Goldman Sachs Bank USA and Subsidiaries

Unaudited Quarterly Report

June 30, 2023

INDEX

	Page No.
PART I	
Financial Statements and Supplementary Data (Unaudited)	**1**
Consolidated Financial Statements	**1**
Consolidated Statements of Earnings	1
Consolidated Statements of Comprehensive Income	1
Consolidated Balance Sheets	2
Consolidated Statements of Changes in Shareholder's Equity	3
Consolidated Statements of Cash Flows	4
Notes to Consolidated Financial Statements	**5**
Note 1. Description of Business	5
Note 2. Basis of Presentation	5
Note 3. Significant Accounting Policies	6
Note 4. Fair Value Measurements	9
Note 5. Fair Value Hierarchy	13
Note 6. Trading Assets and Liabilities	27
Note 7. Derivatives and Hedging Activities	27
Note 8. Investments	32
Note 9. Loans	34
Note 10. Fair Value Option	43
Note 11. Collateralized Agreements and Financings	45
Note 12. Other Assets	48
Note 13. Deposits	50
Note 14. Unsecured Borrowings	51
Note 15. Other Liabilities	52
Note 16. Securitization Activities	53
Note 17. Variable Interest Entities	54
Note 18. Commitments, Contingencies and Guarantees	56
Note 19. Regulation and Capital Adequacy	59
Note 20. Transactions with Related Parties	64
Note 21. Interest Income and Interest Expense	65
Note 22. Income Taxes	66
Note 23. Credit Concentrations	66
Note 24. Legal Proceedings	67
Note 25. Subsequent Events	68

	Page No.
Report of Independent Auditors	**69**
Supplemental Financial Information	**70**
PART II	
Management's Discussion and Analysis of Financial Condition and Results of Operations	**72**
Introduction	72
Executive Overview	73
Business Environment	74
Critical Accounting Policies	74
Use of Estimates	76
Recent Accounting Developments	77
Results of Operations	77
Balance Sheet and Funding Sources	82
Capital Management and Regulatory Capital	83
Regulatory and Other Matters	84
Risk Management	85
Liquidity Risk Management	85
Market Risk Management	86
Credit Risk Management	88
Operational Risk Management	95
Model Risk Management	95
Capital Risk Management	95
Forward-Looking Statements	95

PART I. Financial Statements and Supplementary Data (Unaudited)

Consolidated Financial Statements

GOLDMAN SACHS BANK USA AND SUBSIDIARIES

Consolidated Statements of Earnings (Unaudited)

	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
Revenues				
Interest income	**$ 7,328**	$ 2,436	**$ 13,839**	$ 4,113
Interest expense	**5,069**	975	**9,325**	1,402
Net interest income	**2,259**	1,461	**4,514**	2,711
Gains and losses from financial assets and liabilities	**1,599**	1,127	**2,709**	2,734
Other revenues	**203**	291	**492**	503
Total non-interest revenues	**1,802**	1,418	**3,201**	3,237
Total net revenues	**4,061**	2,879	**7,715**	5,948
Provision for credit losses	**730**	557	**552**	1,005
Operating expenses				
Compensation and benefits	**631**	426	**1,210**	834
Service charges	**206**	198	**390**	403
Professional fees	**116**	122	**216**	238
Transaction based	**142**	118	**294**	261
Market development	**37**	82	**83**	149
Communications and technology	**107**	89	**208**	175
Regulatory and agency fees	**117**	77	**190**	130
Depreciation and amortization	**92**	71	**207**	110
Other expenses	**249**	228	**474**	461
Total operating expenses	**1,697**	1,411	**3,272**	2,761
Pre-tax earnings	**1,634**	911	**3,891**	2,182
Provision for taxes	**431**	250	**1,034**	581
Net earnings	**$ 1,203**	$ 661	**$ 2,857**	$ 1,601

Consolidated Statements of Comprehensive Income (Unaudited)

	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
Net earnings	**$ 1,203**	$ 661	**$ 2,857**	$ 1,601
Other comprehensive income/(loss) adjustments, net of tax:				
Currency translation	**70**	22	**139**	34
Debt valuation adjustment	**(54)**	41	**6**	50
Available-for-sale securities	**(21)**	(248)	**221**	(1,016)
Other comprehensive income/(loss)	**(5)**	(185)	**366**	(932)
Comprehensive income	**$ 1,198**	$ 476	**$ 3,223**	$ 669

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

GOLDMAN SACHS BANK USA AND SUBSIDIARIES

Consolidated Balance Sheets (Unaudited)

	As of	
	June	December
$ in millions, except par value	**2023**	2022
Assets		
Cash	**$ 147,334**	$ 184,947
Collateralized agreements:		
Securities purchased under agreements to resell (at fair value)	**56,900**	33,713
Securities borrowed (includes **$138** and $23 at fair value)	**2,795**	2,676
Customer and other receivables (includes **$69** and $0 at fair value)	**44,207**	27,034
Trading assets (at fair value and includes **$19,436** and $10,853 pledged as collateral)	**69,507**	47,246
Investments (includes **$25,810** and $23,879 at fair value, and **$55** and $54 pledged as collateral)	**36,753**	29,789
Loans (net of allowance of **$4,158** and $4,252, and includes **$5,854** and $6,251 at fair value)	**150,699**	151,114
Other assets (includes **$221** and $71 at fair value)	**8,911**	9,034
Total assets	**$ 517,106**	$ 485,553
Liabilities and shareholder's equity		
Deposits (includes **$5,817** and $5,374 at fair value)	**$ 366,162**	$ 362,855
Collateralized financings:		
Securities sold under agreements to repurchase (at fair value)	**19,733**	5,566
Securities loaned (includes **$125** and $23 at fair value)	**4,496**	2,847
Other secured financings (includes **$3,911** and $3,630 at fair value)	**4,201**	4,030
Customer and other payables	**27,399**	21,370
Trading liabilities (at fair value)	**33,280**	29,185
Unsecured borrowings (includes **$596** and $448 at fair value)	**3,884**	6,431
Other liabilities (includes **$73** and $71 at fair value)	**6,368**	4,967
Total liabilities	**465,523**	437,251
Commitments, contingencies and guarantees		
Shareholder's equity		
Shareholder's equity (includes common stock, $100 par value; 80,000,000 shares authorized, issued and outstanding)	**51,583**	48,302
Total liabilities and shareholder's equity	**$ 517,106**	$ 485,553

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

GOLDMAN SACHS BANK USA AND SUBSIDIARIES

Consolidated Statements of Changes in Shareholder's Equity (Unaudited)

	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
Shareholder's equity				
Beginning balance	**$ 50,384**	$ 43,858	**$ 48,302**	$ 41,875
Net earnings	**1,203**	661	**2,857**	1,601
Capital contributions from The Goldman Sachs Group, Inc.	**1**	166	**58**	1,956
Other comprehensive income/(loss)	**(5)**	(185)	**366**	(932)
Ending balance	**$ 51,583**	$ 44,500	**$ 51,583**	$ 44,500

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

Consolidated Statements of Cash Flows (Unaudited)

	Six Months Ended June	
$ in millions	**2023**	2022
Cash flows from operating activities		
Net earnings	**$ 2,857**	$ 1,601
Adjustments to reconcile net earnings to net cash provided by/(used for) operating activities:		
Depreciation and amortization	**207**	110
Deferred income taxes	**(90)**	(342)
Share-based compensation	**79**	72
Provision for credit losses	**552**	1,005
Changes in operating assets and liabilities:		
Customer and other receivables and payables, net	**(11,144)**	32
Collateralized transactions (excluding other secured financings), net	**(7,490)**	9,990
Trading assets	**(22,536)**	(3,342)
Trading liabilities	**4,095**	12,450
Loans held for sale, net	**403**	3,567
Other, net	**1,227**	1,363
Net cash provided by/(used for) operating activities	**(31,840)**	26,506
Cash flows from investing activities		
Purchase of property, leasehold improvements and equipment	**(82)**	(185)
Purchase of investments	**(6,756)**	(4,386)
Proceeds from sales and paydowns of investments	**—**	22
Loans (excluding loans held for sale), net	**(571)**	(21,967)
Net cash used for investing activities	**(7,409)**	(26,516)
Cash flows from financing activities		
Deposits, net	**3,474**	27,998
Unsecured short-term borrowings, net	**281**	56
Other secured financings (short-term), net	**355**	2,399
Repayment of other secured financings (long-term), including the current portion	**(101)**	—
Proceeds from issuance of unsecured long-term borrowings	**290**	727
Repayment of unsecured long-term borrowings, including the current portion	**(3,141)**	(1,115)
Derivative contracts with a financing element, net	**165**	30
Capital contributions from The Goldman Sachs Group, Inc.	**58**	201
Settlement of share-based awards in satisfaction of withholding tax requirements	**(57)**	(60)
Net cash provided by financing activities	**1,324**	30,236
Effect of exchange rate changes on cash	**312**	(1,851)
Net increase/(decrease) in cash	**(37,613)**	28,375
Cash, beginning balance	**184,947**	148,211
Cash, ending balance	**$ 147,334**	$ 176,586
Supplemental disclosures:		
Cash payments for interest	**$ 9,533**	$ 1,227
Cash payments for income taxes, net	**$ 50**	$ 242

See Notes 16 and 20 for information about non-cash activities.

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

Note 1.

Description of Business

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

The Bank's principal office is located in New York, New York. GS Bank USA operates two domestic branches, which are located in Salt Lake City, Utah and Draper, Utah. Both branches are regulated by the Utah Department of Financial Institutions. GS Bank USA also operates two foreign branches, which are located in London, United Kingdom and Tokyo, Japan. The London branch is regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority and the Tokyo branch is regulated by the Japan Financial Services Agency. Goldman Sachs Bank Europe SE (GSBE), headquartered in Frankfurt, Germany, is a wholly-owned subsidiary of GS Bank USA. GSBE is directly supervised by the European Central Bank and additionally by the Federal Financial Supervisory Authority and Deutsche Bundesbank in the context of the E.U. Single Supervisory Mechanism. GSBE has branches in Amsterdam, Athens, Copenhagen, Dublin, London, Luxembourg, Madrid, Milan, Paris, Stockholm and Warsaw that are also regulated by the relevant authorities in each jurisdiction in certain areas, including with respect to anti-money laundering. GSBE was authorized by the FCA to provide services from its London branch and on a cross-border basis into the U.K. in April 2023, replacing its previous status under a temporary permission regime, which the U.K. government had established for a limited period post-Brexit.

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

The Bank is a financial services provider that engages in banking activities. The Bank is GS Group's primary lending entity, originating loans to corporate and wealth management clients, as well as issuing credit cards and providing point-of-sale financing through GreenSky, Inc. (GreenSky) to consumers. In April 2023, GS Group announced that it is initiating a process to explore the potential sale of GreenSky. The Bank has also issued unsecured loans to consumers through its digital platform, *Marcus by Goldman Sachs* (Marcus). During the first half of 2023, the Bank completed the sale of substantially all of this portfolio. The Bank is GS Group's primary deposit-taking entity. The Bank's depositors include private bank clients, U.S. consumers, clients of third-party broker-dealers, institutions, corporations and its affiliates. The Bank conducts consumer deposit-taking activities through Marcus and also accepts deposits from Apple Card customers. The Bank also provides transaction banking services to institutions, corporations and its affiliates. In addition, the Bank enters into interest rate, currency, credit and other derivatives, and transacts in certain related cash products, for the purpose of market making and risk management. The Bank's activities in the E.U. include underwriting and market making in debt and equity securities; advisory services; and asset and wealth management services.

Note 2.

Basis of Presentation

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

These consolidated financial statements are unaudited and should be read in conjunction with the audited consolidated financial statements included in the Bank's Annual Report for the year ended December 31, 2022. References to the 2022 Annual Report are to the Bank's Annual Report for the year ended December 31, 2022. Certain disclosures included in the annual financial statements have been condensed or omitted from these financial statements as they are not required for interim financial statements under U.S. GAAP.

These unaudited consolidated financial statements reflect all adjustments that are, in the opinion of management, necessary for a fair statement of the results for the interim periods presented. These adjustments are of a normal, recurring nature. Interim period operating results may not be indicative of the operating results for a full year.

All references to June 2023, March 2023 and June 2022 refer to the Bank's periods ended, or the dates, as the context requires, June 30, 2023, March 31, 2023 and June 30, 2022, respectively. All references to December 2022 refer to the date December 31, 2022. Any reference to a future year refers to a year ending on December 31 of that year. Certain reclassifications have been made to previously reported amounts to conform to the current presentation.

Note 3.

Significant Accounting Policies

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

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

Consolidation

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

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

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

Use of Estimates

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

Revenue Recognition

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

Transfers of Financial Assets

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

Cash

Cash included cash and due from banks of $1.98 billion as of June 2023 and $2.24 billion as of December 2022. Cash also included interest-bearing deposits of $145.35 billion as of June 2023 and $182.71 billion as of December 2022. See Note 20 for further information about cash deposited with an affiliate.

The Bank segregates cash for regulatory and other purposes related to client activity. Cash segregated for regulatory and other purposes was $1.01 billion as of June 2023 and $1.13 billion as of December 2022.

Customer and Other Receivables

Customer and other receivables included receivables from customers and counterparties of $22.60 billion as of June 2023 and $11.76 billion as of December 2022, and receivables from brokers, dealers and clearing organizations of $21.61 billion as of June 2023 and $15.27 billion as of December 2022. Such receivables primarily consist of receivables resulting from unsettled transactions and collateral posted in connection with certain derivative transactions.

Substantially all of these receivables are accounted for at amortized cost net of any allowance for credit losses, which generally approximates fair value. As these receivables are not accounted for at fair value, they are not included in the Bank's fair value hierarchy in Notes 4 and 5. Had these receivables been included in the Bank's fair value hierarchy, substantially all would have been classified in level 2 as of both June 2023 and December 2022. See Note 10 for further information about customer and other receivables accounted for at fair value under the fair value option. Interest on customer and other receivables is recognized over the life of the transaction and included in interest income.

Customer and Other Payables

Customer and other payables included payables to customers and counterparties of $16.19 billion as of June 2023 and $13.66 billion as of December 2022, and payables to brokers, dealers and clearing organizations of $11.21 billion as of June 2023 and $7.71 billion as of December 2022. Such payables primarily consist of payables resulting from unsettled transactions and collateral received in connection with certain derivative transactions.

Customer and other payables are accounted for at cost plus accrued interest, which generally approximates fair value. As these payables are not accounted for at fair value, they are not included in the Bank's fair value hierarchy in Notes 4 and 5. Had these payables been included in the Bank's fair value hierarchy, substantially all would have been classified in level 2 as of both June 2023 and December 2022. Interest on customer and other payables is recognized over the life of the transaction and included in interest expense.

Offsetting Assets and Liabilities

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

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

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

Foreign Currency Translation

Assets and liabilities denominated in non-U.S. currencies are translated at rates of exchange prevailing on the date of the consolidated balance sheets and revenues and expenses are translated at average rates of exchange for the period. Foreign currency remeasurement gains or losses on transactions in nonfunctional currencies are recognized in earnings. Gains or losses on translation of the financial statements of GSBE, whose functional currency is the Euro, and the Tokyo branch, whose functional currency is the Yen, are included, net of hedges and taxes, in the consolidated statements of comprehensive income.

Recent Accounting Developments

Facilitation of the Effects of Reference Rate Reform on Financial Reporting (ASC 848). In March 2020, the FASB issued ASU No. 2020-04, "Reference Rate Reform — Facilitation of the Effects of Reference Rate Reform on Financial Reporting." This ASU, as amended in 2022, provides optional relief from applying generally accepted accounting principles to contracts, hedging relationships and other transactions affected by reference rate reform. In addition, in January 2021 the FASB issued ASU No. 2021-01, "Reference Rate Reform — Scope," which clarified the scope of ASC 848 relating to contract modifications. The Bank adopted these ASUs upon issuance and elected to apply the relief available to certain modified derivatives. The adoption of these ASUs did not have a material impact on the Bank's consolidated financial statements.

Troubled Debt Restructurings and Vintage Disclosures (ASC 326). In March 2022, the FASB issued ASU No. 2022-02, "Financial Instruments — Credit Losses (Topic 326) — Troubled Debt Restructurings and Vintage Disclosures." This ASU eliminates the recognition and measurement guidance for troubled debt restructurings (TDRs) and requires enhanced disclosures about loan modifications for borrowers experiencing financial difficulty. This ASU also requires enhanced disclosure for loans that have been charged off. The ASU became effective in January 2023 under a prospective approach. Adoption of this ASU did not have a material impact on the Bank's consolidated financial statements.

Accounting for Obligations to Safeguard Crypto-Assets an Entity Holds for Platform Users (SAB 121). In March 2022, the SEC staff issued SAB 121 (SAB 121) — "Accounting for obligations to safeguard crypto-assets an entity holds for platform users." SAB 121 adds interpretive guidance requiring an entity to recognize a liability on its balance sheet to reflect the obligation to safeguard the crypto-assets held for its platform users, along with a corresponding asset. The Bank adopted SAB 121 in June 2022 under a modified retrospective approach and adoption did not have a material impact on the Bank's consolidated financial statements.

Fair Value Measurement of Equity Securities Subject to Contractual Sale Restrictions (ASC 820). In June 2022, the FASB issued ASU No. 2022-03, "Fair Value Measurement of Equity Securities Subject to Contractual Sale Restrictions." This ASU clarifies that a contractual restriction on the sale of an equity security should not be considered in measuring its fair value. In addition, the ASU requires specific disclosures related to equity securities that are subject to contractual sale restrictions. The ASU is effective in January 2024 under a prospective approach. Early adoption is permitted. Adoption of this ASU is not expected to have a material impact on the Bank's consolidated financial statements.

Accounting for Investments in Tax Credit Structures Using the Proportional Amortization Method (ASC 323). In March 2023, the FASB issued ASU No. 2023-02, "Investments — Equity Method and Joint Ventures (Topic 323) — Accounting for Investments in Tax Credit Structures Using the Proportional Amortization Method." This ASU expands the proportional amortization method election currently associated with low-income housing tax credits to other qualifying tax credits and requires incremental disclosures for programs in which the proportional amortization method is elected. This ASU is effective in January 2024 under a modified retrospective approach. Early adoption is permitted. Adoption of this ASU is not expected to have a material impact on the Bank's consolidated financial statements.

Note 4.

Fair Value Measurements

The fair value of a financial instrument is the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Financial assets are marked to bid prices and financial liabilities are marked to offer prices. Fair value measurements do not include transaction costs. The Bank measures certain financial assets and liabilities as a portfolio (i.e., based on its net exposure to market and/or credit risks).

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

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

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

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

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

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

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

	As of	
$ in millions	**June 2023**	December 2022
Total level 1 financial assets	**$ 57,578**	$ 37,872
Total level 2 financial assets	**141,177**	114,502
Total level 3 financial assets	**2,302**	2,502
Investments in funds at NAV	**30**	30
Counterparty and cash collateral netting	**(42,588)**	(43,723)
Total financial assets at fair value	**$ 158,499**	$ 111,183
Total assets	**$ 517,106**	$ 485,553
Total level 3 financial assets divided by:		
Total assets	**0.4%**	0.5%
Total financial assets at fair value	**1.5%**	2.3%
Total level 1 financial liabilities	**$ 15,554**	$ 8,717
Total level 2 financial liabilities	**78,663**	61,145
Total level 3 financial liabilities	**4,332**	4,166
Counterparty and cash collateral netting	**(35,014)**	(29,731)
Total financial liabilities at fair value	**$ 63,535**	$ 44,297
Total liabilities	**$ 465,523**	$ 437,251
Total level 3 financial liabilities divided by:		
Total liabilities	**0.9%**	1.0%
Total financial liabilities at fair value	**6.8%**	9.4%

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.
- NAV represents net asset value.

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

	As of		
	June	March	December
$ in millions	**2023**	2023	2022
Trading assets:			
Trading cash instruments	**$ 362**	$ 255	$ 335
Derivatives	**1,629**	1,779	1,738
Investments	**37**	38	29
Loans	**270**	273	400
Other assets	**4**	—	—
Total	**$ 2,302**	$ 2,345	$ 2,502

Level 3 financial assets as of June 2023 decreased compared with both March 2023 and December 2022, primarily reflecting a decrease in level 3 derivatives and loans. See Note 5 for further information about level 3 financial assets (including information about unrealized gains and losses related to level 3 financial assets and transfers in and out of level 3).

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

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

Level 1. Level 1 instruments include U.S. government obligations, most non-U.S. government obligations, certain agency obligations and actively traded listed equities. These instruments are valued using quoted prices for identical unrestricted instruments in active markets. The Bank 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 Bank defines active markets for debt instruments based on both the average daily trading volume and the number of days with trading activity.

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

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

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

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

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

Loans and Securities Backed by Commercial Real Estate

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

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

Corporate Debt Instruments

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

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

Equity Securities

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

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

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

Valuation Techniques and Significant Inputs for Derivatives

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

- **Interest Rate.** In general, the key inputs used to value interest rate derivatives are transparent, even for most long-dated contracts. Interest rate swaps and options denominated in the currencies of leading industrialized nations are characterized by high trading volumes and tight bid/offer spreads. Interest rate derivatives that reference indices, such as an inflation index, or the shape of the yield curve (e.g., 10-year swap rate vs. 2-year swap rate) are more complex, but the key inputs are generally observable.
- **Currency.** Prices for currency derivatives based on the exchange rates of leading industrialized nations, including those with longer tenors, are generally transparent. The primary difference between the price transparency of developed and emerging market currency derivatives is that emerging markets tend to be only observable for contracts with shorter tenors.
- **Credit.** Price transparency for credit default swaps, including both single names and baskets of credits, varies by market and underlying reference entity or obligation. Credit default swaps that reference indices, large corporates and major sovereigns generally exhibit the most price transparency. For credit default swaps with other underliers, price transparency varies based on credit rating, the cost of borrowing the underlying reference obligations, and the availability of the underlying reference obligations for delivery upon the default of the issuer. Credit default swaps that reference loans, asset-backed securities and emerging market debt instruments tend to have less price transparency than those that reference corporate bonds. In addition, more complex credit derivatives, such as those sensitive to the correlation between two or more underlying reference obligations, generally have less price transparency.
- **Equity.** Price transparency for equity derivatives varies by market and underlier. Options on indices and the common stock of corporates included in major equity indices exhibit the most price transparency. Equity derivatives generally have observable market prices, except for contracts with long tenors or reference prices that differ significantly from current market prices. More complex equity derivatives, such as those sensitive to the correlation between two or more individual stocks, generally have less price transparency.

- **Commodity.** Commodity derivatives include transactions referenced to energy (e.g., oil and natural gas) and metals (e.g., precious and base). 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.

Liquidity is essential to the 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 over-the-counter (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 executable) and the relationship of recent market activity to the prices provided from alternative pricing sources.

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

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

Subsequent to the initial valuation of a level 3 derivative, the Bank updates the level 1 and level 2 inputs to reflect observable market changes and any resulting gains and losses are classified in level 3. Level 3 inputs are changed when corroborated by evidence, such as similar market transactions, third-party pricing services and/or broker or dealer quotations or other empirical market data. In circumstances where the Bank cannot verify the model value by reference to market transactions, it is possible that a different valuation model could produce a materially different estimate of fair value. See Note 5 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, and credit and funding valuation adjustments, which account for the credit and funding risk inherent in the uncollateralized portion of derivative portfolios. The Bank also makes funding valuation adjustments to collateralized derivatives where the terms of the agreement do not permit the Bank to deliver or repledge collateral received. Market-based inputs are generally used when calibrating valuation adjustments to market-clearing levels.

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

Valuation Techniques and Significant Inputs for Other Financial Assets and Liabilities at Fair Value

In addition to trading cash instruments, derivatives, and certain investments and loans, the Bank accounts for certain of its other financial assets and liabilities at fair value under the fair value option. Such instruments include resale and repurchase agreements; certain securities borrowed and loaned transactions; certain customer and other receivables; certain time deposits, including structured certificates of deposit, which are hybrid financial instruments; most other secured financings, including transfers of assets accounted for as financings rather than sales; certain unsecured borrowings, including certain hybrid financial instruments; and certain other assets and liabilities. These instruments are generally valued based on discounted cash flow techniques, which incorporate inputs with reasonable levels of price transparency, and are generally classified in level 2 because the inputs are observable. Valuation adjustments may be made for liquidity and for counterparty and the Bank's credit quality. The significant inputs used to value the Bank's other financial assets and liabilities 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.

Customer and Other Receivables. The significant inputs to the valuation of receivables are interest rates and the amount and timing of expected future cash flows.

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

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

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

Other Assets and Liabilities. The significant inputs to the valuation of other assets and liabilities are the amount and timing of expected future cash flows, interest rate and market yields.

Note 5.

Fair Value Hierarchy

Financial assets and liabilities at fair value includes trading cash instruments, derivatives, and certain investments, loans and other financial assets and liabilities at fair value.

