks in our VaR calculation, we use historical simulations with full valuation of market factors at the position level by simultaneously shocking the relevant market factors for that position. These market factors include spot prices, credit spreads, funding spreads, yield curves, volatility and correlation, and are updated periodically based on changes in the composition of positions, as well as variations in market conditions. We sample from five years of historical data to generate the scenarios for our VaR calculation. The historical data is weighted so that the relative importance of the data reduces over time. This gives greater importance to more recent observations and reflects current asset volatilities, which improves the accuracy of our estimates of potential loss. As a result, even if our positions included in VaR were unchanged, our VaR would increase with increasing market volatility and vice versa.

Given its reliance on historical data, VaR is most effective in estimating risk exposures in markets in which there are no sudden fundamental changes or shifts in market conditions.

Our VaR measure does not include:

- Positions that are best measured and monitored using sensitivity measures; and
- The impact of changes in counterparty and our own credit spreads on derivatives, as well as changes in our own credit spreads on financial liabilities for which the fair value option was elected.

We perform daily backtesting of the VaR model (i.e., comparing daily net revenues for positions included in VaR to the VaR measure calculated as of the prior business day) at the Bank and business level.

Stress Testing. Stress testing is a method of determining the effect of various hypothetical stress scenarios. We use stress testing to examine risks of specific portfolios, as well as the potential impact of our significant risk exposures. We use a variety of stress testing techniques to calculate the potential loss from a wide range of market moves on our portfolios, including sensitivity analysis and scenario analysis. The results of our various stress tests are analyzed together for risk management purposes. See "Overview and Structure of Risk Management" for information about Bank-wide stress tests.

Sensitivity analysis is used to quantify the impact of a market move in a single risk factor across all positions (e.g., equity prices or credit spreads) using a variety of defined market shocks, ranging from those that could be expected over a one-day time horizon up to those that could take many months to occur. We also use sensitivity analysis to quantify the impact of the default of any single entity, which captures the risk of large or concentrated exposures.

Scenario analysis is used to quantify the impact of a specified event, including how the event impacts multiple risk factors simultaneously. When conducting scenario analysis, we often consider a number of possible outcomes for each scenario, ranging from moderate to severely adverse market impacts. In addition, these stress tests are constructed using both historical events and forward-looking hypothetical scenarios.

Unlike VaR measures, which have an implied probability because they are calculated at a specified confidence level, there may not be an implied probability that our stress testing scenarios will occur. Instead, stress testing is used to model both moderate and more extreme moves in underlying market factors. When estimating potential loss, we generally assume that our positions cannot be reduced or hedged (although experience demonstrates that we are generally able to do so).

Limits

We use market risk limits at various levels to manage the size of our market exposures. These limits are set based on VaR and on a range of stress tests relevant to our exposures. See "Overview and Structure of Risk Management" for information about the limit approval process.

Market Risk is responsible for monitoring these limits, and identifying and escalating, to senior management and/or the appropriate risk committee, on a timely basis, instances where limits have been exceeded (e.g., due to positional changes or changes in market conditions, such as increased volatilities or changes in correlations). Such instances are remediated by an exposure reduction and/or a temporary or permanent increase to the limit.

Metrics

We analyze VaR at the Bank level and a variety of more detailed levels, including by risk category, business and region. Diversification effect in the tables below represents the difference between total VaR and the sum of the VaRs for the two risk categories. This effect arises because the two market risk categories are not perfectly correlated.

The table below presents our average daily VaR.

	Year Ended December	
$ in millions	**2019**	2018
Categories		
Interest rates	**$ 27**	$ 19
Currency rates	**4**	4
Diversification effect	**(4)**	(4)
Total	**$ 27**	$ 19

Our average daily VaR increased to $27 million in 2019 from $19 million in 2018, due to an increase in the interest rates category. The overall increase was primarily due to higher levels of volatility.

The table below presents our period-end VaR.

	As of December	
$ in millions	**2019**	2018
Categories		
Interest rates	**$ 25**	$ 20
Currency rates	**4**	4
Diversification effect	**(4)**	(5)
Total	**$ 25**	$ 19

Our period-end VaR increased to $25 million as of December 2019 from $19 million as of December 2018, due to an increase in the interest rates category. The overall increase was primarily due to higher levels of volatility.

During 2019, our total VaR limit was not exceeded. Our total VaR limit was raised on one occasion to facilitate anticipated client transactions. During 2018, our total VaR risk limit was not exceeded, raised or reduced.

The table below presents our high and low VaR.

	Year Ended December 2019		Year Ended December 2018	
$ in millions	**High**	**Low**	High	Low
Categories				
Interest rates	**$ 46**	**$ 19**	$ 28	$ 15
Currency rates	**$ 25**	**$ 2**	$ 8	$ 2
Bank				
VaR	**$ 46**	**$ 17**	$ 27	$ 14

Sensitivity Measures

Certain portfolios and individual positions are not included in VaR because VaR is not the most appropriate risk measure. Other sensitivity measures we use to analyze market risk are described below.

10% Sensitivity Measures. The table below presents our market risk by asset category for positions accounted for at fair value that are not included in VaR.

	As of December	
$ in millions	**2019**	2018
Debt	**$ 865**	$ 763
Equity	**7**	35
Total	**$ 872**	$ 798

In the table above:

- The market risk of these positions is determined by estimating the potential reduction in net revenues of a 10% decline in the value of these positions.
- Equity positions relate to investments in qualified affordable housing projects.
- Debt positions include loans backed by commercial and residential real estate, corporate bank loans and other corporate debt.
- Funded equity and debt positions are included in our consolidated balance sheets in investments and loans. See Note 8 to the consolidated financial statements for further information about investments and Note 9 to the consolidated financial statements for further information about loans.
- These measures do not reflect the diversification effect across asset categories or across other market risk measures.

Interest Rate Sensitivity. Loans accounted for at amortized cost were $66.37 billion as of December 2019 and $61.73 billion as of December 2018, substantially all of which had floating interest rates. The estimated sensitivity to a 100 basis point increase in interest rates on such loans was $522 million as of December 2019 and $481 million as of December 2018, of additional interest income over a twelve-month period, which does not take into account the potential impact of an increase in costs to fund such loans. In addition, we manage our exposure to structural interest rate risk generated by our net asset-liability position, which is primarily a function of our fixed rate term deposits and non-maturity deposits. See Note 9 to the consolidated financial statements for further information about loans that are held for investment and Note 13 for further information about deposits.

Other Market Risk Considerations

As of both December 2019 and December 2018, we had commitments and held loans for which we, and our affiliates, have obtained credit loss protection from Sumitomo Mitsui Financial Group, Inc. See Note 18 to the consolidated financial statements for further information about such lending commitments.

In addition, we make investments in securities that are accounted for as available-for-sale or held-to-maturity and included in investments in the consolidated balance sheets. See Note 8 to the consolidated financial statements for further information.

Credit Risk Management

Overview

Credit risk represents the potential for loss due to the default or deterioration in credit quality of a counterparty (e.g., an OTC derivatives counterparty or a borrower) or an issuer of securities or other instruments we hold. Our exposure to credit risk comes mostly from client transactions in loans and lending commitments and OTC derivatives. Credit risk also comes from cash placed with banks, securities financing transactions (resale agreements and securities sold under agreements to repurchase (repurchase agreements)) and customer and other receivables.

Credit Risk, which is independent of the revenue-producing units and reports to our chief risk officer, has primary responsibility for assessing, monitoring and managing our credit risk through oversight across our businesses. Credit Risk fulfills these responsibilities both directly and through use of a Service Level Agreement with GS Group's Credit Risk function, which reports to GS Group's chief risk officer. Services provided by GS Group's Credit Risk function are subject to our risk management policies for any work it performs for us under a Service Level Agreement.

In addition to Credit Risk approval, all committed loans that are in excess of defined thresholds must also be approved by a Bank risk officer. The Bank Risk and Asset Liability Committee approves our credit policies. In addition, we hold other positions that give rise to credit risk (e.g., bonds and secondary bank loans). These credit risks are captured as a component of market risk measures, which are monitored and managed by Market Risk. We also enter into derivatives to manage market risk exposures. Such derivatives also give rise to credit risk, which is monitored and managed by Credit Risk.

Credit Risk Management Process

Our process for managing credit risk includes the critical components of our risk management framework described in the "Overview and Structure of Risk Management," as well as the following:

- Monitoring compliance with established credit risk limits and reporting our credit exposures and credit concentrations;
- Establishing or approving underwriting standards;
- Assessing the likelihood that a counterparty will default on its payment obligations;
- Measuring our current and potential credit exposure and losses resulting from a counterparty default;
- Using credit risk mitigants, including collateral and hedging; and
- Maximizing recovery through active workout and restructuring of claims.

Credit Risk also performs credit reviews, which include initial and ongoing analyses of our counterparties. We employ well-defined underwriting standards and policies, which seek to mitigate credit risk through analysis of a borrower's credit history, financial information, cash flow, sustainability of liquidity and collateral quality adequacy, if applicable. For substantially all of our credit exposures, the core of our process is an annual counterparty credit review. A credit review is an independent analysis of the capacity and willingness of a counterparty to meet its financial obligations, resulting in an internal credit rating. The determination of internal credit ratings also incorporates assumptions with respect to the nature of and outlook for the counterparty's industry, and the economic environment. Senior personnel, with expertise in specific industries, inspect and approve credit reviews and internal credit ratings.

Our risk assessment process may also include, where applicable, reviewing certain key metrics, including but not limited to delinquency status, collateral values, FICO credit scores and other risk factors.

GS Group's credit risk management systems capture credit exposure to individual counterparties and on an aggregate basis to counterparties and their subsidiaries. These systems also provide management with comprehensive information about our aggregate credit risk by product, internal credit rating, industry, country and region.

Risk Measures

We measure our credit risk based on the potential loss in the event of non-payment by a counterparty using current and potential exposure. For loans and lending commitments, the primary measure is a function of the notional amount of the position. For derivatives and securities financing transactions, current exposure represents the amount presently owed to us after taking into account applicable netting and collateral arrangements, while potential exposure represents our estimate of the future exposure that could arise over the life of a transaction based on market movements within a specified confidence level. Potential exposure also takes into account netting and collateral arrangements.

Stress Tests

We conduct regular stress tests to calculate the credit exposures, including potential concentrations that would result from applying shocks to counterparty credit ratings or credit risk factors (e.g., currency rates, credit spreads, interest rates, equity prices). These shocks cover a wide range of moderate and more extreme market movements, including shocks to multiple risk factors, consistent with the occurrence of a severe market or economic event. Unlike potential exposure, which is calculated within a specified confidence level, stress testing does not generally assume a probability of these events occurring. We also perform Bank-wide stress tests. See "Overview and Structure of Risk Management" for more information about stress tests.

Limits

We use credit limits at various levels, as well as underwriting standards to control the size and nature of our credit exposures. Limits for industries and countries are based on our risk appetite and are designed to allow for regular monitoring, review, escalation and management of credit risk concentrations. See "Overview and Structure of Risk Management" for information about the limit approval process.

Credit Risk is responsible for monitoring these limits, and identifying and escalating to senior management and/or the appropriate risk committee, on a timely basis, instances where limits have been exceeded.

Risk Mitigants

To reduce our credit exposures on loans and lending commitments, depending on the credit quality of the borrower and other characteristics of the transaction, we employ a variety of potential risk mitigants. Risk mitigants include collateral provisions, guarantees, covenants, structural seniority of the bank loan claims and, for certain lending commitments, provisions in the legal documentation that allow us to adjust loan amounts, pricing, structure and other terms as market conditions change. The type and structure of risk mitigants employed can significantly influence the degree of credit risk involved in a loan or lending commitment.

For derivatives and securities financing transactions, we may enter into netting agreements with counterparties that permit us to offset receivables and payables with such counterparties. We may also reduce credit risk with counterparties by entering into agreements that enable us to obtain collateral from them on an upfront or contingent basis and/or to terminate transactions if the counterparty's credit rating falls below a specified level. We monitor the fair value of the collateral to ensure that our credit exposures are appropriately collateralized. We seek to minimize exposures where there is a significant positive correlation between the creditworthiness of our counterparties and the market value of collateral we receive.

When we do not have sufficient visibility into a counterparty's financial strength or when we believe a counterparty requires support from its parent, we may obtain third-party guarantees of the counterparty's obligations. We may also mitigate our credit risk using credit derivatives or participation agreements.

Credit Exposures

As of December 2019, our aggregate credit exposure increased as compared with December 2018, primarily reflecting increases in cash deposits with the FRBNY and loans and lending commitments. The percentage of our credit exposures arising from non-investment-grade counterparties (based on our internally determined public rating agency equivalents) increased as compared with December 2018, primarily reflecting an increase in non-investment-grade loans and lending commitments. Our credit exposure to counterparties that defaulted during 2019 was higher as compared with our credit exposure to counterparties that defaulted during the prior year, and substantially all of such exposure was related to loans and lending commitments. Our credit exposure to counterparties that defaulted during 2019 remained low, representing less than 0.5% of our total credit exposure. Estimated losses associated with these defaults have been recognized in earnings. Our credit exposures are described further below.

Cash. Our credit exposure on cash arises from our unrestricted cash, and includes both interest-bearing and non-interest-bearing deposits. To mitigate the risk of credit loss, we deposit substantially all of our cash at the FRBNY.

OTC Derivatives. Our credit exposure on OTC derivatives arises primarily from our market-making activities. As a market maker, we enter into derivative transactions to provide liquidity to clients and to facilitate the transfer and hedging of their risks. We also enter into derivatives to manage market risk exposures. We manage our credit exposure on OTC derivatives using the credit risk process, measures, limits and risk mitigants described above.

We generally enter into OTC derivatives transactions under bilateral collateral arrangements that require the daily exchange of collateral. As credit risk is an essential component of fair value, we include a credit valuation adjustment (CVA) in the fair value of derivatives to reflect counterparty credit risk, as described in Note 7 to the consolidated financial statements. CVA is a function of the present value of expected exposure, the probability of counterparty default and the assumed recovery upon default.

The table below presents our net credit exposure from OTC derivatives and the concentration by industry and region.

$ in millions	As of December 2019	2018
OTC derivative assets	**$ 8,195**	$ 7,265
Collateral (not netted under U.S. GAAP)	**(2,269)**	(1,420)
Net credit exposure	**$ 5,926**	$ 5,845
Industry		
Consumer, Retail & Healthcare	**4%**	2%
Diversified Industrials	**7%**	6%
Financial Institutions	**17%**	17%
Funds	**8%**	14%
Municipalities & Nonprofit	**27%**	26%
Natural Resources & Utilities	**14%**	7%
Sovereign	**5%**	10%
Technology, Media & Telecommunications	**12%**	11%
Other (including Special Purpose Vehicles)	**6%**	7%
Total	**100%**	100%
Region		
Americas	**70%**	71%
EMEA	**28%**	27%
Asia	**2%**	2%
Total	**100%**	100%

In the table above:

- OTC derivative assets, included in the consolidated balance sheets, are reported on a net-by-counterparty basis (i.e., the net receivable for a given counterparty) when a legal right of setoff exists under an enforceable netting agreement (counterparty netting) and are accounted for at fair value, net of cash collateral received under enforceable credit support agreements (cash collateral netting).
- Collateral represents cash collateral and the fair value of securities collateral, primarily U.S. and non-U.S. government and agency obligations, received under credit support agreements, that we consider when determining credit risk, but such collateral is not eligible for netting under U.S. GAAP.
- EMEA represents Europe, Middle East and Africa.

The table below presents the distribution of our net credit exposure from OTC derivatives by tenor.

$ in millions	Investment-Grade	Non-Investment-Grade / Unrated	Total
As of December 2019			
Less than 1 year	**$ 5,184**	**$ 224**	**$ 5,408**
1 - 5 years	**8,487**	**819**	**9,306**
Greater than 5 years	**25,465**	**1,426**	**26,891**
Total	**39,136**	**2,469**	**41,605**
Netting	**(35,279)**	**(400)**	**(35,679)**
Net credit exposure	**$ 3,857**	**$ 2,069**	**$ 5,926**
As of December 2018			
Less than 1 year	$ 3,732	$ 416	$ 4,148
1 - 5 years	8,286	357	8,643
Greater than 5 years	22,210	900	23,110
Total	34,228	1,673	35,901
Netting	(29,809)	(247)	(30,056)
Net credit exposure	$ 4,419	$ 1,426	$ 5,845

In the table above:

- Tenor is based on remaining contractual maturity.
- Netting includes counterparty netting across tenor categories and cash and securities collateral that we consider when determining credit risk (including collateral that is not eligible for netting under U.S. GAAP). Counterparty netting within the same tenor category is included within such tenor category.

The tables below present the distribution of our net credit exposure from OTC derivatives by tenor and internally determined public rating agency equivalents.

	Investment-Grade				
$ in millions	AAA	AA	A	BBB	Total
As of December 2019					
Less than 1 year	**$ 55**	**$ 403**	**$ 3,714**	**$ 1,012**	**$ 5,184**
1 - 5 years	**38**	**760**	**5,098**	**2,591**	**8,487**
Greater than 5 years	**554**	**2,674**	**15,726**	**6,511**	**25,465**
Total	**647**	**3,837**	**24,538**	**10,114**	**39,136**
Netting	**(220)**	**(2,851)**	**(22,849)**	**(9,359)**	**(35,279)**
Net credit exposure	**$ 427**	**$ 986**	**$ 1,689**	**$ 755**	**$ 3,857**
As of December 2018					
Less than 1 year	$ 560	$ 717	$ 1,924	$ 531	$ 3,732
1 - 5 years	97	713	4,953	2,523	8,286
Greater than 5 years	444	1,788	14,674	5,304	22,210
Total	1,101	3,218	21,551	8,358	34,228
Netting	(304)	(2,077)	(19,545)	(7,883)	(29,809)
Net credit exposure	$ 797	$ 1,141	$ 2,006	$ 475	$ 4,419

	Non-Investment-Grade / Unrated		
$ in millions	BB or lower	Unrated	Total
As of December 2019			
Less than 1 year	**$ 216**	**$ 8**	**$ 224**
1 - 5 years	**812**	**7**	**819**
Greater than 5 years	**1,409**	**17**	**1,426**
Total	**2,437**	**32**	**2,469**
Netting	**(383)**	**(17)**	**(400)**
Net credit exposure	**$ 2,054**	**$ 15**	**$ 2,069**
As of December 2018			
Less than 1 year	$ 391	$ 25	$ 416
1 - 5 years	354	3	357
Greater than 5 years	891	9	900
Total	1,636	37	1,673
Netting	(246)	(1)	(247)
Net credit exposure	$ 1,390	$ 36	$ 1,426

Lending Activities. We manage our lending activities using the credit risk process, measures, limits and risk mitigants described above. Other lending positions, including secondary trading positions, are risk-managed as a component of market risk.

- **Commercial Lending.** Our commercial lending activities include lending to investment-grade and non-investment-grade corporate borrowers. Loans and lending commitments associated with these activities are principally used for operating and general corporate purposes or in connection with contingent acquisitions. Corporate loans may be secured or unsecured, depending on the loan purpose, the risk profile of the borrower and other factors. Our commercial lending activities also include extending loans to borrowers that are secured by commercial and other real estate.

The table below presents our credit exposure from commercial loans and lending commitments, and the concentration by industry, region and credit quality.

	As of December	
$ in millions	**2019**	2018
Loans and Lending Commitments	**$ 167,320**	$ 157,297
Industry		
Consumer, Retail & Healthcare	**20%**	17%
Diversified Industrials	**14%**	15%
Financial Institutions	**8%**	9%
Funds	**3%**	4%
Natural Resources & Utilities	**17%**	15%
Real Estate	**9%**	9%
Technology, Media & Telecommunications	**15%**	18%
Other (including Special Purpose Vehicles)	**14%**	13%
Total	**100%**	100%
Region		
Americas	**84%**	84%
EMEA	**14%**	14%
Asia	**2%**	2%
Total	**100%**	100%
Credit Quality (Credit Rating Equivalent)		
AAA	**1%**	1%
AA	**5%**	6%
A	**15%**	16%
BBB	**31%**	34%
BB or lower	**48%**	43%
Total	**100%**	100%

- **Wealth Management, Residential Real Estate and Other Lending.** Wealth management loans and lending commitments are extended to private bank clients, substantially all of which are secured by securities, commercial and residential real estate or other assets. The fair value of the collateral received against such loans and lending commitments generally exceeds their carrying value.

  We also have residential real estate and other lending exposures, which include purchased residential real estate and unsecured consumer loans and commitments to purchase such loans and securities.

  The table below presents our credit exposure from wealth management, residential real estate and other lending, and the concentration by region. Loans extended to private bank clients and loans originated through GS Select are included in wealth management loans.

$ in millions	Wealth Management	Residential Real Estate and Other
As of December 2019		
Credit Exposure	**$ 27,439**	**$ 5,483**
Americas	**99%**	**100%**
EMEA	**1%**	–
Total	**100%**	**100%**
As of December 2018		
Credit Exposure	$ 24,662	$ 4,282
Americas	99%	100%
EMEA	1%	**–**
Total	100%	100%

- **Consumer and Credit Card Lending.** We originate unsecured consumer and credit card loans.

The table below presents our credit exposure from originated unsecured consumer loans and the concentration by the five most concentrated U.S. states.

$ in millions	Consumer
As of December 2019	
Credit Exposure	**$ 4,747**
California	**12%**
Texas	**9%**
New York	**7%**
Florida	**7%**
Illinois	**4%**
Other	**61%**
Total	**100%**
As of December 2018	
Credit Exposure	$ 4,536
California	12%
Texas	9%
New York	7%
Florida	7%
Illinois	4%
Other	61%
Total	100%

The table below presents our credit exposure from originated credit card loans and the concentration by the five most concentrated U.S. states.

$ in millions	Credit Card
As of December 2019	
Credit Exposure	**$ 1,858**
California	**21%**
Texas	**9%**
New York	**8%**
Florida	**8%**
Illinois	**4%**
Other	**50%**
Total	**100%**

See Note 9 to the consolidated financial statements for further information about the credit quality indicators of consumer loans.

Securities Financing Transactions. We enter into securities financing transactions in order to, among other things, facilitate client activities, invest excess cash, acquire securities to cover short positions and finance certain activities. We bear credit risk related to resale agreements only to the extent that cash advanced or the value of securities pledged or delivered to the counterparty exceeds the value of the collateral received. We also have credit exposure on repurchase agreements to the extent that the value of securities pledged or delivered to the counterparty for these transactions exceeds the amount of cash or collateral received. Securities collateral obtained for securities financing transactions primarily includes U.S. government and agency obligations. We had credit exposure related to securities financing transactions of $175 million as of December 2019 and $1.07 billion as of December 2018, reflecting both netting agreements and collateral that we consider when determining credit risk.

Other Credit Exposures. We are exposed to credit risk from our customer and other receivables. These receivables primarily consist of initial cash margin placed with clearing organizations and receivables related to sales of loans which have traded, but not yet settled. These receivables generally have minimal credit risk due to the low probability of clearing organization default and the short-term nature of receivables related to loan settlements.

The table below presents our other credit exposures and the concentration by industry, region and credit quality.

	As of December	
$ in millions	**2019**	2018
Other Credit Exposures	**$ 4,351**	$ 4,929
Industry		
Financial Institutions	**96%**	96%
Funds	**2%**	2%
Other (including Special Purpose Vehicles)	**2%**	2%
Total	**100%**	100%
Region		
Americas	**6%**	5%
EMEA	**94%**	94%
Asia	**–**	1%
Total	**100%**	100%
Credit Quality (Credit Rating Equivalent)		
AAA	**1%**	1%
AA	**94%**	94%
A	**3%**	3%
BBB	**1%**	1%
BB or lower	**1%**	1%
Total	**100%**	100%

The table above reflects collateral that we consider when determining credit risk.

Operational Risk Management

Overview

Operational risk is the risk of an adverse outcome resulting from inadequate or failed internal processes, people, systems or from external events. Our exposure to operational risk arises from routine processing errors, as well as extraordinary incidents, such as major systems failures or legal and regulatory matters.

Potential types of loss events related to internal and external operational risk include:

- Clients, products and business practices;
- Execution, delivery and process management;
- Business disruption and system failures;
- Employment practices and workplace safety;
- Damage to physical assets;
- Internal fraud; and
- External fraud.

Operational Risk, which is independent of the revenue-producing units and reports to our chief risk officer, has primary responsibility for development and implementation of our framework for assessing, monitoring and managing operational risk through oversight across our businesses. Operational Risk fulfills these responsibilities both directly and through use of a Service Level Agreement with GS Group's Operational Risk function, which reports to GS Group's chief risk officer. Services provided by GS Group's Operational Risk function are subject to our risk management policies for any work it performs for us under a Service Level Agreement.

Operational Risk Management Process

Our process for managing operational risk includes the critical components of our risk management framework described in the "Overview and Structure of Risk Management" as well as a comprehensive data collection process, which is in line with GS Group's policies and procedures, for operational risk events.

We combine top-down and bottom-up approaches to manage and measure operational risk. From a top-down perspective, senior management assesses Bank and business-level operational risk profiles. From a bottom-up perspective, our first and second lines of defense are responsible for risk identification and risk management on a day-to-day basis, including escalating operational risks to senior management.

Our operational risk management framework is in part designed to comply with the operational risk measurement rules under the Capital Framework and has evolved based on the changing needs of our businesses and regulatory guidance.

We expanded our existing risk management platform and controls to incorporate the additional employees, vendors, technology, call center and compliance controls, including the expansion of fraud prevention, anti-money laundering and consumer compliance considerations, related to the growing number of consumers as a result of new business initiatives.

We adhere to GS Group's policies that require all employees to report and escalate operational risk events. When operational risk events are identified, the policies require that the events be documented and analyzed to determine whether changes are required in our systems and/or processes to further mitigate the risk of future events.

We use operational risk management applications to capture and organize operational risk event data and key metrics. One of GS Group's key risk identification and assessment tools is an operational risk and control self-assessment process, which is performed by GS Group's managers. This process consists of the identification and rating of operational risks, on a forward-looking basis, and the related controls. The results from this process are analyzed to evaluate operational risk exposures and identify businesses, activities or products with heightened levels of operational risk.

Risk Measurement

We measure our operational risk exposure using both statistical modeling and scenario analyses, which involve qualitative and quantitative assessments of internal and external operational risk event data and internal control factors for each of our businesses. Operational risk measurement also incorporates an assessment of business environment factors, including:

- Evaluations of the complexity of business activities;
- The degree of automation in processes;
- New activity information;
- The legal and regulatory environment; and
- Changes in the markets for our products and services, including the diversity and sophistication of our customers and counterparties.

The results from these scenario analyses are used to monitor changes in operational risk and to determine business lines that may have heightened exposure to operational risk. These analyses are used in the determination of the appropriate level of operational risk capital to hold. We also perform Bank-wide stress tests. See "Overview and Structure of Risk Management" for information about stress tests.

Types of Operational Risks

Increased reliance on technology and third-party relationships has resulted in increased operational risks, such as information and cyber security risk, third-party risk and business resilience risk. We manage those risks as follows:

Information and Cyber Security Risk. Information and cyber security risk is the risk of compromising the confidentiality, integrity or availability of our data and systems, leading to an adverse impact to us, our reputation, our clients and/or the broader financial system. We seek to minimize the occurrence and impact of unauthorized access, disruption or use of information and/or information systems. We deploy and operate preventive and detective controls and processes to mitigate emerging and evolving information security and cyber security threats, including monitoring our network for known vulnerabilities and signs of unauthorized attempts to access our data and systems. There is increased information risk through diversification of our data across external service providers, including use of a variety of cloud-provided or -hosted services and applications. See "Risk Factors" in Part I of this Annual Report for further information about information and cyber security risk.

Third-Party Risk. Third-party risk, including vendor risk, is the risk of an adverse impact due to reliance on third parties performing services or activities on our behalf. These risks may include legal, regulatory, information security, reputational, operational or any other risks inherent in engaging a third party. We identify, manage and report key third-party risks and conduct due diligence across multiple risk domains, including information security and cyber security, resilience and additional third-party dependencies. The Third-Party Risk Program monitors, reviews and reassesses third-party risks on an ongoing basis. See "Risk Factors" in Part I of this Annual Report for further information about third-party risk.

