Goldman Sachs & Co. LLC and Subsidiaries

Consolidated Statement of Financial Condition
and Supplemental Financial Information
pursuant to Regulation 1.10 of the
Commodity Futures Trading Commission
as of December 31, 2019

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U. S. SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

ANNUAL AUDITED REPORT
FORM X-17A-5
PART III

FACING PAGE

Information Required of Brokers and Dealers Pursuant to Section 17 of the Securities Exchange Act of 1934 and Rule 17a-5 Thereunder

REPORT FOR THE PERIOD BEGINNING 1/1/2019 (MM/DD/YY) AND ENDING 12/31/2019 (MM/DD/YY)

A. REGISTRANT IDENTIFICATION

NAME OF BROKER-DEALER:

Goldman Sachs & Co. LLC

OFFICIAL USE ONLY
13-5108880
FIRM ID NO.

ADDRESS OF PRINCIPAL PLACE OF BUSINESS: (Do not use P.O. Box No.)

200 West Street
(No. and Street)

New York	New York	10282
(City)	(State)	(Zip Code)

NAME AND TELEPHONE NUMBER OF PERSON TO CONTACT IN REGARD TO THIS REPORT

Thomas J. Favia — (212) 902-1710
(Area Code -Telephone No.)

B. ACCOUNTANT IDENTIFICATION

INDEPENDENT PUBLIC ACCOUNTANT whose opinion is contained in this Report*

PricewaterhouseCoopers LLP
(Name - if individual, state last, first, middle name)

300 Madison Avenue	New York	New York	10017
(Address)	(City)	(State)	(Zip Code)

CHECK ONE:

- [x] Certified Public Accountant
- [ ] Public Accountant
- [ ] Accountant not resident in United States or any of its possessions.

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**Claims for exemption from the requirement that the annual report be covered by the opinion of an independent public accountant must be supported by a statement of facts and circumstances relied on as the basis for the exemption. See section 240.17a-5(e)(2).*

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SEC 1410 (7-00)

This report* contains (check all applicable boxes):

- ☒ (a) Facing page
- ☒ (b) Statement of financial condition
- ☐ (c) Statement of earnings
- ☐ (d) Statement of changes in member's equity
- ☐ (e) Statement of changes in subordinated borrowings
- ☐ (f) Statement of cash flows
- ☐ (g) Statement of comprehensive income
- ☐ (h) Computation of net capital pursuant to Rule 15c3-1
- ☐ (i) Computation for determination of reserve requirements pursuant to Rule 15c3-3
- ☐ (j) Information relating to the possession or control requirements under Rule 15c3-3
- ☐ (k) A reconciliation, including appropriate explanation, of the computation of net capital under Rule 15c3-1 and the computation for determination of the reserve requirements under exhibit A of Rule 15c3-3
- ☐ (l) A reconciliation between the audited and unaudited statements of financial condition with respect to methods of consolidation
- ☐ (m) An oath or affirmation
- ☐ (n) A copy of the Securities Investor Protection Corporation supplemental report (filed as a separate document)
- ☐ (o) A report describing any material inadequacies found to exist or found to have existed since the date of the previous audit
- ☒ (p) Statement of segregation requirements and funds in segregation for customers trading on U.S. commodity exchanges
- ☒ (q) Statement of segregation requirements and funds in segregation for customers' dealer options accounts
- ☒ (r) Statement of secured amounts and funds held in separate accounts pursuant to Commission Regulation 30.7
- ☐ (s) Computation of CFTC Minimum Net Capital Requirement
- ☒ (t) Statement of cleared swaps customer segregation requirements and funds in cleared swaps customer accounts under 4D(F) of the CEA

**For conditions of confidential treatment of certain portions of this filing, see section 240.17a-5(e)(3).*

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Report of Independent Registered Public Accounting Firm

To the Board of Managers and the Members of Goldman Sachs & Co. LLC:

Opinion on the Financial Statement - Consolidated Statement of Financial Condition

We have audited the accompanying consolidated statement of financial condition of Goldman Sachs & Co. LLC and its subsidiaries (the "Company") as of December 31, 2019, including the related notes (collectively referred to as the "consolidated financial statement"). In our opinion, the consolidated financial statement presents fairly, in all material respects, the financial position of the Company as of December 31, 2019, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

The consolidated financial statement is the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's consolidated financial statement based on our audit. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit of this consolidated financial statement in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statement is free of material misstatement, whether due to error or fraud.

Our audit included performing procedures to assess the risks of material misstatement of the consolidated financial statement, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statement. Our audit also included evaluating the accounting principles used and significant estimates made by management, as well as, evaluating the overall presentation of the consolidated financial statement. We believe that our audit provides a reasonable basis for our opinion.

Supplemental Information

The Supplemental Financial Information Pursuant to Regulation 1.10 has been subjected to audit procedures performed in conjunction with the audit of the Company's consolidated financial statement. The supplemental information is the responsibility of the Company's management. Our audit procedures included determining whether the supplemental information reconciles to the consolidated financial statement or the underlying accounting and other records, as applicable, and performing procedures to test the completeness and accuracy of the information presented in the supplemental information. In forming our opinion on the supplemental information, we evaluated whether the supplemental information, including its form and content, is presented in conformity with Regulation 1.10 under the Commodity Exchange Act. In our opinion, the Supplemental Financial Information Pursuant to Regulation 1.10 is fairly stated, in all material respects, in relation to the consolidated financial statement as a whole.

PricewaterhouseCoopers LLP

February 26, 2020

We have served as the Company's auditor since 1922.

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

Consolidated Statement of Financial Condition

$ in millions	As of December 2019
Assets	
Cash	$ 8,029
Collateralized agreements:	
Securities purchased under agreements to resell (at fair value)	74,757
Securities borrowed (includes **$27,782** at fair value)	166,174
Receivables:	
Brokers, dealers and clearing organizations	11,673
Customers and counterparties (includes **$53** at fair value)	21,443
Financial instruments owned (at fair value and includes **$38,191** pledged as collateral)	132,113
Other assets	2,372
Total assets	**$ 416,561**
Liabilities and member's equity	
Collateralized financings:	
Securities sold under agreements to repurchase (at fair value)	$ 102,074
Securities loaned (includes **$20,432** at fair value)	73,892
Other secured financings (includes **$3,424** at fair value)	17,619
Payables:	
Brokers, dealers and clearing organizations	3,264
Customers and counterparties	121,719
Financial instruments sold, but not yet purchased (at fair value)	43,095
Unsecured short-term borrowings	14,857
Unsecured long-term borrowings	25
Other liabilities	8,079
Subordinated borrowings	18,500
Total liabilities	403,124
Commitments, contingencies and guarantees	
Member's equity	
Member's equity	13,437
Total liabilities and member's equity	**$ 416,561**

The accompanying notes are an integral part of this consolidated statement of financial condition.

Note 1.

Description of Business

Goldman Sachs & Co. LLC (GS&Co.), a limited liability company registered as a U.S. broker-dealer and futures commission merchant, together with its consolidated subsidiaries (collectively, the firm), is a wholly-owned subsidiary of The Goldman Sachs Group, Inc. (Group Inc. and, collectively with its consolidated subsidiaries, GS Group), a Delaware corporation, except for de minimis non-voting, non-participating interests held by unaffiliated broker-dealers.

The firm conducts its activities in the following four business lines:

Investment Banking

The firm provides a broad range of investment banking services to a diverse group of corporations, financial institutions, investment funds and governments. Services include strategic advisory assignments with respect to mergers and acquisitions, divestitures, corporate defense activities, restructurings and spin-offs, and equity and debt underwriting of public offerings and private placements.

Global Markets

The firm facilitates client transactions and makes markets in fixed income, equity, currency and commodity products with institutional clients, such as corporations, financial institutions, investment funds and governments. The firm also makes markets in and clears institutional client transactions on major stock, options and futures exchanges and provides prime brokerage and other equities financing activities, including securities lending, margin lending and swaps. The firm also provides financings to clients through repurchase agreements.

Asset Management

The firm manages assets and offers investment products (primarily through separately managed accounts and commingled vehicles, such as mutual funds and private investment funds) across all major asset classes to a diverse set of institutional clients and a network of third-party distributors. The firm makes equity investments, which includes alternative investing activities related to public and private equity.

Wealth Management

The firm provides investing and wealth advisory solutions, including executing brokerage transactions and managing assets for individuals in its wealth management business.

Note 2.

Basis of Presentation

This consolidated statement of financial condition is prepared in accordance with accounting principles generally accepted in the United States (U.S. GAAP) and includes the accounts of GS&Co. and all other entities in which the firm has a controlling financial interest. Intercompany transactions and balances have been eliminated.

All references to 2019 refer to the date December 31, 2019. Any reference to a future year refers to a year ending on December 31 of that year.

Note 3.

Significant Accounting Policies

The firm's significant accounting policies include when and how to measure the fair value of assets and liabilities and when to consolidate an entity. See Note 4 for policies on fair value measurements and below and Note 15 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
Financial Instruments Owned and Financial Instruments Sold, But Not Yet Purchased	Note 5
Cash Instruments	Note 6
Derivatives and Hedging Activities	Note 7
Fair Value Option	Note 8
Collateralized Agreements and Financings	Note 9
Other Assets	Note 10
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Income Taxes	Note 18
Credit Concentrations	Note 19
Legal Proceedings	Note 20
Employee Benefit Plans	Note 21
Employee Incentive Plans	Note 22

Consolidation

The firm consolidates entities in which the firm has a controlling financial interest. The firm 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 firm 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 firm has a controlling financial interest in a VIE when the firm 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 15 for further information about VIEs.