Trading Cash Instruments

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

$ in millions	Level 1	Level 2	Level 3	Total
As of June 2023				
Assets				
Government and agency obligations:				
U.S.	**$ 14,305**	**$ 8,854**	**$ —**	**$ 23,159**
Non-U.S.	**15,933**	**3,416**	**15**	**19,364**
Loans and securities backed by:				
Commercial real estate	**—**	**522**	**—**	**522**
Residential real estate	**—**	**4,346**	**—**	**4,346**
Corporate debt instruments	**—**	**5,487**	**334**	**5,821**
Other debt obligations	**—**	**1,452**	**13**	**1,465**
Equity securities	**1,645**	**—**	**—**	**1,645**
Total	**$ 31,883**	**$ 24,077**	**$ 362**	**$ 56,322**
Liabilities				
Government and agency obligations:				
U.S.	**$ (5,591)**	**$ —**	**$ —**	**$ (5,591)**
Non-U.S.	**(9,846)**	**(296)**	**—**	**(10,142)**
Loans and securities backed by residential real estate	**—**	**(7)**	**—**	**(7)**
Corporate debt instruments	**—**	**(1,197)**	**(46)**	**(1,243)**
Other debt obligations	**—**	**(10)**	**—**	**(10)**
Equity securities	**(117)**	**—**	**—**	**(117)**
Total	**$(15,554)**	**$ (1,510)**	**$ (46)**	**$(17,110)**
As of December 2022				
Assets				
Government and agency obligations:				
U.S.	$ 9,894	$ 2,275	$ —	$ 12,169
Non-U.S.	3,270	2,842	45	6,157
Loans and securities backed by:				
Commercial real estate	—	46	—	46
Residential real estate	—	5,229	—	5,229
Corporate debt instruments	—	4,052	277	4,329
Other debt obligations	—	1,732	13	1,745
Equity securities	898	—	—	898
Total	$ 14,062	$ 16,176	$ 335	$ 30,573
Liabilities				
Government and agency obligations:				
U.S.	$ (3,203)	$ (1)	$ —	$ (3,204)
Non-U.S.	(5,230)	(390)	—	(5,620)
Loans and securities backed by residential real estate	—	(2)	—	(2)
Corporate debt instruments	—	(1,106)	(33)	(1,139)
Other debt obligations	—	(30)	—	(30)
Equity securities	(236)	—	(1)	(237)
Total	$ (8,669)	$ (1,529)	$ (34)	$(10,232)

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

In the table above:

- Assets are shown as positive amounts and liabilities are shown as negative amounts.
- Corporate debt instruments includes corporate loans and debt securities.
- Other debt obligations includes other loans, other asset-backed securities and money market instruments.
- Equity securities includes public equities and exchange-traded funds.

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

	As of June 2023		As of December 2022	
$ in millions	**Amount or Range**	**Weighted Average**	Amount or Range	Weighted Average
Corporate debt instruments				
Level 3 assets	**$ 334**		$ 277	
Yield	**3.2% to 16.2%**	**8.2%**	1.1% to 16.6%	3.9%
Duration (years)	**1.2 to 18.5**	**4.8**	1.2 to 20.3	4.9

As of both June 2023 and December 2022, level 3 non-U.S. government and agency obligations and other debt obligations were not material, and therefore are not included in the table above.

In the table above:

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

- Increases in yield or duration used in the valuation of level 3 trading cash instruments would have resulted in a lower fair value measurement as of both June 2023 and December 2022.
- Trading cash instruments are valued using discounted cash flows.

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

	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
Assets				
Beginning balance	**$ 255**	$ 177	**$ 335**	$ 212
Net realized gains/(losses)	**—**	8	**—**	10
Net unrealized gains/(losses)	**9**	(19)	**13**	(27)
Purchases	**129**	91	**162**	177
Sales	**(22)**	(38)	**(99)**	(133)
Settlements	**(4)**	(19)	**(11)**	(19)
Transfers into level 3	**90**	126	**87**	117
Transfers out of level 3	**(95)**	(15)	**(125)**	(26)
Ending balance	**$ 362**	$ 311	**$ 362**	$ 311
Liabilities				
Beginning balance	**$ (18)**	$ (16)	**$ (34)**	$ (42)
Net realized gains/(losses)	**—**	1	**—**	1
Net unrealized gains/(losses)	**1**	1	**1**	1
Purchases	**8**	15	**20**	38
Sales	**(38)**	(40)	**(42)**	(43)
Settlements	**1**	—	**4**	—
Transfers into level 3	**(5)**	(31)	**—**	(31)
Transfers out of level 3	**5**	1	**5**	7
Ending balance	**$ (46)**	$ (69)	**$ (46)**	$ (69)

In the table above:

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

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

	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
Non-U.S. government and agency obligations				
Beginning balance	**$ 73**	$ 37	**$ 45**	$ 17
Net unrealized gains/(losses)	**—**	(2)	**1**	(3)
Purchases	**1**	36	**5**	71
Sales	**—**	(20)	**(1)**	(14)
Transfers into level 3	**—**	22	**—**	2
Transfers out of level 3	**(59)**	—	**(35)**	—
Ending balance	**$ 15**	$ 73	**$ 15**	$ 73
Corporate debt instruments				
Beginning balance	**$ 169**	$ 121	**$ 277**	$ 195
Net realized gains/(losses)	**—**	8	**—**	10
Net unrealized gains/(losses)	**9**	(18)	**12**	(26)
Purchases	**128**	55	**157**	88
Sales	**(22)**	(18)	**(98)**	(119)
Settlements	**(4)**	(19)	**(11)**	(19)
Transfers into level 3	**90**	104	**87**	115
Transfers out of level 3	**(36)**	(15)	**(90)**	(26)
Ending balance	**$ 334**	$ 218	**$ 334**	$ 218
Other debt obligations				
Beginning balance	**$ 13**	$ 19	**$ 13**	$ —
Net unrealized gains/(losses)	**—**	1	**—**	2
Purchases	**—**	—	**—**	18
Ending balance	**$ 13**	$ 20	**$ 13**	$ 20

Level 3 Rollforward Commentary for the Three Months Ended June 2023. The net unrealized gains on level 3 trading cash instrument assets of $9 million for the three months ended June 2023 were reported in gains and losses from financial assets and liabilities.

The drivers of net unrealized gains on level 3 trading cash instrument assets for the three months ended June 2023 were not material.

Transfers into level 3 trading cash instrument assets during the three months ended June 2023 reflected transfers of certain corporate debt instruments to level 3 (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 trading cash instrument assets during the three months ended June 2023 primarily reflected transfers of certain non-U.S. government and agency obligations to level 2 (principally due to increased price transparency as a result of market evidence, including market transactions in these instruments).

Level 3 Rollforward Commentary for the Six Months Ended June 2023. The net unrealized gains on level 3 trading cash instrument assets of $13 million for the six months ended June 2023 were reported in gains and losses from financial assets and liabilities.

The drivers of net unrealized gains on level 3 trading cash instrument assets for the six months ended June 2023 were not material.

Transfers into level 3 trading cash instrument assets during the six months ended June 2023 reflected transfers of certain corporate debt instruments to level 3 (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 trading cash instrument assets during the six months ended June 2023 primarily reflected transfers of certain corporate debt instruments to level 2 (principally due to increased price transparency as a result of market evidence, including market transactions in these instruments).

Level 3 Rollforward Commentary for the Three Months Ended June 2022. The net realized and unrealized losses on level 3 trading cash instrument assets of $11 million (reflecting $8 million of net realized gains and $19 million of net unrealized losses) for the three months ended June 2022 were reported in gains and losses from financial assets and liabilities.

The drivers of net unrealized losses on level 3 trading cash instrument assets for the three months ended June 2022 were not material.

Transfers into level 3 trading cash instrument assets during the three months ended June 2022 primarily reflected transfers of certain corporate debt instruments to level 3 (principally due to reduced price transparency as a result of a lack of market evidence, including fewer market transactions in these instruments).

The drivers of transfers out of level 3 trading cash instrument assets during the three months ended June 2022 were not material.

Level 3 Rollforward Commentary for the Six Months Ended June 2022. The net realized and unrealized losses on level 3 trading cash instrument assets of $17 million (reflecting $10 million of net realized gains and $27 million of net unrealized losses) for the six months ended June 2022 were reported in gains and losses from financial assets and liabilities.

The drivers of net unrealized losses on level 3 trading cash instrument assets for the six months ended June 2022 were not material.

Transfers into level 3 trading cash instrument assets during the six months ended June 2022 primarily reflected transfers of certain corporate debt instruments to level 3 (principally due to reduced price transparency as a result of a lack of market evidence, including fewer market transactions in these instruments).

The drivers of transfers out of level 3 trading cash instrument assets during the six months ended June 2022 were not material.

Derivatives

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

$ in millions	Level 1	Level 2	Level 3	Total
As of June 2023				
Assets				
Interest rates	**$ —**	**$ 660,670**	**$ 207**	**$ 660,877**
Currencies	**—**	**99,401**	**833**	**100,234**
Credit	**—**	**7,410**	**891**	**8,301**
Equities	**—**	**9,664**	**159**	**9,823**
Commodities	**—**	**1,799**	**—**	**1,799**
Gross fair value	**—**	**778,944**	**2,090**	**781,034**
Counterparty netting in levels	**—**	**(724,800)**	**(461)**	**(725,261)**
Subtotal	**$ —**	**$ 54,144**	**$ 1,629**	**$ 55,773**
Cross-level counterparty netting				**(1,327)**
Cash collateral netting				**(41,261)**
Net fair value				**$ 13,185**
Liabilities				
Interest rates	**$ —**	**$ (648,954)**	**$ (744)**	**$ (649,698)**
Currencies	**—**	**(106,029)**	**(40)**	**(106,069)**
Credit	**—**	**(8,564)**	**(789)**	**(9,353)**
Equities	**—**	**(9,442)**	**(84)**	**(9,526)**
Commodities	**—**	**(1,799)**	**—**	**(1,799)**
Gross fair value	**—**	**(774,788)**	**(1,657)**	**(776,445)**
Counterparty netting in levels	**—**	**724,800**	**461**	**725,261**
Subtotal	**$ —**	**$ (49,988)**	**$ (1,196)**	**$ (51,184)**
Cross-level counterparty netting				**1,327**
Cash collateral netting				**33,687**
Net fair value				**$ (16,170)**
As of December 2022				
Assets				
Interest rates	$ 48	$ 691,938	$ 376	$ 692,362
Currencies	—	112,318	910	113,228
Credit	—	5,735	871	6,606
Equities	—	7,767	159	7,926
Commodities	—	3,084	—	3,084
Gross fair value	48	820,842	2,316	823,206
Counterparty netting in levels	—	(762,232)	(578)	(762,810)
Subtotal	$ 48	$ 58,610	$ 1,738	$ 60,396
Cross-level counterparty netting				(321)
Cash collateral netting				(43,402)
Net fair value				$ 16,673
Liabilities				
Interest rates	$ (48)	$ (670,410)	$ (894)	$ (671,352)
Currencies	—	(122,613)	(45)	(122,658)
Credit	—	(6,492)	(758)	(7,250)
Equities	—	(7,055)	(96)	(7,151)
Commodities	—	(3,082)	(1)	(3,083)
Gross fair value	(48)	(809,652)	(1,794)	(811,494)
Counterparty netting in levels	—	762,232	578	762,810
Subtotal	$ (48)	$ (47,420)	$ (1,216)	$ (48,684)
Cross-level counterparty netting				321
Cash collateral netting				29,410
Net fair value				$ (18,953)

In the table above:

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

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

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.

	As of June 2023		As of December 2022	
$ in millions	**Amount or Range**	**Average/ Median**	Amount or Range	Average/ Median
Interest rates, net	**$ (537)**		$ (518)	
Correlation	**75% to 81%**	**79%/80%**	60% to 81%	69%/67%
Volatility (bps)	**31 to 101**	**66/55**	31 to 101	65/55
Currencies, net	**$ 793**		$ 865	
Correlation	**43% to 71%**	**55%/58%**	48% to 71%	62%/63%
Credit, net	**$ 102**		$ 113	
Credit spreads (bps)	**8 to 960**	**133/105**	11 to 935	158/121
Equities, net	**$ 75**		$ 63	
Correlation	**15% to 98%**	**61%/60%**	(39)% to 99%	67%/73%

As of December 2022, level 3 commodities, net, were not material and therefore are not included in the table above.

In the table above:

- Assets are shown as positive amounts and 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 amount of the respective financial instruments. An average greater than the median indicates that the majority of inputs are below the average. For example, the difference between the average and the median for credit spreads indicates that the majority of the inputs fall in the lower end of the range.

- The ranges, averages and medians of these inputs are not representative of the appropriate inputs to use when calculating the fair value of any one derivative. For example, the highest correlation for interest rate derivatives is appropriate for valuing a specific interest rate derivative but may not be appropriate for valuing any other interest rate derivative. Accordingly, the ranges of inputs do not represent uncertainty in, or possible ranges of, fair value measurements of level 3 derivatives.
- Interest rates, currencies and equities derivatives are valued using option pricing models, and credit derivatives are valued using option pricing, correlation 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 flow models are typically used together to determine fair value. Therefore, the level 3 balance encompasses both of these techniques.
- Correlation within currencies and equities includes cross-product type correlation.

Range of Significant Unobservable Inputs. The following provides information about the ranges of significant unobservable inputs used to value the Bank's level 3 derivative instruments:

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

Sensitivity of Fair Value Measurement to Changes in Significant Unobservable Inputs. The following is a description of the directional sensitivity of the Bank's level 3 fair value measurements to changes in significant unobservable inputs, in isolation, as of each period-end:

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

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

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

	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
Total level 3 derivatives, net				
Beginning balance	**$ 479**	$ 964	**$ 522**	$ 590
Net realized gains/(losses)	**10**	(48)	**5**	(88)
Net unrealized gains/(losses)	**(192)**	662	**(230)**	1,484
Purchases	**29**	88	**82**	150
Sales	**(94)**	(60)	**(259)**	(125)
Settlements	**(112)**	319	**86**	70
Transfers into level 3	**51**	(42)	**(67)**	(39)
Transfers out of level 3	**262**	44	**294**	(115)
Ending balance	**$ 433**	$ 1,927	**$ 433**	$ 1,927

In the table above:

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

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

	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
Interest rates, net				
Beginning balance	**$ (421)**	$ 70	**$ (518)**	$ (154)
Net realized gains/(losses)	**5**	(22)	**5**	(72)
Net unrealized gains/(losses)	**(329)**	412	**(190)**	1,098
Purchases	**6**	50	**14**	67
Sales	**(74)**	(37)	**(202)**	(69)
Settlements	**(56)**	383	**91**	182
Transfers into level 3	**65**	(5)	**(50)**	12
Transfers out of level 3	**267**	66	**313**	(147)
Ending balance	**$ (537)**	$ 917	**$ (537)**	$ 917
Currencies, net				
Beginning balance	**$ 744**	$ 402	**$ 865**	$ 191
Net realized gains/(losses)	**18**	(5)	**27**	(24)
Net unrealized gains/(losses)	**91**	290	**(64)**	507
Purchases	**6**	4	**6**	10
Sales	**(7)**	(2)	**(8)**	(2)
Settlements	**(55)**	1	**(13)**	(7)
Transfers into level 3	**(2)**	(51)	**—**	(60)
Transfers out of level 3	**(2)**	6	**(20)**	30
Ending balance	**$ 793**	$ 645	**$ 793**	$ 645
Credit, net				
Beginning balance	**$ 63**	$ 39	**$ 113**	$ (2)
Net realized gains/(losses)	**2**	(13)	**2**	18
Net unrealized gains/(losses)	**49**	98	**10**	105
Purchases	**2**	(1)	**17**	1
Sales	**(4)**	2	**(15)**	—
Settlements	**(8)**	—	**(22)**	18
Transfers into level 3	**(1)**	2	**(5)**	(4)
Transfers out of level 3	**(1)**	(3)	**2**	(12)
Ending balance	**$ 102**	$ 124	**$ 102**	$ 124
Equities, net				
Beginning balance	**$ 93**	$ 451	**$ 63**	$ 553
Net realized gains/(losses)	**(16)**	(8)	**(30)**	(10)
Net unrealized gains/(losses)	**(3)**	(138)	**13**	(226)
Purchases	**15**	35	**29**	70
Sales	**(9)**	(22)	**(17)**	(51)
Settlements	**8**	(65)	**30**	(123)
Transfers into level 3	**(11)**	12	**(12)**	13
Transfers out of level 3	**(2)**	(25)	**(1)**	14
Ending balance	**$ 75**	$ 240	**$ 75**	$ 240
Commodities, net				
Beginning balance	**$ —**	$ 2	**$ (1)**	$ 2
Net realized gains/(losses)	**1**	—	**1**	—
Net unrealized gains/(losses)	**—**	—	**1**	—
Purchases	**—**	—	**16**	2
Sales	**—**	(1)	**(17)**	(3)
Settlements	**(1)**	—	**—**	—
Ending balance	**$ —**	$ 1	**$ —**	$ 1

Level 3 Rollforward Commentary for the Three Months Ended June 2023. The net realized and unrealized losses on level 3 derivatives of $182 million (reflecting $10 million of net realized gains and $192 million of net unrealized losses) for the three months ended June 2023 were reported in gains and losses from financial assets and liabilities.

The net unrealized losses on level 3 derivatives for the three months ended June 2023 were primarily attributable to losses on certain interest rate derivatives (primarily reflecting the impact of an increase in interest rates), partially offset by gains on certain currency derivatives (primarily reflecting the impact of changes in foreign exchange rates).

The drivers of transfers into level 3 derivatives during the three months ended June 2023 were not material.

Transfers out of level 3 derivatives during the three months ended June 2023 primarily reflected transfers of certain interest rate derivative liabilities to level 2 (principally due to certain unobservable volatility inputs no longer being significant to the valuation of these derivatives).

Level 3 Rollforward Commentary for the Six Months Ended June 2023. The net realized and unrealized losses on level 3 derivatives of $225 million (reflecting $5 million of net realized gains and $230 million of net unrealized losses) for the six months ended June 2023 were reported in gains and losses from financial assets and liabilities.

The net unrealized losses on level 3 derivatives for the six months ended June 2023 were primarily attributable to losses on certain interest rate derivatives (primarily reflecting the impact of an increase in interest rates).

The drivers of transfers into level 3 derivatives during the six months ended June 2023 were not material.

Transfers out of level 3 derivatives during the six months ended June 2023 primarily reflected transfers of certain interest rate derivative liabilities to level 2 (principally due to certain unobservable volatility inputs no longer being significant to the valuation of these derivatives).

Level 3 Rollforward Commentary for the Three Months Ended June 2022. The net realized and unrealized gains on level 3 derivatives of $614 million (reflecting $48 million of net realized losses and $662 million of net unrealized gains) for the three months ended June 2022 were reported in gains and losses from financial assets and liabilities.

The net unrealized gains on level 3 derivatives for the three months ended June 2022 were attributable to gains on certain interest rate, currency and credit derivatives (primarily reflecting the impact of an increase in interest rates), partially offset by losses on certain equity derivatives (primarily reflecting the impact of a decrease in equity prices).

The drivers of transfers into level 3 derivatives during the three months ended June 2022 were not material.

The drivers of transfers out of level 3 derivatives during the three months ended June 2022 were not material.

Level 3 Rollforward Commentary for the Six Months Ended June 2022. The net realized and unrealized gains on level 3 derivatives of $1.40 billion (reflecting $88 million of net realized losses and $1.48 billion of net unrealized gains) for the six months ended June 2022 were reported in gains and losses from financial assets and liabilities.

The net unrealized gains on level 3 derivatives for the six months ended June 2022 were attributable to gains on certain interest rate, currency and credit derivatives (primarily reflecting the impact of an increase in interest rates), partially offset by losses on certain equity derivatives (primarily reflecting the impact of a decrease in equity prices).

The drivers of transfers into level 3 derivatives during the six months ended June 2022 were not material.

Transfers out of level 3 derivatives during the six months ended June 2022 primarily reflected transfers of certain interest rate derivative assets to level 2 (principally due to increased transparency of certain unobservable inputs used to value these derivatives).

Investments

Fair Value by Level. The table below presents investments accounted for at fair value by level within the fair value hierarchy.

$ in millions	Level 1	Level 2	Level 3	Total
As of June 2023				
U.S. government obligations	**$ 25,695**	**$ —**	**$ —**	**$ 25,695**
Corporate debt securities	**—**	**41**	**—**	**41**
Securities backed by real estate	**—**	**—**	**1**	**1**
Equity securities	**—**	**7**	**36**	**43**
Subtotal	**$ 25,695**	**$ 48**	**$ 37**	**$ 25,780**
Investments in funds at NAV				**30**
Total investments				**$ 25,810**
As of December 2022				
U.S. government obligations	$ 23,762	$ —	$ —	$ 23,762
Corporate debt securities	—	40	—	40
Securities backed by real estate	—	—	2	2
Equity securities	—	18	27	45
Subtotal	$ 23,762	$ 58	$ 29	$ 23,849
Investments in funds at NAV				30
Total investments				$ 23,879

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

Significant Unobservable Inputs. The table below presents the amount of level 3 investments, and ranges and weighted averages of significant unobservable inputs used to value such investments.

	As of June 2023		As of December 2022	
$ in millions	**Amount or Range**	**Weighted Average**	Amount or Range	Weighted Average
Equity securities				
Level 3 assets	**$ 36**		$ 27	
Discount rate/yield	**3.9% to 14.0%**	**7.8%**	5.4% to 8.0%	7.0%

As of both June 2023 and December 2022, level 3 securities backed by real estate were not material and therefore are not included in the table above.

In the table above:

- Ranges represent the significant unobservable inputs that were used in the valuation of each type of investment.
- Weighted averages are calculated by weighting each input by the relative fair value of the investment.
- The ranges and weighted averages of these inputs are not representative of the appropriate inputs to use when calculating the fair value of any one investment. For example, the highest discount rate for private equity securities is appropriate for valuing a specific private equity security but may not be appropriate for valuing any other private equity security. Accordingly, the ranges of inputs do not represent uncertainty in, or possible ranges of, fair value measurements of level 3 investments.
- Increases in discount rate or yield used in the valuation of level 3 investments would have resulted in a lower fair value measurement as of both June 2023 and December 2022.
- Equity securities are valued using market comparables and discounted cash flows.
- The fair value of any one instrument may be determined using multiple valuation techniques. For example, market comparables and discounted cash flows may be used together to determine fair value. Therefore, the level 3 balance encompasses both of these techniques.

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

	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
Beginning balance	**$ 38**	$ 39	**$ 29**	$ 43
Net realized gains/(losses)	**—**	—	**1**	1
Net unrealized gains/(losses)	**(1)**	(3)	**(2)**	(4)
Purchases	**—**	10	**—**	10
Sales	**—**	—	**—**	(2)
Settlements	**—**	(7)	**(1)**	(8)
Transfers into level 3	**—**	42	**10**	41
Ending balance	**$ 37**	$ 81	**$ 37**	$ 81

In the table above:

- Changes in fair value are presented for all investments that are classified in level 3 as of the end of the period.
- Net unrealized gains/(losses) relates to investments that were still held at period-end.
- Transfers between levels of the fair value hierarchy are reported at the beginning of the reporting period in which they occur. If an investment was transferred to level 3 during a reporting period, its entire gain or loss for the period is classified in level 3.
- For level 3 investments, increases are shown as positive amounts, while decreases are shown as negative amounts.

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

$ in millions	Three Months Ended June 2023	Three Months Ended June 2022	Six Months Ended June 2023	Six Months Ended June 2022
Securities backed by real estate				
Beginning balance	**$ 2**	$ 6	**$ 2**	$ 6
Net realized gains/(losses)	**—**	—	**1**	—
Net unrealized gains/(losses)	**(1)**	—	**(1)**	—
Settlements	**—**	—	**(1)**	—
Ending balance	**$ 1**	$ 6	**$ 1**	$ 6
Equity securities				
Beginning balance	**$ 36**	$ 33	**$ 27**	$ 37
Net realized gains/(losses)	**—**	(1)	**—**	—
Net unrealized gains/(losses)	**—**	—	**(1)**	(2)
Purchases	**—**	10	**—**	10
Sales	**—**	—	**—**	(2)
Settlements	**—**	(6)	**—**	(7)
Transfers into level 3	**—**	—	**10**	—
Ending balance	**$ 36**	$ 36	**$ 36**	$ 36
Corporate debt securities				
Beginning balance	**$ —**	$ —	**$ —**	$ —
Net realized gains/(losses)	**—**	1	**—**	1
Net unrealized gains/(losses)	**—**	(3)	**—**	(2)
Settlements	**—**	(1)	**—**	(1)
Transfers into level 3	**—**	42	**—**	41
Ending balance	**$ —**	$ 39	**$ —**	$ 39

Level 3 Rollforward Commentary for the Three Months Ended June 2023. The net unrealized losses on level 3 investments of $1 million for the three months ended June 2023 were reported in gains and losses from financial assets and liabilities.

The drivers of net unrealized losses on level 3 investments for the three months ended June 2023 were not material.

There were no transfers into or out of level 3 investments during the three months ended June 2023.

Level 3 Rollforward Commentary for the Six Months Ended June 2023. The net realized and unrealized losses on level 3 investments of $1 million (reflecting $1 million of net realized gains and $2 million of net unrealized losses) for the six months ended June 2023 were reported in gains and losses from financial assets and liabilities.

The drivers of net unrealized losses on level 3 investments for the six months ended June 2023 were not material.

The drivers of transfers into level 3 investments during the six months ended June 2023 were not material.

There were no transfers out of level 3 investments during the six months ended June 2023.

Level 3 Rollforward Commentary for the Three Months Ended June 2022. The net unrealized losses on level 3 investments of $3 million for the three months ended June 2022 were reported in gains and losses from financial assets and liabilities.

The drivers of net unrealized losses on level 3 investments for the three months ended June 2022 were not material.

The drivers of transfers into level 3 investments during the three months ended June 2022 were not material.

There were no transfers out of level 3 investments during the three months ended June 2022.

Level 3 Rollforward Commentary for the Six Months Ended June 2022. The net realized and unrealized losses on level 3 investments of $3 million (reflecting $1 million of net realized gains and $4 million of net unrealized losses) for the six months ended June 2022 were reported in gains and losses from financial assets and liabilities.

The drivers of net unrealized losses on level 3 investments for the six months ended June 2022 were not material.

The drivers of transfers into level 3 investments during the six months ended June 2022 were not material.

There were no transfers out of level 3 investments during the six months ended June 2022.

Loans

Fair Value by Level. The table below presents loans held for investment accounted for at fair value under the fair value option by level within the fair value hierarchy.

$ in millions	Level 1	Level 2	Level 3	Total
As of June 2023				
Loan Type				
Corporate	**$ —**	**$ 1,021**	**$ 133**	**$ 1,154**
Real estate:				
Commercial	**—**	**155**	**68**	**223**
Residential	**—**	**4,058**	**—**	**4,058**
Other collateralized	**—**	**290**	**69**	**359**
Other	**—**	**60**	**—**	**60**
Total	**$ —**	**$ 5,584**	**$ 270**	**$ 5,854**
As of December 2022				
Loan Type				
Corporate	$ —	$ 1,099	$ 236	$ 1,335
Real estate:				
Commercial	—	164	99	263
Residential	—	4,301	—	4,301
Other collateralized	—	287	65	352
Total	$ —	$ 5,851	$ 400	$ 6,251

The gains/(losses) as a result of changes in the fair value of loans held for investment for which the fair value option was elected were $11 million for the three months ended June 2023, $(68) million for the three months ended June 2022, $59 million for the six months ended June 2023 and $(202) million for the six months ended June 2022. These gains/(losses) were included in gains and losses from financial assets and liabilities.