Business Resilience Risk. Business resilience risk is the risk of disruption to our critical processes. We monitor threats and assess risks and seek to ensure our state of readiness in the event of a significant operational disruption to the normal operations of our critical functions or their dependencies, such as, critical facilities, systems, third parties, data and/or personnel. We approach business continuity planning (BCP) through the lens of business and operational resilience. The resilience framework defines the fundamental principles for BCP and crisis management to ensure that critical functions can continue to operate in the event of a disruption. The business continuity program is comprehensive, consistent firmwide and up-to-date, incorporating new information, techniques and technologies as and when they become available, and our resilience recovery plans incorporate and test specific and measurable recovery time objectives in accordance with local market best practices and regulatory requirements, and under specific scenarios.

Model Risk Management

Overview

Model risk is the potential for adverse consequences from decisions made based on model outputs that may be incorrect or used inappropriately. We rely on quantitative models across our business activities primarily to value certain financial assets and liabilities, to monitor and manage our risk, and to measure and monitor our regulatory capital.

Our model risk management framework for managing model risk is consistent with and part of GS Group's framework. GS Group's model risk management framework is managed through a governance structure and risk management controls, which encompass standards designed to ensure we maintain a comprehensive model inventory, including risk assessment and classification, sound model development practices, independent review and model-specific usage controls. The GS Group Firmwide Model Risk Control Committee oversees our model risk management framework.

Model Risk, which is independent of the revenue-producing units, model developers, model owners and model users, and reports to our chief risk officer, has primary responsibility for assessing, monitoring and managing our model risk through oversight across our businesses. Model Risk fulfills these responsibilities both directly and through use of a Service Level Agreement with GS Group's Model Risk function, which reports to GS Group's chief risk officer. Services provided by GS Group's Model Risk function are subject to our risk management policies for any work it performs for us under a Service Level Agreement.

Model Review and Validation Process

Model Risk consists of quantitative professionals who perform an independent review, validation and approval of our models. This review includes an analysis of the model documentation, independent testing, an assessment of the appropriateness of the methodology used, and verification of compliance with model development and implementation standards.

We regularly refine and enhance our models to reflect changes in market or economic conditions and our business mix. All models are reviewed on an annual basis, and new models or significant changes to existing models and their assumptions are approved prior to implementation.

The model validation process incorporates a review of models and trade and risk parameters across a broad range of scenarios (including extreme conditions) in order to critically evaluate and verify:

- The model's conceptual soundness, including the reasonableness of model assumptions, and suitability for intended use;
- The testing strategy utilized by the model developers to ensure that the models function as intended;
- The suitability of the calculation techniques incorporated in the model;
- The model's accuracy in reflecting the characteristics of the related product and its significant risks;
- The model's consistency with models for similar products; and
- The model's sensitivity to input parameters and assumptions.

See "Critical Accounting Policies — Fair Value — Review of Valuation Models," "Liquidity Risk Management," "Market Risk Management," "Credit Risk Management" and "Operational Risk Management" for further information about our use of models within these areas.

200 West Street | New York, NY 10282-2198

Goldman Sachs

March 9, 2020

To the Federal Deposit Insurance Corporation, Federal Reserve Bank of New York, New York State Department of Financial Services and the Audit Committee of the Board of Directors of Goldman Sachs Bank USA (the "Bank"):

Management's Assessment of Internal Control over Financial Reporting

The management of the Bank is responsible for (i) preparing the Bank's annual financial statements in accordance with generally accepted accounting principles, and (ii) establishing and maintaining an adequate internal control structure and procedures for financial reporting, including controls over the preparation of regulatory financial statements in accordance with the instructions for the Call Report.

The Bank's internal control over financial reporting is a process designed under the supervision of the Bank's principal executive and principal financial officers to provide reasonable assurance regarding the reliability of financial reporting and the preparation of reliable financial statements in accordance with U.S. generally accepted accounting principles and the instructions for the Call Report.

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

Because of its inherent limitations, internal control over financial reporting may not prevent, or detect and correct, 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 and procedures may deteriorate.

Management assessed the effectiveness of the Bank's internal control over financial reporting, including controls over the preparation of regulatory financial statements in accordance with U.S. generally accepted accounting principles and the instructions for the Call Report, as of December 31, 2019, based on the framework established in *Internal Control—Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

Based upon its assessment, management has concluded that, as of December 31, 2019, the Bank's internal control over financial reporting, including controls over the preparation of regulatory financial statements in accordance with U.S. generally accepted accounting principles and the instructions for the Call Report, is effective based on the criteria established in Internal Control – Integrated Framework.

The effectiveness of internal control over financial reporting, including controls over the preparation of regulatory financial statements in accordance with the instructions for the Call Report, as of December 31, 2019, has been audited by PricewaterhouseCoopers LLP, an independent public accounting firm, as stated in their report dated March 9, 2020.

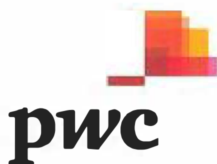
Management's Assessment of Compliance with Designated Laws and Regulations

The management of the Bank is responsible for complying with Federal laws and regulations pertaining to insider loans and Federal and State laws and regulations pertaining to dividend restrictions.

The management of the Bank has assessed the Bank's compliance with the Federal laws and regulations pertaining to insider loans and the Federal and State laws and regulations pertaining to dividend restrictions during the fiscal year that ended on December 31, 2019. Based upon such assessment, management has concluded that the Bank has complied, in all material respects, with the Federal laws and regulations pertaining to insider loans and the Federal and State laws and regulations pertaining to dividend restrictions during the fiscal year that ended on December 31, 2019.

Carey Halio
Chief Executive Officer
Goldman Sachs Bank USA

John Manzi
Chief Financial Officer
Goldman Sachs Bank USA



Report of Independent Auditors

To the Board of Directors and Shareholder of
Goldman Sachs Bank USA:

We have audited the accompanying consolidated financial statements of Goldman Sachs Bank USA and its subsidiaries (the "Bank"), which comprise the consolidated balance sheets as of December 31, 2019 and 2018, and the related consolidated statements of earnings, comprehensive income, changes in shareholder's equity and cash flows for the years then ended. We also have audited the Bank's internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

Management's Responsibility for the Consolidated Financial Statements and Internal Control over Financial Reporting

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of effective internal control over financial reporting relevant to the preparation and fair presentation of the consolidated financial statements that are free from material misstatement, whether due to fraud or error. Management is also responsible for its assessment about the effectiveness of internal control over financial reporting, included in the accompanying management report under the heading "Management's Assessment of Internal Control over Financial Reporting."

Auditors' Responsibility

Our responsibility is to express an opinion on the consolidated financial statements and an opinion on the Bank's internal control over financial reporting based on our audits. We conducted our audits 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 consolidated financial statements are free from material misstatement and whether effective internal control over financial reporting was maintained in all material respects.

An audit of financial statements involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on our judgment, including assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, we consider internal control relevant to the bank's preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances. An audit of financial statements also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

An audit of internal control over financial reporting involves performing procedures to obtain evidence about whether a material weakness exists. The procedures selected depend on our judgment, including assessment of the risk that a material weakness exists. An audit of internal control over financial reporting also involves obtaining an understanding of internal control over financial reporting and testing and evaluating the design and operating effectiveness

PricewaterhouseCoopers LLP, PricewaterhouseCoopers Center, 300 Madison Avenue, New York, NY 10017
T: (646) 471 3000, F: (813) 286 6000, www.pwc.com/us

of internal control over financial reporting based on the assessed risk.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Definition and Inherent Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process effected by those charged with governance, management, and other personnel, designed to provide reasonable assurance regarding the preparation of reliable financial statements in accordance with accounting principles generally accepted in the United States of America. Because management's assessment and our audit were conducted to meet the reporting requirements of Section 112 of the Federal Deposit Insurance Corporation Improvement Act (FDICIA), our audit of the Bank's internal control over financial reporting included controls over the preparation of financial statements in accordance with accounting principles generally accepted in the United States of America and with the Federal Financial Institutions Examination Council Instructions for Consolidated Reports of Condition and Income. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with accounting principles generally accepted in the United States of America, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and those charged with governance; and (iii) provide reasonable assurance regarding prevention, or timely detection and correction, of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent, or detect and correct, misstatements. Also, projections of any assessment 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.

Opinions

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Bank as of December 31, 2019 and 2018, and the results of its operations and its cash flows for the years then ended in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Bank maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Other Matter

We did not perform auditing procedures on "Management's Assessment of Compliance with Designated Laws and Regulations" in the accompanying Management Report, and accordingly, we do not express an opinion or provide any assurance on it.

PricewaterhouseCoopers LLP

New York, New York
March 9, 2020

PART III. Financial Statements and Supplementary Data

Consolidated Statements of Earnings

	Year Ended December	
$ in millions	**2019**	2018
Revenues		
Interest income	**$ 7,552**	$ 5,812
Interest expense	**4,675**	3,065
Net interest income	**2,877**	2,747
Gains and losses from financial assets and liabilities	**2,137**	2,281
Other revenues	**132**	168
Total non-interest revenues	**2,269**	2,449
Total net revenues	**5,146**	5,196
Provision for credit losses	**655**	470
Operating expenses		
Compensation and benefits	**528**	408
Service charges	**522**	506
Professional fees	**263**	181
Market development	**205**	238
Communications and technology	**169**	87
Brokerage, clearing, exchange and distribution fees	**103**	100
Other expenses	**620**	485
Total operating expenses	**2,410**	2,005
Pre-tax earnings	**2,081**	2,721
Provision for taxes	**465**	588
Net earnings	**$ 1,616**	$ 2,133

Consolidated Statements of Comprehensive Income

	Year Ended December	
$ in millions	**2019**	2018
Net earnings	**$ 1,616**	$ 2,133
Other comprehensive income/(loss) adjustments, net of tax:		
Debt valuation adjustment	**(48)**	54
Available-for-sale securities	**45**	(15)
Other comprehensive income/(loss)	**(3)**	39
Comprehensive income	**$ 1,613**	$ 2,172

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

GOLDMAN SACHS BANK USA AND SUBSIDIARIES

Consolidated Balance Sheets

$ in millions, except par value	As of December 2019	2018
Assets		
Cash	**$ 52,800**	$ 30,617
Collateralized agreements:		
Securities purchased under agreements to resell (includes **$4,430** and $36,486 at fair value)	**4,430**	36,525
Customer and other receivables	**8,113**	12,828
Trading assets (at fair value and includes **$14,474** and $2,814 pledged as collateral)	**75,272**	33,501
Investments (includes **$5,977** and $2,797 at fair value, and **$39** and $0 pledged as collateral)	**7,477**	3,295
Loans (includes **$8,732** and $7,964 at fair value)	**78,883**	73,327
Other assets (includes **$26** and $0 at fair value)	**1,860**	1,394
Total assets	**$ 228,835**	$ 191,487
Liabilities and shareholder's equity		
Deposits (includes **$6,304** and $4,868 at fair value)	**$ 168,398**	$ 137,752
Collateralized financings:		
Securities sold under agreements to repurchase (at fair value)	**9,891**	3,815
Other secured financings (includes **$527** and $528 at fair value)	**657**	660
Customer and other payables	**3,711**	4,503
Trading liabilities (at fair value)	**7,957**	8,701
Unsecured borrowings (includes **$32** and $175 at fair value)	**7,258**	6,947
Other liabilities	**1,631**	1,391
Total liabilities	**199,503**	163,769
Commitments, contingencies and guarantees		
Shareholder's equity		
Shareholder's equity (includes common stock, $100 par value; 80,000,000 shares authorized, issued and outstanding)	**29,332**	27,718
Total liabilities and shareholder's equity	**$ 228,835**	$ 191,487

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

GOLDMAN SACHS BANK USA AND SUBSIDIARIES

Consolidated Statements of Changes in Shareholder's Equity

	Year Ended December	
$ in millions	**2019**	2018
Shareholder's equity		
Beginning balance	**$ 27,718**	$ 25,546
Net earnings	**1,616**	2,133
Capital contribution from The Goldman Sachs Group, Inc.	**1**	–
Other comprehensive income/(loss)	**(3)**	39
Ending balance	**$ 29,332**	$ 27,718

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

Consolidated Statements of Cash Flows

	Year Ended December	
$ in millions	**2019**	2018
Cash flows from operating activities		
Net earnings	**$ 1,616**	$ 2,133
Adjustments to reconcile net earnings to net cash provided by/(used for) operating activities:		
Depreciation and amortization	**54**	32
Deferred income taxes	**(63)**	(48)
Share-based compensation	**48**	36
Provision for credit losses	**655**	470
Changes in operating assets and liabilities:		
Customer and other receivables and payables, net	**3,923**	(3,600)
Collateralized transactions (excluding other secured financings), net	**38,171**	(14,446)
Trading assets	**(42,291)**	(10,210)
Trading liabilities	**(744)**	(1,596)
Loans held for sale, net	**(248)**	(873)
Other, net	**518**	(562)
Net cash provided by/(used for) operating activities	**1,639**	(28,664)
Cash flows from investing activities		
Net cash used for business acquisitions	**–**	(78)
Purchase of investments	**(4,364)**	(560)
Proceeds from sales and paydowns of investments	**264**	323
Loans, net (excluding loans held for sale)	**(5,380)**	(13,988)
Net cash used for investing activities	**(9,480)**	(14,303)
Cash flows from financing activities		
Deposits, net	**29,747**	22,221
Unsecured short-term borrowings, net	**(5)**	(2,059)
Other secured financings (short-term), net	**–**	(1,440)
Repayment of other secured financings (long-term), including the current portion	**–**	(1,425)
Proceeds from issuance of unsecured borrowings	**1,000**	4,755
Repayment of unsecured long-term borrowings, including the current portion	**(550)**	–
Derivative contracts with a financing element, net	**(169)**	4
Capital contribution from The Goldman Sachs Group, Inc.	**1**	–
Net cash provided by financing activities	**30,024**	22,056
Net increase/(decrease) in cash	**22,183**	(20,911)
Cash, beginning balance	**30,617**	51,528
Cash, ending balance	**$ 52,800**	$ 30,617
Supplemental disclosures:		
Cash payments for interest	**$ 4,586**	$ 2,916
Cash payments for income taxes, net	**$ 389**	$ 1,128

See Note 16 for information about non-cash activities.

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

Note 1.

Description of Business

Goldman Sachs Bank USA, together with its consolidated subsidiaries (collectively, the Bank), is a New York State-chartered bank and a member of the Federal Reserve System. The Bank is supervised and regulated by the Board of Governors of the Federal Reserve System (FRB), the New York State Department of Financial Services (NYDFS) and the Consumer Financial Protection Bureau (CFPB), and is a member of the Federal Deposit Insurance Corporation (FDIC). The Bank's deposits are insured by the FDIC up to the maximum amount provided by law. The Bank is registered as a swap dealer with the U.S. Commodity Futures Trading Commission (CFTC). The Bank is also a government securities dealer subject to the rules and regulations of the U.S. Department of the Treasury.

The Bank is a wholly-owned subsidiary of The Goldman Sachs Group, Inc. (Group Inc. and, collectively with its consolidated subsidiaries, GS Group). Group Inc. is a bank holding company under the U.S. Bank Holding Company Act of 1956 (BHC Act), a financial holding company under amendments to the BHC Act effected by the U.S. Gramm-Leach-Bliley Act of 1999, and is subject to supervision and examination by the FRB.

The Bank's principal office is located in New York, New York. The Bank operates two domestic branches, which are located in Salt Lake City, Utah and Draper, Utah. Both branches are regulated by the Utah Department of Financial Institutions. The Bank also has a foreign branch in London, United Kingdom, which is regulated by the Financial Conduct Authority and the Prudential Regulation Authority.

The Bank is a financial services provider that engages in banking activities. The Bank is GS Group's primary lending entity, serving corporate and private bank clients, as well as U.S. consumers through the Bank's digital platform, *Marcus by Goldman Sachs* (Marcus), and by issuing credit cards. The Bank is also GS Group's primary deposit-taking entity. The Bank's depositors include private bank clients, U.S. consumers, clients of third-party broker-dealers, institutions, corporations and its affiliates. The Bank's consumer deposit-taking activities are conducted through Marcus. The Bank also provides transaction banking services, which includes deposit taking and payment services. In addition, the Bank enters into interest rate, currency, credit and other derivatives, and transacts in certain related cash products, for the purpose of market making and risk management.

Note 2.

Basis of Presentation

These consolidated financial statements are prepared in accordance with accounting principles generally accepted in the United States (U.S. GAAP) and include the accounts of Goldman Sachs Bank USA and all other entities in which the Bank has a controlling financial interest. Intercompany transactions and balances have been eliminated.

All references to 2019 and 2018 refer to the Bank's years ended, or the dates, as the context requires, December 31, 2019 and December 31, 2018, respectively. Any reference to a future year refers to a year ending on December 31 of that year.

Beginning in the fourth quarter of 2019, the Bank changed its balance sheet presentation to better reflect the nature of the Bank's activities. The primary changes include the elimination of the financial instruments owned and financial instruments sold, but not yet purchased line items, the introduction of new line items for trading assets, trading liabilities and investments, the inclusion of all non-trading loans in the loans line item, reclassifying the related cash flows, where applicable. Investments and loans generally include positions held for longer-term purposes, while trading assets and liabilities generally include positions held for market-making or risk management activities.

Reclassifications have been made to previously reported amounts to conform to the current presentation.

Note 3.

Significant Accounting Policies

The Bank's significant accounting policies include measuring the allowance for credit losses on loans and lending commitments accounted for at amortized cost, when and how to measure the fair value of assets and liabilities, and when to consolidate an entity. See Note 9 for policies on the allowance for credit losses, Note 4 for policies on fair value measurements, and below and Note 17 for policies on consolidation accounting. All other significant accounting policies are either described below or included in the following footnotes:

Fair Value Measurements	Note 4
Trading Assets and Liabilities	Note 5
Trading Cash Instruments	Note 6
Derivatives and Hedging Activities	Note 7
Investments	Note 8
Loans	Note 9
Fair Value Option	Note 10
Collateralized Agreements and Financings	Note 11
Other Assets	Note 12
Deposits	Note 13
Unsecured Borrowings	Note 14
Other Liabilities	Note 15
Securitization Activities	Note 16
Variable Interest Entities	Note 17
Commitments, Contingencies and Guarantees	Note 18
Regulation and Capital Adequacy	Note 19
Transactions with Related Parties	Note 20
Interest Income and Interest Expense	Note 21
Income Taxes	Note 22
Credit Concentrations	Note 23
Legal Proceedings	Note 24
Employee Incentive Plans and Employee Benefit Plans	Note 25

Consolidation

The Bank consolidates entities in which the Bank has a controlling financial interest. The Bank determines whether it has a controlling financial interest in an entity by first evaluating whether the entity is a voting interest entity or a variable interest entity (VIE).

Voting Interest Entities. Voting interest entities are entities in which (i) the total equity investment at risk is sufficient to enable the entity to finance its activities independently and (ii) the equity holders have the power to direct the activities of the entity that most significantly impact its economic performance, the obligation to absorb the losses of the entity and the right to receive the residual returns of the entity. The usual condition for a controlling financial interest in a voting interest entity is ownership of a majority voting interest. If the Bank has a controlling majority voting interest in a voting interest entity, the entity is consolidated.

Variable Interest Entities. A VIE is an entity that lacks one or more of the characteristics of a voting interest entity. The Bank has a controlling financial interest in a VIE when the Bank has a variable interest or interests that provide it with (i) the power to direct the activities of the VIE that most significantly impact the VIE's economic performance and (ii) the obligation to absorb losses of the VIE or the right to receive benefits from the VIE that could potentially be significant to the VIE. See Note 17 for further information about VIEs.

Use of Estimates

Preparation of these consolidated financial statements requires management to make certain estimates and assumptions, the most important of which relate to the allowance for credit losses on loans and lending commitments accounted for at amortized cost, fair value measurements, provisions for losses that may arise from litigation and regulatory proceedings (including governmental investigations), and provisions for losses that may arise from tax audits. These estimates and assumptions are based on the best available information but actual results could be materially different.

Revenue Recognition

Financial Assets and Liabilities at Fair Value. Trading assets and liabilities and certain investments are recorded at fair value either under the fair value option or in accordance with other U.S. GAAP. In addition, the Bank has elected to account for certain of its loans and other financial assets and liabilities at fair value by electing the fair value option. The fair value of a financial instrument is the amount 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. Financial assets are marked to bid prices and financial liabilities are marked to offer prices. Fair value measurements do not include transaction costs. Fair value gains or losses are included in gains and losses from financial assets and liabilities. See Note 4 for further information about fair value measurements. In addition, the Bank recognizes income related to the syndication of loans and lending commitments and other fees from affiliates in gains and losses from financial assets and liabilities.

Transfers of Financial Assets

Transfers of financial assets are accounted for as sales when the Bank has relinquished control over the assets transferred. For transfers of financial assets accounted for as sales, any gains or losses are recognized in gains and losses from financial assets and liabilities. Assets or liabilities that arise from the Bank's continuing involvement with transferred financial assets are initially recognized at fair value. For transfers of financial assets that are not accounted for as sales, the assets are generally included in trading assets or loans and the transfer is accounted for as a collateralized financing, with the related interest expense recognized over the life of the transaction. See Note 11 for further information about transfers of financial assets accounted for as collateralized financings and Note 16 for further information about transfers of financial assets accounted for as sales.

Cash

Cash included cash and due from banks of $636 million as of December 2019 and $382 million as of December 2018. Cash also included interest-bearing deposits of $52.16 billion as of December 2019 and $30.23 billion as of December 2018. See Note 20 for further information about cash deposited with an affiliate.

The Bank segregates cash for regulatory and other purposes related to client activity. Cash segregated for regulatory and other purposes was $606 million as of December 2019 and $493 million as of December 2018.

Customer and Other Receivables

Customer and other receivables included receivables from customers and counterparties of $5.07 billion as of December 2019 and $8.06 billion as of December 2018, and receivables from brokers, dealers and clearing organizations of $3.04 billion as of December 2019 and $4.77 billion as of December 2018. Such receivables primarily consist of receivables resulting from unsettled transactions and collateral posted in connection with certain derivative transactions.

Customer and other receivables are accounted for at amortized cost net of estimated uncollectible amounts, which generally approximates fair value. As these receivables are not accounted for at fair value, they are not included in the Bank's fair value hierarchy in Notes 4 through 10. Had these receivables been included in the Bank's fair value hierarchy, substantially all would have been classified in level 2 as of both December 2019 and December 2018. Interest on customer and other receivables is recognized over the life of the transaction and included in interest income.

Customer and Other Payables

Customer and other payables included payables to customers and counterparties of $3.60 billion as of December 2019 and $4.37 billion as of December 2018, and payables to brokers, dealers and clearing organizations of $109 million as of December 2019 and $135 million as of December 2018. Such payables primarily consist of payables resulting from unsettled transactions and collateral received in connection with certain derivative transactions. Customer and other payables are accounted for at cost plus accrued interest, which generally approximates fair value. As these payables are not accounted for at fair value, they are not included in the Bank's fair value hierarchy in Notes 4 through 10. Had these payables been included in the Bank's fair value hierarchy, substantially all would have been classified in level 2 as of both December 2019 and December 2018. Interest on customer and other payables is recognized over the life of the transaction and included in interest expense.

Offsetting Assets and Liabilities

To reduce credit exposures on derivatives and securities financing transactions, the Bank may enter into master netting agreements or similar arrangements (collectively, netting agreements) with counterparties that permit it to offset receivables and payables with such counterparties. A netting agreement is a contract with a counterparty that permits net settlement of multiple transactions with that counterparty, including upon the exercise of termination rights by a non-defaulting party. Upon exercise of such termination rights, all transactions governed by the netting agreement are terminated and a net settlement amount is calculated. In addition, the Bank receives and posts cash and securities collateral with respect to its derivatives and securities financing transactions, subject to the terms of the related credit support agreements or similar arrangements (collectively, credit support agreements). An enforceable credit support agreement grants the non-defaulting party exercising termination rights the right to liquidate the collateral and apply the proceeds to any amounts owed. In order to assess enforceability of the Bank's right of setoff under netting and credit support agreements, the Bank evaluates various factors, including applicable bankruptcy laws, local statutes and regulatory provisions in the jurisdiction of the parties to the agreement.

Derivatives are reported on a net-by-counterparty basis (i.e., the net payable or receivable for derivative assets and liabilities for a given counterparty) in the consolidated balance sheets when a legal right of setoff exists under an enforceable netting agreement. Securities purchased under agreements to resell (resale agreements) and securities sold under agreements to repurchase (repurchase agreements) with the same term and currency are presented on a net-by-counterparty basis in the consolidated balance sheets when such transactions meet certain settlement criteria and are subject to netting agreements.

In the consolidated balance sheets, derivatives are reported net of cash collateral received and posted under enforceable credit support agreements, when transacted under an enforceable netting agreement. In the consolidated balance sheets, resale and repurchase agreements are not reported net of the related cash and securities received or posted as collateral. Certain other receivables and payables with affiliates that meet the criteria of offsetting are reported on a net basis in the consolidated balance sheets. See Note 11 for further information about collateral received and pledged, including rights to deliver or repledge collateral. See Notes 7 and 11 for further information about offsetting assets and liabilities.

Foreign Currency Translation

Assets and liabilities denominated in non-U.S. currencies are translated at rates of exchange prevailing on the date of the consolidated balance sheets and revenues and expenses are translated at average rates of exchange for the period. Foreign currency remeasurement gains or losses on transactions in nonfunctional currencies are recognized in earnings.

Recent Accounting Developments

Revenue from Contracts with Customers (ASC 606). In May 2014, the FASB issued ASU No. 2014-09, "Revenue from Contracts with Customers (Topic 606)." This ASU, as amended, provides comprehensive guidance on the recognition of revenue earned from contracts with customers arising from the transfer of goods and services, guidance on accounting for certain contract costs and new disclosures.

The Bank adopted this ASU in January 2018 under a modified retrospective approach. The ASU had no impact on the Bank's results of operations upon adoption.

As a result of adopting this ASU, the Bank prospectively changed the presentation of certain costs from a net presentation within revenues to a gross basis. Beginning in 2018, this included certain expenses related to loan securitizations which were previously presented in gains and losses from financial assets and liabilities.

Revenues from contracts with clients subject to this ASU were not material for both 2019 and 2018.

Leases (ASC 842). In February 2016, the FASB issued ASU No. 2016-02, "Leases (Topic 842)." This ASU requires that, for leases longer than one year, a lessee recognize in the balance sheet a right-of-use asset, representing the right to use the underlying asset for the lease term, and a lease liability, representing the liability to make lease payments. It also requires that for finance leases, a lessee recognize interest expense on the lease liability, separately from the amortization of the right-of-use asset in the statements of earnings, while for operating leases, such amounts should be recognized as a combined expense. In addition, this ASU requires expanded disclosures about the nature and terms of lease agreements.

The Bank adopted this ASU in January 2019 under a modified retrospective approach. Upon adoption, in accordance with the ASU, the Bank elected to not reassess the lease classification or initial direct costs of existing leases, and to not reassess whether existing contracts contain a lease. In addition, the Bank has elected to account for each contract's lease and non-lease components as a single lease component. Adoption of this ASU had no impact on the Bank's consolidated balance sheet.

Measurement of Credit Losses on Financial Instruments (ASC 326). In June 2016, the FASB issued ASU No. 2016-13, "Financial Instruments — Credit Losses (Topic 326) — Measurement of Credit Losses on Financial Instruments." This ASU amends several aspects of the measurement of credit losses on certain financial instruments, including replacing the existing incurred credit loss model and other models with the Current Expected Credit Losses (CECL) model and amending certain aspects of accounting for purchased financial assets with deterioration in credit quality since origination.

The Bank adopted this ASU in January 2020 under a modified retrospective approach. As a result of adopting this ASU, the Bank's allowance for credit losses on financial assets and commitments that are measured at amortized cost will reflect management's estimate of credit losses over the remaining expected life of such assets. Expected credit losses for newly recognized financial assets and commitments, as well as changes to expected credit losses during the period, will be recognized in earnings. These expected credit losses will be measured based on historical experience, current conditions and forecasts that affect the collectability of the reported amount.