Equity-Method Investments. When the firm does not have a controlling financial interest in an entity but can exert significant influence over the entity's operating and financial policies, the investment is generally accounted for at fair value by electing the fair value option available under U.S. GAAP. Significant influence generally exists when the firm owns 20% to 50% of the entity's common stock or in-substance common stock.

In certain cases, the firm applies the equity method of accounting to new investments that are strategic in nature or closely related to the firm's principal business activities, when the firm has a significant degree of involvement in the cash flows or operations of the investee or when cost-benefit considerations are less significant.

Use of Estimates

Preparation of this consolidated statement of financial condition requires management to make certain estimates and assumptions, the most important of which relate to 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.

Financial Assets and Liabilities at Fair Value. Financial instruments owned and financial instruments sold, but not yet purchased are recorded at fair value either under the fair value option or in accordance with other U.S. GAAP. In addition, the firm has elected to account for certain of its 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. See Note 4 for further information about fair value measurements.

Transfers of Financial Assets

Transfers of financial assets are accounted for as sales when the firm has relinquished control over the assets transferred. For transfers of financial assets accounted for as sales, any gains or losses are recognized in net revenues. Assets or liabilities that arise from the firm'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 financial instruments owned and the transfer is accounted for as a collateralized financing, with the related interest expense recognized over the life of the transaction. See Note 9 for further information about transfers of financial assets accounted for as collateralized financings and Note 14 for further information about transfers of financial assets accounted for as sales.

Cash

Cash included cash and due from banks of $3.20 billion as of December 2019. Cash also included interest-bearing deposits with banks of $4.83 billion as of December 2019. See Note 17 for further information about cash deposited with an affiliate.

The firm segregates cash for regulatory and other purposes related to client activity. Cash segregated for regulatory and other purposes was $5.21 billion as of December 2019. In addition, the firm segregates securities for regulatory and other purposes related to client activity. See Note 9 for further information about segregated securities.

Receivables from and Payables to Brokers, Dealers and Clearing Organizations

Receivables from and payables to brokers, dealers and clearing organizations are accounted for at cost plus accrued interest, which generally approximates fair value. As these receivables and payables are not accounted for at fair value, they are not included in the firm's fair value hierarchy in Notes 4 through 8. Had these receivables and payables been included in the firm's fair value hierarchy, substantially all would have been classified in level 2 as of December 2019.

Receivables from Customers and Counterparties

Receivables from customers and counterparties generally relate to collateralized transactions. Such receivables primarily consist of customer margin loans and collateral posted in connection with certain derivative transactions.

Substantially all of these 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 firm's fair value hierarchy in Notes 4 through 8. Had these receivables been included in the firm's fair value hierarchy, substantially all would have been classified in level 2 as of December 2019. See Note 8 for further information about receivables from customers and counterparties accounted for at fair value under the fair value option. Interest on receivables from customers and counterparties is recognized over the life of the transaction.

Receivables from customers and counterparties includes receivables from contracts with clients and contract assets. Contract assets represent the firm's right to receive consideration for services provided in connection with its contracts with clients for which collection is conditional and not merely subject to the passage of time. The firm's receivables from contracts with clients were $602 million as of December 2019. As of December 2019, there were no contract assets.

Payables to Customers and Counterparties

Payables to customers and counterparties primarily consist of customer credit balances related to the firm's prime brokerage activities. These 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 firm's fair value hierarchy in Notes 4 through 8. Had these payables been included in the firm's fair value hierarchy, substantially all would have been classified in level 2 as of December 2019. Interest on payables to customers and counterparties is recognized over the life of the transaction

Offsetting Assets and Liabilities

To reduce credit exposures on derivatives and securities financing transactions, the firm 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 firm 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 firm's right of setoff under netting and credit support agreements, the firm 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 statement of financial condition 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) and securities borrowed and loaned transactions with the same term and currency are presented on a net-by-counterparty basis in the consolidated statement of financial condition when such transactions meet certain settlement criteria and are subject to netting agreements.

In the consolidated statement of financial condition, 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 statement of financial condition, resale and repurchase agreements, and securities borrowed and loaned, are not reported net of the related cash and securities received or posted as collateral. See Note 9 for further information about collateral received and pledged, including rights to deliver or repledge collateral. See Notes 7 and 9 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 statement of financial condition 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

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 statement of financial condition 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 statement 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 firm adopted this ASU in January 2019 under a modified retrospective approach. Upon adoption, in accordance with the ASU, the firm 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 firm has elected to account for each contract's lease and non-lease components as a single lease component. Adoption of the ASU did not have a material impact on the firm's consolidated statement of financial condition.

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.

Under CECL, the allowance for losses for financial assets that are measured at amortized cost reflects management's estimate of credit losses over the remaining expected life of such assets. Expected credit losses for newly recognized financial assets, as well as changes to expected credit losses during the period, would be recognized in earnings.

The firm adopted this ASU in January 2020 under a modified retrospective approach. Adoption of the ASU did not have a material impact on the firm's financial condition.

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 firm 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 firm 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 firm 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 firm's financial assets and 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 firm's 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 firm's financial instruments are described below. See Notes 5 through 8 for further information about significant unobservable inputs used to value level 3 financial instruments.

Valuation Techniques and Significant Inputs for Cash Instruments

Level 1. Level 1 cash instruments include U.S. government obligations, certain non-U.S. government obligations, certain agency obligations, certain corporate debt instruments, certain other debt obligations and actively traded listed equities. These instruments are valued using quoted prices for identical unrestricted instruments in active markets. The firm defines active markets for equity instruments based on the average daily trading volume both in absolute terms and relative to the market capitalization for the instrument. The firm 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 cash instruments include most non-U.S. government obligations, most agency obligations, most mortgage-backed loans and securities, most corporate debt instruments, state and municipal obligations, most other debt obligations, and certain restricted or less liquid listed equities.

Valuations of level 2 cash 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 cash instruments (i) if the cash 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 cash instruments have one or more significant valuation inputs that are not observable. Absent evidence to the contrary, level 3 cash instruments are initially valued at transaction price, which is considered to be the best initial estimate of fair value. Subsequently, the firm 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 cash 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 cash 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;

- A measure of expected future cash flows in a default scenario (recovery rates) implied by the value of the underlying collateral, which is mainly driven by current performance of the underlying collateral and capitalization rates. Recovery rates are expressed as a percentage of notional or face value of the instrument and reflect the benefit of credit enhancements on certain instruments; 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;
- Cumulative loss expectations, driven by default rates, home price projections, residential property liquidation timelines, related costs and subsequent recoveries; and
- Duration, driven by underlying loan prepayment speeds and residential property liquidation timelines.

Corporate Debt Instruments

Corporate debt instruments includes corporate loans, debt securities and convertible debentures. 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 firm uses credit default swaps to value the related cash instrument, the cost of borrowing the underlying reference obligation;
- Duration; and
- Market and transaction multiples for corporate debt instruments with convertibility or participation options.

Equity Securities

Equity securities consists of private equities. 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 (primarily EBITDA and revenue multiples) and public comparables;
- Transactions in similar instruments;
- Discounted cash flow techniques; and
- Third-party appraisals.

The firm also considers changes in the outlook for the relevant industry and financial performance of the issuer as compared to projected performance. Significant inputs include:

- Market and transaction multiples;
- Discount rates; and
- For equity securities with debt-like features, market yields implied by transactions of similar or related assets, current performance and recovery assumptions, and duration.

Other Cash Instruments

The significant inputs to the valuation of other cash instruments, such as U.S. and non-U.S. government and agency obligations, and other debt obligations 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 issuer for which observable prices or broker quotations are available.

Valuation Techniques and Significant Inputs for Derivatives

The firm'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.

- **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.

- **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.

- **Commodity.** Commodity derivatives include transactions referenced to energy (e.g., oil and natural gas), metals (e.g., precious and base) and soft commodities (e.g., agricultural). Price transparency varies based on the underlying commodity, delivery location, tenor and product quality (e.g., diesel fuel compared to unleaded gasoline). In general, price transparency for commodity derivatives is greater for contracts with shorter tenors and contracts that are more closely aligned with major and/or benchmark commodity indices.

- **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 substantially all of the firm's level 3 derivatives are described below.

- For level 3 credit derivatives, significant unobservable inputs include illiquid credit spreads and upfront credit points, which are unique to specific reference obligations and reference entities, and recovery rates.
- For level 3 equity derivatives, significant unobservable inputs generally include equity volatility inputs for options that are long-dated and/or have strike prices that differ significantly from current market prices. In addition, the valuation of certain structured trades requires the use of level 3 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, such as commodities.

Subsequent to the initial valuation of a level 3 derivative, the firm 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 firm 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 firm also makes funding valuation adjustments to collateralized derivatives where the terms of the agreement do not permit the firm 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 firm 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 cash instruments and derivatives, the firm accounts for certain of its other financial assets and liabilities at fair value under the fair value option. Such instruments include resale and repurchase agreements; certain securities borrowed and loaned; certain other secured financings, including transfers of assets accounted for as financings; and certain receivables from customers and counterparties, including certain margin loans. 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 firm's credit quality. The significant inputs used to value the firm's other financial instruments are described below.

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

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 firm (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 9 for further information about collateralized agreements and financings.

Receivables from Customers and Counterparties. The significant inputs to the valuation of such receivables are interest rates, the amount and timing of expected future cash flows and funding spreads.