Significant Unobservable Inputs. The table below presents the amount of level 3 loans, and ranges and weighted averages of significant unobservable inputs used to value such loans.

	As of June 2023		As of December 2022	
$ in millions	**Amount or Range**	**Weighted Average**	Amount or Range	Weighted Average
Corporate				
Level 3 assets	**$ 133**		$ 236	
Yield	**4.5% to 10.5%**	**8.1%**	4.1% to 12.2%	9.6%
Duration (years)	**1.4 to 4.4**	**2.8**	1.9 to 3.3	2.9
Commercial real estate				
Level 3 assets	**$ 68**		$ 99	
Yield	**3.0% to 12.0%**	**5.6%**	3.0% to 20.6%	11.4%
Duration (years)	**0.4 to 1.5**	**1.2**	0.6 to 1.8	1.6

The significant unobservable inputs for yield and duration related to other collateralized loans as of both June 2023 and December 2022 did not have a range (and there was no weighted average) as each pertained to a single position. Therefore, such unobservable inputs are not included in the table above.

In the table above*:*

- Ranges represent the significant unobservable inputs that were used in the valuation of each type of loan.
- Weighted averages are calculated by weighting each input by the relative fair value of the loan.
- The ranges and weighted averages of these inputs are not representative of the appropriate inputs to use when calculating the fair value of any one loan. For example, the highest yield for commercial real estate loans is appropriate for valuing a specific commercial real estate loan but may not be appropriate for valuing any other commercial real estate loan. Accordingly, the ranges of inputs do not represent uncertainty in, or possible ranges of, fair value measurements of level 3 loans.
- Increases in yield or duration used in the valuation of level 3 loans would have resulted in a lower fair value measurement as of both June 2023 and December 2022.
- Loans are valued using discounted cash flows.

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

	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
Beginning balance	**$ 273**	$ 292	**$ 400**	$ 212
Net realized gains/(losses)	**1**	4	**2**	9
Net unrealized gains/(losses)	**1**	(5)	**4**	(11)
Purchases	**3**	127	**27**	126
Sales	**—**	(21)	**—**	(2)
Settlements	**(8)**	(7)	**(163)**	(54)
Transfers into level 3	**—**	—	**—**	109
Transfers out of level 3	**—**	(1)	**—**	—
Ending balance	**$ 270**	$ 389	**$ 270**	$ 389

In the table above:

- Changes in fair value are presented for loans that are classified in level 3 as of the end of the period.
- Net unrealized gains/(losses) relates to loans that were still held at period-end.
- Purchases includes originations and secondary purchases.
- Transfers between levels of the fair value hierarchy are reported at the beginning of the reporting period in which they occur. If a loan was transferred to level 3 during a reporting period, its entire gain or loss for the period is classified in level 3.

The table below presents information, by loan type, for loans included in the summary table above.

$ in millions	Three Months Ended June 2023	Three Months Ended June 2022	Six Months Ended June 2023	Six Months Ended June 2022
Corporate				
Beginning balance	**$ 134**	$ 173	**$ 236**	$ 90
Net realized gains/(losses)	**—**	3	**—**	4
Net unrealized gains/(losses)	**(1)**	(4)	**3**	(6)
Purchases	**3**	124	**26**	125
Sales	**—**	(21)	**—**	(2)
Settlements	**(3)**	(5)	**(132)**	(50)
Transfers into level 3	**—**	—	**—**	109
Ending balance	**$ 133**	$ 270	**$ 133**	$ 270
Commercial real estate				
Beginning balance	**$ 73**	$ 57	**$ 99**	$ 59
Net realized gains/(losses)	**1**	1	**2**	5
Net unrealized gains/(losses)	**(1)**	(1)	**(3)**	(5)
Purchases	**—**	—	**1**	—
Settlements	**(5)**	(2)	**(31)**	(4)
Ending balance	**$ 68**	$ 55	**$ 68**	$ 55
Other collateralized				
Beginning balance	**$ 66**	$ 62	**$ 65**	$ 63
Net unrealized gains/(losses)	**3**	—	**4**	—
Purchases	**—**	3	**—**	1
Transfers out of level 3	**—**	(1)	**—**	—
Ending balance	**$ 69**	$ 64	**$ 69**	$ 64

Level 3 Rollforward Commentary for the Three Months Ended June 2023. The net realized and unrealized gains on level 3 loans of $2 million (reflecting $1 million of net realized gains and $1 million of net unrealized gains) for the three months ended June 2023 were reported in gains and losses from financial assets and liabilities.

The drivers of net unrealized gains on level 3 loans for the three months ended June 2023 were not material.

There were no transfers into or out of level 3 loans during the three months ended June 2023.

Level 3 Rollforward Commentary for the Six Months Ended June 2023. The net realized and unrealized gains on level 3 loans of $6 million (reflecting $2 million of net realized gains and $4 million of net unrealized gains) for the six months ended June 2023 were reported in gains and losses from financial assets and liabilities.

The drivers of net unrealized gains on level 3 loans for the six months ended June 2023 were not material.

There were no transfers into or out of level 3 loans during the six months ended June 2023.

Level 3 Rollforward Commentary for the Three Months Ended June 2022. The net realized and unrealized losses on level 3 loans of $1 million (reflecting $4 million of net realized gains and $5 million of net unrealized losses) for the three months ended June 2022 were reported in gains and losses from financial assets and liabilities.

The drivers of net unrealized losses on level 3 loans for the three months ended June 2022 were not material.

There were no transfers into level 3 loans during the three months ended June 2022.

The drivers of transfers out of level 3 loans during the three months ended June 2022 were not material.

Level 3 Rollforward Commentary for the Six Months Ended June 2022. The net realized and unrealized losses on level 3 loans of $2 million (reflecting $9 million of net realized gains and $11 million of net unrealized losses) for the six months ended June 2022 were reported in gains and losses from financial assets and liabilities.

The drivers of net unrealized losses on level 3 loans for the six months ended June 2022 were not material.

Transfers into level 3 loans during the six months ended June 2022 reflected transfers of certain corporate loans from level 2 (principally due to certain unobservable inputs becoming significant to the valuation).

There were no transfers out of level 3 loans during the six months ended June 2022.

Other Financial Assets and Liabilities

Fair Value by Level. The table below presents, by level within the fair value hierarchy, other financial assets and liabilities at fair value, substantially all of which are accounted for at fair value under the fair value option.

$ in millions	Level 1	Level 2	Level 3	Total
As of June 2023				
Assets				
Resale agreements	**$ —**	**$ 56,900**	**$ —**	**$ 56,900**
Securities borrowed	**—**	**138**	**—**	**138**
Customer and other receivables	**—**	**69**	**—**	**69**
Other assets	**—**	**217**	**4**	**221**
Total	**$ —**	**$ 57,324**	**$ 4**	**$ 57,328**
Liabilities				
Deposits	**$ —**	**$ (3,035)**	**$ (2,782)**	**$ (5,817)**
Repurchase agreements	**—**	**(19,733)**	**—**	**(19,733)**
Securities loaned	**—**	**(125)**	**—**	**(125)**
Other secured financings	**—**	**(3,603)**	**(308)**	**(3,911)**
Unsecured borrowings	**—**	**(596)**	**—**	**(596)**
Other liabilities	**—**	**(73)**	**—**	**(73)**
Total	**$ —**	**$ (27,165)**	**$ (3,090)**	**$ (30,255)**
As of December 2022				
Assets				
Resale agreements	$ —	$ 33,713	$ —	$ 33,713
Securities borrowed	—	23	—	23
Other assets	—	71	—	71
Total	$ —	$ 33,807	$ —	$ 33,807
Liabilities				
Deposits	$ —	$ (2,606)	$ (2,768)	$ (5,374)
Repurchase agreements	—	(5,566)	—	(5,566)
Securities loaned	—	(23)	—	(23)
Other secured financings	—	(3,482)	(148)	(3,630)
Unsecured borrowings	—	(448)	—	(448)
Other liabilities	—	(71)	—	(71)
Total	$ —	$ (12,196)	$ (2,916)	$ (15,112)

In the table above, assets are shown as positive amounts and liabilities are shown as negative amounts.

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

Significant Unobservable Inputs. See below for information about the significant unobservable inputs used to value level 3 other financial liabilities at fair value as of both June 2023 and December 2022.

Deposits. The Bank's deposits that are classified in level 3 are hybrid financial instruments. As the significant unobservable inputs used to value such instruments primarily relate to the embedded derivative component of these deposits, these unobservable inputs are incorporated in the Bank's derivative disclosures. See Note 13 for further information about deposits.

Other Secured Financings. The ranges and weighted averages of significant unobservable inputs used to value level 3 other secured financings are presented below. These ranges and weighted averages exclude unobservable inputs that are only relevant to a single instrument, and therefore are not meaningful.

As of June 2023:

- Yield: 8.3% to 10.4% (weighted average: 9.1%)
- Duration: 1.0 to 4.4 years (weighted average: 2.6 years)

As of December 2022:

- Yield: 5.8% to 8.9% (weighted average: 6.4%)
- Duration: 1.1 to 4.1 years (weighted average: 3.4 years)

Generally, increases in yield or duration, in isolation, would have resulted in a lower fair value measurement as of period-end. Due to the distinctive nature of each of level 3 other secured financings, the interrelationship of inputs is not necessarily uniform across such financings. See Note 11 for further information about other secured financings.

Level 3 Rollforward. The table below presents a summary of the changes in fair value for level 3 other financial liabilities accounted for at fair value.

	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
Beginning balance	**$ (2,831)**	$ (3,293)	**$ (2,916)**	$ (3,716)
Net realized gains/(losses)	**(2)**	(2)	**(5)**	(6)
Net unrealized gains/(losses)	**(52)**	208	**(63)**	344
Issuances	**(236)**	(200)	**(383)**	(365)
Settlements	**151**	401	**390**	843
Transfers into level 3	**(125)**	(6)	**(132)**	(10)
Transfers out of level 3	**5**	90	**19**	108
Ending balance	**$ (3,090)**	$ (2,802)	**$ (3,090)**	$ (2,802)

Level 3 other assets are not material, and therefore are not included in the table above.

In the table above:

- Changes in fair value are presented for all other financial liabilities that are classified in level 3 as of the end of the period.
- Net unrealized gains/(losses) relates to other financial liabilities that were still held at period-end.
- Transfers between levels of the fair value hierarchy are reported at the beginning of the reporting period in which they occur. If a financial liability was transferred to level 3 during a reporting period, its entire gain or loss for the period is classified in level 3.

- For level 3 other financial liabilities, increases are shown as negative amounts, while decreases are shown as positive amounts.
- Level 3 other financial liabilities are frequently economically hedged with trading assets and liabilities. Accordingly, gains or losses that are classified in level 3 can be partially offset by gains or losses attributable to level 1, 2 or 3 trading assets and liabilities. As a result, gains or losses included in the level 3 rollforward below do not necessarily represent the overall impact on the Bank's results of operations, liquidity or capital resources.

The table below presents information, by the consolidated balance sheet line items, for liabilities included in the summary table above.

	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
Deposits				
Beginning balance	**$ (2,656)**	$ (3,292)	**$ (2,768)**	$ (3,645)
Net realized gains/(losses)	**—**	(2)	**(1)**	(6)
Net unrealized gains/(losses)	**(55)**	208	**(59)**	344
Issuances	**(100)**	(200)	**(214)**	(365)
Settlements	**149**	400	**373**	772
Transfers into level 3	**(125)**	(6)	**(132)**	(10)
Transfers out of level 3	**5**	90	**19**	108
Ending balance	**$ (2,782)**	$ (2,802)	**$ (2,782)**	$ (2,802)
Other secured financings				
Beginning balance	**$ (175)**	$ (1)	**$ (148)**	$ (71)
Net realized gains/(losses)	**(2)**	—	**(4)**	—
Net unrealized gains/(losses)	**3**	—	**(4)**	—
Issuances	**(136)**	—	**(169)**	—
Settlements	**2**	1	**17**	71
Ending balance	**$ (308)**	$ —	**$ (308)**	$ —

Level 3 Rollforward Commentary for the Three Months Ended June 2023. The net realized and unrealized losses on level 3 other financial liabilities of $54 million (reflecting $2 million of net realized losses and $52 million of net unrealized losses) for the three months ended June 2023 included losses of $10 million reported in gains and losses from financial assets and liabilities in the consolidated statements of earnings, and losses of $44 million reported in debt valuation adjustment in the consolidated statements of comprehensive income.

The net unrealized losses on level 3 other financial liabilities for the three months ended June 2023 primarily reflected losses on certain hybrid financial instruments included in deposits (principally due to the impact of an increase in the market value of the underlying assets).

Transfers into level 3 other financial liabilities during the three months ended June 2023 reflected transfers of certain hybrid financial instruments included in deposits from level 2 (principally due to reduced price transparency of certain volatility inputs used to value these instruments).

The drivers of transfers out of level 3 other financial liabilities during the three months ended June 2023 were not material.

Level 3 Rollforward Commentary for the Six Months Ended June 2023. The net realized and unrealized losses on level 3 other financial liabilities of $68 million (reflecting $5 million of net realized losses and $63 million of net unrealized losses) for the six months ended June 2023 included losses of $76 million reported in gains and losses from financial assets and liabilities in the consolidated statements of earnings, and gains of $8 million reported in debt valuation adjustment in the consolidated statements of comprehensive income.

The net unrealized losses on level 3 other financial liabilities for the six months ended June 2023 primarily reflected losses on certain hybrid financial instruments included in deposits (principally due to the impact of an increase in the market value of the underlying assets).

Transfers into level 3 other financial liabilities during the six months ended June 2023 reflected transfers of certain hybrid financial instruments included in deposits from level 2 (principally due to reduced price transparency of certain volatility inputs used to value these instruments).

The drivers of transfers out of level 3 other financial liabilities during the six months ended June 2023 were not material.

Level 3 Rollforward Commentary for the Three Months Ended June 2022. The net realized and unrealized gains on level 3 other financial liabilities of $206 million (reflecting $2 million of net realized losses and $208 million of net unrealized gains) for the three months ended June 2022 included gains of $173 million reported in gains and losses from financial assets and liabilities in the consolidated statements of earnings, and gains of $33 million reported in debt valuation adjustment in the consolidated statements of comprehensive income.

The net unrealized gains on level 3 other financial liabilities for the three months ended June 2022 reflected gains on certain hybrid financial instruments included in deposits (principally due to a decrease in global equity prices).

The drivers of transfers into level 3 other financial liabilities during the three months ended June 2022 were not material.

Transfers out of level 3 other financial liabilities during the three months ended June 2022 reflected transfers of certain hybrid financial instruments included in deposits to level 2 (principally due to increased transparency of certain correlation and volatility inputs used to value these instruments).

Level 3 Rollforward Commentary for the Six Months Ended June 2022. The net realized and unrealized gains on level 3 other financial liabilities of $338 million (reflecting $6 million of net realized losses and $344 million of net unrealized gains) for the six months ended June 2022 included gains of $297 million reported in gains and losses from financial assets and liabilities in the consolidated statements of earnings, and gains of $41 million reported in debt valuation adjustment in the consolidated statements of comprehensive income.

The net unrealized gains on level 3 other financial liabilities for the six months ended June 2022 reflected gains on certain hybrid financial instruments included in deposits (principally due to a decrease in global equity prices).

The drivers of transfers into of level 3 other financial liabilities during the six months ended June 2022 were not material.

Transfers out of level 3 other financial liabilities during the six months ended June 2022 reflected transfers of certain hybrid financial instruments included in deposits to level 2 (principally due to increased transparency of certain correlation and volatility inputs used to value these instruments).

Note 6.

Trading Assets and Liabilities

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

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

$ in millions	Trading Assets	Trading Liabilities
As of June 2023		
Trading cash instruments	**$ 56,322**	**$ 17,110**
Derivatives	**13,185**	**16,170**
Total	**$ 69,507**	**$ 33,280**
As of December 2022		
Trading cash instruments	$ 30,573	$ 10,232
Derivatives	16,673	18,953
Total	$ 47,246	$ 29,185

See Note 5 for further information about trading cash instruments and Note 7 for further information about derivatives.

Gains and Losses from Financial Assets and Liabilities

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

	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
Interest rates	**$ 706**	$ (764)	**$ 1,863**	$ (1,611)
Currencies	**319**	1,304	**12**	3,094
Credit	**328**	744	**528**	1,287
Equities	**238**	(175)	**280**	(82)
Commodities	**8**	18	**26**	46
Total	**$ 1,599**	$ 1,127	**$ 2,709**	$ 2,734

In the table above:

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

Note 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 OTC derivatives. Certain of the Bank's OTC derivatives are cleared and settled through central clearing counterparties (OTC-cleared), while others are bilateral contracts between two counterparties (bilateral OTC).

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

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

The Bank 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 trading assets and derivative liabilities are included in trading liabilities. Realized and unrealized gains and losses on derivatives not designated as hedges are included in gains and losses from financial assets and liabilities in the consolidated statements of earnings.

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

	As of June 2023		As of December 2022	
$ in millions	**Derivative Assets**	**Derivative Liabilities**	Derivative Assets	Derivative Liabilities
Not accounted for as hedges				
Exchange-traded	**$ 287**	**$ 666**	$ 525	$ 1,139
OTC-cleared	**29,606**	**28,854**	29,931	29,303
Bilateral OTC	**630,723**	**619,982**	661,906	640,910
Total interest rates	**660,616**	**649,502**	692,362	671,352
Exchange-traded	**24**	**14**	8	16
OTC-cleared	**3**	**84**	21	—
Bilateral OTC	**100,200**	**105,970**	113,197	121,897
Total currencies	**100,227**	**106,068**	113,226	121,913
OTC-cleared	**378**	**361**	320	300
Bilateral OTC	**7,923**	**8,992**	6,286	6,950
Total credit	**8,301**	**9,353**	6,606	7,250
Exchange-traded	**1,807**	**1,418**	997	589
Bilateral OTC	**8,016**	**8,108**	6,929	6,562
Total equities	**9,823**	**9,526**	7,926	7,151
Commodities – bilateral OTC	**1,799**	**1,799**	3,084	3,083
Subtotal	**780,766**	**776,248**	823,204	810,749
Accounted for as hedges				
Interest rates – OTC-cleared	**261**	**196**	—	—
Currencies – bilateral OTC	**7**	**1**	2	745
Subtotal	**268**	**197**	2	745
Total gross fair value	**$ 781,034**	**$ 776,445**	$ 823,206	$ 811,494
Offset in the consolidated balance sheets				
OTC-cleared	**$ (29,352)**	**$ (29,352)**	$ (29,602)	$ (29,602)
Bilateral OTC	**(697,236)**	**(697,236)**	(733,529)	(733,529)
Counterparty netting	**(726,588)**	**(726,588)**	(763,131)	(763,131)
OTC-cleared	**(874)**	**(2)**	(592)	—
Bilateral OTC	**(40,387)**	**(33,685)**	(42,810)	(29,410)
Cash collateral netting	**(41,261)**	**(33,687)**	(43,402)	(29,410)
Total amounts offset	**$ (767,849)**	**$ (760,275)**	$(806,533)	$(792,541)
Included in the consolidated balance sheets				
Exchange-traded	**$ 2,118**	**$ 2,098**	$ 1,530	$ 1,744
OTC-cleared	**22**	**141**	78	1
Bilateral OTC	**11,045**	**13,931**	15,065	17,208
Total	**$ 13,185**	**$ 16,170**	$ 16,673	$ 18,953
Not offset in the consolidated balance sheets				
Cash collateral	**$ (201)**	**$ (513)**	$ (111)	$ (827)
Securities collateral	**(4,151)**	**(1,223)**	(4,739)	(1,851)
Total	**$ 8,833**	**$ 14,434**	$ 11,823	$ 16,275

	Notional Amounts as of	
	June	December
$ in millions	**2023**	2022
Not accounted for as hedges		
Exchange-traded	**$ 4,270,907**	$ 4,147,415
OTC-cleared	**10,690,834**	7,394,683
Bilateral OTC	**33,821,740**	34,340,560
Total interest rates	**48,783,481**	45,882,658
Exchange-traded	**7,828**	3,534
OTC-cleared	**193,042**	108,244
Bilateral OTC	**7,330,589**	6,313,472
Total currencies	**7,531,459**	6,425,250
OTC-cleared	**47,259**	60,860
Bilateral OTC	**685,621**	591,121
Total credit	**732,880**	651,981
Exchange-traded	**180,773**	40,154
Bilateral OTC	**355,975**	153,916
Total equities	**536,748**	194,070
Commodities – bilateral OTC	**44,944**	40,098
Subtotal	**57,629,512**	53,194,057
Accounted for as hedges		
Interest rates – OTC-cleared	**16,866**	13,104
Currencies – bilateral OTC	**17,726**	12,428
Subtotal	**34,592**	25,532
Total notional amounts	**$ 57,664,104**	$ 53,219,589

In the tables above:

- Gross fair values exclude the effects of both counterparty netting and collateral, and therefore are not representative of the Bank's exposure.
- Where the Bank has received or posted collateral under credit support agreements, but has not yet determined such agreements are enforceable, the related collateral has not been netted.
- Notional amounts, which represent the sum of gross long and short derivative contracts, provide an indication of the volume of the Bank's derivative activity and do not represent anticipated losses.
- Total gross fair value of derivatives included derivative assets of $433 million as of June 2023 and $1.81 billion as of December 2022, and derivative liabilities of $2.59 billion as of June 2023 and $2.01 billion as of December 2022, which are not subject to an enforceable netting agreement or are subject to a netting agreement that the Bank has not yet determined to be enforceable.

See Note 4 for an overview of the Bank's fair value measurement policies, valuation techniques and significant inputs used to determine the fair value of derivatives, and Note 5 for information about derivatives within the fair value hierarchy.

Credit Derivatives

The Bank enters into a broad array of credit derivatives to facilitate client transactions and to manage the credit risk associated with market-making and financing activities. Credit derivatives are actively managed based on the Bank's net risk position. Credit derivatives are generally individually negotiated contracts and can have various settlement and payment conventions. Credit events include failure to pay, bankruptcy, acceleration of indebtedness, restructuring, repudiation and dissolution of the reference entity.

The Bank enters into the following types of credit derivatives:

- **Credit Default Swaps.** Single-name credit default swaps protect the buyer against the loss of principal on one or more bonds, loans or mortgages (reference obligations) in the event the issuer of the reference obligations suffers a credit event. The buyer of protection pays an initial or periodic premium to the seller and receives protection for the period of the contract. If there is no credit event, as defined in the contract, the seller of protection makes no payments to the buyer. If a credit event occurs, the seller of protection is required to make a payment to the buyer, calculated according to the terms of the contract.
- **Credit Options.** In a credit option, the option writer assumes the obligation to purchase or sell a reference obligation at a specified price or credit spread. The option purchaser buys the right, but does not assume the obligation, to sell the reference obligation to, or purchase it from, the option writer. The payments on credit options depend either on a particular credit spread or the price of the reference obligation.
- **Credit Indices, Baskets and Tranches.** Credit derivatives may reference a basket of single-name credit default swaps or a broad-based index. If a credit event occurs in one of the underlying reference obligations, the protection seller pays the protection buyer. The payment is typically a pro-rata portion of the transaction's total notional amount based on the underlying defaulted reference obligation. In certain transactions, the credit risk of a basket or index is separated into various portions (tranches), each having different levels of subordination. The most junior tranches cover initial defaults and once losses exceed the notional amount of these junior tranches, any excess loss is covered by the next most senior tranche.

- **Total Return Swaps.** A total return swap transfers the risks relating to economic performance of a reference obligation from the protection buyer to the protection seller. Typically, the protection buyer receives a floating rate of interest and protection against any reduction in fair value of the reference obligation, and the protection seller receives the cash flows associated with the reference obligation, plus any increase in the fair value of the reference obligation.

The Bank economically hedges its exposure to written credit derivatives primarily by entering into offsetting purchased credit derivatives with identical underliers. Substantially all of the Bank's purchased credit derivative transactions are with financial institutions and are subject to stringent collateral thresholds. In addition, upon the occurrence of a specified trigger event, the Bank may take possession of the reference obligations underlying a particular written credit derivative, and consequently may, upon liquidation of the reference obligations, recover amounts on the underlying reference obligations in the event of default.

As of June 2023, written credit derivatives had a total gross notional amount of $340.10 billion and purchased credit derivatives had a total gross notional amount of $392.78 billion, for total net notional purchased protection of $52.68 billion. As of December 2022, written credit derivatives had a total gross notional amount of $300.57 billion and purchased credit derivatives had a total gross notional amount of $351.41 billion, for total net notional purchased protection of $50.84 billion. The Bank's written and purchased credit derivatives primarily consist of credit default swaps.

The table below presents information about credit derivatives.