The cumulative effect of measuring the allowance under CECL as a result of adopting this ASU as of January 1, 2020 was an increase in the allowance for credit losses of $548 million. The increase in the allowance is driven by the fact that the allowance under CECL covers expected credit losses over the full expected life of the loan portfolios and also takes into account forecasts of expected future economic conditions. The cumulative effect of adopting this ASU was a decrease to retained earnings of approximately $400 million (net of tax).

Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income (ASC 220). In February 2018, the FASB issued ASU No. 2018-02, "Income Statement — Reporting Comprehensive Income (Topic 220) — Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income." This ASU permits a reporting entity to reclassify the income tax effects of the Tax Cuts and Jobs Act (Tax Legislation) on items within accumulated other comprehensive income to retained earnings.

The Bank adopted this ASU in January 2019 and did not elect to reclassify the income tax effects of Tax Legislation from accumulated other comprehensive income to retained earnings. Therefore, the adoption of the ASU did not have an impact on the Bank's consolidated financial statements.

Note 4.

Fair Value Measurements

The fair value of a financial instrument is the amount 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. Financial assets are marked to bid prices and financial liabilities are marked to offer prices. Fair value measurements do not include transaction costs. The Bank measures certain financial assets and liabilities as a portfolio (i.e., based on its net exposure to market and/or credit risks).

The best evidence of fair value is a quoted price in an active market. If quoted prices in active markets are not available, fair value is determined by reference to prices for similar instruments, quoted prices or recent transactions in less active markets, or internally developed models that primarily use market-based or independently sourced inputs, including, but not limited to, interest rates, volatilities, equity or debt prices, foreign exchange rates, commodity prices, credit spreads and funding spreads (i.e., the spread or difference between the interest rate at which a borrower could finance a given financial instrument relative to a benchmark interest rate).

U.S. GAAP has a three-level hierarchy for disclosure of fair value measurements. This hierarchy prioritizes inputs to the valuation techniques used to measure fair value, giving the highest priority to level 1 inputs and the lowest priority to level 3 inputs. A financial instrument's level in this hierarchy is based on the lowest level of input that is significant to its fair value measurement. In evaluating the significance of a valuation input, the Bank considers, among other factors, a portfolio's net risk exposure to that input. The fair value hierarchy is as follows:

Level 1. Inputs are unadjusted quoted prices in active markets to which the Bank had access at the measurement date for identical, unrestricted assets or liabilities.

Level 2. Inputs to valuation techniques are observable, either directly or indirectly.

Level 3. One or more inputs to valuation techniques are significant and unobservable.

The fair values for substantially all of the Bank's financial assets and the majority of the Bank's financial liabilities are based on observable prices and inputs and are classified in levels 1 and 2 of the fair value hierarchy. Certain level 2 and level 3 financial assets and liabilities may require valuation adjustments that a market participant would require to arrive at fair value for factors, such as counterparty and the Bank or its affiliates' credit quality, funding risk, transfer restrictions, liquidity and bid/offer spreads. Valuation adjustments are generally based on market evidence.

The valuation techniques and nature of significant inputs used to determine the fair value of the Bank's financial instruments are described below. See Notes 5 through 10 for further information about significant unobservable inputs used to value level 3 financial instruments.

Valuation Techniques and Significant Inputs for Trading Cash Instruments, Investments and Loans

Level 1. Level 1 instruments include U.S. government obligations. These instruments are valued using quoted prices for identical unrestricted instruments in active markets. The Bank defines active markets for debt instruments based on both the average daily trading volume and the number of days with trading activity.

Level 2. Level 2 instruments include non-U.S. government obligations, agency obligations, most loans and securities backed by real estate, most corporate debt instruments and other debt obligations.

Valuations of level 2 instruments can be verified to quoted prices, recent trading activity for identical or similar instruments, broker or dealer quotations or alternative pricing sources with reasonable levels of price transparency. Consideration is given to the nature of the quotations (e.g., indicative or firm) and the relationship of recent market activity to the prices provided from alternative pricing sources.

Valuation adjustments are typically made to level 2 instruments (i) if the instrument is subject to transfer restrictions and/or (ii) for other premiums and liquidity discounts that a market participant would require to arrive at fair value. Valuation adjustments are generally based on market evidence.

Level 3. Level 3 instruments have one or more significant valuation inputs that are not observable. Absent evidence to the contrary, level 3 instruments are initially valued at transaction price, which is considered to be the best initial estimate of fair value. Subsequently, the Bank uses other methodologies to determine fair value, which vary based on the type of instrument. Valuation inputs and assumptions are changed when corroborated by substantive observable evidence, including values realized on sales.

Valuation techniques of level 3 instruments vary by instrument, but are generally based on discounted cash flow techniques. The valuation techniques and the nature of significant inputs used to determine the fair values of each type of level 3 instrument are described below:

Loans and Securities Backed by Commercial Real Estate

Loans and securities backed by commercial real estate are directly or indirectly collateralized by a single property or a portfolio of properties, and may include tranches of varying levels of subordination. Significant inputs are generally determined based on relative value analyses and include:

- Market yields implied by transactions of similar or related assets and/or current levels and changes in market indices, such as the CMBX (an index that tracks the performance of commercial mortgage bonds);
- Transaction prices in both the underlying collateral and instruments with the same or similar underlying collateral; and
- Timing of expected future cash flows (duration) which, in certain cases, may incorporate the impact of other unobservable inputs (e.g., prepayment speeds).

Loans and Securities Backed by Residential Real Estate

Loans and securities backed by residential real estate are directly or indirectly collateralized by portfolios of residential real estate and may include tranches of varying levels of subordination. Significant inputs are generally determined based on relative value analyses, which incorporate comparisons to instruments with similar collateral and risk profiles. Significant inputs include:

- Market yields implied by transactions of similar or related assets;
- Transaction prices in both the underlying collateral and instruments with the same or similar underlying collateral; and
- Duration, driven by underlying loan prepayment speeds and residential property liquidation timelines.

Corporate Debt Instruments

Corporate debt instruments includes corporate loans and debt securities. Significant inputs for corporate debt instruments are generally determined based on relative value analyses, which incorporate comparisons both to prices of credit default swaps that reference the same or similar underlying instrument or entity and to other debt instruments for the same or similar issuer for which observable prices or broker quotations are available. Significant inputs include:

- Market yields implied by transactions of similar or related assets and/or current levels and trends of market indices, such as the CDX (an index that tracks the performance of corporate credit);
- Current performance and recovery assumptions and, where the Bank uses credit default swaps to value the related cash instrument, the cost of borrowing the underlying reference obligation; and
- Duration.

Equity Securities

Equity investments made as part of the Bank's Community Reinvestment Act (CRA) activities are included in equity securities. Recent third-party completed or pending transactions (e.g., merger proposals, debt restructurings, tender offers) are considered the best evidence for any change in fair value. When these are not available, the following valuation methodologies are used, as appropriate:

- Industry multiples and public comparables;
- Transactions in similar instruments; and
- Discounted cash flow techniques.

The Bank also considers changes in the outlook for the relevant industry and financial performance of the issuer as compared to projected performance. Significant inputs include discount rates and capitalization rates.

Valuation Techniques and Significant Inputs for Derivatives

The Bank's level 2 and level 3 derivatives are valued using derivative pricing models (e.g., discounted cash flow models, correlation models, and models that incorporate option pricing methodologies, such as Monte Carlo simulations). Price transparency of derivatives can generally be characterized by product type, as described below.

- **Interest Rate.** In general, the key inputs used to value interest rate derivatives are transparent, even for most long-dated contracts. Interest rate swaps and options denominated in the currencies of leading industrialized nations are characterized by high trading volumes and tight bid/offer spreads. Interest rate derivatives that reference indices, such as an inflation index, or the shape of the yield curve (e.g., 10-year swap rate vs. 2-year swap rate) are more complex, but the key inputs are generally observable.

- **Currency.** Prices for currency derivatives based on the exchange rates of leading industrialized nations, including those with longer tenors, are generally transparent. The primary difference between the price transparency of developed and emerging market currency derivatives is that emerging markets tend to be only observable for contracts with shorter tenors.

- **Credit.** Price transparency for credit default swaps, including both single names and baskets of credits, varies by market and underlying reference entity or obligation. Credit default swaps that reference indices, large corporates and major sovereigns generally exhibit the most price transparency. For credit default swaps with other underliers, price transparency varies based on credit rating, the cost of borrowing the underlying reference obligations, and the availability of the underlying reference obligations for delivery upon the default of the issuer. Credit default swaps that reference loans, asset-backed securities and emerging market debt instruments tend to have less price transparency than those that reference corporate bonds. In addition, more complex credit derivatives, such as those sensitive to the correlation between two or more underlying reference obligations, generally have less price transparency.

- **Equity.** Price transparency for equity derivatives varies by market and underlier. Options on indices and the common stock of corporates included in major equity indices exhibit the most price transparency. Equity derivatives generally have observable market prices, except for contracts with long tenors or reference prices that differ significantly from current market prices. More complex equity derivatives, such as those sensitive to the correlation between two or more individual stocks, generally have less price transparency.

Liquidity is essential to observability of all product types. If transaction volumes decline, previously transparent prices and other inputs may become unobservable. Conversely, even highly structured products may at times have trading volumes large enough to provide observability of prices and other inputs.

Level 1. Level 1 derivatives include short-term contracts for future delivery of securities when the underlying security is a level 1 instrument, and exchange-traded derivatives if they are actively traded and are valued at their quoted market price.

Level 2. Level 2 derivatives include OTC derivatives for which all significant valuation inputs are corroborated by market evidence and exchange-traded derivatives that are not actively traded and/or that are valued using models that calibrate to market-clearing levels of OTC derivatives.

The selection of a particular model to value a derivative depends on the contractual terms of and specific risks inherent in the instrument, as well as the availability of pricing information in the market. For derivatives that trade in liquid markets, model selection does not involve significant management judgment because outputs of models can be calibrated to market-clearing levels.

Valuation models require a variety of inputs, such as contractual terms, market prices, yield curves, discount rates (including those derived from interest rates on collateral received and posted as specified in credit support agreements for collateralized derivatives), credit curves, measures of volatility, prepayment rates, loss severity rates and correlations of such inputs. Significant inputs to the valuations of level 2 derivatives can be verified to market transactions, broker or dealer quotations or other alternative pricing sources with reasonable levels of price transparency. Consideration is given to the nature of the quotations (e.g., indicative or firm) and the relationship of recent market activity to the prices provided from alternative pricing sources.

Level 3. Level 3 derivatives are valued using models which utilize observable level 1 and/or level 2 inputs, as well as unobservable level 3 inputs. The significant unobservable inputs used to value the Bank's level 3 derivatives are described below.

- For level 3 interest rate and currency derivatives, significant unobservable inputs include correlations of certain currencies and interest rates (e.g., the correlation between Euro inflation and Euro interest rates). In addition, for level 3 interest rate derivatives, significant unobservable inputs include specific interest rate volatilities.
- For level 3 credit derivatives, significant unobservable inputs include illiquid credit spreads, which are unique to specific reference obligations and reference entities.
- For level 3 equity derivatives, significant unobservable inputs generally include correlation inputs, such as the correlation of the price performance of two or more individual stocks or the correlation of the price performance for a basket of stocks to another asset class.

Subsequent to the initial valuation of a level 3 derivative, the Bank updates the level 1 and level 2 inputs to reflect observable market changes and any resulting gains and losses are classified in level 3. Level 3 inputs are changed when corroborated by evidence, such as similar market transactions, third-party pricing services and/or broker or dealer quotations or other empirical market data. In circumstances where the Bank cannot verify the model value by reference to market transactions, it is possible that a different valuation model could produce a materially different estimate of fair value. See Note 7 for further information about significant unobservable inputs used in the valuation of level 3 derivatives.

Valuation Adjustments. Valuation adjustments are integral to determining the fair value of derivative portfolios and are used to adjust the mid-market valuations produced by derivative pricing models to the exit price valuation. These adjustments incorporate bid/offer spreads, the cost of liquidity, credit valuation adjustments and funding valuation adjustments, which account for the credit and funding risk inherent in the uncollateralized portion of derivative portfolios. The Bank also makes funding valuation adjustments to collateralized derivatives where the terms of the agreement do not permit the Bank to deliver or repledge collateral received. Market-based inputs are generally used when calibrating valuation adjustments to market-clearing levels.

In addition, for derivatives that include significant unobservable inputs, the Bank makes model or exit price adjustments to account for the valuation uncertainty present in the transaction.

Valuation Techniques and Significant Inputs for Other Financial Instruments at Fair Value

In addition to trading cash instruments, derivatives, and certain investments and loans, the Bank accounts for certain of its other financial assets and liabilities at fair value under the fair value option. Such instruments include repurchase agreements and substantially all resale agreements; certain other assets; certain time deposits, including structured certificates of deposit, which are hybrid financial instruments; most other secured financings, including advances from the Federal Home Loan Bank of New York (FHLB); and certain unsecured borrowings, substantially all of which are hybrid financial instruments. These instruments are generally valued based on discounted cash flow techniques, which incorporate inputs with reasonable levels of price transparency, and are generally classified in level 2 because the inputs are observable. Valuation adjustments may be made for liquidity and for counterparty and the Bank's credit quality. The significant inputs used to value the Bank's other financial instruments are described below.

Resale and Repurchase Agreements. The significant inputs to the valuation of resale and repurchase agreements are funding spreads, the amount and timing of expected future cash flows and interest rates.

Other Assets. The significant inputs to the valuation of other assets are interest rates, the amount and timing of expected future cash flows and funding spreads.

Deposits. The significant inputs to the valuation of time deposits are interest rates and the amount and timing of future cash flows. The inputs used to value the embedded derivative component of hybrid financial instruments are consistent with the inputs used to value the Bank's other derivative instruments described above. See Note 7 for further information about derivatives and Note 13 for further information about deposits.

Other Secured Financings. The significant inputs to the valuation of other secured financings are the amount and timing of expected future cash flows, interest rates, funding spreads, the fair value of the collateral delivered by the Bank (determined using the amount and timing of expected future cash flows, market prices, market yields and recovery assumptions) and the frequency of additional collateral calls. See Note 11 for further information about collateralized agreements and financings.

Unsecured Borrowings. The significant inputs to the valuation of unsecured borrowings are the amount and timing of expected future cash flows and interest rates. The inputs used to value the embedded derivative component of hybrid financial instruments are consistent with the inputs used to value the Bank's other derivative instruments described above. See Note 7 for further information about derivatives and Note 14 for further information about borrowings.

Financial Assets and Liabilities at Fair Value

The table below presents financial assets and liabilities accounted for at fair value.

	As of December	
$ in millions	**2019**	2018
Total level 1 financial assets	**$ 55,404**	$ 16,447
Total level 2 financial assets	**61,595**	84,276
Total level 3 financial assets	**2,113**	2,317
Investments in funds at NAV	**18**	34
Counterparty and cash collateral netting	**(24,693)**	(22,326)
Total financial assets at fair value	**$ 94,437**	$ 80,748
Total assets	**$ 228,835**	$ 191,487
Total level 3 financial assets divided by:		
Total assets	**0.9%**	1.2%
Total financial assets at fair value	**2.2%**	2.9%
Total level 1 financial liabilities	**$ 2,748**	$ 1,249
Total level 2 financial liabilities	**36,543**	29,195
Total level 3 financial liabilities	**5,363**	4,147
Counterparty and cash collateral netting	**(19,943)**	(16,504)
Total financial liabilities at fair value	**$ 24,711**	$ 18,087
Total level 3 financial liabilities divided by total financial liabilities at fair value	**21.7%**	22.9%

In the table above:

- Counterparty netting among positions classified in the same level is included in that level.
- Counterparty and cash collateral netting represents the impact on derivatives of netting across levels of the fair value hierarchy.

The table below presents a summary of level 3 financial assets.

	As of December	
$ in millions	**2019**	2018
Trading assets:		
Trading cash instruments	**$ 95**	$ 81
Derivatives	**1,828**	1,815
Investments	**36**	273
Loans	**153**	148
Other financial assets	**1**	–
Total	**$ 2,113**	$ 2,317

Level 3 financial assets as of December 2019 decreased compared with December 2018, primarily reflecting a decrease in level 3 investments. See Notes 5 through 10 for further information about level 3 financial assets (including information about unrealized gains and losses related to level 3 financial assets and transfers in and out of level 3).

Note 5.

Trading Assets and Liabilities

Trading assets and liabilities include trading cash instruments and derivatives held in connection with the Bank's market-making or risk management activities. These assets and liabilities are accounted for at fair value either under the fair value option or in accordance with other U.S. GAAP, and the related fair value gains and losses are generally recognized in the consolidated statements of earnings.

The table below presents a summary of trading assets and liabilities.

$ in millions	Trading Assets	Trading Liabilities
As of December 2019		
Trading cash instruments	**$ 66,766**	**$ 3,440**
Derivatives	**8,506**	**4,517**
Total	**$ 75,272**	**$ 7,957**
As of December 2018		
Trading cash instruments	$ 25,545	$ 1,828
Derivatives	7,956	6,873
Total	$ 33,501	$ 8,701

See Note 6 for further information about trading cash instruments and Note 7 for further information about derivatives.

Gains and Losses from Financial Assets and Liabilities

The table below presents gains and losses from financial assets and liabilities by major product type.

$ in millions	Year Ended December 2019	2018
Interest rates	**$ 1,130**	$ (1,995)
Currencies	**43**	3,243
Credit	**1,198**	1,089
Equities	**(234)**	(55)
Commodities	**–**	(1)
Total	**$ 2,137**	$ 2,281

In the table above:

- Gains/(losses) include both realized and unrealized gains and losses. Gains/(losses) exclude related interest income and interest expense. See Note 21 for further information about interest income and interest expense.
- Gains and losses are primarily related to the Bank's financial assets and liabilities, including both derivative and non-derivative financial instruments, and the syndication of loans and lending commitments. Gains/(losses) are not representative of the manner in which the Bank manages its business activities because many of the Bank's market-making, lending and other activities utilize financial instruments across various product types. Accordingly, gains or losses in one product type frequently offset gains or losses in other product types. For example, certain of the Bank's interest rate derivatives are sensitive to changes in foreign currency exchange rates and may be economically hedged with foreign currency contracts.

Note 6.

Trading Cash Instruments

Trading cash instruments consists of instruments held in connection with the Bank's market-making or risk management activities. These instruments are accounted for at fair value and the related fair value gains and losses are recognized in the consolidated statement of earnings.

Fair Value of Trading Cash Instruments by Level

The table below presents trading cash instruments by level within the fair value hierarchy.

$ in millions	Level 1	Level 2	Level 3	Total
As of December 2019				
Assets				
U.S. government and agency obligations	**$ 49,531**	**$ 11,027**	**$ –**	**$ 60,558**
Loans and securities backed by:				
Commercial real estate	**–**	**1,365**	**–**	**1,365**
Residential real estate	**–**	**3,805**	**68**	**3,873**
Corporate debt instruments	**–**	**596**	**27**	**623**
Other debt obligations	**–**	**347**	**–**	**347**
Total	**$ 49,531**	**$ 17,140**	**$ 95**	**$ 66,766**
Liabilities				
U.S. government and agency obligations	**$ (2,748)**	**$ –**	**$ –**	**$ (2,748)**
Loans and securities backed by:				
Residential real estate	**–**	**(2)**	**–**	**(2)**
Corporate debt instruments	**–**	**(682)**	**(8)**	**(690)**
Total	**$ (2,748)**	**$ (684)**	**$ (8)**	**$ (3,440)**
As of December 2018				
Assets				
U.S. government and agency obligations	$ 14,007	$ 7,514	$ –	$ 21,521
Loans and securities backed by:				
Commercial real estate	–	727	–	727
Residential real estate	–	2,308	4	2,312
Corporate debt instruments	–	729	77	806
Other debt obligations	–	179	–	179
Total	$ 14,007	$ 11,457	$ 81	$ 25,545
Liabilities				
Government and agency obligations:				
U.S.	$ (1,249)	$ –	$ –	$ (1,249)
Non-U.S.	–	(6)	–	(6)
Corporate debt instruments	–	(565)	(8)	(573)
Total	$ (1,249)	$ (571)	$ (8)	$ (1,828)

See Note 4 for an overview of the Bank's fair value measurement policies and the valuation techniques and significant inputs used to determine the fair value of trading cash instruments.

In the table above:

- Trading cash instrument assets are shown as positive amounts and trading cash instrument liabilities are shown as negative amounts.
- Corporate debt instruments includes corporate loans and debt securities.
- Other debt obligations includes other asset-backed securities.

Significant Unobservable Inputs

Significant unobservable inputs used to value the Bank's level 3 trading cash instruments are not material.

Level 3 Rollforward

The table below presents a summary of the changes in fair value for level 3 trading cash instruments.

	Year Ended December	
$ in millions	**2019**	2018
Total trading cash instrument assets		
Beginning balance	**$ 81**	$ 46
Net realized gains/(losses)	**3**	4
Net unrealized gains/(losses)	**–**	(4)
Purchases	**86**	41
Sales	**(37)**	(25)
Settlements	**(8)**	(8)
Transfers into level 3	**6**	27
Transfers out of level 3	**(36)**	–
Ending balance	**$ 95**	$ 81
Total trading cash instrument liabilities		
Beginning balance	**$ (8)**	$ (9)
Net unrealized gains/(losses)	**(2)**	1
Purchases	**12**	7
Sales	**(7)**	(6)
Settlements	**–**	2
Transfers into level 3	**(3)**	(3)
Ending balance	**$ (8)**	$ (8)

In the table above:

- Changes in fair value are presented for all trading cash instruments that are classified in level 3 as of the end of the period.
- Net unrealized gains/(losses) relates to trading cash instruments that were still held at period-end.
- Transfers between levels of the fair value hierarchy are reported at the beginning of the reporting period in which they occur. If a trading cash instrument was transferred to level 3 during a reporting period, its entire gain or loss for the period is classified in level 3.
- For level 3 trading cash instrument assets, increases are shown as positive amounts, while decreases are shown as negative amounts. For level 3 trading cash instrument liabilities, increases are shown as negative amounts, while decreases are shown as positive amounts.
- Level 3 trading cash instruments are frequently economically hedged with level 1 and level 2 trading cash instruments and/or level 1, level 2 or level 3 derivatives. Accordingly, gains or losses that are classified in level 3 can be partially offset by gains or losses attributable to level 1 or level 2 trading cash instruments and/or level 1, level 2 or level 3 derivatives. As a result, gains or losses included in the level 3 rollforward below do not necessarily represent the overall impact on the Bank's results of operations, liquidity or capital resources.

The table below presents information, by product type, for assets included in the summary table above.

	Year Ended December	
$ in millions	**2019**	2018
Loans and securities backed by residential real estate		
Beginning balance	**$ 4**	$ –
Net realized gains/(losses)	**2**	–
Net unrealized gains/(losses)	**–**	1
Purchases	**72**	3
Sales	**(1)**	–
Settlements	**(7)**	–
Transfers into level 3	**1**	–
Transfers out of level 3	**(3)**	–
Ending balance	**$ 68**	$ 4
Corporate debt instruments		
Beginning balance	**$ 77**	$ 46
Net realized gains/(losses)	**1**	4
Net unrealized gains/(losses)	**–**	(5)
Purchases	**14**	38
Sales	**(36)**	(25)
Settlements	**(1)**	(8)
Transfers into level 3	**5**	27
Transfers out of level 3	**(33)**	–
Ending balance	**$ 27**	$ 77

Level 3 Rollforward Commentary

Year Ended December 2019. The net realized gains on level 3 trading cash instrument assets of $3 million for 2019 were reported in gains and losses from financial assets and liabilities.

The drivers of transfers into level 3 trading cash instrument assets during 2019 were not material.

Transfers out of level 3 trading cash instrument assets during 2019 primarily reflected transfers of certain corporate debt instruments to level 2, principally due to increased price transparency as a result of market evidence, including market transactions in these instruments.

Year Ended December 2018. There were no net realized and unrealized gains/(losses) on level 3 trading cash instrument assets (reflecting $4 million of net realized gains and $4 million of net unrealized losses) for 2018 reported in gains and losses from financial assets and liabilities.

The drivers of net unrealized losses on level 3 trading cash instrument assets for 2018 were not material.

The drivers of transfers into level 3 trading cash instrument assets during 2018 were not material. There were no transfers out of level 3 trading cash instrument assets during 2018.

Note 7.

Derivatives and Hedging Activities

Derivative Activities

Derivatives are instruments that derive their value from underlying asset prices, indices, reference rates and other inputs, or a combination of these factors. Derivatives may be traded on an exchange (exchange-traded) or they may be privately negotiated contracts, which are usually referred to as over-the-counter (OTC) derivatives. Certain of the Bank's OTC derivatives are cleared and settled through central clearing counterparties (OTC-cleared), while others are bilateral contracts between two counterparties (bilateral OTC).

Market Making. As a market maker, the Bank enters into derivative transactions to provide liquidity to clients and to facilitate the transfer and hedging of their risks. In this role, the Bank typically acts as principal and is required to commit capital to provide execution, and maintains market-making positions in response to, or in anticipation of, client demand.

Risk Management. The Bank also enters into derivatives to actively manage risk exposures that arise from its market-making and financing activities. The Bank's holdings and exposures are hedged, in many cases, on either a portfolio or risk-specific basis, as opposed to an instrument-by-instrument basis. In addition, the Bank may enter into derivatives designated as hedges under U.S. GAAP. These derivatives are used to manage interest rate exposure in certain deposits and borrowings.

The Bank enters into various types of derivatives, including:

- **Futures and Forwards.** Contracts that commit counterparties to purchase or sell financial instruments or currencies in the future.
- **Swaps.** Contracts that require counterparties to exchange cash flows, such as currency or interest payment streams. The amounts exchanged are based on the specific terms of the contract with reference to specified rates, financial instruments, currencies or indices.
- **Options.** Contracts in which the option purchaser has the right, but not the obligation, to purchase from or sell to the option writer financial instruments or currencies within a defined time period for a specified price.

Derivatives are reported on a net-by-counterparty basis (i.e., the net payable or receivable for derivative assets and liabilities for a given counterparty) when a legal right of setoff exists under an enforceable netting agreement (counterparty netting). Derivatives are accounted for at fair value, net of cash collateral received or posted under enforceable credit support agreements (cash collateral netting). Derivative assets are included in trading assets and derivative liabilities are included in trading liabilities. Realized and unrealized gains and losses on derivatives not designated as hedges are included in gains and losses from financial assets and liabilities in the consolidated statements of earnings.

The tables below present the gross fair value and the notional amounts of derivative contracts by major product type, the amounts of counterparty and cash collateral netting in the consolidated balance sheets, as well as cash and securities collateral posted and received under enforceable credit support agreements that do not meet the criteria for netting under U.S. GAAP.