Financial Assets and Liabilities at Fair Value

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

$ in millions	As of December 2019
Total level 1 financial assets	$ 91,413
Total level 2 financial assets	143,326
Total level 3 financial assets	741
Counterparty and cash collateral netting	(775)
Total financial assets at fair value	**$ 234,705**
Total assets	$ 416,561
Total level 3 financial assets divided by:	
Total assets	0.2%
Total financial assets at fair value	0.3%
Total level 1 financial liabilities	$ 31,051
Total level 2 financial liabilities	143,983
Total level 3 financial liabilities	1,026
Counterparty and cash collateral netting	(7,035)
Total financial liabilities at fair value	**$ 169,025**
Total level 3 financial liabilities divided by total financial liabilities at fair value	0.6%

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.

$ in millions	As of December 2019
Cash instruments	$ 718
Derivatives	23
Total	**$ 741**

See Notes 5 through 8 for further information about level 3 financial assets (including information about transfers in and out of level 3).

Note 5.

Financial Instruments Owned and Financial Instruments Sold, But Not Yet Purchased

Financial instruments owned and financial instruments sold, but not yet purchased include cash instruments and derivatives primarily held in connection with the firm'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.

The table below presents a summary of financial instruments owned and financial instruments sold, but not yet purchased.

	As of December 2019	
$ in millions	Financial Instruments Owned	Financial Instruments Sold, But Not Yet Purchased
Cash instruments	$ 129,315	$ 34,936
Derivatives	2,798	8,159
Total	**$ 132,113**	**$ 43,095**

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

Note 6.

Cash Instruments

Cash instruments consists of instruments primarily held in connection with the firm's market-making or risk management activities. These instruments are accounted for at fair value.

Fair Value of Cash Instruments by Level

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

	As of December 2019			
$ in millions	Level 1	Level 2	Level 3	Total
Assets				
Government and agency obligations:				
U.S.	$ 68,802	$23,672	$ 21	$ 92,495
Non-U.S.	106	665	7	778
Loans and securities backed by:				
Commercial real estate	–	613	108	721
Residential real estate	–	606	131	737
Corporate debt instruments	75	9,610	338	10,023
State and municipal obligations	–	688	–	688
Other debt obligations	5	374	10	389
Equity securities	22,422	959	103	23,484
Total	$ 91,410	$37,187	$ 718	$129,315
Liabilities				
Government and agency obligations:				
U.S.	$ (20,660)	$ (46)	$ –	$ (20,706)
Non-U.S.	(3)	(221)	–	(224)
Loans and securities backed by:				
Commercial real estate	–	(36)	–	(36)
Corporate debt instruments	(115)	(3,575)	(1)	(3,691)
State and municipal obligations	–	(2)	–	(2)
Equity securities	(10,269)	(8)	–	(10,277)
Total	$ (31,047)	$ (3,888)	$ (1)	$ (34,936)

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

In the table above:

- Cash instrument assets are shown as positive amounts and cash instrument liabilities are shown as negative amounts.
- Corporate debt instruments includes corporate loans, debt securities and convertible debentures.
- Equity securities includes public and private equities and exchange-traded funds. Such securities included investments accounted for at fair value under the fair value option where the firm would otherwise apply the equity method of accounting of $23 million as of December 2019.
- Other debt obligations includes other asset-backed securities and money market instruments.

Significant Unobservable Inputs

The table below presents the amount of level 3 assets, and ranges and weighted averages of significant unobservable inputs used to value level 3 cash instruments.

$ in millions	Level 3 Assets and Range of Significant Unobservable Inputs (Weighted Average) as of December 2019
Loans and securities backed by commercial real estate	
Level 3 assets	$108
Yield	7.9% to 21.4% (16.0%)
Recovery rate	11.4% to 81.1% (53.6%)
Duration (years)	0.9 to 6.6 (3.3)
Loans and securities backed by residential real estate	
Level 3 assets	$131
Yield	4.9% to 12.0% (7.0%)
Cumulative loss rate	5.4% to 30.4% (16.3%)
Duration (years)	3.0 to 12.4 (8.2)
Corporate debt instruments	
Level 3 assets	$338
Yield	6.6% to 18.5% (12.2%)
Recovery rate	0.0% to 69.4% (63.4%)
Duration (years)	1.7 to 5.8 (3.2)

Level 3 government and agency obligations and other debt obligations were not material and therefore are not included in the table above. Significant unobservable inputs for equity securities have no range and are not meaningful and therefore have been excluded from the table above.

In the table above:

- Ranges represent the significant unobservable inputs that were used in the valuation of each type of cash instrument.
- Weighted averages are calculated by weighting each input by the relative fair value of the cash instruments.

- 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 cash instrument. For example, the highest recovery rate for corporate debt instruments is appropriate for valuing a specific corporate debt instrument but may not be appropriate for valuing any other corporate debt instrument. Accordingly, the ranges of inputs do not represent uncertainty in, or possible ranges of, fair value measurements of level 3 cash instruments.
- Increases in yield, duration or cumulative loss rate used in the valuation of level 3 cash instruments would have resulted in a lower fair value measurement, while increases in recovery rate would have resulted in a higher fair value measurement as of December 2019. Due to the distinctive nature of each level 3 cash instrument, the interrelationship of inputs is not necessarily uniform within each product type.
- Cash instruments are valued using discounted cash flows.

Level 3 Transfers

Transfers between levels of the fair value hierarchy are reported at the beginning of the reporting period in which they occur.

Transfers into level 3 cash instrument assets during 2019 were \$205 million, primarily reflecting transfers of certain corporate debt instruments from level 2, principally due to reduced price transparency as a result of a lack of market evidence, including fewer market transactions in these instruments.

Transfers out of level 3 cash instrument assets during 2019 were \$41 million. The drivers of transfers out of level 3 cash instrument assets during 2019 were not material.

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 firm'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 firm enters into derivative transactions to provide liquidity to clients and to facilitate the transfer and hedging of their risks. In this role, the firm 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 firm also enters into derivatives to actively manage risk exposures that arise from its market-making and investing and financing activities. The firm'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.

The firm enters into various types of derivatives, including:

- **Futures and Forwards.** Contracts that commit counterparties to purchase or sell financial instruments, commodities 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, commodities, 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, commodities 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 financial instruments owned and derivative liabilities are included in financial instruments sold, but not yet purchased.

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 statement of financial condition, 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	
$ in millions	Derivative Assets	Derivative Liabilities
Not accounted for as hedges		
Exchange-traded	$ 8	$ 10
OTC-cleared	312	256
Bilateral OTC	15,057	15,564
Total interest rates	15,377	15,830
Bilateral OTC	4,815	5,372
Total credit	4,815	5,372
Bilateral OTC	4,709	5,106
Total currencies	4,709	5,106
Bilateral OTC	23	24
Total commodities	23	24
Exchange-traded	4,742	8,166
Bilateral OTC	18,304	25,093
Total equities	23,046	33,259
Total gross fair value	$ 47,970	$ 59,591
Offset in the consolidated statement of financial condition		
Exchange-traded	$ (4,720)	$ (4,720)
OTC-cleared	(256)	(256)
Bilateral OTC	(39,443)	(39,443)
Counterparty netting	(44,419)	(44,419)
Bilateral OTC	(753)	(7,013)
Cash collateral	(753)	(7,013)
Total amounts offset	$ (45,172)	$ (51,432)
Included in the consolidated statement of financial condition		
Exchange-traded	$ 30	$ 3,456
OTC-cleared	56	–
Bilateral OTC	2,712	4,703
Total	$ 2,798	$ 8,159
Not offset in the consolidated statement of financial condition		
Cash collateral	$ (103)	$ (84)
Securities collateral	–	(8)
Total	$ 2,695	$ 8,067

$ in millions	Notional Amounts as of December 2019
Not accounted for as hedges	
Exchange-traded	$ 149,360
OTC-cleared	303,360
Bilateral OTC	1,924,350
Total interest rates	2,377,070
Bilateral OTC	223,267
Total credit	223,267
Exchange-traded	111
Bilateral OTC	720,640
Total currencies	720,751
Exchange-traded	319
Bilateral OTC	448
Total commodities	767
Exchange-traded	391,671
Bilateral OTC	907,785
Total equities	1,299,456
Total notional amounts	$ 4,621,311

In the tables above:

- Gross fair values exclude the effects of both counterparty netting and collateral, and therefore are not representative of the firm's exposure.
- Where the firm 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 firm's derivative activity and do not represent anticipated losses.
- Total gross fair value of derivatives included derivative assets of $2.25 billion and derivative liabilities of $4.32 billion, which are not subject to an enforceable netting agreement or are subject to a netting agreement that the firm 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.