	Credit Spread on Underlier (basis points)				
$ in millions	0 - 250	251 - 500	501 - 1,000	Greater than 1,000	Total
As of June 2023					
Maximum Payout/Notional Amount of Written Credit Derivatives by Tenor					
Less than 1 year	**$ 40,862**	**$ 1,707**	**$ 498**	**$ 612**	**$ 43,679**
1 – 5 years	**243,690**	**12,552**	**6,980**	**4,569**	**267,791**
Greater than 5 years	**27,947**	**527**	**100**	**56**	**28,630**
Total	**$ 312,499**	**$ 14,786**	**$ 7,578**	**$ 5,237**	**$ 340,100**
Maximum Payout/Notional Amount of Purchased Credit Derivatives					
Offsetting	**$ 300,553**	**$ 14,100**	**$ 7,314**	**$ 4,888**	**$ 326,855**
Other	**$ 62,046**	**$ 2,542**	**$ 746**	**$ 591**	**$ 65,925**
Fair Value of Written Credit Derivatives					
Asset	**$ 5,453**	**$ 532**	**$ 319**	**$ 161**	**$ 6,465**
Liability	**1,369**	**137**	**54**	**512**	**2,072**
Net asset/(liability)	**$ 4,084**	**$ 395**	**$ 265**	**$ (351)**	**$ 4,393**
As of December 2022					
Maximum Payout/Notional Amount of Written Credit Derivatives by Tenor					
Less than 1 year	$ 28,833	$ 2,757	$ 860	$ 555	$ 33,005
1 – 5 years	209,876	17,903	10,011	5,942	243,732
Greater than 5 years	22,469	1,163	131	73	23,836
Total	$ 261,178	$ 21,823	$ 11,002	$ 6,570	$ 300,573
Maximum Payout/Notional Amount of Purchased Credit Derivatives					
Offsetting	$ 250,567	$ 20,581	$ 10,435	$ 6,272	$ 287,855
Other	$ 58,121	$ 3,187	$ 1,441	$ 804	$ 63,553
Fair Value of Written Credit Derivatives					
Asset	$ 3,554	$ 438	$ 231	$ 146	$ 4,369
Liability	1,173	289	167	477	2,106
Net asset/(liability)	$ 2,381	$ 149	$ 64	$ (331)	$ 2,263

In the table above:

- Fair values exclude the effects of both netting of receivable balances with payable balances under enforceable netting agreements, and netting of cash received or posted under enforceable credit support agreements, and therefore are not representative of the Bank's credit exposure.
- Tenor is based on remaining contractual maturity.
- The credit spread on the underlier, together with the tenor of the contract, are indicators of payment/performance risk. The Bank is less likely to pay or otherwise be required to perform where the credit spread and the tenor are lower.
- Offsetting purchased credit derivatives represent the notional amount of purchased credit derivatives that economically hedge written credit derivatives with identical underliers.
- Other purchased credit derivatives represent the notional amount of all other purchased credit derivatives not included in offsetting.

Impact of Credit and Funding Spreads on Derivatives

The Bank realizes gains or losses on its derivative contracts. These gains or losses include credit valuation adjustments (CVA) relating to uncollateralized derivative assets and liabilities, which represent the gains or losses (including hedges) attributable to the impact of changes in credit exposure, counterparty and GS Group's credit spreads, liability funding spreads (which include GS Group's credit), probability of default and assumed recovery. These gains or losses also include funding valuation adjustments (FVA) relating to uncollateralized derivative assets, which represent the gains or losses (including hedges) attributable to the impact of changes in expected funding exposures and funding spreads.

The table below presents information about CVA and FVA.

	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
CVA, net of hedges	**$ (8)**	$ 69	**$ 7**	$ 167
FVA, net of hedges	**(15)**	(78)	**(3)**	(192)
Total	**$ (23)**	$ (9)	**$ 4**	$ (25)

Bifurcated Embedded Derivatives

The table below presents the fair value and the notional amount of derivatives that have been bifurcated from their related borrowings.

	As of	
	June	December
$ in millions	**2023**	2022
Fair value of assets	**$ 5**	$ 47
Fair value of liabilities	**(14)**	(24)
Net asset	**$ (9)**	$ 23
Notional amount	**$ 619**	$ 1,577

In the table above, derivatives that have been bifurcated from their related borrowings are recorded at fair value and primarily consist of credit default swaps. These derivatives are included in unsecured long-term borrowings, as well as other secured financings, with the related borrowings.

Derivatives with Credit-Related Contingent Features

Certain of the Bank's derivatives have been transacted under bilateral agreements with counterparties who may require the Bank to post collateral or terminate the transactions based on changes in the Bank's and/or Group Inc.'s credit ratings. Typically, such requirements are based on the credit ratings of Group Inc. The Bank assesses the impact of these bilateral agreements by determining the collateral or termination payments that would occur assuming a downgrade by all rating agencies. A downgrade by any one rating agency, depending on the agency's relative ratings of the Bank and/or Group Inc. at the time of the downgrade, may have an impact which is comparable to the impact of a downgrade by all rating agencies.

The table below presents information about net derivative liabilities under bilateral agreements (excluding collateral posted), the fair value of collateral posted and additional collateral or termination payments that could have been called by counterparties in the event of a one- or two-notch downgrade in the Bank's and/or Group Inc.'s credit ratings.

	As of	
	June	December
$ in millions	**2023**	2022
Net derivative liabilities under bilateral agreements	**$ 13,413**	$ 13,833
Collateral posted	**$ 9,998**	$ 10,336
Additional collateral or termination payments:		
One-notch downgrade	**$ 60**	$ 44
Two-notch downgrade	**$ 288**	$ 188

Hedge Accounting

The Bank applies hedge accounting for interest rate swaps used to manage the interest rate exposure of certain fixed-rate certificates of deposit and certain U.S. government securities classified as available-for-sale and certain foreign currency forward contracts used to manage foreign exchange risk on the Bank's net investments in GSBE and the Tokyo branch.

To qualify for hedge accounting, the hedging instrument must be highly effective at reducing the risk from the exposure being hedged. Additionally, the Bank must formally document the hedging relationship at inception and assess the hedging relationship at least on a quarterly basis to ensure the hedging instrument continues to be highly effective over the life of the hedging relationship.

Fair Value Hedges

The Bank designates interest rate swaps as fair value hedges of certain fixed-rate certificates of deposit and of certain U.S. government securities classified as available-for-sale. These interest rate swaps hedge changes in fair value attributable to the designated benchmark interest rate (e.g., Secured Overnight Financing Rate), effectively converting a substantial portion of these fixed-rate financial instruments into floating-rate financial instruments.

The Bank applies a statistical method that utilizes regression analysis when assessing the effectiveness of these hedging relationships in achieving offsetting changes in the fair values of the hedging instrument and the risk being hedged (i.e., interest rate risk). An interest rate swap is considered highly effective in offsetting changes in fair value attributable to changes in the hedged risk when the regression analysis results in a coefficient of determination of 80% or greater and a slope between 80% and 125%.

For qualifying interest rate fair value hedges, gains or losses on derivatives are included in interest income/expense. The change in fair value of the hedged items attributable to the risk being hedged is reported as an adjustment to its carrying value (hedging adjustment) and is also included in interest income/ expense. When a derivative is no longer designated as a hedge, any remaining difference between the carrying value and par value of the hedged item is amortized in interest income/ expense over the remaining life of the hedged item using the effective interest method. See Note 21 for further information about interest income and interest expense.

The table below presents the gains/(losses) from interest rate derivatives accounted for as hedges and the related hedged items.

	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
Investments				
Interest rate hedges	**$ 137**	$ (56)	**$ 104**	$ (56)
Hedged investments	**(133)**	54	**(102)**	54
Gains/(losses)	**$ 4**	$ (2)	**$ 2**	$ (2)
Deposits				
Interest rate hedges	**$ (15)**	$ (100)	**$ 30**	$ (378)
Hedged deposits	**14**	99	**(30)**	372
Gains/(losses)	**$ (1)**	$ (1)	**$ —**	$ (6)

The table below presents the carrying value of investments and deposits that are designated in an interest rate hedging relationship and the related cumulative hedging adjustment (increase/(decrease)) from current and prior hedging relationships included in such carrying values.

$ in millions	Carrying Value	Cumulative Hedging Adjustment
As of June 2023		
Assets		
Investments	**$ 6,366**	**$ (203)**
Liabilities		
Deposits	**$ 3,656**	**$ (169)**
As of December 2022		
Assets		
Investments	$ 3,721	$ (100)
Liabilities		
Deposits	$ 5,892	$ (237)

In the table above:

- Cumulative hedging adjustment included $(135) million as of June 2023 and $13 million as of December 2022 of hedging adjustments from prior hedging relationships that were de-designated.
- The amortized cost of investments was $6.76 billion as of June 2023 and $4.08 billion as of December 2022.

In addition, cumulative hedging adjustments for items no longer designated in a hedging relationship were $26 million as of June 2023 and $18 million as of December 2022.

Net Investment Hedges

The Bank seeks to reduce the impact of fluctuations in foreign exchange rates on its net investments in GSBE and the Tokyo branch through the use of foreign currency forward contracts. For foreign currency forward contracts designated as hedges, the effectiveness of the hedge is assessed based on the overall changes in the fair value of the forward contracts (i.e., based on changes in forward rates). For qualifying net investment hedges, all gains or losses on the hedging instruments are included in currency translation.

The gains/(losses) from net investment hedging were $1 million for the three months ended June 2023, $709 million for the three months ended June 2022, $(75) million for the six months ended June 2023 and $984 million for the six months ended June 2022.

For the three and six months ended June 2023 and June 2022, there were no gains or losses reclassified to earnings from accumulated comprehensive income/(loss) related to the Bank's net investments. Gains or losses on the Bank's net investments would be reclassified to earnings from accumulated other comprehensive income/(loss) upon liquidation of its net investment.

Note 8.

Investments

Investments includes debt instruments and equity securities that are accounted for at fair value and are generally held by the Bank in connection with its long-term investing activities. In addition, investments includes debt securities classified as available-for-sale and held-to-maturity that are generally held in connection with the Bank's asset-liability management activities.

The table below presents information about investments.

	As of	
$ in millions	**June 2023**	December 2022
Equity securities, at fair value	**$ 73**	$ 75
Debt instruments, at fair value	**42**	42
Available-for-sale securities, at fair value	**25,695**	23,762
Investments, at fair value	**25,810**	23,879
Held-to-maturity securities	**10,943**	5,910
Total investments	**$ 36,753**	$ 29,789

See Note 4 for an overview of the Bank's fair value measurement policies, valuation techniques and significant inputs used to determine the fair value of investments, and Note 5 for information about investments within the fair value hierarchy.

Equity Securities and Debt Instruments, at Fair Value

Equity securities and debt instruments, at fair value are accounted for at fair value either under the fair value option or in accordance with other U.S. GAAP, and the related fair value gains and losses are recognized in the consolidated statements of earnings.

Equity Securities, at Fair Value. Equity securities, at fair value consists of the Bank's private equity investments in corporate and real estate entities, including investments made as part of the Bank's CRA activities. Equity securities, at fair value includes $30 million as of both June 2023 and December 2022 that are measured at NAV.

Debt Instruments, at Fair Value. Debt instruments, at fair value includes money market instruments, securities backed by real estate and corporate debt securities.

The table below presents information about debt instruments, at fair value.

	As of	
	June	December
$ in millions	**2023**	2022
Corporate debt securities	**$ 41**	$ 40
Securities backed by real estate	**1**	2
Total	**$ 42**	$ 42

Available-for-Sale Securities

Available-for-sale securities are accounted for at fair value, and the related unrealized fair value gains and losses are included in accumulated other comprehensive income/(loss).

The table below presents information about available-for-sale securities by tenor.

$ in millions	Amortized Cost	Fair Value	Weighted Average Yield
As of June 2023			
Less than 1 year	**$ 4,897**	**$ 4,736**	**0.47%**
1 year to 5 years	**22,290**	**20,761**	**0.86%**
5 years to 10 years	**223**	**198**	**1.93%**
Total	**$ 27,410**	**$ 25,695**	**0.80%**
As of December 2022			
Less than 1 year	$ 1,401	$ 1,347	0.23%
1 year to 5 years	24,139	22,218	0.60%
5 years to 10 years	223	197	1.93%
Total	$ 25,763	$ 23,762	0.59%

In the table above:

- Available-for-sale securities consists of U.S. government obligations as of both June 2023 and December 2022.
- The weighted average yield for available-for-sale securities is presented on a pre-tax basis and computed using the effective interest rate of each security at the end of the period, weighted based on the fair value of each security.
- The gross unrealized gains included in accumulated other comprehensive income/(loss) were not material and the gross unrealized losses included in accumulated other comprehensive income/(loss) were $1.70 billion as of June 2023 and primarily related to U.S. government obligations in a continuous unrealized loss position for more than a year. There were no gross unrealized gains included in accumulated other comprehensive income/(loss) and the gross unrealized losses included in accumulated other comprehensive income/(loss) were $2.00 billion as of December 2022 and primarily related to U.S. government obligations in a continuous unrealized loss position for more than a year. Net unrealized gains/(losses) included in other comprehensive income/(loss) were $(39) million ($(21) million, net of tax) for the three months ended June 2023, $(332) million ($(248) million, net of tax) for the three months ended June 2022, $285 million ($221 million, net of tax) for the six months ended June 2023 and $(1.36) billion ($(1.02) billion, net of tax) for the six months ended June 2022.
- Available-for-sale securities were classified in level 1 of the fair value hierarchy as of both June 2023 and December 2022.
- If the fair value of available-for-sale securities is less than amortized cost, such securities are considered impaired. If the Bank has the intent to sell the debt security, or if it is more likely than not that the Bank will be required to sell the debt security before recovery of its amortized cost, the difference between the amortized cost (net of allowance, if any) and the fair value of the securities is recognized as an impairment loss in earnings. The Bank did not record any such impairment losses during either the three or six months ended June 2023 or June 2022. Impaired available-for-sale debt securities that the Bank has the intent and ability to hold are reviewed to determine if an allowance for credit losses should be recorded. The Bank considers various factors in such determination, including market conditions, changes in issuer credit ratings and severity of the unrealized losses. The Bank did not record any provision for credit losses on such securities during either the three or six months ended June 2023 or June 2022.

There were no sales of available-for-sale securities during either the three or six months ended June 2023 or June 2022.

Held-to-Maturity Securities

Held-to-maturity securities are accounted for at amortized cost.

The table below presents information about held-to-maturity securities by tenor.

$ in millions	Amortized Cost	Fair Value	Weighted Average Yield
As of June 2023			
Less than 1 year	**$ 2,008**	**$ 1,969**	**2.70%**
1 year to 5 years	**6,695**	**6,493**	**3.35%**
5 years to 10 years	**2,240**	**2,156**	**3.36%**
Total	**$ 10,943**	**$ 10,618**	**3.24%**
As of December 2022			
Less than 1 year	$ 501	$ 495	3.08%
1 year to 5 years	4,383	4,234	2.74%
5 years to 10 years	1,026	967	2.89%
Total	$ 5,910	$ 5,696	2.79%

In the table above:

- Held-to-maturity securities consists of U.S. government obligations.
- As these securities are not accounted for at fair value, they are not included in the Bank's fair value hierarchy in Notes 4 and 5. Had these securities been included in the Bank's fair value hierarchy, they would have been classified in level 1 of the fair value hierarchy as of both June 2023 and December 2022.
- The weighted average yield for held-to-maturity securities is presented on a pre-tax basis and computed using the effective interest rate of each security at the end of the period, weighted based on the amortized cost of each security.
- There were no gross unrealized gains as of both June 2023 and December 2022. The gross unrealized losses were $325 million as of June 2023 and $214 million as of December 2022.
- Held-to-maturity securities are reviewed to determine if an allowance for credit losses should be recorded in the consolidated statements of earnings. The Bank considers various factors in such determination, including market conditions, changes in issuer credit ratings, historical credit losses and sovereign guarantees. The Bank did not record any provision for credit losses on such securities during either the three or six months ended June 2023 or June 2022.

Note 9.

Loans

Loans includes (i) loans held for investment that are accounted for at amortized cost net of allowance for loan losses or at fair value under the fair value option and (ii) loans held for sale that are accounted for at the lower of cost or fair value. Interest on loans is recognized over the life of the loan and is recorded on an accrual basis.

The table below presents information about loans.

$ in millions	Amortized Cost	Fair Value	Held For Sale	Total
As of June 2023				
Loan Type				
Corporate	**$ 22,159**	**$ 1,154**	**$ 1,126**	**$ 24,439**
Commercial real estate	**22,572**	**223**	**807**	**23,602**
Residential real estate	**18,472**	**4,058**	**1**	**22,531**
Securities-based	**12,180**	**—**	**—**	**12,180**
Other collateralized	**48,060**	**359**	**314**	**48,733**
Consumer:				
Installment	**4,890**	**—**	**244**	**5,134**
Credit cards	**16,879**	**—**	**—**	**16,879**
Other	**1,132**	**60**	**167**	**1,359**
Total loans, gross	**146,344**	**5,854**	**2,659**	**154,857**
Allowance for loan losses	**(4,158)**	**—**	**—**	**(4,158)**
Total loans	**$ 142,186**	**$ 5,854**	**$ 2,659**	**$ 150,699**
As of December 2022				
Loan Type				
Corporate	$ 23,550	$ 1,335	$ 1,529	$ 26,414
Commercial real estate	22,569	263	809	23,641
Residential real estate	17,468	4,301	1	21,770
Securities-based	13,545	—	—	13,545
Other collateralized	45,460	352	505	46,317
Consumer:				
Installment	6,326	—	—	6,326
Credit cards	15,820	—	—	15,820
Other	1,329	—	204	1,533
Total loans, gross	146,067	6,251	3,048	155,366
Allowance for loan losses	(4,252)	—	—	(4,252)
Total loans	$ 141,815	$ 6,251	$ 3,048	$ 151,114

In the table above:

- Loans held for investment that are accounted for at amortized cost include net deferred fees and costs, and unamortized premiums and discounts, which are amortized over the life of the loan. These amounts were less than 1% of loans accounted for at amortized cost as of both June 2023 and December 2022.

- During the first half of 2023, the Bank completed the sale of substantially all of the Marcus installment loans portfolio. As a result, the Bank recognized net revenues of approximately $(370) million (including a gain of approximately $100 million in the second quarter of 2023), which was more than offset by a related reduction in reserves of approximately $440 million in provision for credit losses.
- Substantially all loans had floating interest rates as of both June 2023 and December 2022.

The following is a description of the loan types in the table above:

- **Corporate.** Corporate loans includes term loans, revolving lines of credit, letter of credit facilities and bridge loans, and are principally used for operating and general corporate purposes, or in connection with acquisitions. Corporate loans also includes loans originated as part of the Bank's CRA activities. Corporate loans are secured (typically by a senior lien on the assets of the borrower) or unsecured, depending on the loan purpose, the risk profile of the borrower and other factors.
- **Commercial Real Estate.** Commercial real estate loans includes originated loans that are directly or indirectly secured by hotels, retail stores, multifamily housing complexes and commercial and industrial properties. Commercial real estate loans also includes loans extended to clients who warehouse assets that are directly or indirectly backed by commercial real estate. In addition, commercial real estate includes loans purchased by the Bank and loans originated as part of the Bank's CRA activities.
- **Residential Real Estate.** Residential real estate loans primarily includes loans extended to wealth management clients and to clients who warehouse assets that are directly or indirectly secured by residential real estate. In addition, residential real estate includes loans purchased by the Bank.
- **Securities-Based.** Securities-based loans includes loans that are secured by stocks, bonds, mutual funds, and exchange-traded funds. These loans are primarily extended to wealth management clients and used for purposes other than purchasing, carrying or trading margin stocks. Securities-based loans require borrowers to post additional collateral based on changes in the underlying collateral's fair value. Securities-based also includes loans originated through *Goldman Sachs Private Bank Select*.
- **Other Collateralized.** Other collateralized loans includes loans that are backed by specific collateral (other than securities and real estate). Such loans are extended to clients who warehouse assets that are directly or indirectly secured by corporate loans, consumer loans and other assets. Other collateralized loans also includes loans to investment funds (managed by third parties) that are collateralized by capital commitments of the funds' investors or assets held by the fund, as well as other secured loans extended to wealth management clients.
- **Installment.** Installment loans are unsecured loans originated by the Bank.
- **Credit Cards.** Credit card loans are loans made pursuant to revolving lines of credit issued to consumers by the Bank.
- **Other.** Other loans includes unsecured loans extended to wealth management clients and unsecured consumer loans purchased by the Bank.

See Note 4 for an overview of the Bank's fair value measurement policies, valuation techniques and significant inputs used to determine the fair value of loans, and Note 5 for information about loans within the fair value hierarchy.

Credit Quality

Risk Assessment. The Bank's risk assessment process includes evaluating the credit quality of its loans by GS Group's independent risk oversight and control function. For corporate loans and a majority of securities-based, real estate, other collateralized and other loans, such credit analyses incorporate initial and ongoing evaluations of the capacity and willingness of a borrower to meet its financial obligations. These credit evaluations are performed on an annual basis or more frequently if deemed necessary as a result of events or changes in circumstances. The internal credit rating for the borrower is determined by considering the results of the credit evaluations and assumptions with respect to the nature of and outlook for the borrower's industry and the economic environment. Beginning in the first quarter of 2023, the Bank also takes into consideration collateral received or other credit support arrangements when determining an internal credit rating on collateralized loans, as management believes that this methodology better reflects the credit quality of the underlying loans. In the table below, prior period amounts have been conformed to reflect the current methodology. The impact to December 2022 was an increase in loans classified as investment-grade and a decrease in loans classified as non-investment-grade of $24.4 billion in real estate (warehouse loans) and other collateralized loans. For consumer loans and for loans that are not assigned an internal credit rating, certain key metrics, including, but not limited to, the Fair Isaac Corporation (FICO) credit scores, delinquency status, collateral value and other risk factors, are reviewed.

The table below presents gross loans by an internally determined public rating agency equivalent or other credit metrics and the concentration of secured and unsecured loans.

$ in millions	Investment-Grade	Non-Investment-Grade	Other Metrics/Unrated	Total
As of June 2023				
Accounting Method				
Amortized cost	**$ 81,017**	**$ 36,721**	**$ 28,606**	**$ 146,344**
Fair value	**1,318**	**2,303**	**2,233**	**5,854**
Held for sale	**484**	**1,895**	**280**	**2,659**
Total	**$ 82,819**	**$ 40,919**	**$ 31,119**	**$ 154,857**
Loan Type				
Corporate	**$ 8,282**	**$ 16,139**	**$ 18**	**$ 24,439**
Real estate:				
Commercial	**11,158**	**12,444**	**—**	**23,602**
Residential	**11,924**	**5,069**	**5,538**	**22,531**
Securities-based	**8,838**	**326**	**3,016**	**12,180**
Other collateralized	**41,830**	**6,700**	**203**	**48,733**
Consumer:				
Installment	**—**	**—**	**5,134**	**5,134**
Credit cards	**—**	**—**	**16,879**	**16,879**
Other	**787**	**241**	**331**	**1,359**
Total	**$ 82,819**	**$ 40,919**	**$ 31,119**	**$ 154,857**
Secured	**91%**	**94%**	**27%**	**79%**
Unsecured	**9%**	**6%**	**73%**	**21%**
Total	**100%**	**100%**	**100%**	**100%**
As of December 2022				
Accounting Method				
Amortized cost	$ 80,209	$ 37,227	$ 28,631	$146,067
Fair value	1,391	2,691	2,169	6,251
Held for sale	553	2,451	44	3,048
Total	$ 82,153	$ 42,369	$ 30,844	$ 155,366
Loan Type				
Corporate	$ 9,316	$ 17,098	$ —	$ 26,414
Real estate:				
Commercial	10,928	12,713	—	23,641
Residential	11,119	5,520	5,131	21,770
Securities-based	10,049	490	3,006	13,545
Other collateralized	39,787	6,285	245	46,317
Consumer:				
Installment	—	—	6,326	6,326
Credit cards	—	—	15,820	15,820
Other	954	263	316	1,533
Total	$ 82,153	$ 42,369	$ 30,844	$ 155,366
Secured	89%	92%	26%	77%
Unsecured	11%	8%	74%	23%
Total	100%	100%	100%	100%

In the table above:

- Substantially all residential real estate, securities-based, other collateralized and other loans included in the other metrics/ unrated category consists of loans where the Bank uses other key metrics to assess the borrower's credit quality, such as loan-to-value ratio, delinquency status, collateral value, expected cash flows, FICO credit score (which measures a borrower's creditworthiness by considering factors such as payment and credit history) and other risk factors.
- For installment and credit card loans included in the other metrics/unrated category, the evaluation of credit quality incorporates the borrower's FICO credit score. FICO credit scores are periodically refreshed by the Bank to assess the updated creditworthiness of the borrower. See "Vintage" below for information about installment and credit card loans by FICO credit scores.

The Bank also assigns a regulatory risk rating to its loans based on the definitions provided by the U.S. federal bank regulatory agencies. Total loans included 94% of loans as of June 2023 and 96% of loans as of December 2022 that were rated pass/non-criticized.

Vintage. The tables below present gross loans accounted for at amortized cost (excluding installment and credit card loans) by an internally determined public rating agency equivalent or other credit metrics and origination year for term loans.