	As of December 2019		As of December 2018	
$ in millions	Derivative Assets	Derivative Liabilities	Derivative Assets	Derivative Liabilities
Not accounted for as hedges				
Exchange-traded	$ 311	$ 680	$ 691	$ 1,278
OTC-cleared	–	–	159	31
Bilateral OTC	541,068	533,668	394,933	388,905
Total interest rates	541,379	534,348	395,783	390,214
OTC-cleared	14	–	–	–
Bilateral OTC	70,905	69,406	63,701	62,733
Total currencies	70,919	69,406	63,701	62,733
Credit – bilateral OTC	4,209	4,799	3,163	3,182
Equities – bilateral OTC	1,628	863	1,367	987
Commodities – bilateral OTC	128	126	180	178
Subtotal	618,263	609,542	464,194	457,294
Accounted for as hedges				
Bilateral OTC	18	–	6	1
Total interest rates	18	–	6	1
Total gross fair value	$ 618,281	$ 609,542	$ 464,200	$ 457,295
Offset in the consolidated balance sheets				
Counterparty netting	$ (586,115)	$ (586,115)	$(434,901)	$(434,901)
Cash collateral netting	(23,660)	(18,910)	(21,343)	(15,521)
Total amounts offset	$ (609,775)	$ (605,025)	$(456,244)	$(450,422)
Included in the consolidated balance sheets				
Exchange-traded	$ 311	$ 680	$ 691	$ 1,278
OTC-cleared	14	–	159	31
Bilateral OTC	8,181	3,837	7,106	5,564
Total	$ 8,506	$ 4,517	$ 7,956	$ 6,873
Not offset in the consolidated balance sheets				
Cash collateral	$ (229)	$ (239)	$ (148)	$ (366)
Securities collateral	(1,955)	(571)	(1,231)	(489)
Total	$ 6,322	$ 3,707	$ 6,577	$ 6,018

	Notional Amounts as of December	
$ in millions	**2019**	2018
Not accounted for as hedges		
Exchange-traded	**$ 4,314,923**	$ 4,080,689
OTC-cleared	**6,404,660**	7,194,235
Bilateral OTC	**25,985,075**	24,485,244
Total interest rates	**36,704,658**	35,760,168
Exchange-traded	**37**	–
OTC-cleared	**88,956**	–
Bilateral OTC	**5,477,627**	4,451,076
Total currencies	**5,566,620**	4,451,076
Credit – bilateral OTC	**176,520**	183,632
Equities – bilateral OTC	**52,402**	32,494
Commodities – bilateral OTC	**4,987**	5,000
Subtotal	**42,505,187**	40,432,370
Accounted for as hedges		
OTC-cleared	**19,752**	11,956
Bilateral OTC	**704**	731
Total interest rates	**20,456**	12,687
Total notional amounts	**$ 42,525,643**	$ 40,445,057

In the tables above:

- Gross fair values exclude the effects of both counterparty netting and collateral, and therefore are not representative of the Bank's exposure.
- Where the Bank has received or posted collateral under credit support agreements, but has not yet determined such agreements are enforceable, the related collateral has not been netted.
- Notional amounts, which represent the sum of gross long and short derivative contracts, provide an indication of the volume of the Bank's derivative activity and do not represent anticipated losses.
- Counterparty and cash collateral netting relate to bilateral OTC derivatives.
- Total gross fair value of derivatives included derivative assets of $1.90 billion as of December 2019 and $2.31 billion as of December 2018, and derivative liabilities of $786 million as of December 2019 and $1.44 billion as of December 2018, which are not subject to an enforceable netting agreement or are subject to a netting agreement that the Bank has not yet determined to be enforceable.

Fair Value of Derivatives by Level

The table below presents derivatives on a gross basis by level and product type, as well as the impact of netting.

$ in millions	Level 1	Level 2	Level 3	Total
As of December 2019				
Assets				
Interest rates	**$ –**	**$ 541,029**	**$ 368**	**$ 541,397**
Currencies	**–**	**70,505**	**414**	**70,919**
Credit	**–**	**3,232**	**977**	**4,209**
Equities	**–**	**1,050**	**578**	**1,628**
Commodities	**–**	**124**	**4**	**128**
Gross fair value	**–**	**615,940**	**2,341**	**618,281**
Counterparty netting in levels	**–**	**(584,569)**	**(513)**	**(585,082)**
Subtotal	**$ –**	**$ 31,371**	**$ 1,828**	**$ 33,199**
Cross-level counterparty netting				**(1,033)**
Cash collateral netting				**(23,660)**
Net fair value				**$ 8,506**
Liabilities				
Interest rates	**$ –**	**$ (533,891)**	**$ (457)**	**$ (534,348)**
Currencies	**–**	**(69,226)**	**(180)**	**(69,406)**
Credit	**–**	**(3,784)**	**(1,015)**	**(4,799)**
Equities	**–**	**(834)**	**(29)**	**(863)**
Commodities	**–**	**(124)**	**(2)**	**(126)**
Gross fair value	**–**	**(607,859)**	**(1,683)**	**(609,542)**
Counterparty netting in levels	**–**	**584,569**	**513**	**585,082**
Subtotal	**$ –**	**$ (23,290)**	**$ (1,170)**	**$ (24,460)**
Cross-level counterparty netting				**1,033**
Cash collateral netting				**18,910**
Net fair value				**$ (4,517)**
As of December 2018				
Assets				
Interest rates	$ –	$ 395,462	$ 327	$ 395,789
Currencies	–	62,949	752	63,701
Credit	–	2,123	1,040	3,163
Equities	–	1,058	309	1,367
Commodities	–	177	3	180
Gross fair value	–	461,769	2,431	464,200
Counterparty netting in levels	–	(433,302)	(616)	(433,918)
Subtotal	$ –	$ 28,467	$ 1,815	$ 30,282
Cross-level counterparty netting				(983)
Cash collateral netting				(21,343)
Net fair value				$ 7,956
Liabilities				
Interest rates	$ –	$ (389,667)	$ (548)	$ (390,215)
Currencies	–	(62,602)	(131)	(62,733)
Credit	–	(2,305)	(877)	(3,182)
Equities	–	(957)	(30)	(987)
Commodities	–	(177)	(1)	(178)
Gross fair value	–	(455,708)	(1,587)	(457,295)
Counterparty netting in levels	–	433,302	616	433,918
Subtotal	$ –	$ (22,406)	$ (971)	$ (23,377)
Cross-level counterparty netting				983
Cash collateral netting				15,521
Net fair value				$ (6,873)

See Note 4 for an overview of the Bank's fair value measurement policies and the valuation techniques and significant inputs used to determine the fair value of derivatives.

In the table above:

- Gross fair values exclude the effects of both counterparty netting and collateral netting, and therefore are not representative of the Bank's exposure.
- Counterparty netting is reflected in each level to the extent that receivable and payable balances are netted within the same level and is included in counterparty netting in levels. Where the counterparty netting is across levels, the netting is included in cross-level counterparty netting.
- Derivative assets are shown as positive amounts and derivative liabilities are shown as negative amounts.

Significant Unobservable Inputs

The table below presents the amount of level 3 derivative assets (liabilities), and ranges, averages and medians of significant unobservable inputs used to value level 3 derivatives.

	Level 3 Assets (Liabilities) and Range of Significant Unobservable Inputs (Average/Median) as of December	
$ in millions	**2019**	2018
Interest rates, net	**$(89)**	$(221)
Correlation	**57% to 81% (65%/60%)**	(10)% to 86% (67%/62%)
Volatility (bps)	**31 to 150 (80/55)**	31 to 150 (80/55)
Currencies, net	**$234**	$621
Correlation	**28% to 70% (46%/46%)**	28% to 70% (46%/46%)
Credit, net	**$(38)**	$163
Credit spreads (bps)	**1 to 1,151 (140/98)**	1 to 810 (164/111)
Equities, net	**$549**	$279
Correlation	**10% to 98% (54%/51%)**	9% to 96% (45%/40%)

Level 3 commodities, net were not material as of both December 2019 and December 2018, and therefore are not included in the table above.

In the table above:

- Derivative assets are shown as positive amounts and derivative liabilities are shown as negative amounts.
- Ranges represent the significant unobservable inputs that were used in the valuation of each type of derivative.
- Averages represent the arithmetic average of the inputs and are not weighted by the relative fair value or notional of the respective financial instruments. An average greater than the median indicates that the majority of inputs are below the average. For example, the difference between the average and the median for credit spreads indicates that the majority of the inputs fall in the lower end of the range.
- The ranges, averages and medians of these inputs are not representative of the appropriate inputs to use when calculating the fair value of any one derivative. For example, the highest correlation for interest rate derivatives is appropriate for valuing a specific interest rate derivative but may not be appropriate for valuing any other interest rate derivative. Accordingly, the ranges of inputs do not represent uncertainty in, or possible ranges of, fair value measurements of level 3 derivatives.
- Interest rates, currencies and equities derivatives are valued using option pricing models, and credit derivatives are valued using option pricing and discounted cash flow models.
- The fair value of any one instrument may be determined using multiple valuation techniques. For example, option pricing models and discounted cash flows models are typically used together to determine fair value. Therefore, the level 3 balance encompasses both of these techniques.
- Correlation within currencies and equities includes cross-product type correlation.

Range of Significant Unobservable Inputs

The following is information about the ranges of significant unobservable inputs used to value the Bank's level 3 derivative instruments:

- **Correlation.** Ranges for correlation cover a variety of underliers both within one product type (e.g., foreign exchange rates) and across product types (e.g., correlation of an interest rate and a currency), as well as across regions. Generally, cross-product type correlation inputs are used to value more complex instruments and are lower than correlation inputs on assets within the same derivative product type.
- **Volatility.** Ranges for volatility cover numerous underliers across a variety of markets, maturities and strike prices.
- **Credit spreads.** The ranges for credit spreads cover a variety of underliers (index and single names), regions, sectors, maturities and credit qualities (high-yield and investment-grade). The broad range of this population gives rise to the width of the ranges of significant unobservable inputs.

Sensitivity of Fair Value Measurement to Changes in Significant Unobservable Inputs

The following is a description of the directional sensitivity of the Bank's level 3 fair value measurements to changes in significant unobservable inputs, in isolation, as of each period-end:

- **Correlation.** In general, for contracts where the holder benefits from the convergence of the underlying asset or index prices (e.g., interest rates, foreign exchange rates and equity prices), an increase in correlation results in a higher fair value measurement.
- **Volatility.** In general, for purchased options an increase in volatility results in a higher fair value measurement.
- **Credit spreads.** In general, the fair value of purchased credit protection increases as credit spreads increase. Credit spreads are strongly related to distinctive risk factors of the underlying reference obligations, which include reference entity-specific factors, such as leverage, volatility and industry, market-based risk factors, such as borrowing costs or liquidity of the underlying reference obligation, and macroeconomic conditions.

Due to the distinctive nature of each of the Bank's level 3 derivatives, the interrelationship of inputs is not necessarily uniform within each product type.

Level 3 Rollforward

The table below presents a summary of the changes in fair value for level 3 derivatives.

	Year Ended December	
$ in millions	**2019**	2018
Total level 3 derivatives, net		
Beginning balance	**$ 844**	$ 484
Net realized gains/(losses)	**(82)**	(200)
Net unrealized gains/(losses)	**(199)**	(57)
Purchases	**72**	148
Sales	**(27)**	(21)
Settlements	**65**	218
Transfers into level 3	**(1)**	248
Transfers out of level 3	**(14)**	24
Ending balance	**$ 658**	$ 844

In the table above:

- Changes in fair value are presented for all derivative assets and liabilities that are classified in level 3 as of the end of the period.
- Net unrealized gains/(losses) relates to instruments that were still held at period-end.
- Transfers between levels of the fair value hierarchy are reported at the beginning of the reporting period in which they occur. If a derivative was transferred into level 3 during a reporting period, its entire gain or loss for the period is classified in level 3.
- Positive amounts for transfers into level 3 and negative amounts for transfers out of level 3 represent net transfers of derivative assets. Negative amounts for transfers into level 3 and positive amounts for transfers out of level 3 represent net transfers of derivative liabilities.
- A derivative with level 1 and/or level 2 inputs is classified in level 3 in its entirety if it has at least one significant level 3 input.
- If there is one significant level 3 input, the entire gain or loss from adjusting only observable inputs (i.e., level 1 and level 2 inputs) is classified in level 3.
- Gains or losses that have been classified in level 3 resulting from changes in level 1 or level 2 inputs are frequently offset by gains or losses attributable to level 1 or level 2 derivatives and/or level 1, level 2 and level 3 trading cash instruments. As a result, gains/(losses) included in the level 3 rollforward below do not necessarily represent the overall impact on the Bank's results of operations, liquidity or capital resources.

The table below presents information, by product type, for derivatives included in the summary table above.

$ in millions	Year Ended December 2019	2018
Interest rates, net		
Beginning balance	**$ (221)**	$ (480)
Net realized gains/(losses)	**(46)**	(69)
Net unrealized gains/(losses)	**80**	93
Purchases	**1**	10
Sales	**(12)**	(4)
Settlements	**80**	196
Transfers into level 3	**6**	(28)
Transfers out of level 3	**23**	61
Ending balance	**$ (89)**	$ (221)
Currencies, net		
Beginning balance	**$ 621**	$ 167
Net realized gains/(losses)	**(2)**	(78)
Net unrealized gains/(losses)	**(353)**	176
Purchases	**15**	46
Sales	**(5)**	(1)
Settlements	**(38)**	47
Transfers into level 3	**(6)**	267
Transfers out of level 3	**2**	(3)
Ending balance	**$ 234**	$ 621
Credit, net		
Beginning balance	**$ 163**	$ 236
Net realized gains/(losses)	**(11)**	(32)
Net unrealized gains/(losses)	**(249)**	(85)
Purchases	**1**	16
Sales	**(1)**	(12)
Settlements	**52**	39
Transfers into level 3	**(1)**	1
Transfers out of level 3	**8**	–
Ending balance	**$ (38)**	$ 163
Equities, net		
Beginning balance	**$ 279**	$ 559
Net realized gains/(losses)	**(23)**	(21)
Net unrealized gains/(losses)	**323**	(241)
Purchases	**55**	76
Sales	**(9)**	(4)
Settlements	**(29)**	(64)
Transfers into level 3	**–**	8
Transfers out of level 3	**(47)**	(34)
Ending balance	**$ 549**	$ 279
Commodities, net		
Beginning balance	**$ 2**	$ 2
Settlements	**–**	–
Ending balance	**$ 2**	$ 2

Level 3 Rollforward Commentary

Year Ended December 2019. The net realized and unrealized losses on level 3 derivatives of $281 million (reflecting $82 million of net realized losses and $199 million of net unrealized losses) for 2019 were reported in gains and losses from financial assets and liabilities.

The net unrealized losses on level 3 derivatives for 2019 were primarily attributable to losses on certain currency derivatives (primarily reflecting the impact of a decrease in interest rates) and losses on certain credit derivatives (primarily reflecting the impact of tighter credit spreads and a decrease in interest rates), partially offset by gains on certain equity derivatives (primarily reflecting the impact of an increase in equity prices).

Transfers into level 3 derivatives during 2019 were not material.

Transfers out of level 3 derivatives during 2019 were not material.

Year Ended December 2018. The net realized and unrealized losses on level 3 derivatives of $257 million (reflecting $200 million of net realized losses and $57 million of net unrealized losses) for 2018 were reported in gains and losses from financial assets and liabilities.

The net unrealized losses on level 3 derivatives for 2018 were primarily attributable to losses on certain equity derivatives (reflecting the impact of changes in equity prices), partially offset by gains on certain currency derivatives (primarily reflecting the impact of changes in foreign exchange rates).

Transfers into level 3 derivatives during 2018 primarily reflected transfers of certain currency derivative assets from level 2 principally due to reduced transparency of certain correlation inputs used to value these derivatives.

Transfers out of level 3 derivatives during 2018 were not material.

Credit Derivatives

The Bank enters into a broad array of credit derivatives to facilitate client transactions and to manage the credit risk associated with market-making and financing activities. Credit derivatives are actively managed based on the Bank’s net risk position. Credit derivatives are generally individually negotiated contracts and can have various settlement and payment conventions. Credit events include failure to pay, bankruptcy, acceleration of indebtedness, restructuring, repudiation and dissolution of the reference entity.

The Bank enters into the following types of credit derivatives:

- **Credit Default Swaps.** Single-name credit default swaps protect the buyer against the loss of principal on one or more bonds, loans or mortgages (reference obligations) in the event the issuer of the reference obligations suffers a credit event. The buyer of protection pays an initial or periodic premium to the seller and receives protection for the period of the contract. If there is no credit event, as defined in the contract, the seller of protection makes no payments to the buyer. If a credit event occurs, the seller of protection is required to make a payment to the buyer, calculated according to the terms of the contract.

- **Credit Options.** In a credit option, the option writer assumes the obligation to purchase or sell a reference obligation at a specified price or credit spread. The option purchaser buys the right, but does not assume the obligation, to sell the reference obligation to, or purchase it from, the option writer. The payments on credit options depend either on a particular credit spread or the price of the reference obligation.

- **Credit Indices, Baskets and Tranches.** Credit derivatives may reference a basket of single-name credit default swaps or a broad-based index. If a credit event occurs in one of the underlying reference obligations, the protection seller pays the protection buyer. The payment is typically a pro-rata portion of the transaction's total notional amount based on the underlying defaulted reference obligation. In certain transactions, the credit risk of a basket or index is separated into various portions (tranches), each having different levels of subordination. The most junior tranches cover initial defaults and once losses exceed the notional amount of these junior tranches, any excess loss is covered by the next most senior tranche.

- **Total Return Swaps.** A total return swap transfers the risks relating to economic performance of a reference obligation from the protection buyer to the protection seller. Typically, the protection buyer receives a floating rate of interest and protection against any reduction in fair value of the reference obligation, and the protection seller receives the cash flows associated with the reference obligation, plus any increase in the fair value of the reference obligation.

The Bank economically hedges its exposure to written credit derivatives primarily by entering into offsetting purchased credit derivatives with identical underliers. Substantially all of the Bank's purchased credit derivative transactions are with financial institutions and are subject to stringent collateral thresholds. In addition, upon the occurrence of a specified trigger event, the Bank may take possession of the reference obligations underlying a particular written credit derivative, and consequently may, upon liquidation of the reference obligations, recover amounts on the underlying reference obligations in the event of default.

As of December 2019, written credit derivatives had a total gross notional amount of $76.98 billion and purchased credit derivatives had a total gross notional amount of $99.54 billion, for total net notional purchased protection of $22.56 billion. As of December 2018, written credit derivatives had a total gross notional amount of $80.20 billion and purchased credit derivatives had a total gross notional amount of $103.44 billion, for total net notional purchased protection of $23.24 billion. Substantially all of the Bank's written and purchased credit derivatives consist of credit default swaps.

The table below presents information about credit derivatives.

	Credit Spread on Underlier (basis points)				
$ in millions	0 - 250	251 - 500	501 - 1,000	Greater than 1,000	Total
As of December 2019					
Maximum Payout/Notional Amount of Written Credit Derivatives by Tenor					
Less than 1 year	**$ 10,686**	**$ 92**	**$ 128**	**$ 417**	**$ 11,323**
1 – 5 years	**51,261**	**1,736**	**1,033**	**2,413**	**56,443**
Greater than 5 years	**8,715**	**159**	**120**	**221**	**9,215**
Total	**$ 70,662**	**$ 1,987**	**$ 1,281**	**$ 3,051**	**$ 76,981**
Maximum Payout/Notional Amount of Purchased Credit Derivatives					
Offsetting	**$ 65,132**	**$ 1,915**	**$ 1,262**	**$ 2,647**	**$ 70,956**
Other	**$ 27,176**	**$ 661**	**$ 206**	**$ 540**	**$ 28,583**
Fair Value of Written Credit Derivatives					
Asset	**$ 2,641**	**$ 120**	**$ 74**	**$ 131**	**$ 2,966**
Liability	**680**	**14**	**21**	**349**	**1,064**
Net asset/(liability)	**$ 1,961**	**$ 106**	**$ 53**	**$ (218)**	**$ 1,902**
As of December 2018					
Maximum Payout/Notional Amount of Written Credit Derivatives by Tenor					
Less than 1 year	$ 19,279	$ 552	$ 225	$ 222	$ 20,278
1 – 5 years	39,835	4,538	2,899	1,520	48,792
Greater than 5 years	7,237	3,567	268	53	11,125
Total	$ 66,351	$ 8,657	$ 3,392	$ 1,795	$ 80,195
Maximum Payout/Notional Amount of Purchased Credit Derivatives					
Offsetting	$ 54,376	$ 3,908	$ 2,609	$ 163	$ 61,056
Other	$ 34,925	$ 3,656	$ 2,018	$ 1,782	$ 42,381
Fair Value of Written Credit Derivatives					
Asset	$ 996	$ 263	$ 58	$ 57	$ 1,374
Liability	748	440	78	53	1,319
Net asset/(liability)	$ 248	$ (177)	$ (20)	$ 4	$ 55

In the table above:

- Fair values exclude the effects of both netting of receivable balances with payable balances under enforceable netting agreements, and netting of cash received or posted under enforceable credit support agreements, and therefore are not representative of the Bank's credit exposure.
- Tenor is based on remaining contractual maturity.
- The credit spread on the underlier, together with the tenor of the contract, are indicators of payment/performance risk. The Bank is less likely to pay or otherwise be required to perform where the credit spread and the tenor are lower.
- Offsetting purchased credit derivatives represent the notional amount of purchased credit derivatives that economically hedge written credit derivatives with identical underliers.
- Other purchased credit derivatives represent the notional amount of all other purchased credit derivatives not included in offsetting.

Impact of Credit and Funding Spreads on Derivatives

The Bank realizes gains or losses on its derivative contracts. These gains or losses include credit valuation adjustments (CVA) relating to uncollateralized derivative assets and liabilities, which represents the gains or losses (including hedges) attributable to the impact of changes in credit exposure, counterparty and GS Group's credit spreads, liability funding spreads (which includes GS Group's credit), probability of default and assumed recovery. These gains or losses also include funding valuation adjustments (FVA) relating to uncollateralized derivative assets, which represents the gains or losses (including hedges) attributable to the impact of changes in expected funding exposures and funding spreads.

The table below presents information about CVA and FVA.

	Year Ended December	
$ in millions	**2019**	2018
CVA, net of hedges	**$ (137)**	$ 214
FVA, net of hedges	**167**	(82)
Total	**$ 30**	$ 132

Derivatives with Credit-Related Contingent Features

Certain of the Bank's derivatives have been transacted under bilateral agreements with counterparties who may require the Bank to post collateral or terminate the transactions based on changes in the credit ratings of the Bank and/or Group Inc. Typically, such requirements are based on the credit ratings of Group Inc. The Bank assesses the impact of these bilateral agreements by determining the collateral or termination payments that would occur assuming a downgrade by all rating agencies. A downgrade by any one rating agency, depending on the agency's relative ratings of the Bank and/or Group Inc. at the time of the downgrade, may have an impact which is comparable to the impact of a downgrade by all rating agencies.

The table below presents information about net derivative liabilities under bilateral agreements (excluding collateral posted), the fair value of collateral posted and additional collateral or termination payments that could have been called by counterparties in the event of a one- or two-notch downgrade in the credit ratings of the Bank and/or Group Inc.

	As of December	
$ in millions	**2019**	2018
Net derivative liabilities under bilateral agreements	**$ 6,420**	$ 5,511
Collateral posted	**$ 5,982**	$ 4,499
Additional collateral or termination payments:		
One-notch downgrade	**$ 149**	$ 112
Two-notch downgrade	**$ 303**	$ 411

Hedge Accounting

The Bank applies hedge accounting for certain interest rate swaps used to manage the interest rate exposure of certain fixed-rate certificates of deposit and certain fixed-rate unsecured short- and long-term borrowings.

To qualify for hedge accounting, the hedging instrument must be highly effective at reducing the risk from the exposure being hedged. Additionally, the Bank must formally document the hedging relationship at inception and assess the hedging relationship at least on a quarterly basis to ensure the hedging instrument continues to be highly effective over the life of the hedging relationship.

Fair Value Hedges

The Bank designates certain interest rate swaps as fair value hedges of certain fixed-rate certificates of deposit and certain fixed-rate unsecured short- and long-term borrowings. These interest rate swaps hedge changes in fair value attributable to the designated benchmark interest rate (e.g., London Interbank Offered Rate (LIBOR)), effectively converting a substantial portion of fixed-rate obligations into floating-rate obligations.

The Bank applies a statistical method that utilizes regression analysis when assessing the effectiveness of its fair value hedging relationships in achieving offsetting changes in the fair values of the hedging instrument and the risk being hedged (i.e., interest rate risk). An interest rate swap is considered highly effective in offsetting changes in fair value attributable to changes in the hedged risk when the regression analysis results in a coefficient of determination of 80% or greater and a slope between 80% and 125%.

For qualifying fair value hedges, gains or losses on derivatives are included in interest expense. The change in fair value of the hedged item attributable to the risk being hedged is reported as an adjustment to its carrying value (hedging adjustment) and is also included in interest expense. When a derivative is no longer designated as a hedge, any remaining difference between the carrying value and par value of the hedged item is amortized to interest expense over the remaining life of the hedged item using the effective interest method. See Note 21 for further information about interest income and interest expense.

The table below presents the gains/(losses) from interest rate derivatives accounted for as hedges and the related hedged deposits and borrowings, and total interest expense.

	Year Ended December	
$ in millions	**2019**	2018
Interest rate hedges	**$ 332**	$ (79)
Hedged deposits and borrowings	**$ (339)**	$ 64
Interest expense	**$ 4,675**	$ 3,065

The table below presents the carrying value of the hedged items that are currently designated in a hedging relationship and the related cumulative hedging adjustment (increase/(decrease)) from current and prior hedging relationships included in such carrying values.

$ in millions	Carrying Value	Cumulative Hedging Adjustment
As of December 2019		
Deposits	**$ 18,956**	**$ 172**
Unsecured short-term borrowings	**$ 1,004**	**$ 4**
As of December 2018		
Deposits	$ 11,248	$ (165)
Unsecured long-term borrowings	$ 1,000	$ –

In the table above, the cumulative hedging adjustments from prior hedging relationships that were de-designated were not material as of December 2019 and there were no hedging adjustments from prior hedging relationships that were de-designated as of December 2018.

In addition, as of both December 2019 and December 2018, cumulative hedging adjustments for items no longer designated in a hedging relationship were not material.

Note 8.

Investments

Investments includes debt instruments and equity securities that are accounted for at fair value and are generally held by the Bank in connection with its long-term investing activities. In addition, investments includes debt securities classified as available-for-sale and held-to-maturity that are generally held in connection with the Bank's asset-liability management activities.

The table below presents information about investments.

	As of December	
$ in millions	**2019**	2018
Equity securities, at fair value	**$ 64**	$ 324
Debt instruments, at fair value	**40**	33
Available-for-sale securities, at fair value	**5,873**	2,440
Investments, at fair value	**5,977**	2,797
Held-to-maturity securities	**1,500**	498
Total investments	**$ 7,477**	$ 3,295

Equity Securities and Debt Instruments, at Fair Value

Equity securities and debt instruments, at fair value are accounted for at fair value either under the fair value option or in accordance with other U.S. GAAP, and the related fair value gains and losses are recognized in earnings.

Equity Securities, at Fair Value. Equity securities, at fair value consists of the Bank's private equity-related investments in corporate and real estate entities. Equity securities, at fair value includes investments made as part of the Bank's CRA activities. Equity securities, at fair value includes $18 million as of December 2019 and $34 million as of December 2018 of investments in funds that are measured at NAV.

Debt Instruments, at Fair Value. Debt instruments, at fair value includes corporate debt securities.

Available-for-Sale Securities

Available-for-sale securities are accounted for at fair value, and the related unrealized fair value gains and losses are included in accumulated other comprehensive income/(loss).

The table below presents information about available-for-sale securities by tenor.

$ in millions	Amortized Cost	Fair Value	Weighted Average Yield
As of December 2019			
Less than 5 years	**$ 2,996**	**$ 3,013**	**1.80%**
Greater than 5 years	**2,869**	**2,860**	**1.77%**
Total	**$ 5,865**	**$ 5,873**	**1.79%**
As of December 2018			
Less than 5 years	$ 2,492	$ 2,440	1.85%
Total	$ 2,492	$ 2,440	1.85%

In the table above:

- Available-for-sale securities consists of U.S. government obligations that were classified in level 1 of the fair value hierarchy as of both December 2019 and December 2018.
- The gross unrealized gains included in accumulated other comprehensive income/(loss) were $24 million and the gross unrealized losses included in accumulated other comprehensive income/(loss) were $16 million as of December 2019 and were related to U.S. government obligations in a continuous unrealized loss position for less than a year. The gross unrealized losses included in accumulated other comprehensive income/(loss) were $52 million as of December 2018 and were related to securities in a continuous unrealized loss position for greater than a year.
- Available-for-sale securities in an unrealized loss position are periodically reviewed for other-than-temporary impairment. The Bank considers various factors, including market conditions, changes in issuer credit ratings, severity and duration of the unrealized losses, and the intent and ability to hold the security until recovery to determine if the securities are other-than-temporarily impaired. There were no such impairments during 2019 or 2018.

Fair Value of Investments by Level

The table below presents investments accounted for at fair value by level within the fair value hierarchy.