	As of December 2019			
$ in millions	Level 1	Level 2	Level 3	Total
Assets				
Interest rates	$ 2	$ 15,374	$ 1	$ 15,377
Credit	–	4,615	200	4,815
Currencies	–	4,703	6	4,709
Commodities	–	23	–	23
Equities	1	22,878	167	23,046
Gross fair value	3	47,593	374	47,970
Counterparty netting in levels	–	(44,046)	(351)	(44,397)
Subtotal	$ 3	$ 3,547	$ 23	$ 3,573
Cross-level counterparty netting				(22)
Cash collateral netting				(753)
Net fair value				$ 2,798
Liabilities				
Interest rates	$ (3)	$ (15,827)	$ –	$ (15,830)
Credit	–	(5,115)	(257)	(5,372)
Currencies	–	(5,105)	(1)	(5,106)
Commodities	–	(24)	–	(24)
Equities	(1)	(32,302)	(956)	(33,259)
Gross fair value	(4)	(58,373)	(1,214)	(59,591)
Counterparty netting in levels	–	44,046	351	44,397
Subtotal	$ (4)	$ (14,327)	$ (863)	$ (15,194)
Cross-level counterparty netting				22
Cash collateral netting				7,013
Net fair value				$ (8,159)

See Note 4 for an overview of the firm'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 firm'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
$ in millions	December 2019
Credit, net	$(57)
Credit spreads (bps)	1 to 1,151 (62/12)
Upfront credit points	2 to 90 (38/31)
Recovery rates	15% to 70% (61%/70%)
Equities, net	$(789)
Correlation	(64)% to 99% (35%/29%)
Volatility	2% to 59% (30%/25%)

Level 3 interest rates and currencies were not material as of December 2019, 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 volatility inputs 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 equity derivatives is appropriate for valuing a specific eqnity derivative but may not be appropriate for valuing any other equity derivative. Accordingly, the ranges of inputs do not represent uncertainty in, or possible ranges of, fair value measurements of level 3 derivatives.
- 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 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 firm's level 3 derivative instruments:

- **Credit spreads, upfront credit points and recovery rates.** The ranges for credit spreads, upfront credit points and recovery rates 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.
- **Correlation.** Ranges for correlation cover a variety of underliers both within one product type (e.g., equity index and equity single stock names) and across product types (e.g., correlation of an equity 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. For example, volatility of equity indices is generally lower than volatility of single stocks.

Sensitivity of Fair Value Measurement to Changes in Significant Unobservable Inputs

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

- **Credit spreads, upfront credit points and recovery rates.** In general, the fair value of purchased credit protection increases as credit spreads or upfront credit points increase or recovery rates decrease. Credit spreads, upfront credit points and recovery rates 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.
- **Correlation.** In general, for contracts where the holder benefits from the convergence of the underlying asset or index prices (e.g., interest rates, credit spreads, foreign exchange rates, inflation 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.

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

Level 3 Transfers

Transfers between levels of the fair value hierarchy are reported at the beginning of the reporting period in which they occur.

Transfers into level 3 derivatives during 2019 were $48 million. The drivers of transfers into level 3 derivatives during 2019 were not material.

Transfers out of level 3 derivatives during 2019 were $131 million, primarily reflecting transfers of certain equity derivative assets to level 2, principally due to certain unobservable inputs no longer being significant to the valuation of these derivatives.

Credit Derivatives

The firm enters into a broad array of credit derivatives to facilitate client transactions and to manage the credit risk associated with market-making and investing and financing activities. Credit derivatives are actively managed based on the firm'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 firm 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 firm economically hedges its exposure to written credit derivatives primarily by entering into offsetting purchased credit derivatives with identical underliers. Substantially all of the firm'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 firm 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 $110.44 billion and purchased credit derivatives had a total gross notional amount of $112.82 billion, for total net notional purchased protection of $2.38 billion. Substantially all of the firm's written and purchased credit derivatives are credit default swaps.

The table below presents information about credit derivatives.

	As of December 2019				
	Credit Spread on Underlier (basis points)				
$ in millions	0 - 250	251 - 500	501 - 1,000	Greater than 1,000	Total
Maximum Payout/Notional Amount of Written Credit Derivatives by Tenor					
Less than 1 year	$ 12,178	$ 360	$ 466	$ 1,987	$ 14,991
1 – 5 years	71,522	4,177	4,181	4,289	84,169
Greater than 5 years	10,140	944	136	64	11,284
Total	**$ 93,840**	**$ 5,481**	**$ 4,783**	**$ 6,340**	**$ 110,444**
Maximum Payout/Notional Amount of Purchased Credit Derivatives					
Offsetting	$ 89,359	$ 5,164	$ 4,490	$ 5,748	$ 104,761
Other	$ 6,371	$ 592	$ 414	$ 685	$ 8,062
Fair Value of Written Credit Derivatives					
Asset	$ 3,062	$ 229	$ 165	$ 233	$ 3,689
Liability	187	40	157	867	1,251
Net asset/(liability)	**$ 2,875**	**$ 189**	**$ 8**	**$ (634)**	**$ 2,438**

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 firm'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 firm 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.

Derivatives with Credit-Related Contingent Features

Certain of the firm's derivatives have been transacted under bilateral agreements with counterparties who may require the firm to post collateral or terminate the transactions based on changes in the firm's credit ratings. The firm 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 firm 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) and the fair value of collateral posted. No additional collateral or termination payments could have been called at the reporting date by counterparties in the event of a one- or two-notch downgrade in the firm's credit ratings.

$ in millions	As of December 2019
Net derivative liabilities under bilateral agreements	$ 420
Collateral posted	$ 15

Hedge Accounting

Prior to the deconsolidation of GS Paris Inc. ET CIE in December 2018, the firm applied hedge accounting for certain foreign currency forward contracts used to manage foreign currency exposures on the firm's net investment in certain non-U.S. operations. As of December 2019, the firm had no derivatives accounted for as hedges.

Note 8.

Fair Value Option

Other Financial Assets and Liabilities at Fair Value

In addition to financial instruments owned and financial instruments sold, but not yet purchased, the firm 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 instruments owned 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).

Hybrid financial instruments are instruments that contain bifurcatable embedded derivatives and do not require settlement by physical delivery of nonfinancial assets. If the firm elects to bifurcate the embedded derivative from the associated debt, the derivative is accounted for at fair value and the host contract is accounted for at amortized cost. If the firm does not elect to bifurcate, the entire hybrid financial instrument is accounted for at fair value under the fair value option. As of December 2019, the firm did not elect to bifurcate any hybrid financial instruments.

Other financial assets and liabilities accounted for at fair value under the fair value option include:

- Resale and repurchase agreements;
- Certain securities borrowed and loaned;
- Certain other secured financings; including transfers of assets accounted for as financings; and
- Certain receivables from customers and counterparties, including certain margin loans.

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.

	As of December 2019			
$ in millions	Level 1	Level 2	Level 3	Total
Assets				
Resale agreements	$ –	$ 74,757	$ –	$ 74,757
Securities borrowed	–	27,782	–	27,782
Receivables from customers and counterparties	–	53	–	53
Total	$ –	$ 102,592	$ –	$ 102,592
Liabilities				
Repurchase agreements	$ –	$ (102,074)	$ –	$ (102,074)
Securities loaned	–	(20,432)	–	(20,432)
Other secured financings	–	(3,262)	(162)	(3,424)
Total	$ –	$ (125,768)	$ (162)	$ (125,930)

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 firm's fair value measurement policies and the valuation techniques and significant inputs used to determine the fair value of other financial assets and liabilities.

Level 3 Transfers

There were no transfers into or out of level 3 other financial liabilities during 2019.

Long-Term Debt Instruments

The difference between the aggregate contractual principal amount and the related fair value of long-term other secured financings for which the fair value option was elected was not material as of December 2019.

Note 9.

Collateralized Agreements and Financings

Collateralized agreements are resale agreements and securities borrowed. Collateralized financings are repurchase agreements, securities loaned and other secured financings. The firm 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 firm activities.

Collateralized agreements and financings are presented on a net-by-counterparty basis when a legal right of setoff exists. Interest on collateralized agreements and collateralized financings is recognized over the life of the transaction.

The table below presents the carrying value of resale and repurchase agreements and securities borrowed and loaned transactions.

$ in millions	As of December 2019
Resale agreements	$ 74,757
Securities borrowed	$ 166,174
Repurchase agreements	$ 102,074
Securities loaned	$ 73,892

In the table above:

- Resale and 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.
- As of December 2019, $27.78 billion of securities borrowed and $20.43 billion of securities loaned were at fair value.

Resale and Repurchase Agreements

A resale agreement is a transaction in which the firm 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 firm 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 (including "repos- and reverses-to-maturity") 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, and equity securities.

The firm receives financial instruments purchased under resale agreements and makes delivery of financial instruments sold under repurchase agreements. To mitigate credit exposure, the firm 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 firm typically requires collateral with a fair value approximately equal to the carrying value of the relevant assets in the consolidated statement of financial condition.

Securities Borrowed and Loaned Transactions

In a securities borrowed transaction, the firm borrows securities from a counterparty in exchange for cash or securities. When the firm returns the securities, the counterparty returns the cash or securities. Interest is generally paid periodically over the life of the transaction.

In a securities loaned transaction, the firm lends securities to a counterparty in exchange for cash or securities. When the counterparty returns the securities, the firm returns the cash or securities posted as collateral. Interest is generally paid periodically over the life of the transaction.

The firm receives securities borrowed and makes delivery of securities loaned. To mitigate credit exposure, the firm monitors the market value of these securities on a daily basis, and delivers or obtains additional collateral due to changes in the market value of the securities, as appropriate. For securities borrowed transactions, the firm typically requires collateral with a fair value approximately equal to the carrying value of the securities borrowed transaction.

Certain of the firm's securities borrowed and loaned are recorded at fair value under the fair value option. See Note 8 for further information about securities borrowed and loaned accounted for at fair value.

All other securities borrowed and loaned are recorded based on the amount of cash collateral advanced or received plus accrued interest. As these agreements generally can be terminated on demand, they exhibit little, if any, sensitivity to changes in interest rates. Therefore, the carrying value of such agreements approximates fair value. As these agreements are not accounted for at fair value, they are not included in the firm's fair value hierarchy in Notes 4 through 8. Had these agreements been included in the firm's fair value hierarchy, they would have been classified in level 2 as of December 2019.

Offsetting Arrangements

The table below presents resale and repurchase agreements and securities borrowed and loaned transactions included in the consolidated statement of financial condition, as well as the amounts not offset in the consolidated statement of financial condition.