	As of June 2023			
$ in millions	Investment-Grade	Non-Investment-Grade	Other Metrics/ Unrated	Total
2023	$ 462	$ 463	$ 3	$ 928
2022	2,172	1,774	—	3,946
2021	1,170	1,385	—	2,555
2020	413	895	—	1,308
2019	153	866	—	1,019
2018 or earlier	427	2,042	—	2,469
Revolving	3,387	6,547	—	9,934
Corporate	8,184	13,972	3	22,159
2023	342	94	—	436
2022	827	3,312	—	4,139
2021	642	2,681	—	3,323
2020	336	1,147	—	1,483
2019	330	559	—	889
2018 or earlier	789	809	—	1,598
Revolving	7,712	2,992	—	10,704
Commercial real estate	10,978	11,594	—	22,572
2023	306	176	425	907
2022	1,205	778	1,304	3,287
2021	753	918	1,359	3,030
2020	4	17	85	106
2019	—	—	83	83
2018 or earlier	7	9	122	138
Revolving	8,757	2,164	—	10,921
Residential real estate	11,032	4,062	3,378	18,472
2023	8	—	—	8
2022	5	—	—	5
2019	7	—	—	7
2018 or earlier	—	22	—	22
Revolving	8,809	305	3,024	12,138
Securities-based	8,829	327	3,024	12,180
2023	4,674	603	9	5,286
2022	3,319	331	67	3,717
2021	1,936	574	82	2,592
2020	731	10	21	762
2019	466	27	10	503
2018 or earlier	575	178	6	759
Revolving	29,514	4,927	—	34,441
Other collateralized	41,215	6,650	195	48,060
2023	16	10	—	26
2022	38	6	—	44
2021	17	21	—	38
2020	—	12	233	245
2019	—	5	—	5
2018 or earlier	—	—	4	4
Revolving	708	62	—	770
Other	779	116	237	1,132
Total	$ 81,017	$ 36,721	$ 6,837	$124,575
Percentage of total	65%	29%	6%	100%

$ in millions	As of December 2022 Investment-Grade	Non-Investment-Grade	Other Metrics/ Unrated	Total
2022	$ 2,572	$ 2,225	$ —	$ 4,797
2021	1,477	1,458	—	2,935
2020	682	956	—	1,638
2019	160	905	—	1,065
2018	738	773	—	1,511
2017 or earlier	508	1,729	—	2,237
Revolving	3,146	6,221	—	9,367
Corporate	9,283	14,267	—	23,550
2022	801	3,404	—	4,205
2021	701	2,678	—	3,379
2020	316	1,244	—	1,560
2019	441	791	—	1,232
2018	86	323	—	409
2017 or earlier	927	461	—	1,388
Revolving	7,564	2,832	—	10,396
Commercial real estate	10,836	11,733	—	22,569
2022	1,263	810	1,314	3,387
2021	1,075	879	1,349	3,303
2020	8	—	89	97
2019	—	—	88	88
2018	—	1	127	128
2017 or earlier	—	9	—	9
Revolving	7,762	2,694	—	10,456
Residential real estate	10,108	4,393	2,967	17,468
2022	5	—	—	5
2017 or earlier	—	22	—	22
Revolving	10,044	468	3,006	13,518
Securities-based	10,049	490	3,006	13,545
2022	4,526	580	96	5,202
2021	2,883	429	105	3,417
2020	1,464	178	24	1,666
2019	393	11	12	416
2018	545	56	6	607
2017 or earlier	487	106	—	593
Revolving	28,681	4,876	2	33,559
Other collateralized	38,979	6,236	245	45,460
2022	—	57	—	57
2021	17	4	—	21
2020	—	—	262	262
2017 or earlier	—	—	5	5
Revolving	937	47	—	984
Other	954	108	267	1,329
Total	$ 80,209	$ 37,227	$ 6,485	$ 123,921
Percentage of total	65%	30%	5%	100%

In the tables above, revolving loans which converted to term loans were $539 million as of June 2023 and $725 million as of December 2022, and primarily included other collateralized loans.

The table below presents gross installment loans by refreshed FICO credit scores and origination year and gross credit card loans by refreshed FICO credit scores.

$ in millions	Greater than or equal to 660	Less than 660	Total
As of June 2023			
2023	**$ 2,728**	**$ 150**	**$ 2,878**
2022	**1,837**	**156**	**1,993**
2021	**13**	**3**	**16**
2020	**1**	**1**	**2**
2019	**—**	**1**	**1**
2018 or earlier	**—**	**—**	**—**
Installment	**4,579**	**311**	**4,890**
Credit cards	**11,231**	**5,648**	**16,879**
Total	**$ 15,810**	**$ 5,959**	**$ 21,769**
Percentage of total:			
Installment	**94%**	**6%**	**100%**
Credit cards	**67%**	**33%**	**100%**
Total	**73%**	**27%**	**100%**
As of December 2022			
2022	$ 4,349	$ 242	$ 4,591
2021	1,080	109	1,189
2020	251	23	274
2019	160	23	183
2018	70	13	83
2017 or earlier	5	1	6
Installment	5,915	411	6,326
Credit cards	10,762	5,058	15,820
Total	$ 16,677	$ 5,469	$ 22,146
Percentage of total:			
Installment	94%	6%	100%
Credit cards	68%	32%	100%
Total	75%	25%	100%

In the table above, credit card loans consist of revolving lines of credit.

Credit Concentrations. The table below presents the concentration of gross loans by region.

$ in millions	Carrying Value	Americas	EMEA	Asia	Total
As of June 2023					
Corporate	**$ 24,439**	**70%**	**24%**	**6%**	**100%**
Commercial real estate	**23,602**	**87%**	**13%**	**—**	**100%**
Residential real estate	**22,531**	**99%**	**1%**	**—**	**100%**
Securities-based	**12,180**	**100%**	**—**	**—**	**100%**
Other collateralized	**48,733**	**92%**	**7%**	**1%**	**100%**
Consumer:					
Installment	**5,134**	**100%**	**—**	**—**	**100%**
Credit cards	**16,879**	**100%**	**—**	**—**	**100%**
Other	**1,359**	**100%**	**—**	**—**	**100%**
Total	**$154,857**	**91%**	**8%**	**1%**	**100%**
As of December 2022					
Corporate	$ 26,414	64%	30%	6%	100%
Commercial real estate	23,641	89%	11%	—	100%
Residential real estate	21,770	100%	—	—	100%
Securities-based	13,545	100%	—	—	100%
Other collateralized	46,317	92%	7%	1%	100%
Consumer:					
Installment	6,326	100%	—	—	100%
Credit cards	15,820	100%	—	—	100%
Other	1,533	100%	—	—	100%
Total	$155,366	90%	9%	1%	100%

In the table above:

- EMEA represents Europe, Middle East and Africa.
- The top five industry concentrations for corporate loans as of June 2023 were 22% for technology, media & telecommunications, 18% for diversified industrials, 17% for real estate, 10% for natural resources & utilities and 10% for consumer & retail.
- The top five industry concentrations for corporate loans as of December 2022 were 23% for technology, media & telecommunications, 19% for diversified industrials, 14% for real estate, 11% for natural resources & utilities and 10% for consumer & retail.

Nonaccrual, Past Due and Modified Loans. Loans accounted for at amortized cost (other than credit card loans) are placed on nonaccrual status when it is probable that the Bank will not collect all principal and interest due under the contractual terms, regardless of the delinquency status or if a loan is past due for 90 days or more, unless the loan is both well collateralized and in the process of collection. At that time, all accrued but uncollected interest is reversed against interest income and interest subsequently collected is recognized on a cash basis to the extent the loan balance is deemed collectible. Otherwise, all cash received is used to reduce the outstanding loan balance. A loan is considered past due when a principal or interest payment has not been made according to its contractual terms. Credit card loans are not placed on nonaccrual status and accrue interest until the loan is paid in full or is charged off.

The table below presents information about past due loans.

$ in millions	30-89 days	90 days or more	Total
As of June 2023			
Corporate	**$ —**	**$ 62**	**$ 62**
Commercial real estate	**—**	**68**	**68**
Residential real estate	**—**	**24**	**24**
Other collateralized	**—**	**57**	**57**
Consumer:			
Installment	**21**	**7**	**28**
Credit cards	**369**	**338**	**707**
Other	**9**	**13**	**22**
Total	**$ 399**	**$ 569**	**$ 968**
Total divided by gross loans at amortized cost			**0.7%**
As of December 2022			
Commercial real estate	$ 30	$ 30	$ 60
Residential real estate	2	3	5
Securities-based	1	—	1
Other collateralized lending	10	5	15
Consumer:			
Installment	46	17	63
Credit cards	291	265	556
Other	8	2	10
Total	$ 388	$ 322	$ 710
Total divided by gross loans at amortized cost			0.5%

The table below presents information about nonaccrual loans.

	As of	
	June	December
$ in millions	**2023**	2022
Corporate	**$ 647**	$ 529
Commercial real estate	**1,030**	619
Residential real estate	**24**	66
Other collateralized	**70**	—
Other	**10**	—
Installment	**7**	41
Total	**$ 1,788**	$ 1,255
Total divided by gross loans at amortized cost	**1.2%**	0.9%

In the table above:

- Nonaccrual loans included $232 million as of June 2023 and $78 million as of December 2022 of loans that were 30 days or more past due.
- Loans that were 90 days or more past due and still accruing were not material as of both June 2023 and December 2022.
- Allowance for loan losses as a percentage of total nonaccrual loans was 232.6% as of June 2023 and 338.8% as of December 2022.

In certain circumstances, the Bank may modify the original terms of a loan agreement by granting a concession to a borrower experiencing financial difficulty, typically in the form of a modification of loan covenants, but may also include forbearance of interest or principal, payment extensions or interest rate reductions. These modifications, to the extent significant, were considered TDRs as of December 2022. In January 2023, the Bank adopted ASU No. 2022-02, which eliminated the recognition and measurement guidance for TDRs and requires enhanced disclosures for certain loan modifications. As of December 2022, loans modified in a TDR and commitments related to such loans were not material. During both the three and six months ended June 2023, the Bank provided loan modifications (in the form of term extensions) to borrowers experiencing financial difficulty. As of June 2023, the carrying value of loans modified during the three months ended June 2023 was $329 million and the carrying value of loans modified during the six months ended June 2023 was $397 million. Lending commitments related to such loans were not material and such loan modifications were primarily related to commercial real estate loans and corporate loans. The impact of these modifications was not material for either the three or six months ended June 2023. During the six months ended June 2023 there were no loans charged-off after being modified. Substantially all of the modified loans were performing in accordance with the modified contractual terms as of June 2023.

Allowance for Credit Losses

The Bank's allowance for credit losses consists of the allowance for losses on loans and lending commitments accounted for at amortized cost. Loans and lending commitments accounted for at fair value or accounted for at the lower of cost or fair value are not subject to an allowance for credit losses.

To determine the allowance for credit losses, the Bank classifies its loans and lending commitments accounted for at amortized cost into wholesale and consumer portfolios. These portfolios represent the level at which the Bank has developed and documented its methodology to determine the allowance for credit losses. The allowance for credit losses is measured on a collective basis for loans that exhibit similar risk characteristics using a modeled approach and on an asset-specific basis for loans that do not share similar risk characteristics.

The allowance for credit losses takes into account the weighted average of a range of forecasts of future economic conditions over the expected life of the loan and lending commitments. The expected life of each loan or lending commitment is determined based on the contractual term adjusted for extension options or demand features, or is modeled in the case of revolving credit card loans. The forecasts include baseline, favorable and adverse economic scenarios over a three-year period. For loans with expected lives beyond three years, the model reverts to historical loss information based on a non-linear modeled approach. The forecasted economic scenarios consider a number of risk factors relevant to the wholesale and consumer portfolios described below. The Bank applies judgment in weighing individual scenarios each quarter based on a variety of factors, including the Bank's internally derived economic outlook, market consensus, recent macroeconomic conditions and industry trends.

The allowance for credit losses also includes qualitative components which allow management to reflect the uncertain nature of economic forecasting, capture uncertainty regarding model inputs, and account for model imprecision and concentration risk.

Management's estimate of credit losses entails judgment about the expected life of the loan and loan collectability at the reporting dates, and there are uncertainties inherent in those judgments. The allowance for credit losses is subject to a governance process that involves review and approval by senior management within the Bank's independent risk oversight and control functions. Personnel within GS Group's independent risk oversight and control functions are responsible for forecasting the economic variables that underlie the economic scenarios that are used in the modeling of expected credit losses. While management uses the best information available to determine this estimate, future adjustments to the allowance may be necessary based on, among other things, changes in the economic environment or variances between actual results and the original assumptions used.

The table below presents gross loans and lending commitments accounted for at amortized cost by portfolio.

	As of			
	June 2023		December 2022	
$ in millions	**Loans**	**Lending Commitments**	Loans	Lending Commitments
Wholesale				
Corporate	**$ 22,159**	**$ 127,835**	$ 23,550	$ 121,895
Commercial real estate	**22,572**	**2,844**	22,569	3,170
Residential real estate	**18,472**	**2,444**	17,468	3,014
Securities-based	**12,180**	**769**	13,545	498
Other collateralized	**48,060**	**13,336**	45,460	12,417
Other	**1,132**	**941**	1,329	920
Consumer				
Installment	**4,890**	**2,496**	6,326	1,882
Credit cards	**16,879**	**69,538**	15,820	62,216
Total	**$146,344**	**$ 220,203**	$146,067	$ 206,012

In the table above, wholesale loans included $1.78 billion as of June 2023 and $1.21 billion as of December 2022 of nonaccrual loans for which the allowance for credit losses was measured on an asset-specific basis. The allowance for credit losses on these loans was $371 million as of June 2023 and $204 million as of December 2022. These loans included $373 million as of June 2023 and $343 million as of December 2022 of loans which did not require a reserve as the loan was deemed to be recoverable.

See Note 18 for further information about lending commitments.

The following is a description of the methodology used to calculate the allowance for credit losses:

Wholesale. The allowance for credit losses for wholesale loans and lending commitments that exhibit similar risk characteristics is measured using a modeled approach. These models determine the probability of default and loss given default based on various risk factors, including internal credit ratings, industry default and loss data, expected life, macroeconomic indicators, the borrower's capacity to meet its financial obligations, the borrower's country of risk and industry, loan seniority and collateral type. For lending commitments, the methodology also considers the probability of drawdowns or funding. In addition, for loans backed by real estate, risk factors include the loan-to-value ratio, debt service ratio and home price index. The most significant inputs to the forecast model for wholesale loans and lending commitments include unemployment rates, GDP, credit spreads, commercial and industrial delinquency rates, short- and long-term interest rates, and oil prices.

The allowance for loan losses for wholesale loans that do not share similar risk characteristics, such as nonaccrual loans, is calculated using the present value of expected future cash flows discounted at the loan's effective rate, the observable market price of the loan or the fair value of the collateral.

Wholesale loans are charged off against the allowance for loan losses when deemed to be uncollectible.

Consumer. The allowance for credit losses for consumer loans that exhibit similar risk characteristics is calculated using a modeled approach which classifies consumer loans into pools based on borrower-related and exposure-related characteristics that differentiate a pool's risk characteristics from other pools. The factors considered in determining a pool are generally consistent with the risk characteristics used for internal credit risk measurement and management and include key metrics, such as FICO credit scores, delinquency status, loan vintage and macroeconomic indicators. The most significant inputs to the forecast model for consumer loans include unemployment rates and delinquency rates. The expected life of revolving credit card loans is determined by modeling expected future draws and the timing and amount of repayments allocated to the funded balance. The Bank also recognizes an allowance for credit losses on commitments to acquire loans and commitments extended in connection with point-of-sale financing. However, no allowance for credit losses is recognized on credit card lending commitments as they are cancellable by the Bank.

Installment loans are charged off when they are 120 days past due. Credit card loans are charged off when they are 180 days past due.

Allowance for Credit Losses Rollforward

The table below presents information about the allowance for credit losses.

$ in millions	Wholesale	Consumer	Total
Three Months Ended June 2023			
Allowance for loan losses			
Beginning balance	**$ 1,332**	**$ 2,477**	**$ 3,809**
Charge-offs	**(36)**	**(320)**	**(356)**
Recoveries	**1**	**26**	**27**
Net (charge-offs)/recoveries	**(35)**	**(294)**	**(329)**
Provision	**143**	**552**	**695**
Other	**(17)**	**—**	**(17)**
Ending balance	**$ 1,423**	**$ 2,735**	**$ 4,158**
Allowance ratio	**1.1%**	**12.6%**	**2.8%**
Net charge-off ratio	**0.1%**	**5.8%**	**0.9%**
Allowance for losses on lending commitments			
Beginning balance	**$ 487**	**$ 54**	**$ 541**
Provision	**41**	**(6)**	**35**
Other	**1**	**—**	**1**
Ending balance	**$ 529**	**$ 48**	**$ 577**
Three Months Ended June 2022			
Allowance for loan losses			
Beginning balance	$ 1,182	$ 1,786	$ 2,968
Charge-offs	(31)	(111)	(142)
Recoveries	5	22	27
Net (charge-offs)/recoveries	(26)	(89)	(115)
Provision	137	407	544
Other	(6)	—	(6)
Ending balance	$ 1,287	$ 2,104	$ 3,391
Allowance ratio	1.1%	12.8%	2.5%
Net charge-off ratio	0.1%	2.3%	0.4%
Allowance for losses on lending commitments			
Beginning balance	$ 462	$ 2	$ 464
Provision	12	1	13
Other	(4)	—	(4)
Ending balance	$ 470	$ 3	$ 473
Six Months Ended June 2023			
Allowance for loan losses			
Beginning balance	**$ 1,271**	**$ 2,981**	**$ 4,252**
Charge-offs	**(38)**	**(591)**	**(629)**
Recoveries	**12**	**50**	**62**
Net (charge-offs)/recoveries	**(26)**	**(541)**	**(567)**
Provision	**207**	**295**	**502**
Other	**(29)**	**—**	**(29)**
Ending balance	**$ 1,423**	**$ 2,735**	**$ 4,158**
Allowance ratio	**1.1%**	**12.6%**	**2.8%**
Net charge-off ratio	**0.0%**	**5.1%**	**0.8%**
Allowance for losses on lending commitments			
Beginning balance	**$ 464**	**$ 63**	**$ 527**
Provision	**65**	**(15)**	**50**
Ending balance	**$ 529**	**$ 48**	**$ 577**
Six Months Ended June 2022			
Allowance for loan losses			
Beginning balance	$ 1,043	$ 1,438	$ 2,481
Charge-offs	(68)	(198)	(266)
Recoveries	13	41	54
Net (charge-offs)/recoveries	(55)	(157)	(212)
Provision	302	823	1,125
Other	(3)	—	(3)
Ending balance	$ 1,287	$ 2,104	$ 3,391
Allowance ratio	1.1%	12.8%	2.5%
Net charge-off ratio	0.1%	2.2%	0.3%
Allowance for losses on lending commitments			
Beginning balance	$ 410	$ 187	$ 597
Provision	64	(184)	(120)
Other	(4)	—	(4)
Ending balance	$ 470	$ 3	$ 473

In the table above:

- Other primarily represented the reduction to the allowance related to loans and lending commitments transferred to held for sale.
- The allowance ratio is calculated by dividing the allowance for loan losses by gross loans accounted for at amortized cost.
- The net charge-off ratio is calculated by dividing annualized net (charge-offs)/recoveries by average gross loans accounted for at amortized cost.

Forecast Model Inputs as of June 2023

When modeling expected credit losses, the Bank employs a weighted, multi-scenario forecast, which includes baseline, adverse and favorable economic scenarios. As of June 2023, this multi-scenario forecast was weighted towards the baseline and adverse economic scenarios.

The table below presents the forecasted U.S. unemployment and U.S. GDP growth rates used in the baseline economic scenario of the forecast model.

	As of June 2023
U.S. unemployment rate	
Forecast for the quarter ended:	
December 2023	**4.1%**
June 2024	**4.5%**
December 2024	**4.4%**
Growth in U.S. GDP	
Forecast for the year:	
2023	**1.3%**
2024	**0.8%**
2025	**1.7%**

The adverse economic scenario of the forecast model reflects a global recession in the second half of 2023 through the first half of 2024 and a more aggressive tightening of monetary policy by central banks, resulting in an economic contraction and rising unemployment rates. In this scenario, the U.S. unemployment rate peaks at approximately 7.4% during the third quarter of 2024 and the maximum decline in the quarterly U.S. GDP relative to the second quarter of 2023 is approximately 2.7%, which occurs during the second quarter of 2024.

In the table above:

- U.S. unemployment rate represents the rate forecasted as of the respective quarter-end.
- Growth in U.S. GDP represents the year-over-year growth rate forecasted for the respective years.

- While the U.S. unemployment and U.S. GDP growth rates are significant inputs to the forecast model, the model contemplates a variety of other inputs across a range of scenarios to provide a forecast of future economic conditions. Given the complex nature of the forecasting process, no single economic variable can be viewed in isolation and independently of other inputs.

Allowance for Credit Losses Commentary

Three Months Ended June 2023. The allowance for credit losses increased by $385 million during the three months ended June 2023, reflecting seasoning of the credit card portfolio, growth in the consumer point-of-sale loans portfolio and asset-specific provisions and ratings downgrades in the wholesale portfolio.

Charge-offs for the three months ended June 2023 for wholesale loans were not material and charge-offs for consumer loans were primarily related to credit cards.

Six Months Ended June 2023. The allowance for credit losses decreased by $44 million during the six months ended June 2023, reflecting a reserve reduction of approximately $440 million associated with the sale of Marcus loans, partially offset by asset-specific provisions and ratings downgrades in the wholesale portfolio and growth in the consumer point-of-sale loan portfolio.

Charge-offs for the six months ended June 2023 for wholesale loans were not material and charge-offs for consumer loans were primarily related to credit cards.

Three Months Ended June 2022. The allowance for credit losses increased by $432 million during the three months ended June 2022, reflecting growth in the lending portfolios (primarily in credit cards) and higher modeled expected losses due to broad macroeconomic conditions.

Charge-offs for the three months ended June 2022 for wholesale loans were primarily related to corporate loans and charge-offs for consumer loans were primarily related to credit cards.

Six Months Ended June 2022. The allowance for credit losses increased by $786 million during the six months ended June 2022, reflecting growth in the lending portfolios (primarily in credit cards) and the impact of macroeconomic and geopolitical concerns.

Charge-offs for the six months ended June 2022 for wholesale loans were primarily related to corporate loans and charge-offs for consumer loans were primarily related to credit cards.

Estimated Fair Value

The table below presents the estimated fair value of loans that are not accounted for at fair value and in what level of the fair value hierarchy they would have been classified if they had been included in the Bank's fair value hierarchy.

	Carrying	Estimated Fair Value		
$ in millions	Value	Level 2	Level 3	Total
As of June 2023				
Amortized cost	**$ 142,186**	**$ 76,730**	**$ 65,912**	**$ 142,642**
Held for sale	**$ 2,659**	**$ 1,206**	**$ 1,467**	**$ 2,673**
As of December 2022				
Amortized cost	$ 141,815	$ 76,074	$ 67,264	$ 143,338
Held for sale	$ 3,048	$ 1,462	$ 1,607	$ 3,069

See Note 4 for an overview of the Bank's fair value measurement policies, valuation techniques and significant inputs used to determine the fair value of loans, and Note 5 for information about loans within the fair value hierarchy.

Note 10.

Fair Value Option

Other Financial Assets and Liabilities at Fair Value

In addition to trading assets and liabilities, and certain investments and loans, the Bank accounts for certain of its other financial assets and liabilities at fair value, the vast majority under the fair value option. The primary reasons for electing the fair value option are to:

- Reflect economic events in earnings on a timely basis;
- Mitigate volatility in earnings from using different measurement attributes (e.g., transfers of financial assets accounted for as financings are recorded at fair value, whereas the related secured financing would be recorded on an accrual basis absent electing the fair value option); and
- Address simplification and cost-benefit considerations (e.g., accounting for hybrid financial instruments at fair value in their entirety versus bifurcation of embedded derivatives and hedge accounting for debt hosts).

Hybrid financial instruments are instruments that contain bifurcatable embedded derivatives and do not require settlement by physical delivery of nonfinancial assets. For the vast majority of hybrid financial instruments, the Bank has not elected to bifurcate hybrid financial instruments and accounts for the entire hybrid financial instrument at fair value under the fair value option.

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

- Resale and repurchase agreements;
- Certain securities borrowed and loaned transactions;
- Certain customer and other receivables and certain other assets and liabilities;
- Certain time deposits (deposits with no stated maturity are not eligible for a fair value option election), including structured certificates of deposit, which are hybrid financial instruments;
- Most other secured financings, including transfers of assets accounted for as financings rather than sales; and
- Certain unsecured borrowings.

See Note 4 for an overview of the Bank's fair value measurement policies, valuation techniques and significant inputs used to determine the fair value of other financial assets and liabilities at fair value, and Note 5 for information about other financial assets and liabilities within the fair value hierarchy.

Gains and Losses on Other Financial Assets and Liabilities Accounted for at Fair Value Under the Fair Value Option

The table below presents the gains and losses recognized in earnings as a result of the election to apply the fair value option to certain financial assets and liabilities.

	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
Deposits	**$ (24)**	$ 247	**$ (147)**	$ 470
Other	**(177)**	6	**(285)**	(74)
Total	**$ (201)**	$ 253	**$ (432)**	$ 396

In the table above:

- Gains/(losses) are included in gains and losses from financial assets and liabilities.
- Gains/(losses) exclude contractual interest, which is included in interest income and interest expense, for all instruments other than hybrid financial instruments. See Note 21 for further information about interest income and interest expense.
- Gains/(losses) included in deposits were related to the embedded derivative component of hybrid financial instruments. These gains and losses would have been recognized under other U.S. GAAP even if the Bank had not elected to account for the entire hybrid financial instrument at fair value.
- Gains/(losses) included in other were substantially all related to resale and repurchase agreements, certain other secured financings and unsecured borrowings.
- Other financial assets and liabilities at fair value are frequently economically hedged with trading assets and liabilities. Accordingly, gains or losses on such other financial assets and liabilities can be partially offset by gains or losses on trading assets and liabilities. As a result, gains or losses on other financial assets and liabilities do not necessarily represent the overall impact on the Bank's results of operations, liquidity or capital resources.

See Note 8 for information about gains/(losses) on equity securities and Note 9 for information about gains/(losses) on loans which are accounted for at fair value under the fair value option. Gains/(losses) on trading assets and liabilities accounted for at fair value under the fair value option are included in gains and losses from financial assets and liabilities. See Note 6 for further information about gains/(losses) from financial assets and liabilities.

Long-Term Deposits

The fair value of long-term deposits, for which the fair value option was elected, did not exceed the aggregate contractual principal amount as of both June 2023 and December 2022.

Debt Valuation Adjustment

The Bank calculates the fair value of financial liabilities for which the fair value option is elected by discounting future cash flows at a rate which incorporates the Bank's credit spreads.

The table below presents information about the net debt valuation adjustment (DVA) gains/(losses) on financial liabilities for which the fair value option was elected.

	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
Pre-tax DVA	**$ (72)**	$ 54	**$ 8**	$ 66
After-tax DVA	**$ (54)**	$ 41	**$ 6**	$ 50

In the table above:

- After-tax DVA is included in debt valuation adjustment in the consolidated statements of comprehensive income.
- The gains/(losses) reclassified to earnings from accumulated other comprehensive income/(loss) upon extinguishment of such financial liabilities were not material for each of the three and six months ended June 2023 and June 2022.

Loans and Lending Commitments

The table below presents the difference between the aggregate fair value and the aggregate contractual principal amount for loans (included in trading assets and loans in the consolidated balance sheets) for which the fair value option was elected.