$ in millions	Level 1	Level 2	Level 3	Total
As of December 2019				
U.S. government and agency obligations	**$ 5,873**	**$ –**	**$ –**	**$ 5,873**
Equity securities	**–**	**10**	**36**	**46**
Corporate debt instruments	**–**	**40**	**–**	**40**
Subtotal	**$ 5,873**	**$ 50**	**$ 36**	**$ 5,959**
Investments in funds at NAV				**18**
Total investments				**$ 5,977**
As of December 2018				
U.S. government and agency obligations	$ 2,440	$ –	$ –	$ 2,440
Equity securities	–	17	273	290
Corporate debt instruments	–	33	–	33
Subtotal	$ 2,440	$ 50	$ 273	$ 2,763
Investments in funds at NAV				34
Total investments				$ 2,797

See Note 4 for an overview of the Bank's fair value measurement policies and the valuation techniques and significant inputs used to determine the fair value of investments.

Significant Unobservable Inputs

The table below presents the amount of level 3 investments, and ranges and weighted averages of significant unobservable inputs used to value such investments.

	Level 3 Assets and Range of Significant Unobservable Inputs (Weighted Average) as of December	
$ in millions	**2019**	2018
Equity securities		
Level 3 assets	**$36**	$273
Discount rate/yield	**5.2% to 10.0% (7.4%)**	8.0% to 15.0% (13.9%)
Capitalization rate	**N.M.**	4.8% to 6.5% (4.9%)

In the table above:

- Ranges represent the significant unobservable inputs that were used in the valuation of each type of investment.
- Weighted averages are calculated by weighting each input by the relative fair value of the investment.

- The ranges and weighted averages of these inputs are not representative of the appropriate inputs to use when calculating the fair value of any one investment. For example, the highest discount rate for private equity securities is appropriate for valuing a specific private equity security but may not be appropriate for valuing any other private equity security. Accordingly, the ranges of inputs do not represent uncertainty in, or possible ranges of, fair value measurements of level 3 investments.
- Equity securities are valued using market comparables and discounted cash flows.
- The fair value of any one instrument may be determined using multiple valuation techniques. For example, market comparables and discounted cash flows may be used together to determine fair value. Therefore, the level 3 balance encompasses both of these techniques.
- As of December 2019, capitalization rate has no range and is not meaningful and therefore has been excluded from the table.

Level 3 Rollforward

The table below presents a summary of the changes in the fair value for level 3 investments.

	Year Ended December	
$ in millions	**2019**	2018
Beginning balance	**$ 273**	$ 300
Net realized gains/(losses)	**(5)**	1
Net unrealized gains/(losses)	**(2)**	42
Purchases	**–**	25
Sales	**(229)**	–
Settlements	**(1)**	(90)
Transfers out of level 3	**–**	(5)
Ending balance	**$ 36**	$ 273

In the table above:

- Changes in fair value are presented for all investments that are classified in level 3 as of the end of the period.
- Net unrealized gains/(losses) relates to instruments that were still held at period-end.
- Transfers between levels of the fair value hierarchy are reported at the beginning of the reporting period in which they occur. If an investment was transferred to level 3 during a reporting period, its entire gain or loss for the period is classified in level 3.
- For level 3 investments, increases are shown as positive amounts, while decreases are shown as negative amounts.

The table below presents information, by product type, for investments included in the summary table above.

	Year Ended December	
$ in millions	**2019**	2018
Equity securities		
Beginning balance	**$ 273**	$ 267
Net realized gains/(losses)	**(5)**	1
Net unrealized gains/(losses)	**(2)**	42
Purchases	**–**	25
Sales	**(229)**	–
Settlements	**(1)**	(57)
Transfers out of level 3	**–**	(5)
Ending balance	**$ 36**	$ 273
Other debt obligations		
Beginning balance	**$ –**	$ 33
Settlements	**–**	(33)
Ending balance	**$ –**	$ –

Level 3 Rollforward Commentary

Year Ended December 2019. The net realized and unrealized losses on level 3 investments of $7 million (reflecting $5 million of net realized losses and $2 million of net unrealized losses) for 2019 were reported in gains and losses from financial assets and liabilities.

The drivers of net unrealized losses on level 3 investments for 2019 were not material.

There were no transfers into or out of level 3 investments during 2019.

Year Ended December 2018. The net realized and unrealized gains on level 3 investments of $43 million (reflecting $1 million of net realized gains and $42 million of net unrealized gains) for 2018 were reported in gains and losses from financial assets and liabilities.

The drivers of net unrealized gains on level 3 investments for 2018 were not material.

There were no transfers into level 3 investments during 2018. Transfers out of level 3 investments during 2018 were not material.

Held-to-Maturity Securities

Held-to-maturity securities are accounted for at amortized cost, net of other-than-temporary impairments.

The table below presents information about held-to-maturity securities by tenor.

$ in millions	Amortized Cost	Fair Value	Weighted Average Yield
As of December 2019			
Less than 5 years	**$ 1,500**	**$ 1,540**	**2.73%**
Total	**$ 1,500**	**$ 1,540**	**2.73%**
As of December 2018			
Less than 5 years	$ 498	$ 511	3.08%
Total	$ 498	$ 511	3.08%

In the table above:

- Held-to-maturity securities consists of U.S. government obligations.
- As these securities are not accounted for at fair value, they are not included in the Bank's fair value hierarchy in Notes 4 through 10. Had these securities been included in the Bank's fair value hierarchy, they would have been classified in level 1 of the fair value hierarchy as of both December 2019 and December 2018.
- The gross unrealized gains were $40 million as of December 2019 and gross unrealized gains/(losses) were not material as of December 2018.
- Held-to-maturity securities in an unrealized loss position are periodically reviewed for other-than-temporary impairment. The Bank considers various factors, including market conditions, changes in issuer credit ratings, severity and duration of the unrealized losses, and the intent and ability to hold the security until recovery to determine if the securities are other-than-temporarily impaired. There were no such impairments during both 2019 and 2018.

Note 9.

Loans

Loans include (i) loans held for investment that are accounted for at amortized cost net of allowance for loan losses or at fair value under the fair value option and (ii) loans held for sale that are accounted for at the lower of cost or fair value. Interest on loans is recognized over the life of the loan and is recorded on an accrual basis.

The table below presents information about loans.

$ in millions	Amortized Cost	Fair Value	Held for Sale	Total
As of December 2019				
Loan Type				
Corporate	**$ 27,387**	**$ 695**	**$ 1,319**	**$ 29,401**
Wealth management	**16,959**	**7,824**	**–**	**24,783**
Commercial real estate	**9,402**	**213**	**1,754**	**11,369**
Residential real estate	**4,009**	**–**	**34**	**4,043**
Consumer	**4,747**	**–**	**–**	**4,747**
Credit cards	**1,858**	**–**	**–**	**1,858**
Other	**2,780**	**–**	**679**	**3,459**
Total loans, gross	**67,142**	**8,732**	**3,786**	**79,660**
Allowance for loan losses	**(777)**	**–**	**–**	**(777)**
Total loans	**$ 66,365**	**$ 8,732**	**$ 3,786**	**$ 78,883**
As of December 2018				
Loan Type				
Corporate	$ 26,746	$ 547	$ 2,112	$ 29,405
Wealth management	15,398	7,225	–	22,623
Commercial real estate	8,812	167	1,018	9,997
Residential real estate	3,778	–	43	3,821
Consumer	4,536	–	–	4,536
Other	3,079	25	458	3,562
Total loans, gross	62,349	7,964	3,631	73,944
Allowance for loan losses	(617)	–	–	(617)
Total loans	$ 61,732	$ 7,964	$ 3,631	$ 73,327

In the table above, as of December 2019, wealth management loans included $14.35 billion of loans, substantially all of which are secured by investments in both financial and nonfinancial assets, $2.65 billion of loans secured by commercial real estate and $7.79 billion of loans secured by residential real estate. As of December 2018, wealth management loans included $13.30 billion of loans, substantially all of which are secured by investments in both financial and nonfinancial assets, $2.21 billion of loans secured by commercial real estate and $7.11 billion of loans secured by residential real estate.

The following is a description of the loan types in the table above:

- **Corporate.** Corporate loans includes term loans, revolving lines of credit, letter of credit facilities and bridge loans, and are principally used for operating and general corporate purposes, or in connection with acquisitions. Corporate loans also includes loans originated as part of the Bank's CRA activities. Corporate loans may be secured or unsecured, depending on the loan purpose, the risk profile of the borrower and other factors.
- **Wealth Management.** Wealth management loans includes loans extended to private bank clients, including wealth management and other clients. Wealth management loans also include loans originated through *Goldman Sachs Private Bank Select*. Wealth management loans are used to finance investments in both financial and nonfinancial assets, bridge cash flow timing gaps or provide liquidity for other needs. Substantially all wealth management loans are secured by securities, residential real estate, commercial real estate, or other assets.
- **Commercial Real Estate.** Commercial real estate loans includes loans extended by the Bank, other than those extended to private bank clients, that are directly or indirectly secured by hotels, retail stores, multifamily housing complexes and commercial and industrial properties. Commercial real estate loans also includes loans purchased by the Bank and loans originated as part of the Bank's CRA activities.
- **Residential Real Estate.** Residential real estate loans includes loans extended by the Bank to clients, other than those extended to private bank clients, who warehouse assets that are directly or indirectly secured by residential real estate. Residential real estate loans also includes loans purchased and originated by the Bank.
- **Consumer.** Consumer loans are unsecured and are originated by the Bank.
- **Credit Cards.** Credit card loans are loans made pursuant to revolving lines of credit issued to consumers by the Bank.
- **Other.** Other loans primarily includes loans extended to clients who warehouse assets that are directly or indirectly secured by consumer loans, including auto loans and private student loans. Other loans also includes unsecured consumer loans purchased by the Bank.

Credit Quality

Risk Assessment. The Bank's risk assessment process includes evaluating the credit quality of its loans. For loans (excluding originated and purchased consumer loans, originated credit card loans and certain wealth management loans backed by residential real estate), the Bank performs credit reviews which include initial and ongoing analyses of its borrowers, resulting in an internal credit rating. A credit review is an independent analysis of the capacity and willingness of a borrower to meet its financial obligations. The determination of internal credit ratings also incorporates assumptions with respect to the nature of and outlook for the borrower's industry and the economic environment.

The table below presents gross loans by an internally determined public rating agency equivalent or other credit metrics and the concentration of secured and unsecured loans.

$ in millions	Investment-Grade	Non-Investment-Grade	Other/ Unrated	Total
As of December 2019				
Amortized cost	**$ 25,940**	**$ 34,352**	**$ 6,850**	**$ 67,142**
Fair value	**2,008**	**2,381**	**4,343**	**8,732**
Held for sale	**328**	**2,906**	**552**	**3,786**
Total	**$ 28,276**	**$ 39,639**	**$ 11,745**	**$ 79,660**
Secured	**29%**	**47%**	**7%**	**83%**
Unsecured	**6%**	**3%**	**8%**	**17%**
Total	**35%**	**50%**	**15%**	**100%**
As of December 2018				
Amortized cost	$ 25,560	$ 32,118	$ 4,671	$ 62,349
Fair value	1,838	2,290	3,836	7,964
Held for sale	1,163	1,945	523	3,631
Total	$ 28,561	$ 36,353	$ 9,030	$ 73,944
Secured	30%	46%	6%	82%
Unsecured	9%	3%	6%	18%
Total	39%	49%	12%	100%

In the table above, other/unrated includes $11.35 billion as of December 2019 and $8.78 billion as of December 2018 of loans evaluated using other credit metrics described below. Such loans primarily include originated and purchased consumer loans, originated credit card loans and certain wealth management loans backed by residential real estate.

For purchased consumer loans and certain wealth management loans backed by residential real estate, the Bank's risk assessment process includes reviewing certain key metrics, such as loan-to-value ratio, delinquency status, collateral values, expected cash flows, the Fair Isaac Corporation (FICO) credit score and other risk factors.

For originated consumer and credit card loans, an important credit-quality indicator is the FICO credit score, which measures a borrower's creditworthiness by considering factors such as payment and credit history. FICO credit scores are refreshed periodically by the Bank to assess the updated creditworthiness of the borrower.

The table below presents gross consumer and credit card loans and the concentration by refreshed FICO credit score.

	As of December	
$ in millions	**2019**	2018
Consumer, gross	**$ 4,747**	$ 4,536
Credit card, gross	**1,858**	–
Total	**$ 6,605**	$ 4,536
Refreshed FICO credit score		
Greater than or equal to 660	**85%**	88%
Less than 660	**15%**	12%
Total	**100%**	100%

The Bank also assigns a regulatory risk rating to its loans based on the definitions provided by the U.S. federal bank regulatory agencies. The table below presents gross loans by regulatory risk rating.

$ in millions	Non-criticized/ Pass	Criticized	Total
As of December 2019			
Amortized cost	**$ 65,304**	**$ 1,838**	**$ 67,142**
Fair value	**8,655**	**77**	**8,732**
Held for sale	**3,758**	**28**	**3,786**
Total	**$ 77,717**	**$ 1,943**	**$ 79,660**
As of December 2018			
Amortized cost	$ 60,901	$ 1,448	$ 62,349
Fair value	7,905	59	7,964
Held for sale	3,603	28	3,631
Total	$ 72,409	$ 1,535	$ 73,944

Credit Concentrations. The table below presents the concentration of gross loans by regions.

	As of December	
$ in millions	**2019**	2018
Loans, gross	**$ 79,660**	$ 73,944
Region		
Americas	**88%**	86%
EMEA	**10%**	12%
Asia	**2%**	2%
Total	**100%**	100%

In the table above EMEA represents Europe, Middle East and Africa.

The table below presents the concentration of gross corporate loans by industry.

	As of December	
$ in millions	**2019**	2018
Corporate, gross	**$ 29,401**	$ 29,405
Industry		
Consumer, Retail & Healthcare	**16%**	14%
Diversified Industrials	**14%**	13%
Financial Institutions	**14%**	16%
Funds	**12%**	12%
Natural Resources & Utilities	**11%**	11%
Real Estate	**6%**	7%
Technology, Media & Telecommunications	**11%**	13%
Structured Finance	**9%**	9%
Other (including Special Purpose Vehicles)	**7%**	5%
Total	**100%**	100%

Impaired Loans. Loans accounted for at amortized cost are determined to be impaired when it is probable that the Bank will not collect all principal and interest due under the contractual terms. At that time, such loans are generally placed on nonaccrual status and all accrued but uncollected interest is reversed against interest income and interest subsequently collected is recognized on a cash basis to the extent the loan balance is deemed collectible. Otherwise, all cash received is used to reduce the outstanding loan balance. A loan is considered past due when a principal or interest payment has not been made according to its contractual terms.

In certain circumstances, the Bank may also modify the original terms of a loan agreement by granting a concession to a borrower experiencing financial difficulty. Such modifications are considered troubled debt restructurings and typically include interest rate reductions, payment extensions, and modification of loan covenants. Loans modified in a troubled debt restructuring are considered impaired and are subject to specific loan-level reserves.

The gross carrying value of impaired loans on nonaccrual status was $425 million as of December 2019 and $336 million as of December 2018. As of both December 2019 and December 2018, the value of loans modified in a troubled debt restructuring was not material. The Bank did not have any lending commitments related to these loans as of both December 2019 and December 2018. The amount of loans 30 days or more past due was $294 million as of December 2019 and $160 million as of December 2018.

Allowance for Credit Losses

The Bank's allowance for credit losses consists of the allowance for losses on loans and lending commitments accounted for at amortized cost. Loans and lending commitments accounted for at fair value or accounted for at the lower of cost or fair value are not subject to an allowance for credit losses.

The Bank's allowance for loan losses consists of specific loan-level reserves and portfolio level reserves, as described below:

- Specific loan-level reserves are determined on loans that exhibit credit quality weakness and are therefore individually evaluated for impairment.
- Portfolio level reserves are determined on loans not evaluated for specific loan-level reserves by aggregating groups of loans with similar risk characteristics and estimating the probable loss inherent in the portfolio.

The allowance for loan losses is determined using various risk factors, including industry default and loss data, current macroeconomic indicators, borrower's capacity to meet its financial obligations, borrower's country of risk, loan seniority and collateral type. In addition, for loans backed by real estate, risk factors include loan to value ratio, debt service ratio and home price index. Risk factors for consumer and credit card loans include FICO credit scores and delinquency status.

Management's estimate of loan losses entails judgment about loan collectability at the reporting dates, and there are uncertainties inherent in those judgments. While management uses the best information available to determine this estimate, future adjustments to the allowance may be necessary based on, among other things, changes in the economic environment or variances between actual results and the original assumptions used. Loans are charged off against the allowance for loan losses when deemed to be uncollectible.

The Bank also records an allowance for losses on lending commitments that are held for investment and accounted for at amortized cost. Such allowance is determined using the same methodology as the allowance for loan losses, while also taking into consideration the probability of drawdowns or funding, and is included in other liabilities.

The table below presents gross loans and lending commitments accounted for at amortized cost by impairment methodology.

$ in millions	Specific	Portfolio	Total
As of December 2019			
Loans			
Corporate	**$ 257**	**$ 27,130**	**$ 27,387**
Wealth management	**52**	**16,907**	**16,959**
Commercial real estate	**68**	**9,334**	**9,402**
Residential real estate	**48**	**3,961**	**4,009**
Consumer	**–**	**4,747**	**4,747**
Credit cards	**–**	**1,858**	**1,858**
Other	**–**	**2,780**	**2,780**
Total	**$ 425**	**$ 66,717**	**$ 67,142**
Lending Commitments			
Corporate	**$ 65**	**$ 106,750**	**$ 106,815**
Credit card	**–**	**13,669**	**13,669**
Other	**6**	**7,309**	**7,315**
Total	**$ 71**	**$ 127,728**	**$ 127,799**
As of December 2018			
Loans			
Corporate	$ 91	$ 26,655	$ 26,746
Wealth management	46	15,352	15,398
Commercial real estate	9	8,803	8,812
Residential real estate	190	3,588	3,778
Consumer	–	4,536	4,536
Other	–	3,079	3,079
Total	$ 336	$ 62,013	$ 62,349
Lending Commitments			
Corporate	$ 4	$ 98,105	$ 98,109
Other	1	5,667	5,668
Total	$ 5	$ 103,772	$ 103,777

In the table above:

- Gross loans and lending commitments, subject to specific loan-level reserves, included $262 million as of December 2019 and $218 million as of December 2018 of impaired loans and lending commitments, which did not require a reserve as the loan was deemed to be recoverable.
- Gross loans deemed impaired and subject to specific loan-level reserves as a percentage of total gross loans was 0.6% as of December 2019 and 0.5% as of December 2018.
- See Note 18 for further information about lending commitments.

The table below presents information about the allowance for credit losses.

	Year Ended December 2019		Year Ended December 2018	
$ in millions	**Loans**	**Lending Commitments**	Loans	Lending Commitments
Changes in the allowance for credit losses				
Beginning balance	**$ 617**	**$ 202**	$ 354	$ 193
Net charge-offs	**(336)**	**–**	(156)	–
Provision	**591**	**64**	455	15
Other	**(95)**	**–**	(36)	(6)
Ending balance	**$ 777**	**$ 266**	$ 617	$ 202
Allowance for losses by impairment methodology				
Specific	**$ 48**	**$ 16**	$ 38	$ 1
Portfolio	**729**	**250**	579	201
Total	**$ 777**	**$ 266**	$ 617	$ 202

In the table above:

- Substantially all net charge-offs were related to consumer loans for both 2019 and 2018.
- The provision for credit losses was primarily related to consumer loans and corporate loans for 2019 and consumer loans for 2018.
- Other represents the reduction to the allowance related to loans and lending commitments transferred to held for sale.
- Portfolio-level reserves were primarily related to corporate loans and consumer loans. Specific loan-level reserves were primarily related to corporate loans.
- Substantially all of the allowance for losses on lending commitments was related to corporate lending commitments.
- Allowance for loan losses as a percentage of total gross loans accounted for at amortized cost was 1.2% as of December 2019 and 1.0% as of December 2018.
- Net charge-offs as a percentage of average total gross loans at amortized cost were 0.5% for 2019 and 0.3% for 2018.

Fair Value of Loans by Level

The table below presents loans held for investment accounted for at fair value under the fair value option by level within the fair value hierarchy.

$ in millions	Level 1	Level 2	Level 3	Total
As of December 2019				
Loan Type				
Corporate	**$ –**	**$ 670**	**$ 25**	**$ 695**
Wealth management	**–**	**7,764**	**60**	**7,824**
Commercial real estate	**–**	**145**	**68**	**213**
Total	**$ –**	**$ 8,579**	**$ 153**	**$ 8,732**
As of December 2018				
Loan Type				
Corporate	$ –	$ 527	$ 20	$ 547
Wealth management	–	7,167	58	7,225
Commercial real estate	–	97	70	167
Other	–	25	–	25
Total	$ –	$ 7,816	$ 148	$ 7,964

The gains/(losses) as a result of the changes in the fair value of loans included in the table above were $133 million for 2019 and not material for 2018. These gains/(losses) were included in gains and losses from financial assets and liabilities.

See Note 4 for an overview of the Bank's fair value measurement policies and the valuation techniques and significant inputs used to determine the fair value of loans.

Significant Unobservable Inputs

The table below presents the amount of level 3 loans, and ranges and weighted averages of significant unobservable inputs used to value such loans.

	Level 3 Assets and Range of Significant Unobservable Inputs (Weighted Average) as of December	
$ in millions	**2019**	2018
Corporate		
Level 3 assets	**$25**	$20
Yield	**8.0% to 12.5% (9.7%)**	N.M.
Commercial real estate		
Level 3 assets	**$68**	$70
Yield	**8.7% to 12.0% (9.5%)**	9.1% to 10.6% (9.7%)
Duration (years)	**0.2 to 0.4 (0.4)**	N.M.

In the table above:

- Ranges represent the significant unobservable inputs that were used in the valuation of each type of loan.
- Weighted averages are calculated by weighting each input by the relative fair value of the loan.
- The ranges and weighted averages of these inputs are not representative of the appropriate inputs to use when calculating the fair value of any one loan. For example, the highest yield for commercial real estate loans is appropriate for valuing a specific commercial real estate loan but may not be appropriate for valuing any other commercial real estate loan. Accordingly, the ranges of inputs do not represent uncertainty in, or possible ranges of, fair value measurements of level 3 loans.
- Loans are valued using discounted cash flows.
- Significant unobservable inputs for wealth management loans have no range and are not meaningful and therefore have been excluded from the table.
- As of December 2018, yield for corporate loans and duration for commercial real estate loans has no range and is not meaningful and therefore has been excluded from the table.

Level 3 Rollforward

The table below presents a summary of the changes in fair value for level 3 loans.

	Year Ended December	
$ in millions	**2019**	2018
Beginning balance	**$ 148**	$ 211
Net realized gains/(losses)	**14**	6
Net unrealized gains/(losses)	**4**	18
Purchases	**9**	14
Settlements	**(22)**	(26)
Transfers into level 3	**–**	3
Transfers out of level 3	**–**	(78)
Ending balance	**$ 153**	$ 148

In the table above:

- Changes in fair value are presented for loans that are classified in level 3 as of the end of the period.
- Net unrealized gains/(losses) relates to instruments that were still held at period-end.
- Purchases includes originations and secondary purchases.
- Transfers between levels of the fair value hierarchy are reported at the beginning of the reporting period in which they occur. If a loan was transferred to level 3 during a reporting period, its entire gain or loss for the period is classified in level 3.

The table below presents information, by loan type, for loans included in the summary table above.

	Year Ended December	
$ in millions	**2019**	2018
Corporate		
Beginning balance	**$ 20**	$ 30
Net realized gains/(losses)	**–**	2
Net unrealized gains/(losses)	**4**	(4)
Purchases	**7**	9
Settlements	**(6)**	(16)
Transfers into level 3	**–**	3
Transfers out of level 3	**–**	(4)
Ending balance	**$ 25**	$ 20
Wealth management		
Beginning balance	**$ 58**	$ 73
Net unrealized gains/(losses)	**–**	1
Purchases	**2**	2
Transfers out of level 3	**–**	(18)
Ending balance	**$ 60**	$ 58
Commercial real estate		
Beginning balance	**$ 70**	$ 108
Net realized gains/(losses)	**14**	4
Net unrealized gains/(losses)	**–**	21
Purchases	**–**	3
Settlements	**(16)**	(10)
Transfers out of level 3	**–**	(56)
Ending balance	**$ 68**	$ 70

Level 3 Rollforward Commentary

Year Ended December 2019. The net realized and unrealized gains on level 3 loans of $18 million (reflecting $14 million of net realized gains and $4 million of net unrealized gains) for 2019 were reported in gains and losses from financial assets and liabilities.

The drivers of net unrealized gains on level 3 loans for 2019 were not material.

There were no transfers into or out of level 3 loans during 2019.

Year Ended December 2018. The net realized and unrealized gains on level 3 loans of $24 million (reflecting $6 million of net realized gains and $18 million of net unrealized gains) for 2018 were reported in gains and losses from financial assets and liabilities.

The drivers of net unrealized gains on level 3 loans for 2018 were not material.

The drivers of transfers into and out of level 3 loans during 2018 were not material.

Estimated Fair Value

The table below presents the estimated fair value of loans that are not accounted for at fair value and in what level of the fair value hierarchy they would have been classified if they had been included in the Bank's fair value hierarchy.

	Carrying	Estimated Fair Value		
$ in millions	Value	Level 2	Level 3	Total
As of December 2019				
Amortized cost	**$ 66,365**	**$ 38,230**	**$ 27,920**	**$ 66,150**
Held for sale	**$ 3,786**	**$ 2,957**	**$ 840**	**$ 3,797**
As of December 2018				
Amortized cost	$ 61,732	$ 29,707	$ 31,950	$ 61,657
Held for sale	$ 3,631	$ 2,680	$ 978	$ 3,658

Note 10.

Fair Value Option

Other Financial Assets and Liabilities at Fair Value

In addition to trading assets and liabilities, and certain investments and loans, the Bank accounts for certain of its other financial assets and liabilities at fair value, substantially all under the fair value option. The primary reasons for electing the fair value option are to:

- Reflect economic events in earnings on a timely basis;
- Mitigate volatility in earnings from using different measurement attributes (e.g., transfers of financial assets accounted for as financings are recorded at fair value, whereas the related secured financing would be recorded on an accrual basis absent electing the fair value option); and
- Address simplification and cost-benefit considerations (e.g., accounting for hybrid financial instruments at fair value in their entirety versus bifurcation of embedded derivatives and hedge accounting for debt hosts).

Hybrid financial instruments are instruments that contain bifurcatable embedded derivatives and do not require settlement by physical delivery of nonfinancial assets. The Bank has not elected to bifurcate hybrid financial instruments and accounts for the entire hybrid financial instrument at fair value under the fair value option.

Other financial assets and liabilities accounted for at fair value under the fair value option include:

- Repurchase agreements and substantially all resale agreements;
- Most other secured financings, including advances from the FHLB;
- Certain unsecured borrowings;
- Certain other assets; and
- Certain time deposits (deposits with no stated maturity are not eligible for a fair value option election), including structured certificates of deposit, which are hybrid financial instruments.

Fair Value of Other Financial Assets and Liabilities by Level

The table below presents, by level within the fair value hierarchy, other financial assets and liabilities at fair value, substantially all of which are accounted for at fair value under the fair value option.

$ in millions	Level 1	Level 2	Level 3	Total
As of December 2019				
Assets				
Resale agreements	**$ –**	**$ 4,430**	**$ –**	**$ 4,430**
Other assets	**–**	**25**	**1**	**26**
Total	**$ –**	**$ 4,455**	**$ 1**	**$ 4,456**
Liabilities				
Deposits	**$ –**	**$ (2,119)**	**$ (4,185)**	**$ (6,304)**
Repurchase agreements	**–**	**(9,891)**	**–**	**(9,891)**
Other secured financings	**–**	**(527)**	**–**	**(527)**
Unsecured borrowings	**–**	**(32)**	**–**	**(32)**
Total	**$ –**	**$ (12,569)**	**$ (4,185)**	**$ (16,754)**
As of December 2018				
Assets				
Resale agreements	$ –	$ 36,486	$ –	$ 36,486
Total	$ –	$ 36,486	$ –	$ 36,486
Liabilities				
Deposits	$ –	$ (1,700)	$ (3,168)	$ (4,868)
Repurchase agreements	–	(3,815)	–	(3,815)
Other secured financings	–	(528)	–	(528)
Unsecured borrowings	–	(175)	–	(175)
Total	$ –	$ (6,218)	$ (3,168)	$ (9,386)

In the table above, other financial assets are shown as positive amounts and other financial liabilities are shown as negative amounts.