	As of December 2019			
	Assets		Liabilities	
$ in millions	Resale agreements	Securities borrowed	Repurchase agreements	Securities loaned
Included in the consolidated statement of financial condition				
Gross carrying value	$ 121,595	$ 166,174	$ 148,912	$ 73,892
Counterparty netting	(46,838)	–	(46,838)	–
Total	74,757	166,174	102,074	73,892
Amounts not offset				
Counterparty netting	(1,031)	(51,164)	(1,031)	(51,164)
Collateral	(71,537)	(110,544)	(100,183)	(22,728)
Total	$ 2,189	$ 4,466	$ 860	$ –

In the table above:

- Substantially all of the gross carrying values of these arrangements are subject to enforceable netting agreements.
- Where the firm 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 and Securities Loaned

The table below presents the gross carrying value of repurchase agreements and securities loaned by class of collateral pledged.

	As of December 2019	
$ in millions	Repurchase agreements	Securities loaned
Money market instruments	$ 141	$ –
U.S. government and agency obligations	137,890	912
Non-U.S. government and agency obligations	530	19,987
Securities backed by commercial real estate	307	8
Securities backed by residential real estate	2,008	64
Corporate debt securities	2,794	2,389
State and municipal obligations	249	–
Other debt obligations	262	19
Equity securities	4,731	50,513
Total	$ 148,912	$ 73,892

The table below presents the gross carrying value of repurchase agreements and securities loaned by maturity.

	As of December 2019	
$ in millions	Repurchase agreements	Securities loaned
No stated maturity and overnight	$ 77,634	$ 73,051
2 - 30 days	48,469	–
31 - 90 days	10,197	841
91 days - 1 year	9,635	–
Greater than 1 year	2,977	–
Total	$ 148,912	$ 73,892

In the table above:

- Repurchase agreements and securities loaned that are repayable prior to maturity at the option of the firm are reflected at their contractual maturity dates.
- Repurchase agreements and securities loaned that are redeemable prior to maturity at the option of the holder are reflected at the earliest dates such options become exercisable.

Other Secured Financings

In addition to repurchase agreements and securities loaned transactions, the firm funds certain assets through the use of other secured financings and pledges financial instruments as collateral in these transactions. These other secured financings consist of:

- Secured financings from Goldman Sachs Funding LLC (Funding IHC), a wholly owned subsidiary of Group Inc.;
- Transfers of assets accounted for as financings rather than sales; and

- Other structured financing arrangements.

Other secured financings included nonrecourse arrangements. Nonrecourse other secured financings were $119 million as of December 2019.

The firm has elected to apply the fair value option to certain 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 8 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 firm's fair value hierarchy in Notes 4 through 8. Had these financings been included in the firm's fair value hierarchy, substantially all would have been classified in level 2 as of December 2019.

The table below presents other secured financings by maturity.

$ in millions	As of December 2019
Other secured financings (short-term)	$ 16,255
Other secured financings (long-term):	
2021	812
2022	18
2023	–
2024	27
2025 - thereafter	507
Total other secured financings (long-term)	1,364
Total other secured financings	**$ 17,619**

In the table above:

- Long-term other secured financings that are repayable prior to maturity at the option of the firm are reflected at their contractual maturity dates.
- Long-term other secured financings that are redeemable prior to maturity at the option of the holder are reflected at the earliest dates such options become exercisable.
- The weighted average interest rate on $14.20 billion of other secured financings accounted for at amortized cost was 1.62%.

Collateral Received and Pledged

The firm receives cash and securities (e.g., U.S. government and agency obligations, other sovereign and corporate obligations, as well as equity securities) as collateral, primarily in connection with resale agreements, securities borrowed, derivative transactions and customer margin loans. The firm 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 firm is permitted to deliver or repledge financial instruments received as collateral when entering into repurchase agreements and securities loaned transactions, primarily in connection with secured client financing activities. The firm is also permitted to deliver or repledge these financial instruments in connection with other secured financings, collateralized derivative transactions and firm or customer settlement requirements.

The firm also pledges certain financial instruments owned in connection with repurchase agreements, securities loaned transactions and other secured financings in connection with other secured financings 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.

$ in millions	As of December 2019
Collateral available to be delivered or repledged	$ 451,931
Collateral that was delivered or repledged	$ 402,571

In the table above, collateral available to be delivered or repledged excluded $6.15 billion of securities received under resale agreements and securities borrowed transactions that contractually had the right to be delivered or repledged, but were segregated for regulatory and other purposes.

The table below presents information about assets pledged.

$ in millions	As of December 2019
Financial instruments owned pledged to counterparties that:	
Had the right to deliver or repledge	$ 38,191
Did not have the right to deliver or repledge	$ 56,999

The firm also segregated securities included in financial instruments owned of $20.61 billion for regulatory and other purposes. See Note 3 for information about segregated cash.

Note 10.

Other Assets

The table below presents other assets by type.

$ in millions	As of December 2019
Property, leasehold improvements and equipment	$ 1,223
Income tax-related assets	393
Receivables from affiliates	356
Miscellaneous receivables and other	400
Total	$ 2,372

In the table above, miscellaneous receivables and other primarily included prepaid expenses.

Property, Leasehold Improvements and Equipment

Property, leasehold improvements and equipment is net of accumulated depreciation and amortization of $3.27 billion as of December 2019. Property and equipment is depreciated on a straight-line basis over the useful life of the asset. Leasehold improvements are amortized on a straight-line basis over the shorter of the useful life of the improvement or the term of the lease. Capitalized costs of software developed or obtained for internal use are amortized on a straight-line basis over three years.

The firm tests property, leasehold improvements and equipment for impairment whenever events or changes in circumstances suggest that an asset's or asset group's carrying value may not be fully recoverable. To the extent the carrying value of an asset or asset group exceeds the projected undiscounted cash flows expected to result from the use and eventual disposal of the asset or asset group, the firm determines the asset or asset group is impaired and records an impairment equal to the difference between the estimated fair value and the carrying value of the asset or asset group. In addition, the firm will recognize an impairment prior to the sale of an asset or asset group if the carrying value of the asset or asset group exceeds its estimated fair value. There were no material impairments during 2019.

Note 11.

Unsecured Borrowings

The table below presents information about unsecured borrowings.

$ in millions	As of December 2019
Unsecured short-term borrowings	$ 14,857
Unsecured long-term borrowings	25
Total	$ 14,882

Unsecured Short-Term Borrowings

The firm obtains substantially all unsecured short-term borrowings from Group Inc. and Funding IHC. The carrying value of unsecured short-term borrowings that are not recorded at fair value generally approximates fair value due to the short-term nature of the obligations. As these unsecured short-term borrowings are not accounted for at fair value, they are not included in the firm's fair value hierarchy in Notes 4 through 8. Had these borrowings been included in the firm's fair value hierarchy, substantially all would have been classified in level 2 as of December 2019.

The table below presents information about unsecured short-term borrowings.

$ in millions	As of December 2019
Borrowings from affiliates	$ 14,825
Other unsecured short-term borrowings	32
Total unsecured short-term borrowings	$ 14,857
Weighted average interest rate	2.41%

Note 12.

Subordinated Borrowings

As of December 2019, the firm had outstanding borrowings of $5.00 billion from Group Inc. under four subordinated loan agreements, which mature in 2021. In addition, the firm has a $13.50 billion revolving subordinated loan agreement with Group Inc., which also matures in 2021. As of December 2019, $13.50 billion was outstanding.

Amounts borrowed under these subordinated loan agreements bear interest at a rate of the London Interbank Offered Rate plus 0.75% per annum. The carrying value of these borrowings approximates fair value. As these subordinated loan agreements are not accounted for at fair value, they are not included in the firm's fair value hierarchy in Notes 4 through 8. Had these borrowings been included in the firm's fair value hierarchy, substantially all would have been classified in level 2 as of December 2019.

The subordinated borrowings from Group Inc. are available in computing net capital under the U.S. Securities and Exchange Commission's (SEC) uniform net capital rule. To the extent that such borrowings are required for the firm's continued compliance with minimum net capital requirements, they may not be repaid.

Note 13.

Other Liabilities

The table below presents other liabilities by type.

$ in millions	As of December 2019
Payables to affiliates	$ 3,059
Compensation and benefits	2,967
Income tax-related liabilities	918
Accrued expenses and other	1,135
Total	$ 8,079

In the table above, accrued expenses and other includes contract liabilities, which represent consideration received by the firm, in connection with its contracts with clients, prior to providing the service. As of December 2019, the firm's contract liabilities were not material.

Note 14.

Securitization Activities

The firm securitizes residential and commercial mortgages, corporate bonds and other types of financial assets by selling these assets to securitization vehicles (e.g., trusts, corporate entities and limited liability companies) or through a resecuritization. The firm acts as underwriter of the beneficial interests that are sold to investors. The firm's residential mortgage securitizations are substantially all in connection with U.S. government agency securitizations.

The firm accounts for a securitization as a sale when it has relinquished control over the transferred financial assets. Prior to securitization, the firm generally accounts for assets pending transfer at fair value and therefore does not typically recognize significant gains or losses upon the transfer of assets. Net revenues from underwriting activities are recognized in connection with the sales of the underlying beneficial interests to investors.

The firm 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 debt instruments. The firm may also purchase senior or subordinated securities issued by securitization vehicles (which are typically VIEs) in connection with secondary market-making activities.

The primary risks included in beneficial interests and other interests from the firm's continuing involvement with securitization vehicles are the performance of the underlying collateral, the position of the firm's investment in the capital structure of the securitization vehicle and the market yield for the security. These interests are accounted for at fair value and included in financial instruments owned. Substantially all of these interests are classified in level 2 of the fair value hierarchy. See Notes 4 through 8 for further information about fair value measurements.