	As of	
$ in millions	**June 2023**	December 2022
Performing loans		
Aggregate contractual principal in excess of fair value	**$ 1,291**	$ 1,410
Loans on nonaccrual status and/or more than 90 days past due		
Aggregate contractual principal in excess of fair value	**$ 64**	$ 70
Aggregate fair value	**$ 188**	$ 118

The fair value of unfunded lending commitments for which the fair value option was elected was a liability of $43 million as of June 2023 and $33 million as of December 2022. See Note 18 for further information about lending commitments.

Impact of Credit Spreads on Loans and Lending Commitments

The estimated net gain/(loss) attributable to changes in instrument-specific credit spreads on loans and lending commitments for which the fair value option was elected was not material for each of the three and six months ended June 2023 and June 2022. The Bank generally calculates the fair value of loans and lending commitments for which the fair value option is elected by discounting future cash flows at a rate which incorporates the instrument-specific credit spreads. For floating-rate loans and lending commitments, substantially all changes in fair value are attributable to changes in instrument-specific credit spreads, whereas for fixed-rate loans and lending commitments, changes in fair value are also attributable to changes in interest rates.

Note 11.

Collateralized Agreements and Financings

Collateralized agreements are resale agreements and securities borrowed. Collateralized financings are repurchase agreements, securities loaned and other secured financings. The Bank enters into these transactions in order to, among other things, facilitate client activities, invest excess cash, acquire securities to cover short positions and finance certain Bank activities.

Collateralized agreements and financings with the same settlement date are presented on a net-by-counterparty basis when such transactions meet certain settlement criteria and are subject to netting agreements. Interest on collateralized agreements, which is included in interest income, and collateralized financings, which is included in interest expense, is recognized over the life of the transaction. See Note 21 for further information about interest income and interest expense.

See Note 4 for further information about the valuation techniques and significant inputs used to determine fair value.

Resale and Repurchase Agreements

A resale agreement is a transaction in which the Bank purchases financial instruments from a seller, typically in exchange for cash, and simultaneously enters into an agreement to resell the same or substantially the same financial instruments to the seller at a stated price plus accrued interest at a future date.

A repurchase agreement is a transaction in which the Bank sells financial instruments to a buyer, typically in exchange for cash, and simultaneously enters into an agreement to repurchase the same or substantially the same financial instruments from the buyer at a stated price plus accrued interest at a future date.

Even though repurchase and resale agreements involve the legal transfer of ownership of financial instruments, they are accounted for as financing arrangements because they require the financial instruments to be repurchased or resold before or at the maturity of the agreement. The financial instruments purchased or sold in resale and repurchase agreements typically include U.S. government and agency obligations, and investment-grade sovereign obligations.

The Bank receives financial instruments purchased under resale agreements and makes delivery of financial instruments sold under repurchase agreements. To mitigate credit exposure, the Bank monitors the market value of these financial instruments on a daily basis, and delivers or obtains additional collateral due to changes in the market value of the financial instruments, as appropriate. For resale agreements, the Bank typically requires collateral with a fair value approximately equal to the carrying value of the relevant assets in the consolidated balance sheets.

Repurchase agreements and resale agreements are recorded at fair value under the fair value option. See Note 5 for further information about repurchase and resale agreements.

Securities Borrowed and Loaned Transactions

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

The Bank receives securities borrowed and makes delivery of securities loaned. To mitigate credit exposure, the Bank 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 Bank typically requires collateral with a fair value approximately equal to the carrying value of the securities borrowed transaction.

Certain of the Bank's securities borrowed and loaned are recorded at fair value under the fair value option. See Note 5 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. The Bank also reviews such securities borrowed to determine if an allowance for credit losses should be recorded by taking into consideration the fair value of collateral received. 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 Bank's fair value hierarchy in Notes 4 and 5. Had these agreements been included in the Bank's fair value hierarchy, they would have been classified in level 2 as of both June 2023 and December 2022.

Offsetting Arrangements

The table below presents resale and repurchase agreements and securities borrowed and loaned transactions included in the consolidated balance sheets, as well as the amounts not offset in the consolidated balance sheets.

	Assets		Liabilities	
$ in millions	Resale agreements	Securities borrowed	Repurchase agreements	Securities loaned
As of June 2023				
Included in the consolidated balance sheets				
Gross carrying value	**$ 90,759**	**$ 2,795**	**$ 53,592**	**$ 4,496**
Counterparty netting	**(33,859)**	**—**	**(33,859)**	**—**
Total	**56,900**	**2,795**	**19,733**	**4,496**
Amounts not offset				
Counterparty netting	**(991)**	**(2,441)**	**(991)**	**(2,441)**
Collateral	**(54,623)**	**(168)**	**(18,267)**	**(2,046)**
Total	**$ 1,286**	**$ 186**	**$ 475**	**$ 9**
As of December 2022				
Included in the consolidated balance sheets				
Gross carrying value	$ 60,956	$ 2,676	$ 32,809	$ 2,847
Counterparty netting	(27,243)	—	(27,243)	—
Total	33,713	2,676	5,566	2,847
Amounts not offset				
Counterparty netting	(773)	(2,652)	(773)	(2,652)
Collateral	(31,483)	—	(4,471)	(174)
Total	$ 1,457	$ 24	$ 322	$ 21

In the table above:

- Substantially all of the gross carrying values of these arrangements are subject to enforceable netting agreements.
- Where the Bank has received or posted collateral under credit support agreements, but has not yet determined such agreements are enforceable, the related collateral has not been netted.
- Amounts not offset includes counterparty netting that does not meet the criteria for netting under U.S. GAAP and the fair value of collateral received or posted subject to enforceable credit support agreements.
- Resale agreements 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.
- Securities borrowed included in the consolidated balance sheets of $138 million as of June 2023 and $23 million as of December 2022, and securities loaned of $125 million as of June 2023 and $23 million as of December 2022, were at fair value under the fair value option. See Note 5 for further information about securities borrowed and securities loaned accounted for at fair value.

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.

$ in millions	Repurchase agreements	Securities loaned
As of June 2023		
U.S. government and agency obligations	**$ 19,806**	**$ —**
Non-U.S. government and agency obligations	**33,324**	**760**
Securities backed by commercial real estate	**—**	**7**
Securities backed by residential real estate	**62**	**—**
Corporate debt securities	**400**	**1,189**
Other debt obligations	**—**	**4**
Equity securities	**—**	**2,536**
Total	**$ 53,592**	**$ 4,496**
As of December 2022		
U.S. government and agency obligations	$ 10,717	$ —
Non-U.S. government and agency obligations	21,742	48
Securities backed by commercial real estate	—	13
Securities backed by residential real estate	80	—
Corporate debt securities	250	640
Equity securities	20	2,146
Total	$ 32,809	$ 2,847

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

	As of June 2023	
$ in millions	Repurchase agreements	Securities loaned
No stated maturity and overnight	**$ 44,852**	**$ 4,496**
2 - 30 days	**5,823**	**—**
31 - 90 days	**1,782**	**—**
91 days - 1 year	**1,135**	**—**
Total	**$ 53,592**	**$ 4,496**

Other Secured Financings

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

- Secured borrowings from affiliates;
- Credit-linked notes; and
- Transfers of assets accounted for as financings rather than sales (e.g., collateralized by bank loans and mortgage whole loans).

The Bank has elected to apply the fair value option to most other secured financings because the use of fair value eliminates non-economic volatility in earnings that would arise from using different measurement attributes. See Note 10 for further information about other secured financings that are accounted for at fair value.

Other secured financings that are not recorded at fair value are recorded based on the amount of cash received plus accrued interest, which generally approximates fair value. As these financings are not accounted for at fair value, they are not included in the Bank's fair value hierarchy in Notes 4 and 5. Had these financings been included in the Bank's fair value hierarchy, they would have been primarily classified in level 3 as of both June 2023 and December 2022.

Other secured financings had a weighted average interest rate of 4.08% as of June 2023 and 3.89% as of December 2022.

FHLB Advances. As a member of the Federal Home Loan Bank of New York (FHLB), the Bank can draw under a funding arrangement secured by eligible collateral. The Bank had no outstanding borrowings from the FHLB as of both June 2023 and December 2022.

Collateral Received and Pledged

The Bank receives cash and securities (e.g., U.S. government and agency obligations, other sovereign and corporate obligations) as collateral, primarily in connection with resale agreements, securities borrowed, derivative transactions and customer margin loans. The Bank obtains cash and securities as collateral on an upfront or contingent basis for derivative instruments and collateralized agreements to reduce its credit exposure to individual counterparties.

In many cases, the Bank is permitted to deliver or repledge financial instruments received as collateral when entering into repurchase agreements and securities loaned transactions. The Bank is also permitted to deliver or repledge these financial instruments in connection with collateralized derivative transactions.

The Bank also pledges certain trading assets, loans and other assets (substantially all of which is cash) in connection with repurchase agreements, securities loaned transactions and other secured financings. These assets are pledged to counterparties who may or may not have the right to deliver or repledge them.

The table below presents financial instruments at fair value received as collateral that were available to be delivered or repledged and were delivered or repledged.

	As of	
$ in millions	**June 2023**	December 2022
Collateral available to be delivered or repledged	**$ 98,958**	$ 72,980
Collateral that was delivered or repledged	**$ 77,824**	$ 59,867

The table below presents information about assets pledged.

$ in millions	As of June 2023	As of December 2022
Pledged to counterparties that had the right to deliver or repledge		
Trading assets	**$ 19,436**	$ 10,853
Investments	**$ 55**	$ 54
Pledged to counterparties that did not have the right to deliver or repledge		
Trading assets	**$ 5,289**	$ 2,053
Loans	**$ 8,903**	$ 7,059
Other assets	**$ 2,454**	$ 2,576

Note 12.

Other Assets

The table below presents other assets by type.

$ in millions	As of June 2023	As of December 2022
Income tax-related assets	**$ 2,125**	$ 2,220
Receivables from affiliates	**1,704**	2,224
FRB shares	**1,316**	1,318
Goodwill	**1,160**	1,108
Investments in qualified affordable housing projects	**1,039**	503
Identifiable intangible assets	**713**	747
Property, leasehold improvements and equipment	**522**	586
FHLB shares	**33**	33
Operating lease right-of-use assets	**61**	58
Miscellaneous receivables and other	**238**	237
Total	**$ 8,911**	$ 9,034

Property, Leasehold Improvements and Equipment

Property, leasehold improvements and equipment, which is primarily software, is net of accumulated depreciation and amortization of $470 million as of June 2023 and $372 million as of December 2022. Capitalized costs of software developed or obtained for internal use are amortized on a straight-line basis over three years. 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. Other property and equipment is depreciated on a straight-line basis over the useful life of the asset.

The Bank tests property, leasehold improvements and equipment for impairment when 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 Bank 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 Bank 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. Any impairments recognized are included in depreciation and amortization.

During the six months ended June 2023, the Bank had impairments of $32 million related to capitalized software. There were no material impairments during the three months ended June 2023 and either the three or six months ended June 2022.

Goodwill

Goodwill is the cost of acquired companies in excess of the fair value of net assets, including identifiable intangible assets, at the acquisition date. As of June 2023, the carrying value of the Bank's goodwill was $1.16 billion and as of December 2022, the carrying value of the Bank's goodwill was $1.11 billion. The increase in goodwill from December 2022 to June 2023 was attributable to an updated purchase price allocation related to the GreenSky acquisition. No impairment was recorded for goodwill during each of the three and six months ended June 2023 or the year ended December 2022.

Goodwill is assessed for impairment annually in the fourth quarter or more frequently if events occur or circumstances change that indicate an impairment may exist. The Bank consists of a single reporting unit, and as such, the assessment of goodwill for impairment is performed at the overall Bank level. When assessing goodwill for impairment, first, a qualitative assessment can be made to determine whether it is more likely than not that the estimated fair value of the Bank is less than its net book value. If the results of the qualitative assessment are not conclusive, a quantitative test is performed. Alternatively, a quantitative test can be performed without performing a qualitative assessment.

In the fourth quarter of 2022, the Bank performed its annual assessment of goodwill for impairment by performing a qualitative assessment. Multiple factors were assessed to determine whether it was more likely than not that its estimated fair value was less than its net book value, including performance indicators, macroeconomic indicators, firm and industry events, and fair value indicators. As a result of the qualitative assessment, the Bank determined that it was more likely than not that its estimated fair value exceeded its net book value. Therefore, the Bank determined that goodwill was not impaired and that a quantitative test was not required.

During the second quarter of 2023, in connection with the exploration of a potential sale of GreenSky, the Bank performed a quantitative test and determined that its estimated fair value exceeded its net book value as of June 2023 and therefore, goodwill was not impaired.

Identifiable Intangible Assets

The table below presents information about identifiable intangible assets.

	As of	
	June	December
$ in millions	**2023**	2022
Gross carrying value	**$ 826**	$ 826
Accumulated amortization	**(113)**	(79)
Net carrying value	**$ 713**	$ 747

During the six months ended June 2023, the Bank did not acquire any identifiable intangible assets. The Bank acquired approximately $805 million of identifiable intangible assets (with a weighted average amortization period of 11 years) during 2022, the vast majority of which related to GreenSky's merchant relationships.

All of the Bank's identifiable intangible assets have finite useful lives and are amortized over their estimated useful lives using the straight-line method.

The tables below present information about the amortization of identifiable intangible assets.

	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
Amortization	**$ 17**	$ 17	**$ 34**	$ 19

	As of
$ in millions	**June 2023**
Estimated future amortization	
Remainder of 2023	**$ 34**
2024	**$ 69**
2025	**$ 67**
2026	**$ 67**
2027	**$ 67**
2028	**$ 67**

The Bank tests identifiable intangible assets for impairment when 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 Bank 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 Bank 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 impairments during either the three or six months ended June 2023 or June 2022.

Investments in Qualified Affordable Housing Projects

The Bank accounts for investments in qualified affordable housing projects using the proportional amortization method such that the investment is amortized in proportion to the income tax credits received on such investments. The amortization of investments and the related income tax credit are recorded as a component of the provision for taxes. The impact of the amortization and the related tax credits was not material for both the three and six months ended June 2023 and June 2022.

Operating Lease Right-of-Use Assets

The Bank enters into operating leases for real estate, office equipment and other assets, which are used in connection with its operations. For leases longer than one year, generally based on the contractual maturity, adjusted for certain extension or termination options, the Bank recognizes 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 payments.

An operating lease right-of-use asset is initially determined based on the operating lease liability, and amortized over the lease term. Right-of-use assets and operating lease liabilities recognized (in non-cash transactions for leases entered into or assumed) was $2 million for the three months ended June 2023, $2 million for the three months ended June 2022, $7 million for the six months ended June 2023 and $17 million for the six months ended June 2022. See Note 15 for information about operating lease liabilities.

Note 13.

Deposits

The table below presents the types and sources of deposits.

$ in millions	Savings and Demand	Time	Total
As of June 2023			
Consumer	**$ 87,940**	**$ 31,842**	**$ 119,782**
Private bank	**65,026**	**2,102**	**67,128**
Brokered certificates of deposit	**—**	**38,178**	**38,178**
Deposit sweep programs	**33,614**	**—**	**33,614**
Transaction banking	**91,482**	**2,783**	**94,265**
Other	**5,061**	**8,134**	**13,195**
Total	**$ 283,123**	**$ 83,039**	**$ 366,162**
As of December 2022			
Consumer	$ 70,975	$ 20,423	$ 91,398
Private bank	78,160	4,232	82,392
Brokered certificates of deposit	—	32,036	32,036
Deposit sweep programs	44,819	—	44,819
Transaction banking	92,903	5,068	97,971
Other	6,624	7,615	14,239
Total	$ 293,481	$ 69,374	$ 362,855

In the table above:

- Substantially all deposits are interest-bearing and substantially all are held in the U.S.
- Savings and demand accounts consist of money market deposit accounts, negotiable order of withdrawal accounts and demand deposit accounts that have no stated maturity or expiration date. Savings account holders may be required by the Bank to give written notice of intended withdrawals not less than seven days before such withdrawals are made and may be limited on the number of withdrawals made within a month. Demand account holders are not subject to restrictions with respect to the timing and number of transactions that deposit holders may execute.
- Time deposits include brokered certificates of deposit which have stipulated maturity dates and rates of interest. Early withdrawals of brokered time deposits are generally prohibited.
- Time deposits included $5.82 billion as of June 2023 and $5.37 billion as of December 2022 of deposits accounted for at fair value under the fair value option. See below and Note 10 for further information about deposits accounted for at fair value.
- Time deposits had a weighted average maturity of approximately 0.9 years as of June 2023 and 1.1 years as of December 2022.
- Consumer deposits consist of deposits from both Marcus and Apple Card customers.
- Deposit sweep programs include long-term contractual agreements with U.S. broker-dealers who sweep client cash to FDIC-insured deposits. Pursuant to the external deposit sweep program agreements, each third-party broker-dealer agrees, for a prescribed term, to place a certain minimum amount of deposits from their clients with the Bank. Each client's deposit may be withdrawn at any time.
- Transaction banking deposits consists of deposits that the Bank has raised through its cash management services business for corporate, other institutional clients and affiliates.
- Other deposits represent deposits from institutional clients and affiliates. As of both June 2023 and December 2022, other deposits were primarily from Goldman Sachs Funding LLC (Funding IHC).
- Deposits insured by the FDIC were $211.21 billion as of June 2023 and $184.88 billion as of December 2022.
- Deposits insured by non-U.S. insurance programs were $757 million as of June 2023 and $6.65 billion as of December 2022. The decline in insured deposits from December 2022 reflected a change in an insurance program that became effective in January 2023, which reduced the population of deposit accounts eligible for insurance coverage and lowered the applicable insurance limits.

The table below presents time deposits by contractual maturity.

$ in millions	As of June 2023
Remainder of 2023	**$ 27,619**
2024	**45,822**
2025	**4,068**
2026	**2,694**
2027	**1,259**
2028	**641**
2029 - thereafter	**936**
Total	**$ 83,039**

As of June 2023, deposits in U.S. offices included $19.16 billion and deposits in non-U.S. offices included $1.30 billion of time deposits in denominations that met or exceeded the applicable insurance limits, or were otherwise not covered by insurance.

The Bank's savings and demand deposits are recorded based on the amount of cash received plus accrued interest, which approximates fair value. In addition, the Bank designates certain derivatives as fair value hedges to convert a portion of its time deposits not accounted for at fair value from fixed-rate obligations into floating-rate obligations. The carrying value of time deposits not accounted for at fair value approximated fair value as of both June 2023 and December 2022. As these savings and demand deposits and substantially all time deposits are not accounted for at fair value, they are not included in the Bank's fair value hierarchy in Notes 4 and 5. Had these deposits been included in the Bank's fair value hierarchy, they would have been primarily classified in level 2 as of both June 2023 and December 2022.

Note 14.

Unsecured Borrowings

The table below presents information about unsecured borrowings.

	As of	
	June	December
$ in millions	**2023**	2022
Unsecured short-term borrowings	**$ 848**	$ 594
Unsecured long-term borrowings	**3,036**	5,837
Total	**$ 3,884**	$ 6,431

Unsecured Short-Term Borrowings

Unsecured short-term borrowings includes the portion of unsecured long-term borrowings maturing within one year of the financial statement date.

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

	As of	
	June	December
$ in millions	**2023**	2022
Current portion of senior unsecured borrowings	**$ 337**	$ 365
Hybrid financial instruments	**178**	98
Short-term borrowings from affiliates	**238**	119
Other unsecured short-term borrowings	**95**	12
Total	**$ 848**	$ 594

Hybrid Financial Instruments. The Bank accounts for the vast majority of hybrid financial instruments at fair value under the fair value option. See Note 10 for further information about hybrid financial instruments that are accounted for at fair value.

Short-Term Borrowings from Affiliates. As of both June 2023 and December 2022, the Bank had a senior unsecured facility, committed on an intraday basis up to $4.00 billion with Group Inc. This facility automatically renews each business day and can be terminated with six months' notice. Outstanding borrowings under this facility were $173 million as of June 2023 and $99 million as of December 2022.

Short-term borrowings from affiliates also includes accrued interest on long-term subordinated borrowings and long-term borrowings from affiliates. Accrued interest on long-term subordinated borrowings and borrowings from affiliates was $15 million as of June 2023 and $20 million as of December 2022.

Short-term borrowings from affiliates also includes hybrid financial instruments with affiliates. These hybrid financial instruments are carried at fair value under the fair value option in the Bank's fair value hierarchy. See Note 10 for further information about borrowings accounted for at fair value.

Unsecured Long-Term Borrowings

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

	As of	
	June	December
$ in millions	**2023**	2022
Subordinated borrowings	**$ 2,272**	$ 4,271
Senior unsecured borrowings	**666**	1,458
Long-term borrowings from affiliates	**98**	108
Total	**$ 3,036**	$ 5,837

Subordinated Borrowings. As of both June 2023 and December 2022, the Bank had a revolving subordinated loan agreement with Funding IHC, which expires in 2039. As of June 2023, outstanding subordinated borrowings under this agreement included $2.25 billion maturing in 2028, and as of December 2022, outstanding subordinated borrowings under this agreement included $4.25 billion maturing in 2028. These borrowings are redeemable prior to maturity at the option of the Bank. During January 2023, the Bank repaid $2.00 billion of these subordinated borrowings. As of both June 2023 and December 2022, outstanding borrowings bear interest at the overnight bank funding rate plus 1.85% per annum.

As of both June 2023 and December 2022, the Bank also had a subordinated loan agreement with Group Inc., which is redeemable prior to maturity at the option of the Bank. As of June 2023, the outstanding subordinated borrowings under this agreement were $22 million maturing in 2028, the earliest date such option becomes exercisable, and as of December 2022, the outstanding subordinated borrowings under this agreement were $21 million maturing in 2028, the earliest date such option becomes exercisable. As of both June 2023 and December 2022, the interest rate on these borrowings was the three-month Euro Interbank Offered Rate plus 2.10% per annum.

The carrying value of these subordinated borrowings generally approximates fair value. Any amounts payable under these agreements would be subordinate to the claims of certain other creditors of the Bank, including depositors and regulatory agencies.

Senior Unsecured Borrowings. As of June 2023, the Bank had issued and outstanding senior unsecured borrowings of $1.00 billion which includes $522 million of credit-linked notes. As of December 2022, the Bank had issued and outstanding senior unsecured borrowings of $1.82 billion which includes $1.35 billion of credit-linked notes. Senior unsecured borrowings also included structured notes. The weighted average interest rate was 2.44% as of June 2023 and 0.24% as of December 2022, and primarily related to floating rate obligations. The carrying value of the Bank's senior unsecured borrowings was $1.00 billion as of June 2023 and $1.82 billion as of December 2022, which approximated its fair value.

The table below presents senior unsecured borrowings by maturity.

$ in millions	**As of June 2023**
Remainder of 2023	**$ 192**
2024	**203**
2025	**9**
2026	**2**
2027	**519**
2028	**11**
2029 - thereafter	**67**
Total	**$ 1,003**

Long-Term Borrowings from Affiliates. As of June 2023, the Bank had outstanding long-term borrowings from affiliates of $98 million. As of December 2022, the Bank had outstanding long-term borrowings from affiliates of $108 million. The weighted average interest rate was 5.72% as of June 2023 and 3.40% as of December 2022, and related to floating rate obligations. As of June 2023, the maturity of outstanding long-term borrowings from affiliates was 2024.

Note 15.

Other Liabilities

The table below presents other liabilities by type.

	As of	
$ in millions	**June 2023**	December 2022
Income tax-related liabilities	**$ 2,376**	$ 1,600
Payables to affiliates	**1,235**	1,160
Compensation and benefits	**794**	573
Operating lease liabilities	**64**	61
Accrued expenses and other	**1,899**	1,573
Total	**$ 6,368**	$ 4,967

Operating Lease Liabilities

For leases longer than one year, the Bank recognizes 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 payments. See Note 12 for information about operating lease right-of-use assets.

The table below presents information about operating lease liabilities.

$ in millions	Operating lease liabilities
As of June 2023	
Remainder of 2023	**$ 4**
2024	**14**
2025	**13**
2026	**11**
2027	**11**
2028 - thereafter	**18**
Total undiscounted lease payments	**71**
Imputed interest	**(7)**
Total operating lease liabilities	**$ 64**
Weighted average remaining lease term	**6 years**
Weighted average discount rate	**3.59%**
As of December 2022	
2023	$ 12
2024	13
2025	12
2026	9
2027	9
2028 - thereafter	12
Total undiscounted lease payments	67
Imputed interest	(6)
Total operating lease liabilities	$ 61
Weighted average remaining lease term	6 years
Weighted average discount rate	3.29%

In the table above, the weighted average discount rate represents the Bank's incremental borrowing rate as of January 2019 for operating leases existing on the date of adoption of ASU No. 2016-02, "Leases (Topic 842)," and at the lease inception date for leases entered into subsequent to the adoption of this ASU.

Operating lease costs were $5 million for the three months ended June 2023, $5 million for the three months ended June 2022, $10 million for the six months ended June 2023 and $8 million for the six months ended June 2022. Variable lease costs, which are included in operating lease costs, were not material for each of the three and six months ended June 2023 and June 2022. There were no occupancy expenses for space held in excess of the Bank's current requirements for each of the three and six months ended June 2023 and June 2022.

There were no lease payments relating to operating lease arrangements that were signed, but had not yet commenced as of June 2023.

Note 16.

Securitization Activities

The Bank securitizes residential and commercial mortgages 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. An affiliate acts as underwriter of the beneficial interests that are sold to investors.

The Bank accounts for a securitization as a sale when it has relinquished control over the transferred financial assets. Prior to securitization, the Bank generally accounts for assets pending transfer at fair value and therefore does not typically recognize significant gains or losses upon the transfer of assets.

The Bank generally receives cash in exchange for the transferred assets but may also have continuing involvement with the transferred financial assets, including ownership of beneficial interests in securitized financial assets, primarily in the form of loans.

The primary risks from the Bank's continuing involvement with securitization vehicles are the performance of the underlying collateral and the position of the Bank's investment in the capital structure of the securitization vehicle. Substantially all of these retained interests are accounted for at amortized cost net of allowance for loan losses. Had these interests been included in the Bank's fair value hierarchy, they would have been primarily classified in level 3 as of both June 2023 and December 2022. See Note 4 for further information about fair value measurements.