See Note 4 for an overview of the Bank's fair value measurement policies and the valuation techniques and significant inputs used to determine the fair value of other financial assets and liabilities.

Significant Inputs

See below for information about the significant inputs (including significant unobservable inputs) used to value other financial assets and liabilities at fair value:

Resale and Repurchase Agreements. As of both December 2019 and December 2018, the Bank had no level 3 resale or repurchase agreements.

Other Assets. As of December 2019 the Bank's level 3 other assets were not material. As of December 2018, the Bank had no level 3 other assets.

Deposits. The Bank's deposits that are classified in level 3 are hybrid financial instruments. As the significant unobservable inputs used to value such instruments primarily relate to the embedded derivative component of these deposits, these unobservable inputs are incorporated in the Bank's derivative disclosures in Note 7.

Other Secured Financings. As of both December 2019 and December 2018, the Bank had no level 3 other secured financings.

Unsecured Borrowings. As of both December 2019 and December 2018, the Bank had no level 3 unsecured borrowings.

Level 3 Rollforward

The table below presents the changes in fair value for level 3 other financial liabilities accounted for at fair value.

	Year Ended December	
$ in millions	**2019**	2018
Deposits		
Beginning balance	**$ (3,168)**	$ (2,968)
Net realized gains/(losses)	**(21)**	(25)
Net unrealized gains/(losses)	**(491)**	272
Issuances	**(930)**	(796)
Settlements	**323**	298
Transfers into level 3	**(27)**	(8)
Transfers out of level 3	**129**	59
Ending balance	**$ (4,185)**	$ (3,168)

In the table above:

- Changes in fair value are presented for all other financial liabilities that are classified in level 3 as of the end of the period.
- Net unrealized gains/(losses) relates to instruments that were still held at period-end.
- Transfers between levels of the fair value hierarchy are reported at the beginning of the reporting period in which they occur. If a financial liability was transferred to level 3 during a reporting period, its entire gain or loss for the period is classified in level 3.
- For level 3 other financial liabilities, increases are shown as negative amounts, while decreases are shown as positive amounts.
- Level 3 other financial liabilities are frequently economically hedged with trading assets and liabilities. Accordingly, gains or losses that are classified in level 3 can be partially offset by gains or losses attributable to level 1, 2 or 3 trading assets and liabilities. As a result, gains or losses included in the level 3 rollforward above do not necessarily represent the overall impact on the Bank's results of operations, liquidity or capital resources.

Level 3 Rollforward Commentary

Year Ended December 2019. The net realized and unrealized losses on level 3 other financial liabilities of $512 million (reflecting $21 million of net realized losses and $491 million of net unrealized losses) for 2019 included losses of $462 million reported in gains and losses from financial assets and liabilities in the consolidated statements of earnings, and losses of $50 million reported in debt valuation adjustment in the consolidated statements of comprehensive income.

The net unrealized losses on level 3 other financial liabilities for 2019 primarily reflected losses on certain hybrid financial instruments included in deposits, principally due to the impact of an increase in the market value of the underlying assets.

Transfers into level 3 other financial liabilities during 2019 primarily reflected transfers of certain hybrid financial instruments included in deposits from level 2, principally due to reduced transparency of certain correlation and volatility inputs used to value these instruments.

Transfers out of level 3 other financial liabilities during 2019 primarily reflected transfers of certain hybrid financial instruments included in deposits to level 2, principally due to increased transparency of certain correlation and volatility inputs used to value these instruments.

Year Ended December 2018. The net realized and unrealized gains on level 3 other financial liabilities of $247 million (reflecting $25 million of net realized losses and $272 million of net unrealized gains) for 2018 included gains of $189 million reported in gains and losses from financial assets and liabilities in the consolidated statements of earnings, and gains of $58 million reported in debt valuation adjustment in the consolidated statements of comprehensive income.

The net unrealized gains on level 3 other financial liabilities for 2018 primarily reflected gains on certain hybrid financial instruments included in deposits, principally due to the impact of a decrease in the market value of the underlying assets.

Transfers into level 3 other financial liabilities during 2018 were not material.

Transfers out of level 3 other financial liabilities during 2018 primarily reflected transfers of certain hybrid financial instruments included in deposits to level 2, principally due to increased transparency of correlation and volatility inputs used to value these instruments.

Gains and Losses on Other Financial Assets and Liabilities Accounted for at Fair Value Under the Fair Value Option

The table below presents the gains and losses recognized in earnings as a result of the election to apply the fair value option to certain financial assets and liabilities.

	Year Ended December	
$ in millions	**2019**	2018
Deposits	**$ (615)**	$ 189
Other	**(2)**	2
Total	**$ (617)**	$ 191

In the table above:

- Gains/(losses) are included in gains and losses from financial assets and liabilities.
- Gains/(losses) exclude contractual interest, which is included in interest income and interest expense, for all instruments other than hybrid financial instruments. See Note 21 for further information about interest income and interest expense.
- Gains/(losses) included in deposits were related to the embedded derivative component of hybrid financial instruments for both 2019 and 2018. These gains and losses would have been recognized under other U.S. GAAP even if the Bank had not elected to account for the entire hybrid financial instrument at fair value.
- Other primarily consists of gains/(losses) on certain unsecured borrowings, FHLB advances, and resale agreements.
- Other financial assets and liabilities at fair value are frequently economically hedged with trading assets and liabilities. Accordingly, gains or losses on such other financial assets and liabilities can be partially offset by gains or losses on trading assets and liabilities. As a result, gains or losses on other financial assets and liabilities do not necessarily represent the overall impact on the Bank's results of operations, liquidity or capital resources.

See Note 8 for information about gains/(losses) on equity securities and Note 9 for information about gains/(losses) on loans which are accounted for at fair value under the fair value option. Gains/(losses) on trading assets and liabilities accounted for at fair value under the fair value option are included in gains and losses from financial assets and liabilities. See Note 5 for further information about gains/(losses) from financial assets and liabilities.

Long-Term Deposits

The difference between the aggregate contractual principal amount and the related fair value of long-term deposits for which the fair value option was elected was $446 million as of December 2019 and not material as of December 2018.

Debt Valuation Adjustment

The Bank calculates the fair value of financial liabilities for which the fair value option is elected by discounting future cash flows at a rate which incorporates the Bank's credit spreads.

The table below presents information about the net debt valuation adjustment (DVA) gains/(losses) on financial liabilities for which the fair value option was elected.

	Year Ended December	
$ in millions	**2019**	2018
DVA (pre-tax)	**$ (63)**	$ 72
DVA (net of tax)	**$ (48)**	$ 54

In the table above:

- DVA (net of tax) is included in debt valuation adjustment in the consolidated statements of comprehensive income.
- The gains/(losses) reclassified to earnings from accumulated other comprehensive income/(loss) upon extinguishment of such financial liabilities were not material for both 2019 and 2018.

Loans and Lending Commitments

The table below presents the difference between the aggregate fair value and the aggregate contractual principal amount for loans (included in trading assets and loans on the consolidated balance sheets) for which the fair value option was elected.

	As of December	
$ in millions	**2019**	2018
Performing loans		
Aggregate contractual principal in excess of fair value	**$ 203**	$ 398
Loans on nonaccrual status and/or more than 90 days past due		
Aggregate contractual principal in excess of fair value	**$ 34**	$ 30
Aggregate fair value	**$ 58**	$ 31

The fair value of unfunded lending commitments for which the fair value option was elected was a liability of $2 million as of December 2019 and $3 million as of December 2018. See Note 18 for further information about lending commitments.

Impact of Credit Spreads on Loans and Lending Commitments

The estimated net loss attributable to changes in instrument-specific credit spreads on loans and lending commitments for which the fair value option was elected was $22 million for 2019 and $24 million for 2018. The Bank generally calculates the fair value of loans and lending commitments for which the fair value option is elected by discounting future cash flows at a rate which incorporates the instrument-specific credit spreads. For floating-rate loans and lending commitments, substantially all changes in fair value are attributable to changes in instrument-specific credit spreads, whereas for fixed-rate loans and lending commitments, changes in fair value are also attributable to changes in interest rates.

Note 11.

Collateralized Agreements and Financings

Collateralized agreements are resale agreements. Collateralized financings are repurchase agreements and other secured financings. The Bank enters into these transactions in order to, among other things, facilitate client activities, invest excess cash, acquire securities to cover short positions and finance certain Bank activities.

Collateralized agreements and financings are presented on a net-by-counterparty basis when a legal right of setoff exists. Interest on collateralized agreements, which is included in interest income, and collateralized financings, which is included in interest expense, is recognized over the life of the transaction. See Note 21 for further information about interest income and interest expense.

The table below presents the carrying value of resale and repurchase agreements.

	As of December	
$ in millions	**2019**	2018
Resale agreements	**$ 4,430**	$ 36,525
Repurchase agreements	**$ 9,891**	$ 3,815

In the table above:

- Substantially all resale agreements are carried at fair value under the fair value option.
- All repurchase agreements are carried at fair value under the fair value option.

See Note 4 for further information about the valuation techniques and significant inputs used to determine fair value.

Resale and Repurchase Agreements

A resale agreement is a transaction in which the Bank purchases financial instruments from a seller, typically in exchange for cash, and simultaneously enters into an agreement to resell the same or substantially the same financial instruments to the seller at a stated price plus accrued interest at a future date.

A repurchase agreement is a transaction in which the Bank sells financial instruments to a buyer, typically in exchange for cash, and simultaneously enters into an agreement to repurchase the same or substantially the same financial instruments from the buyer at a stated price plus accrued interest at a future date.

Even though repurchase and resale agreements involve the legal transfer of ownership of financial instruments, they are accounted for as financing arrangements because they require the financial instruments to be repurchased or resold before or at the maturity of the agreement. The financial instruments purchased or sold in resale and repurchase agreements typically include U.S. government and agency obligations.

The Bank receives financial instruments purchased under resale agreements and makes delivery of financial instruments sold under repurchase agreements. To mitigate credit exposure, the Bank monitors the market value of these financial instruments on a daily basis, and delivers or obtains additional collateral due to changes in the market value of the financial instruments, as appropriate. For resale agreements, the Bank typically requires collateral with a fair value approximately equal to the carrying value of the relevant assets in the consolidated balance sheets.

Offsetting Arrangements

The table below presents resale and repurchase agreements included in the consolidated balance sheets, as well as the amounts not offset in the consolidated balance sheets.

	Assets	Liabilities
$ in millions	Resale agreements	Repurchase agreements
As of December 2019		
Included in the consolidated balance sheets		
Gross carrying value	**$ 8,593**	**$ 14,054**
Counterparty netting	**(4,163)**	**(4,163)**
Total	**4,430**	**9,891**
Amounts not offset		
Collateral	**(4,264)**	**(9,870)**
Total	**$ 166**	**$ 21**
As of December 2018		
Included in the consolidated balance sheets		
Gross carrying value	$ 39,963	$ 7,253
Counterparty netting	(3,438)	(3,438)
Total	36,525	3,815
Amounts not offset		
Counterparty netting	(72)	(72)
Collateral	(36,071)	(3,742)
Total	$ 382	$ 1

In the table above:

- Substantially all of the gross carrying values of these arrangements are subject to enforceable netting agreements.
- Where the Bank has received or posted collateral under credit support agreements, but has not yet determined such agreements are enforceable, the related collateral has not been netted.
- Amounts not offset includes counterparty netting that does not meet the criteria for netting under U.S. GAAP and the fair value of collateral received or posted subject to enforceable credit support agreements.

Gross Carrying Value of Repurchase Agreements

The table below presents the gross carrying value of repurchase agreements by class of collateral pledged.

	As of December	
$ in millions	**2019**	2018
U.S. government and agency obligations	**$ 14,037**	$ 7,229
Corporate debt securities	**11**	24
Non-U.S. government and agency obligations	**6**	–
Total	**$ 14,054**	$ 7,253

As of both December 2019 and December 2018, all of the Bank's repurchase agreements were either overnight or had no stated maturity.

Other Secured Financings

In addition to repurchase agreements, the Bank funds certain assets through the use of other secured financings and pledges financial instruments and other assets as collateral in these transactions. These other secured financings consist of:

- FHLB advances; and
- Transfers of assets accounted for as financings rather than sales (e.g., collateralized by bank loans and mortgage whole loans).

Other secured financings included nonrecourse arrangements. Nonrecourse other secured financings were $130 million as of December 2019 and $132 million as of December 2018.

The Bank has elected to apply the fair value option to most other secured financings because the use of fair value eliminates non-economic volatility in earnings that would arise from using different measurement attributes. See Note 10 for further information about other secured financings that are accounted for at fair value.

Other secured financings that are not recorded at fair value are recorded based on the amount of cash received plus accrued interest, which generally approximates fair value. As these financings are not accounted for at fair value, they are not included in the Bank's fair value hierarchy in Notes 4 through 10. Had these financings been included in the Bank's fair value hierarchy, they would have been primarily classified in level 3 as of both December 2019 and December 2018.

FHLB Advances. As a member of the FHLB, the Bank can draw under a funding arrangement secured by eligible collateral. Outstanding borrowings from the FHLB were $527 million as of December 2019 and $528 million as of December 2018. As of December 2019, interest rates on outstanding borrowings ranged from 1.85% to 2.18% with a weighted average rate of 2.16%. As of December 2018, interest rates ranged from 2.68% to 2.82% with a weighted average rate of 2.69%. These borrowings are carried at fair value under the fair value option in the Bank's fair value hierarchy. See Note 10 for further information about borrowings accounted for at fair value. Outstanding FHLB advances included short-term borrowings of $527 million as of December 2019 and $28 million as of December 2018 and long-term borrowings of $500 million as of December 2018.

Other. Other secured financings, excluding FHLB advances, were $130 million as of December 2019 and $132 million as of December 2018. As of December 2019, all of the amounts outstanding had a contractual maturity of less than one year. As of December 2018, all of the amounts outstanding had a contractual maturity of greater than one year.

Collateral Received and Pledged

The Bank receives cash and securities (e.g., U.S. government and agency obligations, other sovereign and corporate obligations) as collateral, primarily in connection with resale agreements, derivative transactions and customer margin loans. The Bank obtains cash and securities as collateral on an upfront or contingent basis for derivative instruments and collateralized agreements to reduce its credit exposure to individual counterparties.

In many cases, the Bank is permitted to deliver or repledge financial instruments received as collateral when entering into repurchase agreements or collateralized derivative transactions.

The Bank also pledges certain trading assets and loans in connection with repurchase agreements and other secured financings. These assets are pledged to counterparties who may or may not have the right to deliver or repledge them.

The table below presents financial instruments at fair value received as collateral that were available to be delivered or repledged and were delivered or repledged.

	As of December	
$ in millions	**2019**	2018
Collateral available to be delivered or repledged	**$ 10,116**	$ 42,206
Collateral that was delivered or repledged	**$ 5,252**	$ 29,335

The table below presents information about assets pledged.

	As of December	
$ in millions	**2019**	2018
Pledged to counterparties that had the right to deliver or repledge		
Trading assets	**$ 14,474**	$ 2,814
Investments	**$ 39**	$ –
Pledged to counterparties that did not have the right to deliver or repledge		
Trading assets	**$ 3,557**	$ 1,688
Loans	**$ 5,762**	$ 5,233

Note 12.

Other Assets

The table below presents other assets by type.

	As of December	
$ in millions	**2019**	2018
Receivables from affiliates	**$ 594**	$ 193
FRB shares	**414**	414
Income tax-related assets	**318**	221
Investments in qualified affordable housing projects	**302**	310
FHLB shares	**52**	49
Miscellaneous receivables and other	**180**	207
Total	**$ 1,860**	$ 1,394

In the table above, receivables from affiliates includes $26 million as of December 2019 at fair value. See Note 10 for further information about other assets that are accounted for at fair value.

Note 13.

Deposits

The table below presents the types and sources of deposits.

$ in millions	Savings and Demand	Time	Total
As of December 2019			
Private bank deposits	**$ 44,501**	**$ 676**	**$ 45,177**
Consumer deposits	**27,417**	**15,017**	**42,434**
Brokered certificates of deposit	**–**	**39,665**	**39,665**
Deposit sweep programs	**17,760**	**–**	**17,760**
Institutional deposits	**14,669**	**8,693**	**23,362**
Total	**$ 104,347**	**$ 64,051**	**$ 168,398**
As of December 2018			
Private bank deposits	$ 44,188	$ 568	$ 44,756
Consumer deposits	21,164	7,641	28,805
Brokered certificates of deposit	–	35,974	35,974
Deposit sweep programs	15,903	–	15,903
Institutional deposits	1,672	10,642	12,314
Total	$ 82,927	$ 54,825	$ 137,752

In the table above:

- Substantially all deposits are interest-bearing and all are held in the U.S.
- Savings and demand accounts consist of money market deposit accounts, negotiable order of withdrawal accounts and demand deposit accounts that have no stated maturity or expiration date. Savings account holders may be required by the Bank to give written notice of intended withdrawals not less than seven days before such withdrawals are made and may be limited on the number of withdrawals made within a month. Demand account holders are not subject to restrictions with respect to the timing and number of transactions that deposit holders may execute.
- Time deposits primarily consist of brokered certificates of deposit which have stipulated maturity dates and rates of interest. Early withdrawals of brokered time deposits are generally prohibited.
- Time deposits included $6.30 billion as of December 2019 and $4.87 billion as of December 2018 of deposits accounted for at fair value under the fair value option. See below and Note 10 for further information about deposits accounted for at fair value.
- Time deposits had a weighted average maturity of approximately 1.7 years as of December 2019 and 1.8 years as of December 2018.

- Deposit sweep programs represent long-term contractual agreements with U.S. broker-dealers who sweep client cash to FDIC-insured deposits. Pursuant to the external deposit sweep program agreements, each third-party broker-dealer agrees, for a prescribed term, to place a certain minimum amount of deposits from their clients with the Bank. Each client's deposit may be withdrawn at any time. As of December 2019, the Bank had 12 such deposit sweep program agreements.
- As of December 2019, institutional deposits were primarily from Goldman Sachs Funding LLC (Funding IHC), a wholly-owned subsidiary of Group Inc., and Group Inc. As of December 2018, substantially all institutional deposits were from Funding IHC.
- Deposits insured by the FDIC were $103.98 billion as of December 2019 and $86.27 billion as of December 2018.

The table below presents time deposits by contractual maturity.

$ in millions	**As of December 2019**
2020	**$ 33,294**
2021	**8,782**
2022	**8,128**
2023	**5,964**
2024	**4,255**
2025 - thereafter	**3,628**
Total	**$ 64,051**

As of December 2019, deposits included $13.99 billion of time deposits that met or exceeded the applicable insurance limits.

The Bank's savings and demand deposits are recorded based on the amount of cash received plus accrued interest, which approximates fair value. In addition, the Bank designates certain derivatives as fair value hedges to convert a portion of its time deposits not accounted for at fair value from fixed-rate obligations into floating-rate obligations. The carrying value of time deposits not accounted for at fair value approximated fair value as of both December 2019 and December 2018. As these savings and demand deposits and substantially all time deposits are not accounted for at fair value, they are not included in the Bank's fair value hierarchy in Notes 4 through 10. Had these deposits been included in the Bank's fair value hierarchy, they would have been classified in level 2 as of both December 2019 and December 2018.

Note 14.

Unsecured Borrowings

The table below presents information about unsecured borrowings.

	As of December	
$ in millions	**2019**	2018
Unsecured short-term borrowings	**$ 1,053**	$ 192
Unsecured long-term borrowings	**6,205**	6,755
Total	**$ 7,258**	$ 6,947

Unsecured Short-Term Borrowings

Unsecured short-term borrowings includes the portion of unsecured long-term borrowings maturing within one year of the financial statement date. See below for further information about the Bank's senior unsecured borrowings.

The table below presents information about unsecured short-term borrowings.

	As of December	
$ in millions	**2019**	2018
Current portion of senior unsecured borrowings	**$ 1,004**	$ –
Hybrid financial instruments	**32**	175
Borrowings from affiliates	**12**	13
Other unsecured short-term borrowings	**5**	4
Total	**$ 1,053**	$ 192

Hybrid Financial Instruments. The Bank accounts for hybrid financial instruments at fair value under the fair value option. See Note 10 for further information about hybrid financial instruments that are accounted for at fair value.

Borrowings from Affiliates. As of both December 2019 and December 2018, the Bank had a senior unsecured facility, committed on an intraday basis up to $4.00 billion with Group Inc. This facility automatically renews each business day for a period of six months with a final maturity date in 2020. As of both December 2019 and December 2018, there were no outstanding borrowings under this facility.

Accrued interest on long-term subordinated borrowings of $12 million as of December 2019 and $13 million as of December 2018 was included in unsecured short-term borrowings from affiliates.

Unsecured Long-Term Borrowings

The table below presents information about unsecured long-term borrowings.

	As of December	
$ in millions	**2019**	2018
Subordinated borrowings	**$ 4,250**	$ 4,250
Senior unsecured borrowings	**1,955**	2,505
Total	**$ 6,205**	$ 6,755

Subordinated Borrowings. As of both December 2019 and December 2018, the Bank had a revolving subordinated loan agreement with Funding IHC, which expires in 2039. As of both December 2019 and December 2018, outstanding subordinated borrowings under this agreement included $2.00 billion maturing in 2024 and $2.25 billion maturing in 2028. As of both December 2019 and December 2018, outstanding borrowings bear interest at the overnight bank funding rate plus 1.85% per annum. The carrying value of the subordinated borrowings generally approximates fair value. Any amounts payable under the agreement would be subordinate to the claims of certain other creditors of the Bank, including depositors and regulatory agencies.

Senior Unsecured Borrowings. The Bank had issued and outstanding senior unsecured borrowings of $2.95 billion as of December 2019 and $2.50 billion as of December 2018. The weighted average interest rate was 2.46% as of December 2019 and 3.01% as of December 2018, and primarily related to floating rate obligations which are generally based on either the Secured Overnight Financing Rate or LIBOR. As of December 2019, outstanding borrowings included $1.00 billion maturing in 2020, $1.00 billion maturing in 2021, and $955 million maturing in 2023. The carrying value of the Bank's senior unsecured borrowings was $2.96 billion as of December 2019 and $2.51 billion as of December 2018, which approximated its fair value.

Note 15.

Other Liabilities

The table below presents other liabilities by type.

	As of December	
$ in millions	**2019**	2018
Income tax-related liabilities	**$ 363**	$ 295
Payables to affiliates	**446**	396
Compensation and benefits	**196**	153
Accrued expenses and other	**626**	547
Total	**$ 1,631**	$ 1,391

Note 16.

Securitization Activities

The Bank securitizes residential and commercial mortgages and other financial assets by selling these assets to securitization vehicles (e.g., trusts, corporate entities and limited liability companies) or through a resecuritization. An affiliate acts as underwriter of the beneficial interests that are sold to investors.

The Bank accounts for a securitization as a sale when it has relinquished control over the transferred financial assets. Prior to securitization, the Bank generally accounts for assets pending transfer at fair value and therefore does not typically recognize significant gains or losses upon the transfer of assets.

The Bank generally receives cash in exchange for the transferred assets but may also have continuing involvement with the transferred financial assets, including ownership of beneficial interests in securitized financial assets, primarily in the form of loans receivable.

The primary risks from the Bank's continuing involvement with securitization vehicles are the performance of the underlying collateral and the position of the Bank's investment in the capital structure of the securitization vehicle. Substantially all of these retained interests are accounted for at amortized cost net of allowance for loan losses. Had these interests been included in the Bank's fair value hierarchy, they would have been primarily classified in level 3 as of December 2019 and they would have been primarily classified in level 2 as of December 2018.

The table below presents the amount of financial assets securitized and the cash flows received on retained interests in securitization entities in which the Bank had continuing involvement as of the end of the period.

	Year Ended December	
$ in millions	**2019**	2018
Residential mortgages	**$ 5,610**	$ 8,027
Commercial mortgages	**12,251**	7,237
Other financial assets	**1,252**	1,914
Total financial assets securitized	**$ 19,113**	$ 17,178
Retained interests cash flows	**$ 71**	$ 27

In the table above, financial assets securitized included assets of $540 million for 2019 and $739 million for 2018 which were securitized in a non-cash exchange for loans.

The table below presents information about nonconsolidated securitization entities to which the Bank sold assets and had continuing involvement as of the end of the period.

$ in millions	Outstanding Principal Amount	Retained Interests
As of December 2019		
Residential mortgage-backed	**$ 11,730**	**$ 532**
Commercial mortgage-backed	**25,470**	**587**
Other asset-backed	**2,411**	**126**
Total	**$ 39,611**	**$ 1,245**
As of December 2018		
Residential mortgage-backed	$ 7,541	$ 353
Commercial mortgage-backed	14,973	442
Other asset-backed	1,968	99
Total	$ 24,482	$ 894

In the table above:

- The outstanding principal amount is presented for the purpose of providing information about the size of the securitization entities and is not representative of the Bank's risk of loss.
- The Bank's risk of loss from retained interests is limited to the carrying value of these interests.
- Substantially all of the total outstanding principal amount and total retained interests relate to securitizations during 2017 and thereafter.
- The fair value of retained interests was $1.25 billion as of December 2019 and $892 million as of December 2018.

In addition to the interests in the table above, the Bank had other continuing involvement in the form of derivative transactions and commitments with certain nonconsolidated VIEs. As of December 2019, the notional amount of these derivatives and commitments was $96 million and the carrying value was not material. As of December 2018, the carrying value and notional amount of these derivatives and commitments were not material. The notional amounts of these derivatives and commitments are included in maximum exposure to loss in the nonconsolidated VIE table in Note 17.

The table below presents information about the weighted average key economic assumptions used in measuring the fair value of mortgage-backed retained interests.

	As of December	
$ in millions	**2019**	2018
Fair value of retained interests	**$ 1,119**	$ 793
Weighted average life (years)	**5.9**	5.6
Constant prepayment rate	**7.7%**	8.0%
Impact of 10% adverse change	**$ (1)**	$ (2)
Impact of 20% adverse change	**$ (2)**	$ (4)
Discount rate	**6.0%**	6.4%
Impact of 10% adverse change	**$ (26)**	$ (20)
Impact of 20% adverse change	**$ (51)**	$ (38)

In the table above:

- Amounts do not reflect the benefit of other financial instruments that are held to mitigate risks inherent in these retained interests.
- Changes in fair value based on an adverse variation in assumptions generally cannot be extrapolated because the relationship of the change in assumptions to the change in fair value is not usually linear.
- The impact of a change in a particular assumption is calculated independently of changes in any other assumption. In practice, simultaneous changes in assumptions might magnify or counteract the sensitivities disclosed above.
- The constant prepayment rate is included only for positions for which it is a key assumption in the determination of fair value.
- Expected credit loss assumptions are reflected in the discount rate for the retained interests.

The Bank has other retained interests not reflected in the table above with a fair value of $126 million and a weighted average life of 3.2 years as of December 2019, and a fair value of $99 million and a weighted average life of 4.1 years as of December 2018. Due to the nature and fair value of certain of these retained interests, the weighted average assumptions for constant prepayment and discount rates and the related sensitivity to adverse changes are not meaningful as of both December 2019 and December 2018. The Bank's maximum exposure to adverse changes in the value of these interests is the carrying value of $126 million as of December 2019 and $99 million as of December 2018.

Note 17.

Variable Interest Entities

A variable interest in a VIE is an investment (e.g., debt or equity) or other interest (e.g., derivatives or loans and lending commitments) that will absorb portions of the VIE's expected losses and/or receive portions of the VIE's expected residual returns.

The Bank's variable interests in VIEs include senior and subordinated debt; loans and lending commitments; limited and general partnership interests; preferred and common equity; derivatives that may include foreign currency, equity and/or credit risk; and guarantees. Certain interest rate, foreign currency and credit derivatives the Bank enters into with VIEs are not variable interests because they create, rather than absorb, risk.