The table below presents information about nonconsolidated securitization entities to which the firm sold assets and had continuing involvement as of the end of the period.

	As of December 2019		
$ in millions	Outstanding Principal Amount	Retained Interests	Purchased Interests
U.S. government agency-issued collateralized mortgage obligations	$ 14,328	$ 1,530	$ 3
Other residential mortgage-backed	7	4	–
Total	$ 14,335	$ 1,534	$ 3

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 firm's risk of loss.
- The firm's risk of loss from retained or purchased interests is limited to the fair value of these interests.
- Purchased interests represent senior and subordinated interests, purchased in connection with secondary market-making activities, in securitization entities in which the firm also holds retained interests.
- Substantially all of the total outstanding principal amount and total fair value of retained interests relate to securitizations during 2012 and thereafter.
- Retained interests are carried at fair value.

The table below presents information about the weighted average key economic assumptions used in measuring the fair value of mortgage-backed retained interests.

$ in millions	As of December 2019
Fair value of retained interests	$ 1,533
Weighted average life (years)	6.2
Constant prepayment rate	16.1%
Impact of 10% adverse change	$ (19)
Impact of 20% adverse change	$ (36)
Discount rate	3.5%
Impact of 10% adverse change	$ (23)
Impact of 20% adverse change	$ (46)

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.
- The discount rate for retained interests that relate to U.S. government agency-issued collateralized mortgage obligations does not include any credit loss. Expected credit loss assumptions are reflected in the discount rate for the remainder of retained interests.

Note 15.

Variable Interest Entities

A variable interest in a VIE is an investment (e.g., debt or equity) or other interest (e.g., loans) that will absorb portions of the VIE's expected losses and/or receive portions of the VIE's expected residual returns.

The firm's variable interests in VIEs include senior and subordinated debt; loans; limited and general partnership interests; and preferred and common equity.

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 firm's involvement with VIEs includes securitization of financial assets, as described in Note 14, and investments in and loans to other types of VIEs, as described below. See Note 3 for the firm'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 firm 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 stmcture;
- The terms between the VIE and its variable interest holders and other parties involved with the VIE; and
- Related-party relationships.

The firm reassesses its evaluation of whether an entity is a VIE when certain reconsideration events occur. The firm 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 firm is principally involved with VIEs through the following business activities:

Mortgage-Backed VIEs. The firm sells residential and commercial mortgage loans and securities to mortgage-backed VIEs and may retain beneficial interests in the assets sold to these VIEs. The firm purchases and sells beneficial interests issued by mortgage-backed VIEs in connection with market-making activities.

Real Estate and Power-Related VIEs. The firm purchases equity and debt securities issued by and makes loans to VIEs that hold real estate and power-related assets. The firm generally does not sell assets to, or enter into derivatives with, these VIEs.

Corporate Debt and Other Asset-Backed VIEs. The firm structures VIEs that issue notes to clients, and purchases and sells beneficial interests issued by corporate debt and other asset-backed VIEs in connection with market-making activities.

Nonconsolidated VIEs

The table below presents a summary of the nonconsolidated VIEs in which the firm holds variable interests.

$ in millions	As of December 2019
Total nonconsolidated VIEs	
Assets in VIEs	$ 22,262
Carrying value of variable interests - assets	$ 1,751
Maximum exposure to loss:	
Retained interests	$ 1,534
Purchased interests	187
Debt and equity	30
Total maximum exposure to loss	$ 1,751

In the table above:

- The nature of the firm's variable interests is described in the rows under maximum exposure to loss.
- The firm's exposure to the obligations of VIEs is generally limited to its interests in these entities.
- 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, purchased interests, and debt and equity is the carrying value of these interests.

The table below presents information, by principal business activity, for nonconsolidated VIEs included in the summary table above.

$ in millions	As of December 2019
Mortgage-backed	
Assets in VIEs	$ 19,522
Carrying value of variable interests - assets	$ 1,629
Maximum exposure to loss:	
Retained interests	$ 1,534
Purchased interests	95
Total maximum exposure to loss	$ 1,629
Real estate and power-related	
Assets in VIEs	$ 2,048
Carrying value of variable interests - assets	$ 30
Maximum exposure to loss:	
Debt and equity	$ 30
Total maximum exposure to loss	$ 30
Corporate debt and other asset-backed	
Assets in VIEs	$ 692
Carrying value of variable interests - assets	$ 92
Maximum exposure to loss:	
Purchased interests	$ 92
Total maximum exposure to loss	$ 92

The carrying values of the firm's variable interests in nonconsolidated VIEs are included in financial instruments owned and other assets.

Consolidated VIEs

As of December 2019, the carrying value of assets and liabilities in consolidated VIEs was not material.

Note 16.

Commitments, Contingencies and Guarantees

Commitments

The table below presents commitments by type.

$ in millions	As of December 2019
Commitment Type	
Collateralized agreement	$ 46,337
Collateralized financing	22,687
Other	507
Total commitments	$ 69,531

The table below presents commitments by expiration.

	As of December 2019			
$ in millions	2020	2021 - 2022	2023 - 2024	2025 - Thereafter
Commitment Type				
Collateralized agreement	$ 46,337	$ –	$ –	$ –
Collateralized financing	22,687	–	–	–
Other	387	84	34	2
Total commitments	**$ 69,411**	**$ 84**	**$ 34**	**$ 2**

Collateralized Agreement Commitments/ Collateralized Financing Commitments

Collateralized agreement commitments includes forward starting resale and securities borrowing 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 firm has entered into commitments to provide contingent financing to its clients and counterparties through resale agreements. The firm's funding of these commitments depends on the satisfaction of all contractual conditions to the resale agreement and these commitments can expire unused.

Contingencies — Legal Proceedings

See Note 20 for information about legal proceedings.

Guarantees

The table below presents derivatives that meet the definition of a guarantee.

$ in millions	As of December 2019
Carrying Value of Net Liability	**$ 2**
Maximum Payout/Notional Amount by Period of Expiration	
2020	$ 23
2021 - 2022	27
2023 - 2024	35
2025 - thereafter	4
Total	**$ 89**

In the table above, the maximum payout is based on the notional amount of the contract and does not represent anticipated losses.

Derivative Guarantees. The firm enters into various derivatives that meet the definition of a guarantee under U.S. GAAP, including written equity and commodity put options, 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 firm's overall risk related to derivative activities. Disclosures about derivatives are not required if they may be cash settled and the firm has no basis to conclude it is probable that the counterparties held the underlying instruments at inception of the contract. The firm 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 firm 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.

Indemnities and Guarantees of Service Providers. In the ordinary course of business, the firm 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 firm or its affiliates.

The firm 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 firm has the right to seek indemnification from these third-party service providers for certain relevant losses incurred by the firm. In addition, the firm is a member of payment, clearing and settlement networks, as well as securities exchanges that may require the firm to meet the obligations of such networks and exchanges in the event of member defaults and other loss scenarios.

In connection with the firm's prime brokerage and clearing businesses, the firm agrees to clear and settle on behalf of its clients the transactions entered into by them with other brokerage firms. The firm's obligations in respect of such transactions are secured by the assets in the client's account, as well as any proceeds received from the transactions cleared and settled by the firm on behalf of the client. In connection with joint venture investments, the firm may issue loan guarantees under which it may be liable in the event of fraud, misappropriation, environmental liabilities and certain other matters involving the borrower.

The firm is unable to develop an estimate of the maximum payout under these guarantees and indemnifications. However, management believes that it is unlikely the firm 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 statement of financial condition as of December 2019.

Other Representations, Warranties and Indemnifications. The firm 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 firm 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 securities issuances, borrowings or derivatives.

In addition, the firm 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 firm is unable to develop an estimate of the maximum payout under these guarantees and indemnifications. However, management believes that it is unlikely the firm will have to make any material payments under these arrangements, and no material liabilities related to these arrangements have been recognized in the consolidated statement of financial condition as of December 2019.

Note 17.

Transactions with Related Parties

The firm enters into transactions with Group Inc. and affiliates in the normal course of business as part of market making and general operations.

The table below presents assets and liabilities with affiliates.

$ in millions	As of December 2019
Assets	
Cash	$ 499
Collateralized agreements:	
Resale agreements	49,196
Securities borrowed	73,550
Receivables:	
Brokers, dealers and clearing organizations	4,533
Customers and counterparties	325
Financial instruments owned	3,547
Other assets	385
Total	**$ 132,035**
Liabilities	
Collateralized financings:	
Repurchase agreements	$ 4,042
Securities loaned	71,587
Other secured financings	15,346
Payables:	
Brokers, dealers and clearing organizations	2,199
Customers and counterparties	10,223
Financial instruments sold, but not yet purchased	455
Unsecured short-term borrowings	14,825
Other liabilities	3,059
Subordinated borrowings	18,500
Total	**$ 140,236**

In the table above:

- The firm makes markets in debt issued by Group Inc. and certain affiliates. Financial instruments owned primarily included such issuances of $3.26 billion and affiliate derivative contracts of $157 million.
- Financial instruments sold, but not yet purchased, consists of derivative contracts with affiliates.

Group Inc. has guaranteed the payment obligations of GS&Co., subject to certain exceptions.

The firm receives and provides operational and administrative support and management services to affiliates and allocates costs for the services provided.

The firm is subject to service charges from affiliates for employment related costs of employees of affiliates pursuant to a Master Services Agreement supplemented by Service Level Agreements.

The firm enters into various types of activities with affiliates and allocates revenues to, and receives revenues from, such affiliates for their participation.