The table below presents the amount of financial assets securitized and the cash flows received on retained interests in securitization entities in which the Bank had continuing involvement as of the end of the period.

	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
Residential mortgages	**$ 870**	$ 1,653	**$ 1,132**	$ 3,399
Commercial mortgages	**677**	5,292	**1,077**	10,073
Other financial assets	**—**	1,090	**193**	1,345
Total financial assets	**$ 1,547**	$ 8,035	**$ 2,402**	$ 14,817
Retained interests cash flows	**$ 63**	$ 32	**$ 100**	$ 62

The Bank securitized assets of $66 million during the three months ended June 2023, $198 million during the three months ended June 2022, $110 million during the six months ended June 2023 and $380 million during the six months ended June 2022, in a non-cash exchange for loans.

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

$ in millions	Outstanding Principal Amount	Retained Interests
As of June 2023		
Residential mortgage-backed	**$ 15,993**	**$ 747**
Commercial mortgage-backed	**59,350**	**1,259**
Other asset-backed	**3,584**	**190**
Total	**$ 78,927**	**$ 2,196**
As of December 2022		
Residential mortgage-backed	$ 15,437	$ 723
Commercial mortgage-backed	59,408	1,324
Other asset-backed	4,400	237
Total	$ 79,245	$ 2,284

In the table above:

- The outstanding principal amount is presented for the purpose of providing information about the size of the securitization entities and is not representative of the Bank's risk of loss.
- The Bank's risk of loss from retained interests is limited to the carrying value of these interests.
- Substantially all of the total outstanding principal amount and total retained interests relate to securitizations during 2018 and thereafter.
- The fair value of retained interests was $2.13 billion as of June 2023 and $2.28 billion as of December 2022.

In addition to the interests in the table above, the Bank had other continuing involvement in the form of derivative transactions and commitments with certain nonconsolidated VIEs. As of June 2023, the notional amount of these derivatives and commitments was $83 million and the carrying value was not material. As of December 2022, the notional amount of these derivatives and commitments was $106 million and the carrying value was not material. The notional amounts of these derivatives and commitments are included in maximum exposure to loss in the nonconsolidated VIE table in Note 17. Additionally, the Bank has provided seller financing of approximately $2.6 billion in connection with the sale of $3.24 billion of Marcus loans.

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

	As of	
	June	December
$ in millions	**2023**	2022
Fair value of retained interests	**$ 1,946**	$ 2,045
Weighted average life (years)	**5.6**	5.7
Constant prepayment rate	**3.9%**	4.2%
Impact of 10% adverse change	**$ (4)**	$ (3)
Impact of 20% adverse change	**$ (8)**	$ (6)
Discount rate	**8.9%**	9.7%
Impact of 10% adverse change	**$ (53)**	$ (55)
Impact of 20% adverse change	**$ (103)**	$ (107)

In the table above:

- Amounts do not reflect the benefit of other financial instruments that are held to mitigate risks inherent in these retained interests.
- Changes in fair value based on an adverse variation in assumptions generally cannot be extrapolated because the relationship of the change in assumptions to the change in fair value is not usually linear.
- The impact of a change in a particular assumption is calculated independently of changes in any other assumption. In practice, simultaneous changes in assumptions might magnify or counteract the sensitivities disclosed above.
- The constant prepayment rate is included only for positions for which it is a key assumption in the determination of fair value.
- Expected credit loss assumptions are reflected in the discount rate for the retained interests.

The Bank has other retained interests not reflected in the table above with a fair value of $184 million and a weighted average life of 2.6 years as of June 2023, and a fair value of $232 million and a weighted average life of 2.4 years as of December 2022. Due to the nature and fair value of certain of these retained interests, the weighted average assumptions for constant prepayment and discount rates and the related sensitivity to adverse changes are not meaningful as of both June 2023 and December 2022. The Bank's maximum exposure to adverse changes in the value of these interests is the carrying value of $190 million as of June 2023 and $237 million as of December 2022.

Note 17.

Variable Interest Entities

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

The Bank's variable interests in VIEs include senior and subordinated debt; loans and lending commitments; limited and general partnership interests; preferred and common equity; derivatives that may include foreign currency, equity and/or credit risk; and guarantees. Certain interest rate, foreign currency and credit derivatives the Bank enters into with VIEs are not variable interests because they create, rather than absorb, risk.

VIEs generally finance the purchase of assets by issuing debt and equity securities that are either collateralized by or indexed to the assets held by the VIE. The debt and equity securities issued by a VIE may include tranches of varying levels of subordination. The Bank's involvement with VIEs includes securitization of financial assets, as described in Note 16, and investments in and loans to other types of VIEs, as described below. See Note 3 for the Bank's consolidation policies, including the definition of a VIE.

VIE Consolidation Analysis

The enterprise with a controlling financial interest in a VIE is known as the primary beneficiary and consolidates the VIE. The Bank determines whether it is the primary beneficiary of a VIE by performing an analysis that principally considers:

- Which variable interest holder has the power to direct the activities of the VIE that most significantly impact the VIE's economic performance;

- Which variable interest holder has the obligation to absorb losses or the right to receive benefits from the VIE that could potentially be significant to the VIE;
- The VIE's purpose and design, including the risks the VIE was designed to create and pass through to its variable interest holders;
- The VIE's capital structure;
- The terms between the VIE and its variable interest holders and other parties involved with the VIE; and
- Related-party relationships.

The Bank reassesses its evaluation of whether an entity is a VIE when certain reconsideration events occur. The Bank reassesses its determination of whether it is the primary beneficiary of a VIE on an ongoing basis based on current facts and circumstances.

VIE Activities

The Bank is principally involved with VIEs through the following business activities:

Mortgage-Backed VIEs. The Bank sells residential and commercial mortgage loans and securities to mortgage-backed VIEs and may retain beneficial interests in the assets sold to these VIEs. In addition, the Bank may enter into derivatives with certain of these VIEs, primarily interest rate swaps, which are typically not variable interests. The Bank generally enters into derivatives with other counterparties to mitigate its risk.

Corporate Debt and Other Asset-Backed VIEs. The Bank structures VIEs that issue notes to clients and makes loans to VIEs that warehouse corporate debt. Certain of these VIEs synthetically create the exposure for the beneficial interests they issue by entering into credit derivatives with the Bank, rather than purchasing the underlying assets. In addition, the Bank may enter into derivatives, such as total return swaps, with certain corporate debt and other asset-backed VIEs, under which the Bank pays the VIE a return due to the beneficial interest holders and receives the return on the collateral owned by the VIE. The collateral owned by these VIEs is primarily other asset-backed loans and securities. The Bank may be removed as the total return swap counterparty and may enter into derivatives with other counterparties to mitigate its risk related to these swaps. The Bank may sell assets to the corporate debt and other asset-backed VIEs it structures.

Real Estate, Credit-Related and Other Investing VIEs. The Bank primarily purchases debt securities issued by and makes loans to VIEs that hold real estate and distressed loans. The Bank generally does not sell assets to, or enter into derivatives with, these VIEs.

Nonconsolidated VIEs

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

	As of	
$ in millions	**June 2023**	December 2022
Total nonconsolidated VIEs		
Assets in VIEs	**$ 98,632**	$ 90,135
Carrying value of variable interests – assets	**$ 7,206**	$ 4,366
Carrying value of variable interests – liabilities	**$ 996**	$ 614
Maximum exposure to loss:		
Retained interests	**$ 2,196**	$ 2,284
Purchased interests	**134**	6
Commitments and guarantees	**1,759**	1,453
Derivatives	**4,863**	5,137
Debt and equity	**4,777**	1,965
Total	**$ 13,729**	$ 10,845

In the table above:

- The nature of the Bank's variable interests is described in the rows under maximum exposure to loss.
- The Bank's exposure to the obligations of VIEs is generally limited to its interests in these entities. In certain instances, the Bank provides guarantees, including derivative guarantees, to VIEs or holders of variable interests in VIEs.
- The maximum exposure to loss excludes the benefit of offsetting financial instruments that are held to mitigate the risks associated with these variable interests.
- The maximum exposure to loss from retained interests, purchased interests, and debt and equity is the carrying value of these interests.
- The maximum exposure to loss from commitments and guarantees, and derivatives is the notional amount, which does not represent anticipated losses and has not been reduced by unrealized losses. As a result, the maximum exposure to loss exceeds liabilities recorded for commitments and guarantees, and derivatives.

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

$ in millions	As of June 2023	As of December 2022
Mortgage-backed		
Assets in VIEs	$ **75,614**	$ 75,112
Carrying value of variable interests – assets	$ **2,013**	$ 2,053
Carrying value of variable interests – liabilities	$ **1**	$ —
Maximum exposure to loss:		
Retained interests	$ **2,006**	$ 2,047
Purchased interests	**6**	6
Commitments and guarantees	**41**	64
Derivatives	**2**	2
Total	$ **2,055**	$ 2,119
Corporate debt and other asset-backed		
Assets in VIEs	$ **13,682**	$ 11,735
Carrying value of variable interests – assets	$ **3,969**	$ 1,620
Carrying value of variable interests – liabilities	$ **638**	$ 613
Maximum exposure to loss:		
Retained interests	$ **190**	$ 237
Purchased interests	**128**	—
Commitments and guarantees	**128**	184
Derivatives	**4,861**	5,135
Debt and equity	**3,554**	1,273
Total	$ **8,861**	$ 6,829
Real estate, credit-related and other investing		
Assets in VIEs	$ **9,336**	$ 3,288
Carrying value of variable interests – assets	$ **1,224**	$ 693
Carrying value of variable interests – liabilities	$ **357**	$ 1
Maximum exposure to loss:		
Commitments and guarantees	$ **1,590**	$ 1,205
Debt and equity	**1,223**	692
Total	$ **2,813**	$ 1,897

As of both June 2023 and December 2022, the carrying values of the Bank's variable interests in nonconsolidated VIEs are included in the consolidated balance sheets as follows:

- Mortgage-backed: Substantially all assets included in loans and investments, and liabilities included in other liabilities.
- Corporate debt and other asset-backed: Assets primarily included in loans, and substantially all liabilities included in trading liabilities.
- Real estate, credit-related and other investing: Assets primarily included in other assets and investments, and liabilities included in other liabilities.

Consolidated VIEs

As of both June 2023 and December 2022, the Bank had no consolidated VIEs.

Note 18.

Commitments, Contingencies and Guarantees

Commitments

The table below presents commitments by type.

$ in millions	As of June 2023	As of December 2022
Commitment Type		
Commercial lending:		
Investment-grade	$ **94,701**	$ 95,306
Non-investment-grade	**50,636**	41,136
Warehouse financing	**8,768**	8,940
Consumer	**72,034**	64,098
Total lending	**226,139**	209,480
Risk participations	**6,929**	7,297
Collateralized agreement	**41,184**	15,014
Collateralized financing	**34,961**	12,067
Investment	**2,983**	2,402
Other	**2,491**	2,891
Total commitments	$ **314,687**	$ 249,151

The table below presents commitments by expiration.

$ in millions	As of June 2023: Remainder of 2023	2024 - 2025	2026 - 2027	2028 - Thereafter
Commitment Type				
Commercial lending:				
Investment-grade	$ **7,081**	$ **24,069**	$ **46,399**	$ **17,152**
Non-investment-grade	**2,494**	**14,731**	**22,485**	**10,926**
Warehouse financing	**639**	**5,563**	**2,354**	**212**
Consumer	**71,410**	**624**	**—**	**—**
Total lending	**81,624**	**44,987**	**71,238**	**28,290**
Risk participations	**831**	**2,614**	**2,887**	**597**
Collateralized agreement	**39,885**	**1,299**	**—**	**—**
Collateralized financing	**33,735**	**1,226**	**—**	**—**
Investment	**263**	**512**	**610**	**1,598**
Other	**2,311**	**—**	**—**	**180**
Total commitments	$ **158,649**	$ **50,638**	$ **74,735**	$ **30,665**

In the table above, beginning in the first quarter of 2023, the Bank made certain changes to its methodology for determining internal credit ratings. See Note 9 for further information about these changes. Prior period amounts have been conformed to reflect the current methodology. The impact to December 2022 was an increase in commercial lending commitments classified as investment-grade and a decrease in commercial lending commitments classified as non-investment-grade of $2.76 billion.

Lending Commitments

The Bank's commercial and warehouse financing lending commitments are agreements to lend with fixed termination dates and depend on the satisfaction of all contractual conditions to borrowing. These commitments are presented net of amounts syndicated to third parties. The total commitment amount does not necessarily reflect actual future cash flows because the Bank may syndicate portions of these commitments. In addition, commitments can expire unused or be reduced or cancelled at the counterparty's request. The Bank also provides credit to consumers by issuing credit card lines and through commitments to provide unsecured installment loans.

The table below presents information about lending commitments.

	As of	
	June	December
$ in millions	**2023**	2022
Held for investment	**$ 220,203**	$ 206,012
Held for sale	**5,347**	2,714
At fair value	**589**	754
Total	**$ 226,139**	$ 209,480

In the table above:

- Held for investment lending commitments are accounted for at amortized cost. The carrying value of lending commitments was a liability of $747 million (including allowance for credit losses of $577 million) as of June 2023 and $720 million (including allowance for credit losses of $527 million) as of December 2022. The estimated fair value of such lending commitments was a liability of $4.98 billion as of June 2023 and $5.04 billion as of December 2022. Had these lending commitments been carried at fair value and included in the fair value hierarchy, $2.68 billion as of June 2023 and $2.78 billion as of December 2022 would have been classified in level 2, and $2.31 billion as of June 2023 and $2.26 billion as of December 2022 would have been classified in level 3.

- Held for sale lending commitments are accounted for at the lower of cost or fair value. The carrying value of lending commitments held for sale was a liability of $76 million as of June 2023 and $64 million as of December 2022. The estimated fair value of such lending commitments approximates the carrying value. Had these lending commitments been included in the fair value hierarchy, they would have been primarily classified in level 3 as of both June 2023 and December 2022.

- Gains or losses related to lending commitments at fair value, if any, are generally recorded net of any fees in gains and losses from financial assets and liabilities.

Commercial Lending. The Bank's commercial lending commitments were primarily extended to investment-grade corporate borrowers. Such commitments primarily included relationship lending activities (principally used for operating and general corporate purposes) and other activities (generally extended for contingent acquisition financing and are often intended to be short-term in nature, as borrowers often seek to replace them with other funding sources). The Bank also extends lending commitments in connection with other types of corporate lending, commercial real estate financing and other collateralized lending. See Note 9 for further information about funded loans.

To mitigate the credit risk associated with the Bank's commercial lending activities, the Bank obtains credit protection on certain loans and lending commitments through credit default swaps, both single-name and index-based contracts, and through the issuance of credit-linked notes.

Warehouse Financing. The Bank provides financing to clients who warehouse financial assets. These arrangements are collateralized by the warehoused assets, primarily consisting of residential real estate, consumer and corporate loans.

Consumer. The Bank's consumer lending commitments includes:

- Credit card lines issued by the Bank to consumers were $69.54 billion as of June 2023 and $62.22 billion as of December 2022. These credit card lines are cancellable by the Bank.

- Commitments to provide unsecured installment loans to consumers were $2.50 billion as of June 2023 and $1.88 billion as of December 2022.

Risk Participations

The Bank also risk participates certain of its commercial lending commitments to other financial institutions. In the event of a risk participant's default, the Bank will be responsible to fund the borrower.

Collateralized Agreement Commitments/ Collateralized Financing Commitments

Collateralized agreement commitments includes forward starting resale agreements, and collateralized financing commitments includes forward starting repurchase and secured lending agreements that settle at a future date, generally within three business days. Collateralized agreement commitments also includes transactions where the Bank has entered into commitments to provide contingent financing to its clients and counterparties through resale agreements. The Bank's funding of these commitments depends on the satisfaction of all contractual conditions to the resale agreement and these commitments can expire unused.

Investment Commitments

Investment commitments includes commitments to invest in securities, real estate and other assets.

Contingencies

Legal Proceedings. See Note 24 for information about legal proceedings.

Guarantees

The table below presents derivatives that meet the definition of a guarantee, securities lending indemnifications and certain other financial guarantees.

$ in millions	Derivatives	Securities lending indemnifications	Other financial guarantees
As of June 2023			
Carrying Value of Net Liability	**$ 4,421**	**$ —**	**$ 10**
Maximum Payout/Notional Amount by Period of Expiration			
Remainder of 2023	**$ 47,109**	**$ 11,456**	**$ 150**
2024 - 2025	**132,970**	**—**	**1,672**
2026 - 2027	**12,474**	**—**	**2,204**
2028 - thereafter	**18,633**	**—**	**236**
Total	**$ 211,186**	**$ 11,456**	**$ 4,262**
As of December 2022			
Carrying Value of Net Liability	$ 4,485	$ —	$ 19
Maximum Payout/Notional Amount by Period of Expiration			
2023	$ 54,482	$ 11,818	$ 1,381
2024 - 2025	103,754	—	1,465
2026 - 2027	8,774	—	1,526
2028 - thereafter	15,575	—	22
Total	$ 182,585	$ 11,818	$ 4,394

In the table above:

- The maximum payout is based on the notional amount of the contract and does not represent anticipated losses.
- Amounts exclude certain commitments to issue standby letters of credit that are included in lending commitments. See the tables in "Commitments" above for a summary of the Bank's commitments.
- The carrying value for derivatives included derivative assets of $84 million as of June 2023 and $191 million as of December 2022, and derivative liabilities of $4.51 billion as of June 2023 and $4.68 billion as of December 2022.

Derivative Guarantees. The Bank enters into various derivatives that meet the definition of a guarantee under U.S. GAAP, including written currency contracts and interest rate caps, floors and swaptions. These derivatives are risk managed together with derivatives that do not meet the definition of a guarantee, and therefore the amounts in the table above do not reflect the Bank's overall risk related to derivative activities. Disclosures about derivatives are not required if they may be cash settled and the Bank has no basis to conclude it is probable that the counterparties held the underlying instruments at the inception of the contract. The Bank has concluded that these conditions have been met for certain large, internationally active commercial and investment bank counterparties, central clearing counterparties, hedge funds and certain other counterparties. Accordingly, the Bank has not included such contracts in the table above. See Note 7 for information about credit derivatives that meet the definition of a guarantee, which are not included in the table above.

Derivatives are accounted for at fair value and therefore the carrying value is considered the best indication of payment/performance risk for individual contracts. However, the carrying values in the table above exclude the effect of counterparty and cash collateral netting.

Securities Lending Indemnifications. The Bank, in its capacity as an agency lender, indemnifies most of its securities lending customers against losses incurred in the event that borrowers do not return securities and the collateral held is insufficient to cover the market value of the securities borrowed. Collateral held by the lenders in connection with securities lending indemnifications was $11.75 billion as of June 2023 and $12.14 billion as of December 2022. Because the contractual nature of these arrangements requires the Bank to obtain collateral with a market value that exceeds the value of the securities lent to the borrower, there is minimal performance risk associated with these guarantees.

Other Financial Guarantees. In the ordinary course of business, the Bank provides other financial guarantees of the obligations of third parties (e.g., standby letters of credit and other guarantees to enable clients to complete transactions). These guarantees represent obligations to make payments to beneficiaries if the guaranteed party fails to fulfill its obligation under a contractual arrangement with that beneficiary.

Indemnities and Guarantees of Service Providers. In the ordinary course of business, the Bank indemnifies and guarantees certain service providers, such as clearing and custody agents, trustees and administrators, against specified potential losses in connection with their acting as an agent of, or providing services to, the Bank.

The Bank may also be liable to some clients or other parties for losses arising from its custodial role or caused by acts or omissions of third-party service providers, including sub-custodians and third-party brokers. In certain cases, the Bank has the right to seek indemnification from these third-party service providers for certain relevant losses incurred by the Bank. In addition, the Bank is a member of a clearing and settlement network, as well as exchanges around the world that may require the Bank to meet the obligations of such networks and exchanges in the event of member defaults and other loss scenarios.

The Bank is unable to develop an estimate of the maximum payout under these guarantees and indemnifications. However, management believes that it is unlikely the Bank will have to make any material payments under these arrangements, and no material liabilities related to these guarantees and indemnifications have been recognized in the consolidated balance sheets as of both June 2023 and December 2022.

Other Representations, Warranties and Indemnifications. The Bank provides representations and warranties to counterparties in connection with a variety of commercial transactions and occasionally indemnifies them against potential losses caused by the breach of those representations and warranties. The Bank may also provide indemnifications protecting against changes in or adverse application of certain U.S. tax laws in connection with ordinary-course transactions, such as borrowings or derivatives.

In addition, the Bank may provide indemnifications to some counterparties to protect them in the event additional taxes are owed or payments are withheld, due either to a change in or an adverse application of certain non-U.S. tax laws.

These indemnifications generally are standard contractual terms and are entered into in the ordinary course of business. Generally, there are no stated or notional amounts included in these indemnifications, and the contingencies triggering the obligation to indemnify are not expected to occur. The Bank is unable to develop an estimate of the maximum payout under these guarantees and indemnifications. However, management believes that it is unlikely the Bank will have to make any material payments under these arrangements, and no material liabilities related to these arrangements have been recognized in the consolidated balance sheets as of both June 2023 and December 2022.

Note 19.

Regulation and Capital Adequacy

The Bank is regulated as described in Note 1, and is subject to consolidated regulatory capital requirements which are calculated in accordance with the regulations of the FRB (Capital Framework).

The capital requirements are expressed as risk-based capital and leverage ratios that compare measures of regulatory capital to risk-weighted assets (RWAs), average assets and off-balance sheet exposures. Failure to comply with these capital requirements would result in restrictions being imposed by the regulators and could limit the Bank's ability to pay dividends and make certain discretionary compensation payments. The Bank's capital levels are also subject to qualitative judgments by the regulators about components of capital, risk weightings and other factors. Furthermore, certain of the Bank's subsidiaries are subject to separate regulations and capital requirements.

Capital Framework

The regulations under the Capital Framework are largely based on the Basel Committee on Banking Supervision's (Basel Committee) capital framework for strengthening international capital standards (Basel III) and also implement certain provisions of the U.S. Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act). Under the Capital Framework, the Bank is an "Advanced approaches" banking organization.

The Capital Framework includes the minimum risk-based capital and the capital conservation buffer requirements (consisting of a 2.5% buffer and the countercyclical capital buffer). The buffer must consist entirely of capital that qualifies as Common Equity Tier 1 (CET1) capital. In addition, the Capital Framework includes the leverage ratio requirements.

The Bank calculates its CET1 capital, Tier 1 capital and Total capital ratios in accordance with both the Standardized and Advanced Capital Rules. The lower of each risk-based capital ratio calculated under the Standardized and Advanced Capital Rules is the ratio against which the Bank's compliance with its risk-based capital requirements is assessed.

Under the Capital Framework, the Bank is also subject to leverage requirements which consist of a minimum Tier 1 leverage ratio and a minimum supplementary leverage ratio (SLR).

Consolidated Regulatory Capital Requirements

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

In addition, under the regulatory framework for prompt corrective action applicable to the Bank, in order to meet the quantitative requirements for a "well-capitalized" depository institution, the Bank must also meet the "well-capitalized" requirements in the table below.

The Bank's capital levels and prompt corrective action classification are also subject to qualitative judgments by the regulators about components of capital, risk weightings and other factors. Failure to comply with the capital requirements, including a breach of the buffers described below, would result in restrictions being imposed by the regulators.

Risk-Based Capital and Leverage Ratios. The table below presents the risk-based capital, leverage and "well-capitalized" requirements.

	Requirements	"Well-capitalized" Requirements
Risk-based capital requirements		
CET1 capital ratio	**7.0%**	**6.5%**
Tier 1 capital ratio	**8.5%**	**8.0%**
Total capital ratio	**10.5%**	**10.0%**
Leverage requirements		
Tier 1 leverage ratio	**4.0%**	**5.0%**
SLR	**3.0%**	**6.0%**

In the table above:

- The CET1 capital ratio requirement includes a minimum of 4.5%, the Tier 1 capital ratio requirement includes a minimum of 6.0% and the Total capital ratio requirement includes a minimum of 8.0%. These requirements also include the capital conservation buffer requirements, consisting of a 2.5% buffer and the countercyclical capital buffer, which the FRB has set to zero percent.
- The "well-capitalized" requirements are the binding requirements for leverage ratios.

The table below presents information about risk-based capital ratios.

$ in millions	Standardized	Advanced
As of June 2023		
CET1 capital	**$ 49,912**	**$ 49,912**
Tier 1 capital	**$ 49,912**	**$ 49,912**
Tier 2 capital	**$ 6,030**	**$ 3,372**
Total capital	**$ 55,942**	**$ 53,284**
RWAs	**$ 378,509**	**$ 308,125**
CET1 capital ratio	**13.2%**	**16.2%**
Tier 1 capital ratio	**13.2%**	**16.2%**
Total capital ratio	**14.8%**	**17.3%**
As of December 2022		
CET1 capital	$ 46,845	$ 46,845
Tier 1 capital	$ 46,845	$ 46,845
Tier 2 capital	$ 8,042	$ 5,382
Total capital	$ 54,887	$ 52,227
RWAs	$ 357,112	$ 275,451
CET1 capital ratio	13.1%	17.0%
Tier 1 capital ratio	13.1%	17.0%
Total capital ratio	15.4%	19.0%

In the table above, the lower of the Standardized or Advanced ratio is the ratio against which the Bank's compliance with the capital requirements is assessed under the risk-based Capital Rules, and therefore, the Standardized ratios applied to the Bank as of both June 2023 and December 2022.

The table below presents information about leverage ratios.

	For the Three Months Ended or as of	
$ in millions	**June 2023**	December 2022
Tier 1 capital	**$ 49,912**	$ 46,845
Average total assets	**$ 516,316**	$ 500,963
Deductions from Tier 1 capital	**(1,916)**	(1,855)
Average adjusted total assets	**514,400**	499,108
Off-balance sheet and other exposures	**184,723**	172,107
Total leverage exposure	**$ 699,123**	$ 671,215
Tier 1 leverage ratio	**9.7%**	9.4%
SLR	**7.1%**	7.0%

In the table above:

- Average total assets represents the average daily assets for the quarter adjusted for the impact of Current Expected Credit Losses (CECL) transition.
- Off-balance sheet and other exposures primarily includes the monthly average of off-balance sheet exposures, consisting of derivatives, securities financing transactions, commitments and guarantees.