VIEs generally finance the purchase of assets by issuing debt and equity securities that are either collateralized by or indexed to the assets held by the VIE. The debt and equity securities issued by a VIE may include tranches of varying levels of subordination. The Bank's involvement with VIEs includes securitization of financial assets, as described in Note 16, and investments in and loans to other types of VIEs, as described below. See Note 3 for the Bank's consolidation policies, including the definition of a VIE.

VIE Consolidation Analysis

The enterprise with a controlling financial interest in a VIE is known as the primary beneficiary and consolidates the VIE. The Bank determines whether it is the primary beneficiary of a VIE by performing an analysis that principally considers:

- Which variable interest holder has the power to direct the activities of the VIE that most significantly impact the VIE's economic performance;
- Which variable interest holder has the obligation to absorb losses or the right to receive benefits from the VIE that could potentially be significant to the VIE;
- The VIE's purpose and design, including the risks the VIE was designed to create and pass through to its variable interest holders;
- The VIE's capital structure;
- The terms between the VIE and its variable interest holders and other parties involved with the VIE; and
- Related-party relationships.

The Bank reassesses its evaluation of whether an entity is a VIE when certain reconsideration events occur. The Bank reassesses its determination of whether it is the primary beneficiary of a VIE on an ongoing basis based on current facts and circumstances.

VIE Activities

The Bank is principally involved with VIEs through the following business activities:

Mortgage-Backed VIEs. The Bank sells residential and commercial mortgage loans and securities to mortgage-backed VIEs and may retain beneficial interests in the assets sold to these VIEs. In addition, the Bank may enter into derivatives with certain of these VIEs, primarily interest rate swaps, which are typically not variable interests. The Bank generally enters into derivatives with other counterparties to mitigate its risk.

Corporate Debt and Other Asset-Backed VIEs. The Bank structures VIEs that issue notes to clients and makes loans to VIEs that warehouse corporate debt. Certain of these VIEs synthetically create the exposure for the beneficial interests they issue by entering into credit derivatives with the Bank, rather than purchasing the underlying assets. In addition, the Bank may enter into derivatives, such as total return swaps, with certain corporate debt and other asset-backed VIEs, under which the Bank pays the VIE a return due to the beneficial interest holders and receives the return on the collateral owned by the VIE. The collateral owned by these VIEs is primarily other asset-backed loans and securities. The Bank generally can be removed as the total return swap counterparty and enters into derivatives with other counterparties to mitigate its risk related to these swaps. The Bank may sell assets to the corporate debt and other asset-backed VIEs it structures.

Real Estate, Credit-Related and Other Investing VIEs. The Bank primarily purchases debt securities issued by and makes loans to VIEs that hold real estate and distressed loans. The Bank generally does not sell assets to, or enter into derivatives with, these VIEs.

Nonconsolidated VIEs

The table below presents a summary of the nonconsolidated VIEs in which the Bank holds variable interests.

	As of December	
$ in millions	**2019**	2018
Total nonconsolidated VIEs		
Assets in VIEs	**$ 49,398**	$ 32,478
Carrying value of variable interests – assets	**$ 2,973**	$ 2,096
Carrying value of variable interests – liabilities	**$ 577**	$ 445
Maximum exposure to loss:		
Retained interests	**$ 1,245**	$ 894
Commitments and guarantees	**1,076**	963
Derivatives	**5,271**	5,245
Debt and equity	**1,579**	1,018
Total maximum exposure to loss	**$ 9,171**	$ 8,120

In the table above:

- The nature of the Bank's variable interests is described in the rows under maximum exposure to loss.
- The Bank's exposure to the obligations of VIEs is generally limited to its interests in these entities. In certain instances, the Bank provides guarantees, including derivative guarantees, to VIEs or holders of variable interests in VIEs.
- The maximum exposure to loss excludes the benefit of offsetting financial instruments that are held to mitigate the risks associated with these variable interests.
- The maximum exposure to loss from retained interests, and debt and equity is the carrying value of these interests.
- The maximum exposure to loss from commitments and guarantees, and derivatives is the notional amount, which does not represent anticipated losses and has not been reduced by unrealized losses. As a result, the maximum exposure to loss exceeds liabilities recorded for commitments and guarantees, and derivatives.

The table below presents information, by principal business activity, for nonconsolidated VIEs included in the summary table above.

	As of December	
$ in millions	**2019**	2018
Mortgage-backed		
Assets in VIEs	**$ 37,266**	$ 22,673
Carrying value of variable interests – assets	**$ 1,120**	$ 809
Maximum exposure to loss:		
Retained interests	**$ 1,119**	$ 795
Commitments and guarantees	**50**	35
Derivatives	**66**	77
Total maximum exposure to loss	**$ 1,235**	$ 907
Corporate debt and other asset-backed		
Assets in VIEs	**$ 9,576**	$ 8,649
Carrying value of variable interests – assets	**$ 1,343**	$ 1,023
Carrying value of variable interests – liabilities	**$ 573**	$ 445
Maximum exposure to loss:		
Retained interests	**$ 126**	$ 99
Commitments and guarantees	**772**	838
Derivatives	**5,205**	5,168
Debt and equity	**1,074**	754
Total maximum exposure to loss	**$ 7,177**	$ 6,859
Real estate, credit-related and other investing		
Assets in VIEs	**$ 2,556**	$ 1,156
Carrying value of variable interests – assets	**$ 510**	$ 264
Carrying value of variable interests – liabilities	**$ 4**	$ –
Maximum exposure to loss:		
Commitments and guarantees	**$ 254**	$ 90
Debt and equity	**505**	264
Total maximum exposure to loss	**$ 759**	$ 354

As of both December 2019 and December 2018, the carrying values of the Bank's variable interests in nonconsolidated VIEs are included in the consolidated balance sheets as follows:

- Mortgage-backed: Substantially all assets were included in loans.
- Corporate debt and other asset-backed: Assets were primarily included in loans and substantially all liabilities were included in trading liabilities.
- Real estate, credit-related and other investing: Assets were primarily included in other assets and trading assets. Liabilities were included in other liabilities.

Consolidated VIEs

As of both December 2019 and December 2018, the Bank had no consolidated VIEs.

Note 18.

Commitments, Contingencies and Guarantees

Commitments

The table below presents commitments by type.

$ in millions	As of December 2019	2018
Commitment Type		
Commercial lending:		
Investment-grade	**$ 77,944**	$ 74,461
Non-investment-grade	**43,642**	37,982
Warehouse financing	**4,998**	3,987
Credit card	**13,669**	–
Total lending	**140,253**	116,430
Collateralized agreement	**835**	622
Collateralized financing	**16**	146
Investment	**626**	683
Other	**1,504**	1,025
Total commitments	**$ 143,234**	$ 118,906

The table below presents commitments by expiration.

$ in millions	As of December 2019: 2020	2021 - 2022	2023 - 2024	2025 - Thereafter
Commitment Type				
Commercial lending:				
Investment-grade	**$ 13,533**	**$ 24,787**	**$ 38,826**	**$ 798**
Non-investment-grade	**5,035**	**11,849**	**20,377**	**6,381**
Warehouse financing	**1,317**	**2,273**	**1,387**	**21**
Credit card	**13,669**	**–**	**–**	**–**
Total lending	**33,554**	**38,909**	**60,590**	**7,200**
Collateralized agreement	**835**	**–**	**–**	**–**
Collateralized financing	**16**	**–**	**–**	**–**
Investment	**–**	**–**	**–**	**626**
Other	**1,504**	**–**	**–**	**–**
Total commitments	**$ 35,909**	**$ 38,909**	**$ 60,590**	**$ 7,826**

Lending Commitments

The Bank's commercial and warehouse financing lending commitments are agreements to lend with fixed termination dates and depend on the satisfaction of all contractual conditions to borrowing. These commitments are presented net of amounts syndicated to third parties. The total commitment amount does not necessarily reflect actual future cash flows because the Bank may syndicate all or substantial portions of these commitments. In addition, commitments can expire unused or be reduced or cancelled at the counterparty's request. The Bank also provides credit to consumers by issuing credit card lines.

The table below presents information about lending commitments.

$ in millions	As of December 2019	2018
Held for investment	**$ 127,799**	$ 103,777
Held for sale	**11,454**	11,855
At fair value	**1,000**	798
Total	**$ 140,253**	$ 116,430

In the table above:

- Held for investment lending commitments are accounted for on an accrual basis. The carrying value of lending commitments was a liability of $384 million (including allowance for losses of $266 million) as of December 2019 and $321 million (including allowance for losses of $202 million) as of December 2018. The estimated fair value of such lending commitments was a liability of $2.43 billion as of December 2019 and $3.13 billion as of December 2018. Had these lending commitments been carried at fair value and included in the fair value hierarchy, $1.52 billion as of December 2019 and $956 million as of December 2018 would have been classified in level 2, and $917 million as of December 2019 and $2.17 billion as of December 2018 would have been classified in level 3.
- Held for sale lending commitments are accounted for at the lower of cost or fair value. The carrying value of lending commitments held for sale was a liability of $31 million as of December 2019 and $106 million as of December 2018. Had these lending commitments been included in the fair value hierarchy, they would have been primarily classified in level 3 as of both December 2019 and December 2018.
- Gains or losses related to lending commitments at fair value, if any, are generally recorded net of any fees in gains and losses from financial assets and liabilities.

Commercial Lending. The Bank's commercial lending commitments were primarily extended to investment-grade corporate borrowers. Such commitments primarily included relationship lending activities (principally used for operating and general corporate purposes) and other activities (generally extended for contingent acquisition financing and are often intended to be short-term in nature, as borrowers often seek to replace them with other funding sources). The Bank also extends lending commitments in connection with other types of corporate lending, as well as commercial real estate financing. See Note 9 for further information about funded loans.

Sumitomo Mitsui Financial Group, Inc. (SMFG) provides the Bank and its affiliates with credit loss protection on certain approved loan commitments (primarily investment-grade commercial lending commitments). The notional amount of such loan commitments was $5.74 billion as of December 2019 and $15.52 billion as of December 2018, substantially all of which was in the Bank. The credit loss protection on loan commitments provided by SMFG is generally limited to 95% of the first loss the Bank and its affiliates realize on such commitments, up to a maximum of approximately $950 million. In addition, subject to the satisfaction of certain conditions, upon the Bank's request, SMFG will provide protection for 70% of additional losses on such commitments, up to a maximum of $750 million, of which no protection had been provided as of December 2019 and $550 million was provided as of December 2018. The Bank also uses other financial instruments to mitigate credit risks related to certain commitments not covered by SMFG. These instruments primarily include credit default swaps that reference the same or similar underlying instrument or entity, or credit default swaps that reference a credit index.

Warehouse Financing. The Bank provides financing to clients who warehouse financial assets. These arrangements are secured by the warehoused assets, primarily consisting of consumer and corporate loans.

Credit Card. The Bank's credit card lending commitments represents credit card lines issued by the Bank to consumers. These credit card lines are cancelable by the Bank.

Collateralized Agreement Commitments/ Collateralized Financing Commitments

Collateralized agreement commitments includes forward starting resale agreements, and collateralized financing commitments includes forward starting repurchase and secured lending agreements that settle at a future date, generally within three business days. Collateralized agreement commitments also includes transactions where the Bank has entered into commitments to provide contingent financing to its clients and counterparties through resale agreements. The Bank's funding of these commitments depends on the satisfaction of all contractual conditions to the resale agreement and these commitments can expire unused.

Investment Commitments

Investment commitments includes commitments to invest in securities, real estate and other assets.

Contingencies

Legal Proceedings. See Note 24 for information about legal proceedings.

Certain Mortgage-Related Contingencies. During the period 2005 through 2008 in connection with both sales and securitizations of loans, the Bank provided loan-level representations and/or assigned the loan-level representations from the party from whom the Bank purchased the loans.

Based on the large number of defaults in residential mortgages, including those sold or securitized by the Bank, there is a potential for repurchase claims. However, the Bank is not in a position to make a meaningful estimate of that exposure at this time. The Bank's exposure to claims for repurchase of residential mortgage loans based on alleged breaches of representations will depend on a number of factors, such as the extent to which these claims are made within the statute of limitations, taking into consideration the agreements to toll the statute of limitations the Bank entered into with trustees representing certain trusts.

Guarantees

The table below presents derivatives that meet the definition of a guarantee, securities lending indemnifications and certain other financial guarantees.

$ in millions	Derivatives	Securities lending indemnifications	Other financial guarantees
As of December 2019			
Carrying Value of Net Liability	**$ 1,160**	**$ –**	**$ 4**
Maximum Payout/Notional Amount by Period of Expiration			
2020	**$ 40,819**	**$ 21,490**	**$ 1,133**
2021 - 2022	**37,588**	**–**	**1,427**
2023 - 2024	**5,681**	**–**	**1,146**
2025 - thereafter	**8,384**	**–**	**10**
Total	**$ 92,472**	**$ 21,490**	**$ 3,716**
As of December 2018			
Carrying Value of Net Liability	$ 1,214	$ –	$ 8
Maximum Payout/Notional Amount by Period of Expiration			
2019	$ 28,857	$ 32,170	$ 416
2020 - 2021	39,858	–	1,368
2022 - 2023	3,807	–	1,315
2024 - thereafter	9,538	–	–
Total	$ 82,060	$ 32,170	$ 3,099

In the table above:

- The maximum payout is based on the notional amount of the contract and does not represent anticipated losses.
- Amounts exclude certain commitments to issue standby letters of credit that are included in lending commitments. See the tables in "Commitments" above for a summary of the Bank's commitments.
- The carrying value for derivatives included derivative assets of $132 million as of December 2019 and $43 million as of December 2018, and derivative liabilities of $1.29 billion as of December 2019 and $1.26 billion as of December 2018.

Derivative Guarantees. The Bank enters into various derivatives that meet the definition of a guarantee under U.S. GAAP, including written currency contracts and interest rate caps, floors and swaptions. These derivatives are risk managed together with derivatives that do not meet the definition of a guarantee, and therefore the amounts in the table above do not reflect the Bank's overall risk related to derivative activities. Disclosures about derivatives are not required if they may be cash settled and the Bank has no basis to conclude it is probable that the counterparties held the underlying instruments at inception of the contract. The Bank has concluded that these conditions have been met for certain large, internationally active commercial and investment bank counterparties, central clearing counterparties, hedge funds and certain other counterparties. Accordingly, the Bank has not included such contracts in the table above. See Note 7 for information about credit derivatives that meet the definition of a guarantee, which are not included in the table above.

Derivatives are accounted for at fair value and therefore the carrying value is considered the best indication of payment/performance risk for individual contracts. However, the carrying values in the table above exclude the effect of counterparty and cash collateral netting.

Securities Lending Indemnifications. The Bank, in its capacity as an agency lender, indemnifies most of its securities lending customers against losses incurred in the event that borrowers do not return securities and the collateral held is insufficient to cover the market value of the securities borrowed. Collateral held by the lenders in connection with securities lending indemnifications was $22.05 billion as of December 2019 and $33.07 billion as of December 2018. Because the contractual nature of these arrangements requires the Bank to obtain collateral with a market value that exceeds the value of the securities lent to the borrower, there is minimal performance risk associated with these guarantees.

Other Financial Guarantees. In the ordinary course of business, the Bank provides other financial guarantees of the obligations of third parties (e.g., standby letters of credit and other guarantees to enable clients to complete transactions). These guarantees represent obligations to make payments to beneficiaries if the guaranteed party fails to fulfill its obligation under a contractual arrangement with that beneficiary.

Indemnities and Guarantees of Service Providers. In the ordinary course of business, the Bank indemnifies and guarantees certain service providers, such as clearing and custody agents, trustees and administrators, against specified potential losses in connection with their acting as an agent of, or providing services to, the Bank.

The Bank may also be liable to some clients or other parties for losses arising from its custodial role or caused by acts or omissions of third-party service providers, including sub-custodians and third-party brokers. In certain cases, the Bank has the right to seek indemnification from these third-party service providers for certain relevant losses incurred by the Bank. In addition, the Bank is a member of a clearing and settlement network, as well as exchanges around the world that may require the Bank to meet the obligations of such networks and exchanges in the event of member defaults and other loss scenarios.

The Bank is unable to develop an estimate of the maximum payout under these guarantees and indemnifications. However, management believes that it is unlikely the Bank will have to make any material payments under these arrangements, and no material liabilities related to these guarantees and indemnifications have been recognized in the consolidated balance sheets as of both December 2019 and December 2018.

Other Representations, Warranties and Indemnifications. The Bank provides representations and warranties to counterparties in connection with a variety of commercial transactions and occasionally indemnifies them against potential losses caused by the breach of those representations and warranties. The Bank may also provide indemnifications protecting against changes in or adverse application of certain U.S. tax laws in connection with ordinary-course transactions, such as borrowings or derivatives.

In addition, the Bank may provide indemnifications to some counterparties to protect them in the event additional taxes are owed or payments are withheld, due either to a change in or an adverse application of certain non-U.S. tax laws.

These indemnifications generally are standard contractual terms and are entered into in the ordinary course of business. Generally, there are no stated or notional amounts included in these indemnifications, and the contingencies triggering the obligation to indemnify are not expected to occur. The Bank is unable to develop an estimate of the maximum payout under these guarantees and indemnifications. However, management believes that it is unlikely the Bank will have to make any material payments under these arrangements, and no material liabilities related to these arrangements have been recognized in the consolidated balance sheets as of both December 2019 and December 2018.

Note 19.

Regulation and Capital Adequacy

The Bank is regulated as described in Note 1, and is subject to consolidated regulatory capital requirements as described below. For purposes of assessing the adequacy of its capital, the Bank calculates its risk-based capital and leverage ratios in accordance with the regulatory capital requirements applicable to state member banks based on the FRB's regulations (Capital Framework).

The capital requirements are expressed as risk-based capital and leverage ratios that compare measures of regulatory capital to risk-weighted assets (RWAs), average assets and off-balance-sheet exposures. Failure to comply with these capital requirements could result in restrictions being imposed by the Bank's regulators and could limit the Bank's ability to pay dividends and make certain discretionary compensation payments. The Bank's capital levels are also subject to qualitative judgments by the regulators about components of capital, risk weightings and other factors.

Capital Framework

The regulations under the Capital Framework are largely based on the Basel Committee on Banking Supervision's (Basel Committee) capital framework for strengthening international capital standards (Basel III) and also implement certain provisions of the U.S. Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act). Under the Capital Framework, the Bank is an "Advanced approach" banking organization.

The capital requirements calculated in accordance with the Capital Framework include the minimum risk-based capital and leverage ratios. In addition, the risk-based capital requirements include the capital conservation buffer and the countercyclical capital buffer, if any, both of which must consist entirely of capital that qualifies as Common Equity Tier 1 (CET1) capital.

The Bank calculates its CET1 capital, Tier 1 capital and Total capital ratios in accordance with (i) the Standardized approach and market risk rules set out in the Capital Framework (together, the Standardized Capital Rules) and (ii) the Advanced approach and market risk rules set out in the Capital Framework (together, the Advanced Capital Rules). The lower of each risk-based capital ratio calculated in (i) and (ii) is the ratio against which the Bank's compliance with its risk-based capital requirements is assessed. Under the Capital Framework, the Bank is also subject to leverage requirements which consist of a minimum Tier 1 leverage ratio and a minimum supplementary leverage ratio (SLR).

Consolidated Regulatory Risk-Based Capital and Leverage Ratios. The U.S. Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA), among other things, requires the federal bank regulatory agencies to take "prompt corrective action" in respect of depository institutions that do not meet specified capital requirements. FDICIA establishes five capital categories for FDIC-insured banks: well-capitalized, adequately capitalized, undercapitalized, significantly undercapitalized and critically undercapitalized.

Under the regulatory framework for prompt corrective action applicable to the Bank, in order to meet the quantitative requirements for being a "well-capitalized" depository institution, the Bank must also meet the "well-capitalized" requirements in the table below.

The Bank's capital levels and prompt corrective action classification are also subject to qualitative judgments by the regulators about components of capital, risk weightings and other factors. Failure to comply with these capital requirements, including a breach of the buffers described above, could result in restrictions being imposed by the Bank's regulators.

The table below presents the risk-based capital, leverage and "well-capitalized" requirements.

	As of December		"Well-capitalized"
	2019	2018	**Requirements**
Risk-based capital requirements			
CET1 capital ratio	**7.0%**	6.4%	**6.5%**
Tier 1 capital ratio	**8.5%**	7.9%	**8.0%**
Total capital ratio	**10.5%**	9.9%	**10.0%**
Leverage requirements			
Tier 1 leverage ratio	**4.0%**	4.0%	**5.0%**
SLR	**3.0%**	3.0%	**6.0%**

In the table above:

- As of December 2019, the CET1 capital ratio requirement included a minimum of 4.5%, the Tier 1 capital ratio requirement included a minimum of 6.0%, and the Total capital ratio requirement included a minimum of 8.0%. The requirements also included the capital conservation buffer of 2.5% and the countercyclical capital buffer, which the FRB has set to zero percent.

- As of December 2018, the CET1 capital ratio requirement included a minimum of 4.5%, the Tier 1 capital ratio requirement included a minimum of 6.0%, and the Total capital ratio requirement included a minimum of 8.0%. The requirements also included the 75% phase-in of the capital conservation buffer of 2.5% and the countercyclical capital buffer of zero percent.
- The "well-capitalized" requirements were the binding requirements for risk-based capital ratios as of December 2018 and were the binding requirements for leverage ratios as of both December 2019 and December 2018.
- The capital conservation buffer and countercyclical capital buffer phased in ratably from January 1, 2016 through January 1, 2019.

The table below presents information about risk-based capital ratios.

$ in millions	Standardized	Advanced
As of December 2019		
CET1 capital	**$ 29,176**	**$ 29,176**
Tier 1 capital	**$ 29,176**	**$ 29,176**
Tier 2 capital	**$ 5,293**	**$ 4,486**
Total capital	**$ 34,469**	**$ 33,662**
RWAs	**$ 258,541**	**$ 135,596**
CET1 capital ratio	**11.3%**	**21.5%**
Tier 1 capital ratio	**11.3%**	**21.5%**
Total capital ratio	**13.3%**	**24.8%**
As of December 2018		
CET1 capital	$ 27,467	$ 27,467
Tier 1 capital	$ 27,467	$ 27,467
Tier 2 capital	$ 5,069	$ 4,446
Total capital	$ 32,536	$ 31,913
RWAs	$ 248,356	$ 149,019
CET1 capital ratio	11.1%	18.4%
Tier 1 capital ratio	11.1%	18.4%
Total capital ratio	13.1%	21.4%

In the table above:

- In accordance with the Capital Rules, the lower of the Standardized or Advanced ratio is the ratio against which the Bank's compliance with the capital requirements is assessed, and therefore, the Standardized ratios applied to the Bank as of both December 2019 and December 2018.
- Beginning in the fourth quarter of 2019, the Bank made changes to the calculation of the loss given default for certain wholesale exposures. At the date of adoption, the estimated impact of these changes was an increase in the Bank's Advanced CET1 capital ratio of approximately 2.2 percentage points.

The table below presents information about leverage ratios.

	For the Three Months Ended or as of December	
$ in millions	2019	2018
Tier 1 capital	**$ 29,176**	$ 27,467
Average total assets	**$ 221,033**	$ 188,668
Deductions from Tier 1 capital	**(59)**	(62)
Average adjusted total assets	**220,974**	188,606
Average off-balance-sheet exposures	**192,878**	179,456
Total leverage exposure	**$ 413,852**	$ 368,062
Tier 1 leverage ratio	**13.2%**	14.6%
SLR	**7.0%**	7.5%

In the table above:

- Average total assets represents the average daily assets for the quarter.
- Average off-balance-sheet exposures represents the monthly average and consists of derivatives, securities financing transactions, commitments and guarantees.
- Tier 1 leverage ratio is calculated as Tier 1 capital divided by average adjusted total assets.
- SLR is calculated as Tier 1 capital divided by total leverage exposure.

Risk-Based Capital. The table below presents information about risk-based capital.

	As of December	
$ in millions	2019	2018
CET1 capital	**$ 29,176**	$ 27,467
Tier 1 capital	**$ 29,176**	$ 27,467
Standardized Tier 2 and Total capital		
Tier 1 capital	**$ 29,176**	$ 27,467
Qualifying subordinated debt	**4,250**	4,250
Allowance for credit losses	**1,043**	819
Standardized Tier 2 capital	**5,293**	5,069
Standardized Total capital	**$ 34,469**	$ 32,536
Advanced Tier 2 and Total capital		
Tier 1 capital	**$ 29,176**	$ 27,467
Standardized Tier 2 capital	**5,293**	5,069
Allowance for credit losses	**(1,043)**	(819)
Other adjustments	**236**	196
Advanced Tier 2 capital	**4,486**	4,446
Advanced Total capital	**$ 33,662**	$ 31,913

In the table above:

- Other adjustments within Advanced Tier 2 capital include eligible credit reserves.
- Qualifying subordinated debt is subordinated debt issued by the Bank with an original maturity of five years or greater. The outstanding amount of subordinated debt qualifying for Tier 2 capital is reduced upon reaching a remaining maturity of five years. See Note 14 for further information about the Bank's subordinated debt.

RWAs. RWAs are calculated in accordance with both the Standardized and Advanced Capital Rules.

Credit Risk

Credit RWAs are calculated based on measures of exposure, which are then risk weighted under the Standardized and Advanced Capital Rules:

- The Standardized Capital Rules apply prescribed risk-weights, which depend largely on the type of counterparty. The exposure measure for derivatives and securities financing transactions are based on specific formulas which take certain factors into consideration.
- Under the Advanced Capital Rules, the Bank computes risk-weights for wholesale and retail credit exposures in accordance with the Advanced Internal Ratings-Based approach. The exposure measures for derivatives and securities financing transactions are computed utilizing internal models.

Market Risk

RWAs for market risk in accordance with the Standardized and Advanced Capital Rules are generally consistent. Market RWAs are calculated based on measures of exposure which include the following:

- Value-at-Risk (VaR) is the potential loss in value of trading assets and liabilities, as well as certain investments, loans, and other financial assets and liabilities accounted for at fair value, due to adverse market movements over a defined time horizon with a specified confidence level.

  For both risk management purposes and regulatory capital calculations, the Bank uses a single VaR model which captures risks including those related to interest rates, equity prices and currency rates. However, VaR used for regulatory capital requirements (regulatory VaR) differs from risk management VaR due to different time horizons and confidence levels (10-day and 99% for regulatory VaR vs. one-day and 95% for risk management VaR), as well as differences in the scope of positions on which VaR is calculated.

  The Bank's positional losses observed on a single day exceeded its 99% one-day regulatory VaR on one occasion during 2019 and exceeded its 99% one-day regulatory VaR on four occasions during 2018 (all of which occurred during the first half of 2018). There was no change in the VaR multiplier used to calculate Market RWAs;

- Stressed VaR is the potential loss in value of trading assets and liabilities, as well as certain investments, loans, and other financial assets and liabilities accounted for at fair value, during a period of significant market stress;
- Incremental risk is the potential loss in value of non-securitized positions due to the default or credit migration of issuers of financial instruments over a one-year time horizon;
- Comprehensive risk is the potential loss in value, due to price risk and defaults, within the Bank's credit correlation positions; and
- Specific risk is the risk of loss on a position that could result from factors other than broad market movements, including event risk, default risk and idiosyncratic risk. The standardized measurement method is used to determine specific risk RWAs, by applying supervisory defined risk-weighting factors after applicable netting is performed.

Operational Risk

Operational RWAs are only required to be included under the Advanced Capital Rules. The Bank utilizes an internal risk-based model to quantify Operational RWAs.

The table below presents information about RWAs.