The firm acts as the investment manager for numerous related party funds of Group Inc. and is entitled to receive management fees and, in certain cases, advisory fees or incentive fees from these funds.

The firm acts as underwriter for certain securities issuances of related parties.

Note 18.

Income Taxes

Provision for Income Taxes

GS&Co. has elected to be taxed as a corporation for U.S. federal income tax purposes. As a corporation for tax purposes, the firm is subject to U.S. Federal and various state and local income taxes on its earnings. The firm is included with Group Inc. and subsidiaries in the consolidated corporate federal as well as consolidated or combined state and local tax returns. The firm computes its tax liability on a modified separate company basis and settles such liability with Group Inc. pursuant to a tax sharing agreement. To the extent the firm generates tax benefits from losses, it will be reimbursed by Group Inc. pursuant to the tax sharing agreement. The firm's state and local tax liabilities are allocated to reflect its share of the consolidated or combined state and local income tax liability.

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.

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 December 2019, the firm did not record a valuation allowance to reduce deferred tax assets. 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.

$ in millions	As of December 2019
Deferred tax assets	
Compensation and benefits	$ 652
Reserves	49
Other, net	1
Total deferred tax assets	**$ 702**
Deferred tax liabilities	
Depreciation and amortization	$ 286
Unrealized gains	48
Prepaid expenses	22
Total deferred tax liabilities	**$ 356**

Unrecognized Tax Benefits

The firm recognizes tax positions in the consolidated statement of financial condition 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 statement of financial condition. As of December 2019, the firm's liability related to uncertainty in income taxes was not material.

Regulatory Tax Examinations

The firm is subject to examination by the U.S. Internal Revenue Service (IRS) and other taxing authorities in jurisdictions where the firm has significant business operations, such as New York State and City. The tax years under examination vary by jurisdiction.

U.S. Federal examinations of GS Group for 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.

New York State and City examinations of 2011 through 2014 began in 2017. All years including and subsequent to 2015 for New York State and City remain subject to post-filing review. All years including and subsequent to 2009 for all other significant states, excluding New York State and City, remain subject to post-filing review.

The firm believes that the liability for unrecognized tax benefits it has established is adequate in relation to the potential for additional assessments.

Note 19.

Credit Concentrations

The firm's concentrations of credit risk arise from its market making, client facilitation, investing, underwriting, lending and collateralized transactions, and cash management activities, and may be impacted by changes in economic, industry or political factors. These activities expose the firm to many different industries and counterparties, and may also subject the firm to a concentration of credit risk to a particular counterparty, borrower or issuer, including sovereign issuers, or to a particular clearing house or exchange. The firm seeks to mitigate credit risk by actively monitoring exposures and obtaining collateral from counterparties as deemed appropriate.

The firm measures and monitors its credit exposure based on amounts owed to the firm 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 firm to offset receivables and payables with such counterparties and/or enable the firm to obtain collateral on an upfront or contingent basis.

The table below presents the credit concentrations in cash instruments included in financial instruments owned.

$ in millions	As of December 2019
U.S. government and agency obligations	$ 92,496
Percentage of total assets	22.2%

As of December 2019, the firm did not have credit exposure to any other external counterparty that exceeded 2% of total assets.

Collateral obtained by the firm related to derivative assets is principally cash and is held by the firm or a third-party custodian. Collateral obtained by the firm related to resale agreements and securities borrowed transactions is primarily U.S. government and agency obligations and non-U.S. government and agency obligations. See Note 9 for further information about collateralized agreements and financings.

The table below presents U.S. government and agency obligations, and non-U.S. government and agency obligations that collateralize resale agreements and securities borrowed transactions.

$ in millions	As of December 2019
U.S. government and agency obligations	$ 78,090
Non-U.S. government and agency obligations	$ 32,187

In the table above:

- Non-U.S. government and agency obligations primarily consists of securities issued by the governments of Japan and Canada.
- Given that the firm's primary credit exposure on such transactions is to the counterparty to the transaction, the firm would be exposed to the collateral issuer only in the event of counterparty default.

Note 20.

Legal Proceedings

The firm is involved in a number of judicial, regulatory and arbitration proceedings concerning matters arising in connection with the conduct of the firm's businesses. Many of these proceedings are in early stages, and many of these cases seek an indeterminate amount of damages.

Under ASC 450, an event is "reasonably possible" if "the chance of the future event or events occurring is more than remote but less than likely" and an event is "remote" if "the chance of the future event or events occurring is slight." Thus, references to the upper end of the range of reasonably possible loss for cases in which the firm is able to estimate a range of reasonably possible loss mean the upper end of the range of loss for cases for which the firm believes the risk of loss is more than slight.

These proceedings include, but are not limited to, the firm's role in certain underwriting activities, currency-related matters, treasury matters, mutual fund, swaps and securities-related matters.

With respect to matters for which management has been able to estimate a range of reasonably possible loss where (i) actual or potential plaintiffs have claimed an amount of money damages, (ii) the firm is being, or threatened to be, sued by purchasers in a securities offering and is not being indemnified by a party that the firm believes will pay the full amount of any judgment, or (iii) the purchasers are demanding that the firm repurchase securities, management has estimated the upper end of the range of reasonably possible loss as being equal to (a) in the case of (i), the amount of money damages claimed, (b) in the case of (ii), the difference between the initial sales price of the securities that the firm sold in such offering and the estimated lowest subsequent price of such securities prior to the action being commenced and (c) in the case of (iii), the price that purchasers paid for the securities less the estimated value, if any, as of December 2019 of the relevant securities, in each of cases (i), (ii) and (iii), taking into account any other factors believed to be relevant to the particular matter or matters of that type. As of the date hereof, the firm has estimated the upper end of the range of reasonably possible aggregate loss for such matters where management has been able to estimate a range of reasonably possible aggregate loss to be approximately $1.0 billion in excess of the aggregate reserves for such matters.

More than one Group Inc. subsidiary may be named in a particular proceeding and Group Inc. may attribute the upper end of the range of reasonably possible loss to more than one Group Inc. subsidiary for such proceeding. Therefore the sum of the upper end of the range of reasonably possible loss amounts for all Group Inc. subsidiaries may exceed the upper end of the range of the consolidated reasonably possible loss reported by Group Inc. in its financial statements. Although more than one named subsidiary may be attributed the upper end of the range of reasonably possible loss for a proceeding, Group Inc. generally attributes reserves for a particular proceeding to only one subsidiary based on Group Inc.'s evaluation of the proceeding.

Management is generally unable to estimate a range of reasonably possible loss for matters other than those included in the estimate above, 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. For example, the firm's potential liabilities with respect to regulatory investigations and reviews generally are not included in management's estimate of reasonably possible loss. However, management does not believe, based on currently available information, that the outcomes of such other matters will have a material adverse effect on the firm's financial condition, though the outcomes could be material to the firm's operating results for any particular period, depending, in part, upon the operating results for such period.

Note 21.

Employee Benefit Plans

The firm's employees participate in various Group Inc. sponsored pension plans and certain other postretirement benefit plans, primarily healthcare and life insurance. Group Inc. also provides certain benefits to former or inactive employees prior to retirement. The cost of these plans is allocated to the firm by Group Inc.

Defined Benefit Pension Plans and Postretirement Plans

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. In addition, the firm maintains unfunded postretirement benefit plans that provide medical and life insurance for eligible retirees and their dependents covered under these programs. These plans do not have a material impact on the firm.

Defined Contribution Plans

The firm contributes to Group Inc.'s employer-sponsored U.S. defined contribution plan.

Note 22.

Employee Incentive Plans

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 firm 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	2,134,783	6,696,598	$ 219.75	$ 183.82
Granted	2,422,470	4,021,129	$ 179.80	$ 175.71
Forfeited	(241,124)	(70,093)	$ 194.52	$ 190.99
Delivered	–	(4,846,245)	$ –	$ 173.42
Vested	(1,939,185)	1,939,185	$ 195.24	$ 195.24
Transfers	(28,917)	465	$ 196.43	$ 187.31
Ending balance	2,348,027	7,741,039	$ 201.47	$ 188.91

In the table above:

- The weighted average grant-date fair value of RSUs granted was $177.25 during 2019. The fair value of the RSUs granted included a liquidity discount of 11.2% during 2019 to reflect post-vesting and delivery transfer restrictions, generally of up to 4 years.
- The aggregate fair value of awards that vested was $1.09 billion during 2019.
- The ending balance included restricted stock subject to future service requirements of 23,068 shares as of December 2019 and also included RSUs subject to performance conditions and future service requirements of 24,271 RSUs as of December 2019.

In relation to 2019 year-end, during the first quarter of 2020, 4.4 million RSUs were granted to employees, of which 1.5 million 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 $239 million of total uurecognized compensation cost related to non-vested share-based compensation arrangements. This cost is expected to be recognized over a weighted average period of 1.83 years.

Note 23.

Net Capital Requirements

GS&Co. is a registered U.S. broker-dealer and futures commission merchant, and is subject to regulatory capital requirements including those imposed by the SEC, the U.S. Commodity Futures Trading Commission (CFTC), the Chicago Mercantile Exchange, the Financial Industry Regulatory Authority, Inc. and the National Futures Association. Rule 15c3-1 of the SEC and Rule 1.17 of the CFTC specify uniform minimum net capital requirements, as defined, for their registrants, and also effectively require that a significant part of the registrants' assets be kept in relatively liquid form. GS&Co. has elected to calculate its minimum capital requirements in accordance with the "Alternative Net Capital Requirement" as permitted by Rule 15c3-1.

As of December 2019, GS&Co. had regulatory net capital, as defined by Rule 15c3-1, of $20.88 billion, which exceeded the amount required by $18.15 billion.

In addition to its alternative minimum net capital requirements, GS&Co. is also required to hold tentative net capital in excess of $1.00 billion and net capital in excess of $500 million in accordance with the market and credit risk standards of Appendix E of Rule 15c3-1. GS&Co. is also required to notify the SEC in the event that its tentative net capital is less than $5.00 billion. As of December 2019, GS&Co. had tentative net capital and net capital in excess of both the minimum and the notification requirements.

The U.S. Dodd-Frank Wall Street Reform and Consumer Protection Act contains provisions that require the registration of all swap dealers, major swap participants, security-based swap dealers and major security-based swap participants. GS&Co. is registered as a "swap dealer" under the CFTC rules and will be subject to regulatory capital requirements once the rules are finalized by the CFTC.

Note 24.

Subsequent Events

In February 2020, GS&Co. made a cash dividend distribution of $4.00 billion to Group Inc.

Management has evaluated whether any events or transactions occurred subsequent to the date of the consolidated statement of financial condition and through February 26, 2020, the date the consolidated statement of financial condition was issued, and determined that there were no other material events or transactions that would require recognition or disclosure in this consolidated statement of financial condition.

Supplemental Financial Information Pursuant to Regulation 1.10

Statement of Segregation Requirements and Funds in Segregation for Customers Trading on U.S. Commodity Exchanges

As of December 31, 2019
(in millions)

Segregation Requirements (Section 4d(2) of the CEAct)		
1. Net ledger balance		
A. Cash		$ 7,547
B. Securities (at market)		12,674
2. Net unrealized profit (loss) in open futures contracts traded on a contract market		1,988
3. Exchange traded options		
A. Add market value of open option contracts purchased on a contract market		10,216
B. Deduct market value of open option contracts granted (sold) on a contract market		(9,740)
4. Net equity (deficit) (add lines 1, 2 and 3)		22,685
5. Accounts liquidating to a deficit and accounts with debit balances – gross amount	$ 1,429	
Less: amount offset by customer owned securities	(1,429)	–
6. Amount required to be segregated (add lines 4 and 5)		$ 22,685
Funds in Segregated Accounts		
7. Deposited in segregated funds bank accounts		
A. Cash		$ 1,744
B. Securities representing investments of customers' funds (at market)		599
C. Securities held for particular customers or option customers in lieu of cash (at market)		1,409
8. Margins on deposit with derivatives clearing organizations of contract markets		
A. Cash		116
B. Securities representing investments of customers' funds (at market)		8,151
C. Securities held for particular customers or option customers in lieu of cash (at market)		11,265
9. Net settlement from (to) derivatives clearing organizations of contract markets		(210)
10. Exchange traded options		
A. Value of open long option contracts		10,216
B. Value of open short option contracts		(9,740)
11. Net equities with other FCMs		
A. Net liquidating equity		1
B. Securities representing investments of customers' funds (at market)		–
C. Securities held for particular customers or option customers in lieu of cash (at market)		–
12. Segregated funds on hand		–
13. Total amount in segregation (add lines 7 through 12)		23,551
14. Excess (deficiency) funds in segregation (subtract line 6 from line 13)		866
15. Management target amount for excess funds in segregation		675
16. Excess (deficiency) funds in segregation over (under) management target amount excess		$ 191

There are no material differences between the computations shown in the supplemental financial information as presented in this report and the corresponding computations prepared by GS&Co. included in its December 31, 2019, unaudited Part II FOCUS Report, as filed on January 27, 2020.

Supplemental Financial Information Pursuant to Regulation 1.10

Statement of Segregation Requirements and Funds in Segregation for Customers' Dealer Options Accounts

STATEMENT IS NOT APPLICABLE

Supplemental Financial Information Pursuant to Regulation 1.10

Statement of Secured Amounts and Funds Held in Separate Accounts Pursuant to Commission Regulation 30.7

As of December 31, 2019
(in millions)

Foreign Futures and Foreign Options Secured Amounts		
Amount required to be set aside pursuant to law, rule or regulation of a foreign government or a rule of a self-regulatory organization authorized thereunder		$ –
1. Net ledger balance – foreign futures and foreign option trading – all customers		
A. Cash		5,485
B. Securities (at market)		3,551
2. Net unrealized profit (loss) in open futures contracts traded on a foreign board of trade		(554)
3. Exchange traded options		
A. Market value of open option contracts purchased on a foreign board of trade		24
B. Market value of open contracts granted (sold) on a foreign board of trade		(15)
4. Net equity (deficit) (add lines 1, 2 and 3)		8,491
5. Accounts liquidating to a deficit and accounts with debit balances – gross amount	$ 461	
Less: amount offset by customer owned securities	(455)	6
6. Amount required to be set aside as the secured amount – net liquidating equity method (add lines 4 and 5)		8,497
7. Greater of amount required to be set aside pursuant to foreign jurisdiction (above) or line 6		$ 8,497

There are no material differences between the computations shown in the supplemental financial information as presented in this report and the corresponding computations prepared by GS&Co. included in its December 31, 2019, unaudited Part II FOCUS Report, as filed on January 27, 2020.

Supplemental Financial Information Pursuant to Regulation 1.10

Statement of Secured Amounts and Funds Held in Separate Accounts Pursuant to Commission Regulation 30.7

As of December 31, 2019

(in millions)

Funds Deposited in Separate Regulation 30.7 Accounts		
1. Cash in banks		
A. Banks located in the United States	$ 1,340	
B. Other banks qualified under Regulation 30.7	1,639	$ 2,979
2. Securities		
A. In safekeeping with banks located in the United States	2,306	
B. In safekeeping with other banks qualified under Regulation 30.7	–	2,306
3. Equities with registered futures commission merchants		
A. Cash	–	
B. Securities	–	
C. Unrealized gain (loss) on open futures contracts	–	
D. Value of long option contracts	–	
E. Value of short option contracts	–	–
4. Amounts held by clearing organizations of foreign boards of trade		
A. Cash	–	
B. Securities	–	
C. Amount due to (from) clearing organizations - daily variation	–	
D. Value of long option contracts	–	
E. Value of short option contracts	–	–
5. Amounts held by members of foreign boards of trade		
A. Cash	2,811	
B. Securities	1,520	
C. Unrealized gain (loss) on open futures contracts	(553)	
D. Value of long option contracts	24	
E. Value of short option contracts	(15)	3,787
6. Amounts with other depositories designated by a foreign board of trade		–
7. Segregated funds on hand		–
8. Total funds in separate section 30.7 accounts		9,072
9. Excess (deficiency) set aside funds for secured amount (subtract line 7 secured statement from line 8)		575
10. Management target amount for excess funds in separate section 30.7 accounts		475
11. Excess (deficiency) funds in separate 30.7 accounts over (under) management target		$ 100

There are no material differences between the computations shown in the supplemental financial information as presented in this report and the corresponding computations prepared by GS&Co. included in its December 31, 2019, unaudited Part II FOCUS Report, as filed on January 27, 2020.

Supplemental Financial Information Pursuant to Regulation 1.10

Statement of Cleared Swaps Customer Segregation Requirements and Funds in Cleared Swaps Customer Accounts Under 4d(f) of the CEA

As of December 31, 2019
(in millions)

Cleared Swaps Customer Requirements		
1. Net ledger balance		
A. Cash		**$ 4,632**
B. Securities (at market)		**3,535**
2. Net unrealized profit (loss) in open cleared swaps		**(1,175)**
3. Cleared swaps options		
A. Market value of open cleared swaps option contracts purchased		**–**
B. Market value of open cleared swaps option contracts granted (sold)		**–**
4. Net equity (deficit) (add lines 1, 2 and 3)		**6,992**
5. Accounts liquidating to a deficit and accounts with debit balances – gross amount	**$ 10**	
Less: amount offset by customer owned securities	**(10)**	**–**
6. Amount required to be segregated for cleared swaps customers (add lines 4 and 5)		**$ 6,992**
Funds in Cleared Swaps Customer Segregated Accounts		
7. Deposited in cleared swaps customer segregated accounts at banks		
A. Cash		**$ 564**
B. Securities representing investments of cleared swaps customers' funds (at market)		**303**
C. Securities held for particular cleared swaps customers in lieu of cash (at market)		**188**
8. Margins on deposit with derivatives clearing organizations in cleared swaps customer segregated accounts		
A. Cash		**–**
B. Securities representing investments of cleared swaps customers' funds (at market)		**2,931**
C. Securities held for particular cleared swaps customers in lieu of cash (at market)		**3,347**
9. Net settlement from (to) derivatives clearing organizations		**80**
10. Cleared swaps options		
A. Value of open cleared swaps long option contracts		**–**
B. Value of open cleared swaps short option contracts		**–**
11. Net equities with other FCMs		
A. Net liquidating equity		**–**
B. Securities representing investments of cleared swaps customers' funds (at market)		**–**
C. Securities held for particular cleared swaps customers in lieu of cash (at market)		**–**
12. Cleared swaps customer funds on hand		**–**
13. Total amount in cleared swaps customer segregation (add lines 7 through 12)		**7,413**
14. Excess (deficiency) funds in cleared swaps customer segregation (subtract line 6 from line 13)		**421**
15. Management target amount for excess funds in cleared swaps segregated accounts		**350**
16. Excess (deficiency) funds in cleared swaps customer segregated accounts over (under) management target excess		**$ 71**

There are no material differences between the computations shown in the supplemental financial information as presented in this report and the corresponding computations prepared by GS&Co. included in its December 31, 2019, unaudited Part II FOCUS Report, as filed on January 27, 2020.