$ in millions	Standardized	Advanced
As of December 2019		
Credit RWAs		
Derivatives	**$ 90,493**	**$ 15,211**
Commitments, guarantees and loans	**134,899**	**79,475**
Securities financing transactions	**4,209**	**915**
Equity investments	**505**	**535**
Other	**5,814**	**3,301**
Total Credit RWAs	**235,920**	**99,437**
Market RWAs		
Regulatory VaR	**4,797**	**4,797**
Stressed VaR	**14,893**	**14,893**
Incremental risk	**1,750**	**1,750**
Comprehensive risk	**404**	**404**
Specific risk	**777**	**777**
Total Market RWAs	**22,621**	**22,621**
Total Operational RWAs	**–**	**13,538**
Total RWAs	**$ 258,541**	**$ 135,596**
As of December 2018		
Credit RWAs		
Derivatives	$ 86,727	$ 17,774
Commitments, guarantees and loans	120,656	85,991
Securities financing transactions	6,233	2,294
Equity investments	776	823
Other	8,203	2,601
Total Credit RWAs	222,595	109,483
Market RWAs		
Regulatory VaR	3,443	3,443
Stressed VaR	18,850	18,850
Incremental risk	1,177	1,177
Comprehensive risk	1,212	1,212
Specific risk	1,079	1,079
Total Market RWAs	25,761	25,761
Total Operational RWAs	–	13,775
Total RWAs	$ 248,356	$ 149,019

In the table above:

- Securities financing transactions represents resale and repurchase agreements.
- Other includes receivables, certain debt securities, cash and other assets.

The table below presents changes in RWAs.

$ in millions	Standardized	Advanced
Year Ended December 2019		
RWAs		
Beginning balance	**$ 248,356**	**$ 149,019**
Credit RWAs		
Change in:		
Derivatives	**3,766**	**(2,563)**
Commitments, guarantees and loans	**14,243**	**(6,516)**
Securities financing transactions	**(2,024)**	**(1,379)**
Equity investments	**(271)**	**(288)**
Other	**(2,389)**	**700**
Change in Credit RWAs	**13,325**	**(10,046)**
Market RWAs		
Change in:		
Regulatory VaR	**1,354**	**1,354**
Stressed VaR	**(3,957)**	**(3,957)**
Incremental risk	**573**	**573**
Comprehensive risk	**(808)**	**(808)**
Specific risk	**(302)**	**(302)**
Change in Market RWAs	**(3,140)**	**(3,140)**
Change in Operational RWAs	**–**	**(237)**
Ending balance	**$ 258,541**	**$ 135,596**
Year Ended December 2018		
RWAs		
Beginning balance	$ 229,775	$ 164,602
Credit RWAs		
Change in:		
Derivatives	(825)	(8,465)
Commitments, guarantees and loans	21,043	(3,215)
Securities financing transactions	(965)	563
Equity investments	(59)	(233)
Other	1,872	(1,473)
Change in Credit RWAs	21,066	(12,823)
Market RWAs		
Change in:		
Regulatory VaR	747	747
Stressed VaR	(636)	(636)
Incremental risk	34	34
Comprehensive risk	413	413
Specific risk	(3,043)	(3,043)
Change in Market RWAs	(2,485)	(2,485)
Change in Operational RWAs	–	(275)
Ending balance	$ 248,356	$ 149,019

RWAs Rollforward Commentary

Year Ended December 2019. Standardized Credit RWAs as of December 2019 increased by $13.33 billion compared with December 2018, reflecting an increase in commitments, guarantees and loans, principally due to increased lending activity and an increase in derivatives, reflecting an increased exposure. These increases were partially offset by a decrease in other credit RWAs, principally due to reduced exposures. Standardized Market RWAs as of December 2019 decreased by $3.14 billion compared with December 2018, reflecting a decrease in stressed VaR, as a result of changes in risk exposure.

Advanced Credit RWAs as of December 2019 decreased by $10.05 billion compared with December 2018. Beginning in the fourth quarter of 2019, the Bank made changes to the calculation of the loss given default for certain wholesale exposures which resulted in a decrease in credit RWAs, primarily in commitments, guarantees and loans and derivatives. Advanced Market RWAs as of December 2019 decreased by $3.14 billion compared with December 2018, reflecting a decrease in stressed VaR, as a result of changes in risk exposure.

Year Ended December 2018. Standardized Credit RWAs as of December 2018 increased by $21.07 billion compared with December 2017, primarily reflecting an increase in commitments, guarantees and loans, principally due to an increase in lending activity. Standardized Market RWAs as of December 2018 decreased by $2.49 billion compared with December 2017, primarily reflecting a decrease in specific risk on positions for which the Bank obtained increased transparency into the underliers and as a result utilized a modeled approach to calculate RWAs.

Advanced Credit RWAs as of December 2018 decreased by $12.82 billion compared with December 2017. Beginning in the fourth quarter of 2018, GS Group's default experience was incorporated into the determination of probability of default, which resulted in a decrease in credit RWAs, primarily in commitments, guarantees and loans and derivatives. Advanced Market RWAs as of December 2018 decreased by $2.49 billion compared with December 2017, primarily reflecting a decrease in specific risk on positions for which the Bank obtained increased transparency into the underliers and as a result utilized a modeled approach to calculate RWAs.

Required Reserves

The deposits of the Bank are insured by the FDIC to the extent provided by law. The FRB requires that the Bank maintain cash reserves with the Federal Reserve Bank of New York. The amount deposited by the Bank at the Federal Reserve Bank of New York was $50.55 billion as of December 2019 and $29.20 billion as of December 2018, which exceeded regulatory reserve requirements by $50.29 billion as of December 2019 and $29.03 billion as of December 2018.

Note 20.

Transactions with Related Parties

Transactions between the Bank and its affiliates are regulated by the FRB. These regulations generally limit the types and amounts of transactions (including credit extensions from the Bank) that may take place and generally require those transactions to be on terms that are at least as favorable to the Bank as prevailing terms for comparable transactions with non-affiliates. These regulations generally do not apply to transactions within the Bank.

The table below presents assets and liabilities with affiliates.

	As of December	
$ in millions	**2019**	2018
Assets		
Cash	**$ 222**	$ 95
Resale agreements	**944**	23,626
Customer and other receivables	**1,665**	2,002
Trading assets	**359**	515
Other assets	**594**	193
Total	**$ 3,784**	$ 26,431
Liabilities		
Deposits	**$ 17,639**	$ 11,307
Repurchase agreements	**9,891**	3,815
Customer and other payables	**371**	121
Trading liabilities	**311**	1,427
Unsecured borrowings	**4,295**	4,439
Other liabilities	**452**	396
Total	**$ 32,959**	$ 21,505

In the table above, trading assets and trading liabilities consist of net outstanding derivative contracts with Group Inc. and affiliates. The Bank enters into derivative contracts with Group Inc. and its affiliates in the normal course of business.

Group Inc. General Guarantee

Group Inc. has guaranteed the payment obligations of Goldman Sachs Bank USA, subject to certain limitations.

Interest Income and Interest Expense

The Bank recognizes interest income and interest expense in connection with various affiliated transactions. These transactions include resale agreements, other assets, repurchase agreements, deposits, collateral posted and received, other liabilities, and unsecured borrowings. The Bank recorded net interest income from affiliates of $326 million for 2019 and $213 million for 2018.

Other Transactions

The Bank enters into various activities with affiliated entities and transfers revenues to, and receives revenues from, such affiliates for their participation. The Bank transferred net revenues of $257 million to affiliates for 2019 and $355 million for 2018. These amounts are included in gains and losses from financial assets and liabilities.

The Bank is subject to service charges from affiliates. The net charge to the Bank by affiliates was $522 million for 2019 and $506 million for 2018. This service charge from affiliates is for employment related costs of dual employees and employees of affiliates pursuant to a Master Services Agreement supplemented by Service Level Agreements (collectively, the Master Services Agreement). These amounts are included in service charges.

The Bank receives operational and administrative support and management services from affiliates and is charged for these services. In addition, the Bank provides similar support and services to affiliates and charges these affiliates for the services provided. These amounts are reflected net in the applicable expense captions in the consolidated statements of earnings.

In connection with its partnership interest in Goldman Sachs Mitsui Marine Derivative Products, L.P., the Bank has provided to Mitsui Sumitomo Insurance Co., Ltd. (Mitsui Sumitomo) additional protection in the form of assets held in a VIE which could be liquidated for the benefit of Mitsui Sumitomo under certain circumstances.

Note 21.

Interest Income and Interest Expense

Interest is recorded over the life of the instrument on an accrual basis based on contractual interest rates.

The table below presents sources of interest income and interest expense.

	Year Ended December	
$ in millions	**2019**	2018
Deposits with banks	**$ 778**	$ 1,127
Collateralized agreements	**815**	397
Trading assets	**1,094**	571
Investments	**116**	53
Loans	**3,687**	3,094
Other interest	**1,062**	570
Total interest income	**7,552**	5,812
Deposits	**3,422**	2,437
Collateralized financings	**270**	78
Trading liabilities	**58**	57
Borrowings	**266**	220
Other interest	**659**	273
Total interest expense	**4,675**	3,065
Net interest income	**$ 2,877**	$ 2,747

In the table above:

- Collateralized agreements consists of resale agreements.
- Loans excludes interest on loans held for sale that are accounted for at the lower of cost or fair value. Such interest is included within other interest.
- Other interest income primarily includes interest income on loans held for sale that are accounted for at the lower of cost or fair value collateral balances posted to counterparties and foreign currency funding facilities.
- Collateralized financings consists of repurchase agreements.
- Borrowings includes interest expense from other secured financings and unsecured borrowings, which primarily relates to interest incurred on the Bank's affiliate borrowings from Group Inc. and Funding IHC, as well as FHLB advances.
- Other interest expense primarily includes interest expense on collateral balances received from counterparties and interest expense on foreign currency funding facilities.

Note 22.

Income Taxes

Provision for Income Taxes

Income taxes are provided for using the asset and liability method under which deferred tax assets and liabilities are recognized for temporary differences between the financial reporting and tax bases of assets and liabilities. The Bank reports interest expense related to income tax matters in provision for taxes and income tax penalties in other expenses.

The Bank's results of operations are included in the consolidated federal and certain state tax returns of GS Group. The Bank computes its tax liability as if it was filing a tax return on a modified separate company basis and settles such liability with Group Inc. pursuant to a tax sharing agreement. To the extent the Bank generates tax benefits from losses, it will be reimbursed by Group Inc. pursuant to a tax sharing agreement at such time as GS Group would have been able to utilize such losses.

The table below presents information about the provision for taxes.

	Year Ended December	
$ in millions	**2019**	2018
Current taxes		
U.S. federal	**$ 437**	$ 556
State and local	**91**	80
Total current tax expense	**528**	636
Deferred taxes		
U.S. federal	**(56)**	(43)
State and local	**(7)**	(5)
Total deferred tax benefit	**(63)**	(48)
Provision for taxes	**$ 465**	$ 588

For 2019, differences between the Bank's statutory tax rate and effective tax rate primarily relate to state and local taxes, tax credits and tax credit amortization. For 2018, differences between the Bank's statutory tax rate and effective tax rate primarily related to state and local taxes and tax credits.

Deferred Income Taxes

Deferred income taxes reflect the net tax effects of temporary differences between the financial reporting and tax bases of assets and liabilities. These temporary differences result in taxable or deductible amounts in future years and are measured using the tax rates and laws that will be in effect when such differences are expected to reverse. Valuation allowances are established to reduce deferred tax assets to the amount that more likely than not will be realized. As of both December 2019 and December 2018, the Bank's valuation allowance recorded was not material. Tax assets are included in other assets and tax liabilities are included in other liabilities.

The table below presents information about deferred tax assets and liabilities.

	As of December	
$ in millions	**2019**	2018
Deferred tax assets		
Reserves	**$ 259**	$ 201
Unrealized losses	**57**	34
Compensation and benefits	**23**	22
ASC 740 assets related to unrecognized tax benefits	**15**	–
Other comprehensive income-related	**2**	1
Depreciation and amortization	**–**	4
Other, net	**2**	8
Total deferred tax assets	**$ 358**	$ 270
Deferred tax liabilities		
Unrealized gains	**40**	49
Total deferred tax liabilities	**$ 40**	$ 49

Unrecognized Tax Benefits

The Bank recognizes tax positions in the consolidated financial statements only when it is more likely than not that the position will be sustained on examination by the relevant taxing authority based on the technical merits of the position. A position that meets this standard is measured at the largest amount of benefit that will more likely than not be realized on settlement. A liability is established for differences between positions taken in a tax return and amounts recognized in the consolidated financial statements.

As of December 2019, the Bank had a net asset for uncertain tax provisions of $12 million and no accrued liabilities for interest expense related to income tax matters and income tax penalties. As of December 2018, the Bank had a net liability for uncertain tax provisions of $5 million and no accrued liabilities for interest expense related to income tax matters and income tax penalties.

Regulatory Tax Examinations

The Bank is subject to examination by the U.S. Internal Revenue Service (IRS), as part of GS Group, and other taxing authorities in jurisdictions where the Bank has significant business operations, such as New York State and City. The tax years under examination vary by jurisdiction.

U.S. Federal examinations of 2011 and 2012 began in 2013. GS Group has been accepted into the Compliance Assurance Process program by the IRS for each of the tax years from 2013 through 2019 and submitted an application for 2020. This program allows GS Group to work with the IRS to identify and resolve potential U.S. Federal tax issues before the filing of tax returns. The 2013 through 2018 tax years remain subject to post-filing review.

All years including and subsequent to 2015 for New York State and City remain open to examination by the taxing authorities. All years including and subsequent to 2009 for all other significant states, excluding New York State and City, remain open to examination by the taxing authorities.

All years including and subsequent to the years detailed above remain open to examination by the taxing authorities. The Bank believes that the liability for unrecognized tax benefits it has established is adequate in relation to the potential for additional assessments.

Note 23.

Credit Concentrations

The Bank's concentrations of credit risk arise from its lending, market-making, cash management and other activities, and may be impacted by changes in economic, industry or political factors. These activities expose the Bank to many different industries and counterparties, and may also subject the Bank to a concentration of credit risk to a particular central bank, counterparty, borrower or issuer, including sovereign issuers, or to a particular clearing house or exchange. The Bank seeks to mitigate credit risk by actively monitoring exposures and obtaining collateral from counterparties as deemed appropriate.

The Bank measures and monitors its credit exposure based on amounts owed to the Bank after taking into account risk mitigants that management considers when determining credit risk. Such risk mitigants include netting and collateral arrangements and economic hedges, such as credit derivatives, futures and forward contracts. Netting and collateral agreements permit the Bank to offset receivables and payables with such counterparties and/or enable the Bank to obtain collateral on an upfront or contingent basis.

The table below presents the credit concentrations included in trading cash instruments and investments.

	As of December	
$ in millions	**2019**	2018
U.S. government and agency obligations	**$ 67,931**	$ 24,459
Percentage of total assets	**29.7%**	12.8%

In addition, the Bank had $50.55 billion as of December 2019 and $29.20 billion as of December 2018 of cash deposits held at the Federal Reserve Bank of New York. These cash deposits are included in cash.

As of December 2018, the Bank had credit exposure in connection with derivative activities with a global clearing house which represented 2.4% of total assets, primarily related to margin posted.

As of both December 2019 and December 2018, the Bank did not have credit exposure to any other external counterparty that exceeded 2% of total assets.

Collateral obtained by the Bank related to derivative assets is principally cash and is held by the Bank or a third-party custodian. Collateral obtained by the Bank related to resale agreements is primarily U.S. government and agency obligations. See Note 11 for further information about collateralized agreements and financings.

The Bank had resale agreements of $1.71 billion as of December 2019 and $33.24 billion as of December 2018 that are collateralized by U.S. government and agency obligations.

Given that the Bank's primary credit exposure on such transactions is to the counterparty to the transaction, the Bank would be exposed to the collateral issuer only in the event of counterparty default.

Note 24.

Legal Proceedings

The Bank is involved in a number of judicial, regulatory and arbitration proceedings concerning matters arising in connection with the conduct of the Bank's businesses. Many of these proceedings are in early stages, and many of these cases seek an indeterminate amount of damages.

Management is generally unable to estimate a range of reasonably possible loss for matters in which the Bank is involved due to various factors, including where (i) actual or potential plaintiffs have not claimed an amount of money damages, except in those instances where management can otherwise determine an appropriate amount, (ii) matters are in early stages, (iii) matters relate to regulatory investigations or reviews, except in those instances where management can otherwise determine an appropriate amount, (iv) there is uncertainty as to the likelihood of a class being certified or the ultimate size of the class, (v) there is uncertainty as to the outcome of pending appeals or motions, (vi) there are significant factual issues to be resolved, and/or (vii) there are novel legal issues presented.

Management does not believe, based on currently available information, that the outcomes of any such matters will have a material adverse effect on the Bank's financial condition, though the outcomes could be material to the Bank's operating results for any particular period, depending, in part, upon the operating results for such period.

Regulatory Investigations and Reviews and Related Litigation. The Bank and certain of its affiliates (including Group Inc.) are subject to a number of investigations and reviews by, and in some cases have received subpoenas and requests for documents and information from, various governmental and regulatory bodies and self-regulatory organizations and litigation relating to such matters in each case relating to the Bank's current and past businesses and operations, including, but not limited to, credit cards, unsecured consumer and residential mortgage lending and servicing, and compliance with related consumer laws; the sales, trading, transaction reporting, execution and clearance of derivatives, currencies and other financial products and related communications and activities, including trading activities and communications in connection with the establishment of benchmark rates, such as currency rates, and activities in U.S. Treasury securities; and transactions involving government-related financings and other matters, including those related to 1Malaysia Development Berhad (1MDB), a sovereign wealth fund in Malaysia. The Bank is cooperating with all such regulatory investigations and reviews.

In addition, governmental and other investigations, reviews, actions and litigation involving the Bank's affiliates and such affiliates' businesses and operations, including without limitation various matters referred to above, may have an impact on the Bank's businesses and operations.

Note 25.

Employee Incentive Plans and Employee Benefit Plans

Employee Incentive Plan

The cost of employee services received in exchange for a share-based award is generally measured based on the grant-date fair value of the award. Share-based awards that do not require future service (i.e., vested awards, including awards granted to retirement-eligible employees) are expensed immediately. Share-based awards that require future service are amortized over the relevant service period. Forfeitures are recorded when they occur. Cash dividend equivalents are paid on outstanding restricted stock units (RSUs).

Stock Incentive Plan

Group Inc. sponsors a stock incentive plan, The Goldman Sachs Amended and Restated Stock Incentive Plan (2018) (2018 SIP), which provides for grants of RSUs, restricted stock, dividend equivalent rights, incentive stock options, nonqualified stock options, stock appreciation rights, and other share-based awards, each of which may be subject to performance conditions. On May 2, 2018, Group Inc.'s shareholders approved the 2018 SIP. The 2018 SIP replaced The Goldman Sachs Amended and Restated Stock Incentive Plan (2015) (2015 SIP) previously in effect, and applies to awards granted on or after the date of approval. The 2015 SIP had previously replaced The Goldman Sachs Amended and Restated Stock Incentive Plan (2013). The 2018 SIP is scheduled to terminate on the date of Group Inc.'s annual meeting of shareholders that occurs in 2022.

Restricted Stock Units

Group Inc. grants RSUs (including RSUs subject to performance conditions) to employees, which are generally valued based on the closing price of the underlying shares on the date of grant after taking into account a liquidity discount for any applicable post-vesting and delivery transfer restrictions. RSUs generally vest and underlying shares of common stock deliver (net of required withholding tax) as outlined in the applicable award agreements. Award agreements generally provide that vesting is accelerated in certain circumstances, such as on retirement, death, disability and conflicted employment. Delivery of the underlying shares of common stock, which generally occurs over a three-year period, is conditioned on the grantees satisfying certain vesting and other requirements outlined in the award agreements. The subsequent amortization of the cost of these RSUs is allocated to the Bank by Group Inc.

The table below presents the 2019 activity related to RSUs.

	Restricted Stock Units Outstanding		Weighted Average Grant-Date Fair Value of Restricted Stock Units Outstanding	
	Future Service Required	No Future Service Required	Future Service Required	No Future Service Required
Beginning balance	129,343	190,235	$ 221.73	$ 191.19
Granted	**200,856**	**53,350**	**$ 179.52**	**$ 178.40**
Forfeited	**(28,734)**	**(1,273)**	**$ 213.99**	**$ 192.73**
Delivered	**–**	**(156,736)**	**$ –**	**$ 185.76**
Vested	**(145,130)**	**145,130**	**$ 196.80**	**$ 196.80**
Transfers	**20,805**	**1**	**$ 205.10**	**$ 209.53**
Ending balance	**177,140**	**230,707**	**$ 195.53**	**$ 195.44**

In the table above:

- The weighted average grant-date fair value of RSUs granted was $179.28 during 2019 and $221.66 during 2018. The fair value of the RSUs granted included a liquidity discount of 10.0% during 2019 and 11.2% during 2018, to reflect post-vesting and delivery transfer restrictions, generally of up to 4 years.
- The aggregate fair value of awards that vested was $39 million during 2019 and $31 million during 2018.
- The ending balance included RSUs subject to performance conditions but not subject to future service requirements of 21,680 RSUs as of December 2019, and the maximum amount of such RSUs that may be earned was 32,520 RSUs as of December 2019.

In relation to 2019 year-end, during the first quarter of 2020, 210,898 RSUs were granted to employees, of which 176,855 RSUs require future service as a condition of delivery for the related shares of common stock. These awards are subject to additional conditions as outlined in the award agreements. Generally, shares underlying these awards, net of required withholding tax, deliver over a three-year period, but are subject to post-vesting and delivery transfer restrictions through January 2025. These grants are not included in the table above.

As of December 2019, there was $17 million of total unrecognized compensation cost related to non-vested share-based compensation arrangements. This cost is expected to be recognized over a weighted average period of 1.53 years.

Total employee share-based compensation expense, net of forfeitures, was $48 million for 2019 and $36 million for 2018.

Defined Benefit Pension Plan

Group Inc. maintains a defined benefit pension plan for substantially all U.S. employees hired prior to November 1, 2003. As of November 2004, this plan was closed to new participants and frozen for existing participants. Group Inc. also maintains unfunded postretirement benefit plans that provide medical and life insurance for eligible retirees and their dependents covered under these programs. The Bank's contribution to these plans did not have a material impact on the Bank's consolidated results of operations.

Defined Contribution Plan

The Bank contributes to Group Inc.'s employer-sponsored U.S. defined contribution plan. The Bank's contribution to this plan did not have a material impact on the Bank's consolidated results of operations.

Note 26.

Subsequent Events

The Bank evaluated subsequent events through March 9, 2020, the date the consolidated financial statements were issued, and determined that there were no material events or transactions that would require recognition or additional disclosure in these consolidated financial statements.

Supplemental Financial Information

Distribution of Assets, Liabilities and Shareholder's Equity

The tables below present information about average balances, interest and average interest rates.

$ in millions	Average Balance for the Year Ended December 2019	2018
Assets		
Deposits with banks	**$ 35,996**	$ 60,338
Collateralized agreements	**29,423**	14,625
Trading assets	**39,496**	16,345
Investments	**5,576**	3,020
Loans	**71,510**	63,040
Other interest-earning assets	**11,766**	12,238
Total interest-earning assets	**193,767**	169,606
Cash and due from banks	**378**	223
Other non-interest-earning assets	**11,955**	10,024
Total assets	**$ 206,100**	$ 179,853
Liabilities		
Interest-bearing deposits	**$ 141,768**	$ 125,695
Collateralized financings	**8,019**	1,081
Trading liabilities	**2,533**	2,453
Borrowings	**7,948**	7,325
Other interest-bearing liabilities	**3,965**	4,143
Total interest-bearing liabilities	**164,233**	140,697
Non-interest-bearing deposits	**4,874**	4,054
Other non-interest-bearing liabilities	**8,490**	8,608
Total liabilities	**177,597**	153,359
Shareholder's equity	**28,503**	26,494
Total liabilities and shareholder's equity	**$ 206,100**	$ 179,853

$ in millions	Interest for the Year Ended December 2019	2018
Assets		
Deposits with banks	**$ 778**	$ 1,127
Collateralized agreements	**815**	397
Trading assets	**1,094**	571
Investments	**116**	53
Loans	**3,687**	3,094
Other interest-earning assets	**1,062**	570
Total interest-earning assets	**$ 7,552**	$ 5,812
Liabilities		
Interest-bearing deposits	**$ 3,422**	$ 2,437
Collateralized financings	**270**	78
Trading liabilities	**58**	57
Borrowings	**266**	220
Other interest-bearing liabilities	**659**	273
Total interest-bearing liabilities	**$ 4,675**	$ 3,065
Net interest income	**$ 2,877**	$ 2,747

	Average Rate for the Year Ended December 2019	2018
Assets		
Deposits with banks	**2.16%**	1.87%
Collateralized agreements	**2.77%**	2.71%
Trading assets	**2.77%**	3.49%
Investments	**2.08%**	1.75%
Loans	**5.16%**	4.91%
Other interest-earning assets	**N.M.**	4.66%
Total interest-earning assets	**3.90%**	3.43%
Liabilities		
Interest-bearing deposits	**2.41%**	1.94%
Collateralized financings	**3.37%**	N.M.
Trading liabilities	**2.29%**	2.32%
Borrowings	**3.35%**	3.00%
Other interest-bearing liabilities	**N.M.**	6.59%
Total interest-bearing liabilities	**2.85%**	2.18%
Net interest margin	**1.48%**	1.62%

In the tables above:

- Deposits with banks primarily consist of deposits held at the Federal Reserve Bank of New York.
- Collateralized agreements consists of resale agreements. Collateralized financings consists of repurchase agreements. The average balances for both collateralized agreements and collateralized financings reflect the impact of counterparty netting, while the related interest income and interest expense do not reflect the impact of such counterparty netting. Accordingly, the average rate on collateralized financings for 2018 was not meaningful. See Note 11 to the consolidated financial statements and "Results of Operations" in Part II of this Annual Report for further information about collateralized agreements and collateralized financings and related interest.
- See Notes 4 through 10 to the consolidated financial statements and "Results of Operations" in Part II of this Annual Report for further information about financial assets and liabilities and related interest.

- Loans consists of loans held for investment that are accounted for at amortized cost net of allowance for loan losses or at fair value under the fair value option. Loans exclude loans held for sale that are accounted for at the lower of cost or fair value. Such loans are included within other interest-earning assets. Interest on loans is recognized over the life of the loan and is recorded on an accrual basis. See Note 9 to the consolidated financial statements and "Results of Operations" in Part II of this Annual Report for further information about loans and related interest.

- Other interest-earning assets consists of customer and other receivables and loans held for sale that are accounted for at the lower of cost or fair value. Other interest-bearing liabilities consists of customer and other payables. The average balances for both other interest-earning assets and other interest-bearing liabilities reflect the impact of counterparty netting, while the related interest income and interest expense do not reflect the impact of such counterparty netting. Accordingly, the average rate on other interest-earning assets and other interest-bearing liabilities for 2019 was not meaningful.

- Derivative instruments are included in other non-interest-earning assets and other non-interest-bearing liabilities. See Note 7 to the consolidated financial statements and "Results of Operations" in Part II of this Annual Report for further information about derivatives.

- Interest-bearing deposits consists of deposits from private bank clients, U.S. consumers, clients of third-party broker-dealers, institutions, corporations and affiliates. See Note 13 to the consolidated financial statements and "Results of Operations" in Part II of this Annual Report for further information about deposits and related interest.

- Borrowings include senior unsecured debt, subordinated borrowings, hybrid financial instruments and borrowings from affiliates. See Notes 11 and 14 to the consolidated financial statements and "Balance Sheet Analysis" in Part II of this Annual Report for further information about short-term and long-term borrowings and related interest.

- See Note 21 to the consolidated financial statements for further information about interest income and interest expense.

Changes in Net Interest Income, Volume and Rate Analysis

The table below presents the effect on net interest income of volume and rate changes. In this analysis, changes due to volume/rate variance have been allocated to volume.

	Year Ended December 2019 versus December 2018		
	Increase (decrease) due to change in:		
$ in millions	Volume	Rate	Net Change
Interest-earning assets			
Deposits with banks	$ (526)	$ 177	$ (349)
Collateralized agreements	410	8	418
Trading assets	641	(118)	523
Investments	53	10	63
Loans	437	156	593
Other interest-earning assets	(43)	535	492
Change in interest income	972	768	1,740
Interest-bearing liabilities			
Interest-bearing deposits	388	597	985
Collateralized financings	234	(42)	192
Trading liabilities	2	(1)	1
Borrowings	21	25	46
Other interest-bearing liabilities	(30)	416	386
Change in interest expense	615	995	1,610
Change in net interest income	$ 357	$ (227)	$ 130