- Tier 1 leverage ratio is calculated as Tier 1 capital divided by average adjusted total assets.
- SLR is calculated as Tier 1 capital divided by total leverage exposure.

Risk-Based Capital. The table below presents information about risk-based capital.

	As of	
	June	December
$ in millions	**2023**	2022
Shareholder's equity	**$ 51,583**	$ 48,302
Impact of CECL transition	**392**	588
Deduction for goodwill	**(1,160)**	(1,085)
Deduction for identifiable intangible assets	**(713)**	(747)
Other adjustments	**(190)**	(213)
CET1 capital	**49,912**	46,845
Tier 1 capital	**$ 49,912**	$ 46,845
Standardized Tier 2 and Total capital		
Tier 1 capital	**$ 49,912**	$ 46,845
Qualifying subordinated debt	**2,272**	4,271
Allowance for credit losses	**3,758**	3,771
Standardized Tier 2 capital	**6,030**	8,042
Standardized Total capital	**$ 55,942**	$ 54,887
Advanced Tier 2 and Total capital		
Tier 1 capital	**$ 49,912**	$ 46,845
Standardized Tier 2 capital	**6,030**	8,042
Allowance for credit losses	**(3,758)**	(3,771)
Other adjustments	**1,100**	1,111
Advanced Tier 2 capital	**3,372**	5,382
Advanced Total capital	**$ 53,284**	$ 52,227

In the table above:

- Beginning in January 2022, the Bank started to phase in the estimated reduction to regulatory capital as a result of adopting the CECL model. The total amount of reduction to be phased in from January 1, 2022 through January 1, 2025 (at 25% per year) was $783 million, of which $392 million had been phased in as of June 2023. The total amount to be phased in includes the impact of adopting CECL as of January 1, 2020, as well as 25% of the increase in the allowance for credit losses from January 1, 2020 through December 31, 2021. The impact of CECL transition reflects the remaining amount of reduction to be phased in as of both June 2023 and December 2022.
- Other adjustments within CET1 capital primarily include credit valuation adjustments on derivative liabilities, disallowed deferred tax assets and debt valuation adjustments. Other adjustments within Advanced Tier 2 capital include eligible credit reserves.
- Qualifying subordinated debt is subordinated debt issued by the Bank with an original maturity of five years or greater. The outstanding amount of subordinated debt qualifying for Tier 2 capital is reduced upon reaching a remaining maturity of five years. See Note 14 for further information about the Bank's subordinated debt.

RWAs. RWAs are calculated in accordance with both the Standardized and Advanced Capital Rules.

Credit Risk

Credit RWAs are calculated based on measures of exposure, which are then risk weighted under the Standardized and Advanced Capital Rules:

- The Standardized Capital Rules apply prescribed risk-weights, which depend largely on the type of counterparty. The exposure measures for derivatives and securities financing transactions are based on specific formulas which take certain factors into consideration.
- Under the Advanced Capital Rules, the Bank computes risk-weights for wholesale and retail credit exposures in accordance with the Advanced Internal Ratings-Based approach. The exposure measures for derivatives and securities financing transactions are computed utilizing internal models.
- For both Standardized and Advanced credit RWAs, the risk-weights for securitizations are based on specific required formulaic approaches.

Market Risk

RWAs for market risk in accordance with the Standardized and Advanced Capital Rules are generally consistent. Market RWAs are calculated based on measures of exposure which include the following:

- Value-at-Risk (VaR) is the potential loss in value of trading assets and liabilities, as well as certain investments, loans, and other financial assets and liabilities accounted for at fair value, due to adverse market movements over a defined time horizon with a specified confidence level.

For both risk management purposes and regulatory capital calculations, the Bank uses a single VaR model which captures risks, including those related to interest rates, equity prices and currency rates. However, VaR used for risk management purposes differs from VaR used for regulatory capital requirements (regulatory VaR) due to differences in time horizons, confidence levels and the scope of positions on which VaR is calculated. For risk management purposes, a 95% one-day VaR is used, whereas for regulatory capital requirements, a 99% 10-day VaR is used to determine Market RWAs and a 99% one-day VaR is used to determine regulatory VaR exceptions.

The Bank's positional losses observed on a single day exceeded its 99% one-day regulatory VaR on three occasions during the six months ended June 2023 and on one occasion during the year ended 2022;

- Stressed VaR is the potential loss in value of trading assets and liabilities, as well as certain investments, loans, and other financial assets and liabilities accounted for at fair value, during a period of significant market stress;
- Incremental risk is the potential loss in value of non-securitized positions due to the default or credit migration of issuers of financial instruments over a one-year time horizon;
- Comprehensive risk is the potential loss in value, due to price risk and defaults, within the Bank's credit correlation positions; and
- Specific risk is the risk of loss on a position that could result from factors other than broad market movements, including event risk, default risk and idiosyncratic risk. The standardized measurement method is used to determine specific risk RWAs, by applying supervisory defined risk-weighting factors after applicable netting is performed.

Operational Risk

Operational RWAs are only required to be included under the Advanced Capital Rules. The Bank utilizes an internal risk-based model to quantify Operational RWAs.

The table below presents information about RWAs.

$ in millions	Standardized	Advanced
As of June 2023		
Credit RWAs		
Derivatives	**$ 49,276**	**$ 33,736**
Commitments, guarantees and loans	**218,524**	**153,261**
Securities financing transactions	**10,250**	**2,557**
Equity investments	**1,915**	**2,033**
Other	**21,397**	**18,641**
Total Credit RWAs	**301,362**	**210,228**
Market RWAs		
Regulatory VaR	**21,602**	**21,602**
Stressed VaR	**52,351**	**52,351**
Incremental risk	**1,298**	**1,298**
Comprehensive risk	**1,813**	**1,813**
Specific risk	**83**	**83**
Total Market RWAs	**77,147**	**77,147**
Total Operational RWAs	**—**	**20,750**
Total RWAs	**$ 378,509**	**$ 308,125**
As of December 2022		
Credit RWAs		
Derivatives	$ 53,801	$ 31,745
Commitments, guarantees and loans	216,261	147,933
Securities financing transactions	8,713	1,649
Equity investments	1,195	1,263
Other	22,317	19,198
Total Credit RWAs	302,287	201,788
Market RWAs		
Regulatory VaR	15,848	15,848
Stressed VaR	34,293	34,293
Incremental risk	1,755	1,755
Comprehensive risk	2,881	2,881
Specific risk	48	48
Total Market RWAs	54,825	54,825
Total Operational RWAs	—	18,838
Total RWAs	$ 357,112	$ 275,451

In the table above:

- Securities financing transactions represents resale and repurchase agreements and securities borrowed and loaned transactions.
- Other includes receivables, certain debt securities, cash and other assets.

The table below presents changes in RWAs.

$ in millions	Standardized	Advanced
Six Months Ended June 2023		
RWAs		
Beginning balance	**$ 357,112**	**$ 275,451**
Credit RWAs		
Change in:		
Derivatives	**(4,525)**	**1,991**
Commitments, guarantees and loans	**2,263**	**5,328**
Securities financing transactions	**1,537**	**908**
Equity investments	**720**	**770**
Other	**(920)**	**(557)**
Change in Credit RWAs	**(925)**	**8,440**
Market RWAs		
Change in:		
Regulatory VaR	**5,754**	**5,754**
Stressed VaR	**18,058**	**18,058**
Incremental risk	**(457)**	**(457)**
Comprehensive risk	**(1,068)**	**(1,068)**
Specific risk	**35**	**35**
Change in Market RWAs	**22,322**	**22,322**
Change in Operational RWAs	**—**	**1,912**
Ending balance	**$ 378,509**	**$ 308,125**

RWAs Rollforward Commentary

Six Months Ended June 2023. Standardized Credit RWAs as of June 2023 decreased by $925 million compared with December 2022, primarily reflecting a decrease in derivatives (principally due to decreased exposure), partially offset by an increase in commitments, guarantees and loans (principally due to increased lending exposure) and an increase in securities financing transactions (principally due to increased funding exposure). Standardized Market RWAs as of June 2023 increased by $22.32 billion compared with December 2022 primarily reflecting increases in stressed VaR and regulatory VaR (both principally due to increased exposures to interest rates).

Advanced Credit RWAs as of June 2023 increased by $8.44 billion compared with December 2022, primarily reflecting an increase in commitments, guarantees and loans (principally due to increased lending exposure) and derivatives (principally due to increased exposure). Advanced Market RWAs as of June 2023 increased by $22.32 billion compared with December 2022 primarily reflecting increases in stressed VaR and regulatory VaR (both principally due to increased exposures to interest rates). Advanced Operational RWAs as of June 2023 increased by $1.91 billion compared with December 2022, primarily reflecting increased frequency of loss events estimated by the Bank's risk-based model.

GSBE

GSBE calculates its standalone prudential capital requirements in accordance with the E.U. Capital Requirements Directive and E.U. Capital Requirements Regulation, which are largely based on Basel III. As of both June 2023 and December 2022, GSBE was in compliance with its regulatory capital requirements. The deposits of GSBE are covered by the German statutory deposit protection program to the extent provided by law. In addition, GSBE has elected to participate in the German voluntary deposit protection program which provides insurance for certain eligible deposits not covered by the German statutory deposit program.

The table below presents GSBE's risk-based capital requirements.

	As of	
	June 2023	December 2022
Risk-based capital requirements		
CET1 capital ratio	**9.9%**	9.2%
Tier 1 capital ratio	**11.9%**	11.3%
Total capital ratio	**14.7%**	14.0%

The table below presents information about GSBE's risk-based capital ratios.

	As of	
$ in millions	**June 2023**	December 2022
Risk-based capital and risk-weighted assets		
CET1 capital	**$ 13,674**	$ 9,536
Tier 1 capital	**$ 13,674**	$ 9,536
Tier 2 capital	**$ 22**	$ 21
Total capital	**$ 13,696**	$ 9,557
RWAs	**$ 34,598**	$ 30,154
Risk-based capital ratios		
CET1 capital ratio	**39.5%**	31.6%
Tier 1 capital ratio	**39.5%**	31.6%
Total capital ratio	**39.6%**	31.7%

In the table above, the risk-based capital ratios as of June 2023 reflected profits after foreseeable charges that are still subject to audit by GSBE's external auditors and approval by GSBE's shareholder (GS Bank USA) for inclusion in risk-based capital. These profits contributed approximately 112 basis points to the CET1 capital ratio as of June 2023.

The table below presents GSBE's leverage ratio requirement and leverage ratio.

	As of	
	June 2023	December 2022
Leverage ratio requirement	**3.0%**	3.0%
Leverage ratio	**12.2%**	10.6%

In the table above, the leverage ratio as of June 2023 reflected profits after foreseeable charges that are still subject to audit by GSBE's external auditors and approval by GSBE's shareholder (GS Bank USA) for inclusion in risk-based capital. These profits contributed approximately 34 basis points to the leverage ratio as of June 2023.

GS Bank USA made a capital contribution of $3.55 billion to GSBE in January 2023.

Required Reserves

The deposits of GS Bank USA are insured by the FDIC to the extent provided by law. The FRB requires that GS Bank USA maintain cash reserves with the Federal Reserve. See Note 23 for further information about cash deposits held by GS Bank USA at the Federal Reserve.

GSBE is subject to minimum reserve requirements at central banks in certain of the jurisdictions in which it operates. As of both June 2023 and December 2022, GSBE was in compliance with these requirements.

Other

GS Bank USA, and two subsidiaries, GSBE and Goldman Sachs Mitsui Marine Derivative Products, L.P. (MMDP), are registered swap dealers with the CFTC and GS Bank USA and GSBE are registered security-based swap dealers with the SEC. As of both June 2023 and December 2022, GS Bank USA, GSBE and MMDP were subject to and in compliance with applicable capital requirements for swap dealers and security-based swap dealers.

Note 20.

Transactions with Related Parties

Transactions between the Bank and its affiliates are subject to regulations adopted by the FRB and the supervision of both the FRB and the NYDFS. These regulations generally limit the types and amounts of transactions (including credit extensions from the Bank) that may take place and generally require those transactions to be on terms that are at least as favorable to the Bank as prevailing terms for comparable transactions with non-affiliates. These regulations generally do not apply to transactions within the Bank.

The table below presents assets and liabilities with affiliates.

	As of	
$ in millions	**June 2023**	December 2022
Assets		
Cash	**$ 565**	$ 459
Collateralized agreements:		
Resale agreements	**9,990**	15,607
Securities borrowed	**2,595**	2,676
Customer and other receivables	**16,174**	11,217
Trading assets	**704**	3,487
Other assets	**1,730**	2,224
Total	**$ 31,758**	$ 35,670
Liabilities		
Deposits	**$ 33,498**	$ 39,616
Collateralized financings:		
Repurchase agreements	**19,133**	4,923
Securities loaned	**4,496**	2,846
Other secured financings	**3,654**	3,470
Customer and other payables	**5,906**	5,523
Trading liabilities	**199**	573
Unsecured borrowings	**2,608**	4,498
Other liabilities	**1,256**	1,180
Total	**$ 70,750**	$ 62,629

In the table above, trading assets and trading liabilities consist of net outstanding derivative contracts with Group Inc. and affiliates. The Bank enters into derivative contracts with Group Inc. and affiliates in the normal course of business.

Group Inc. Guarantee

Group Inc. has guaranteed the payment obligations of GS Bank USA, subject to certain limitations.

Interest Income and Interest Expense

The Bank recognizes interest income and interest expense in connection with various affiliated transactions. These transactions include resale agreements, other assets, repurchase agreements, deposits, collateral posted and received, other liabilities, and unsecured borrowings. The Bank recorded net interest income from affiliates of $65 million for the three months ended June 2023, $55 million for the three months ended June 2022, $144 million for the six months ended June 2023 and $42 million for the six months ended June 2022.

Other Transactions

The Bank has revenue sharing agreements with affiliated entities related to certain activities under which it transfers revenues to, and receives revenues from, such entities. Such shared revenues under these agreements include revenues related to market and credit risk exposures held by the Bank or by affiliated entities which arise from activities covered by these agreements. The Bank received net revenues from affiliates of $227 million for the three months ended June 2023, transferred net revenues to affiliates of $277 million for the three months ended June 2022, received net revenues from affiliates of $295 million for the six months ended June 2023 and transferred net revenues to affiliates of $170 million for the six months ended June 2022. These amounts are included in gains and losses from financial assets and liabilities and other revenues. The Bank also compensated affiliates for providing certain services to customers. Such costs, which were included within operating expenses, were $50 million for the three months ended June 2023, $50 million for the three months ended June 2022, $112 million for the six months ended June 2023 and $135 million for the six months ended June 2022.

The Bank is subject to service charges from affiliates. The net charge to the Bank by affiliates was $206 million for the three months ended June 2023, $198 million for the three months ended June 2022, $390 million for the six months ended June 2023 and $403 million for the six months ended June 2022. This service charge from affiliates is for employment related costs of dual employees and employees of affiliates pursuant to a Master Services Agreement supplemented by Service Level Agreements (collectively, the Master Services Agreement). These amounts are included in service charges.

The Bank receives operational and administrative support and management services from affiliates and is charged for these services. In addition, the Bank provides similar support and services to affiliates and charges these affiliates for the services provided. These charges from and to affiliates are included net in the applicable expense captions in the consolidated statements of earnings. The Bank incurred a net charge from affiliates of $212 million for the three months ended June 2023, $194 million for the three months ended June 2022, $418 million for the six months ended June 2023 and $364 million for the six months ended June 2022 related to such operational and administrative support and management services.

The capital contribution of $1.96 billion from Group Inc. during the first half of 2022 included a non-cash contribution of approximately $1.75 billion related to the acquisition of GreenSky.

In connection with its partnership interest in MMDP, the Bank has provided to Mitsui Sumitomo Insurance Co., Ltd. (Mitsui Sumitomo) additional protection in the form of assets held in a VIE which could be liquidated for the benefit of Mitsui Sumitomo under certain circumstances.

Note 21.

Interest Income and Interest Expense

Interest is recorded over the life of the instrument on an accrual basis based on contractual interest rates.

The table below presents sources of interest income and interest expense.

	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
Deposits with banks	**$ 1,939**	$ 290	**$ 3,788**	$ 336
Collateralized agreements	**721**	37	**1,211**	42
Trading assets	**317**	164	**587**	336
Investments	**163**	48	**259**	89
Loans	**3,124**	1,540	**6,067**	2,746
Other interest	**1,064**	357	**1,927**	564
Total interest income	**7,328**	2,436	**13,839**	4,113
Deposits	**3,488**	665	**6,555**	971
Collateralized financings	**483**	(12)	**761**	(28)
Trading liabilities	**100**	84	**177**	134
Borrowings	**110**	52	**172**	90
Other interest	**888**	186	**1,660**	235
Total interest expense	**5,069**	975	**9,325**	1,402
Net interest income	**$ 2,259**	$ 1,461	**$ 4,514**	$ 2,711

In the table above:

- Collateralized agreements consists of resale agreements and securities borrowed.
- Loans excludes interest on loans held for sale that are accounted for at the lower of cost or fair value. Such interest is included within other interest.
- Other interest income primarily includes interest income on loans held for sale that are accounted for at the lower of cost or fair value, collateral balances posted to counterparties and foreign currency funding facilities.
- Collateralized financings consists of repurchase agreements and securities loaned.
- Borrowings includes interest expense from other secured financings and unsecured borrowings, which primarily relates to interest incurred on the Bank's affiliate borrowings from Group Inc. and Funding IHC, as well as FHLB advances.

- Other interest expense primarily includes interest expense on collateral balances received from counterparties and interest expense on foreign currency funding facilities.

Note 22.

Income Taxes

Provision for Income Taxes

Income taxes are provided for using the asset and liability method under which deferred tax assets and liabilities are recognized for temporary differences between the financial reporting and tax bases of assets and liabilities. The Bank reports interest expense related to income tax matters in provision for taxes and income tax penalties in other expenses.

The Bank's results of operations are included in the consolidated federal and certain state tax returns of GS Group. The Bank computes its tax liability as if it was filing a tax return on a modified separate company basis and settles such liability with Group Inc. pursuant to a tax sharing agreement. To the extent the Bank generates tax benefits from losses, it will be reimbursed by Group Inc. pursuant to a tax sharing agreement at such time as GS Group would have been able to utilize such losses.

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. Tax assets are included in other assets and tax liabilities are included in other liabilities.

Unrecognized Tax Benefits

The Bank recognizes tax positions in the consolidated financial statements only when it is more likely than not that the position will be sustained on examination by the relevant taxing authority based on the technical merits of the position. A position that meets this standard is measured at the largest amount of benefit that will more likely than not be realized on settlement. A liability is established for differences between positions taken in a tax return and amounts recognized in the consolidated financial statements.

Regulatory Tax Examinations

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

The table below presents the earliest tax years that remain subject to examination by major jurisdiction.

Jurisdiction	As of June 2023
U.S. Federal	**2011**
New York State and City	**2015**
Germany	**2017**
United Kingdom	**2021**

GS Group has been accepted into the Compliance Assurance Process program by the IRS for each of the tax years from 2013 through 2023. 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. All issues for the 2011 through 2018 tax years have been resolved and completion is pending final review by the Joint Committee on Taxation. All issues for the 2019 and 2020 tax years have been resolved and will be effectively settled pending administrative completion by the IRS. Final completion of tax years 2011 through 2020 will not have a material impact on the effective tax rate. The 2021 tax year remains subject to post-filing review. New York State and City examinations of tax years 2015 through 2018 commenced during 2021.

All years, including and subsequent to the years in the table above, remain open to examination by the taxing authorities. The Bank believes that the liability for unrecognized tax benefits it has established is adequate in relation to the potential for additional assessments.

Note 23.

Credit Concentrations

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

The Bank measures and monitors its credit exposure based on amounts owed to the Bank after taking into account risk mitigants that the Bank considers when determining credit risk. Such risk mitigants include netting and collateral arrangements and economic hedges, such as credit derivatives, futures and forward contracts. Netting and collateral agreements permit the Bank to offset receivables and payables with such counterparties and/or enable the Bank to obtain collateral on an upfront or contingent basis.

The table below presents the credit concentrations included in trading cash instruments and investments.

	As of	
	June	December
$ in millions	**2023**	2022
U.S. government and agency obligations	**$ 59,797**	$ 41,841
Percentage of total assets	**11.6%**	8.6%

In addition, GS Bank USA had $124.71 billion as of June 2023 and $165.79 billion as of December 2022 of cash deposits held at the Federal Reserve. GSBE had $14.91 billion as of June 2023 and $13.31 billion as of December 2022 deposited at central banks, substantially all of which was deposited with Deutsche Bundesbank. These cash deposits are included in cash.

As of both June 2023 and December 2022, the Bank did not have credit exposure to any other external counterparty that exceeded 2% of total assets.

Collateral obtained by the Bank related to derivative assets is principally cash and is held by the Bank or a third-party custodian. Collateral obtained by the Bank related to resale agreements is primarily U.S. government and agency obligations. See Note 11 for further information about collateralized agreements and financings.

The 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.

	As of	
	June	December
$ in millions	**2023**	2022
U.S. government and agency obligations	**$ 33,790**	$ 20,309
Non-U.S. government and agency obligations	**$ 18,993**	$ 9,090

In the table above:

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

Note 24.

Legal Proceedings

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

Management is generally unable to estimate a range of reasonably possible loss for matters in which the Bank is involved due to various factors, including where (i) actual or potential plaintiffs have not claimed an amount of money damages, except in those instances where management can otherwise determine an appropriate amount, (ii) matters are in early stages, (iii) matters relate to regulatory investigations or reviews, except in those instances where management can otherwise determine an appropriate amount, (iv) there is uncertainty as to the likelihood of a class being certified or the ultimate size of the class, (v) there is uncertainty as to the outcome of pending appeals or motions, (vi) there are significant factual issues to be resolved, and/or (vii) there are novel legal issues presented.

Management does not believe, based on currently available information, that the outcomes of any such matters will have a material adverse effect on the Bank's financial condition, though the outcomes could be material to the Bank's operating results for any particular period, depending, in part, upon the operating results for such period.

Consumer Investigation and Review

The Bank is cooperating with the Consumer Financial Protection Bureau and other governmental bodies relating to investigations and/or inquiries concerning the Bank's credit card account management practices and is providing information regarding the application of refunds, crediting of nonconforming payments, billing error resolution, advertisements, reporting to credit bureaus, and any other consumer-related information requested by them.

Regulatory Investigations and Reviews and Related Litigation. The Bank and certain of its affiliates (including Group Inc.) are subject to a number of investigations and reviews by, and in some cases have received subpoenas and requests for documents and information from, various governmental and regulatory bodies and self-regulatory organizations and litigation relating to such matters in each case relating to the Bank's current and past businesses (including acquired businesses) and operations, including, but not limited to, consumer lending, as well as residential mortgage lending and servicing, and compliance with related consumer laws; the sales, trading, transaction and regulatory reporting, execution and clearance of derivatives, currencies and other financial products and related communications and activities, including trading activities and communications in connection with the establishment of benchmark rates, such as currency rates, and activities in U.S. Treasury securities; transactions involving government-related financings and other matters; and securities offering processes, underwriting practices and related financial advisory services. The Bank is cooperating with all such regulatory investigations and reviews.

In addition, governmental and other investigations, reviews, actions and litigation involving the Bank's affiliates and such affiliates' businesses and operations, including without limitation various matters referred to above, may have an impact on the Bank's businesses and operations.

Note 25.

Subsequent Events

The Bank evaluated subsequent events through August 9, 2023, the date the consolidated financial statements were issued, and determined that there were no material events or transactions that would require recognition or additional disclosure in these consolidated financial statements.

Report of Independent Auditors

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

Results of Review of Interim Financial Information

We have reviewed the accompanying consolidated interim financial information of Goldman Sachs Bank USA and its subsidiaries (the “Bank”), which comprise the consolidated balance sheet as of June 30, 2023, and the related consolidated statements of earnings, comprehensive income, and changes in shareholder’s equity for the three-month and six-month periods ended June 30, 2023 and 2022 and the consolidated statement of cash flows for the six-month periods ended June 30, 2023 and 2022, including the related notes (collectively referred to as the “consolidated interim financial information”).

Based on our review, we are not aware of any material modifications that should be made to the accompanying consolidated interim financial information for it to be in accordance with accounting principles generally accepted in the United States of America.

Basis for Review Results

We conducted our review in accordance with auditing standards generally accepted in the United States of America (US GAAS) applicable to reviews of interim financial information. A review of interim financial information consists principally of applying analytical procedures and making inquiries of persons responsible for financial and accounting matters. A review of interim financial information is substantially less in scope than an audit conducted in accordance with US GAAS, the objective of which is an expression of an opinion regarding the financial information as a whole, and accordingly, we do not express such an opinion. We are required to be independent of the Company and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our review. We believe that the results of the review procedures provide a reasonable basis for our conclusion.

Responsibilities of Management for the Consolidated Interim Financial Information

Management is responsible for the preparation and fair presentation of the consolidated interim financial information in accordance with accounting principles generally accepted in the United States of America and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of the consolidated interim financial information that is free from material misstatement, whether due to fraud or error.

Other Matter

We previously audited, in accordance with auditing standards generally accepted in the United States of America, the consolidated balance sheet of the Bank as of December 31, 2022, and the related consolidated statements of earnings, comprehensive income, changes in shareholder’s equity, and cash flows for the year then ended (not presented herein), and in our report dated March 7, 2023, we expressed an unmodified opinion on those consolidated financial statements. In our opinion, the information set forth in the accompanying consolidated balance sheet as of December 31, 2022, is consistent, in all material respects, with the audited consolidated balance sheet from which it has been derived.

PricewaterhouseCoopers LLP

August 9, 2023

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

Distribution of Assets, Liabilities and Shareholder's Equity

The tables below present information about average balances, interest and average interest rates.

	Average Balance for the			
	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
Assets				
Deposits with banks	**$158,858**	$160,920	**$164,666**	$153,041
Collateralized agreements	**46,513**	35,381	**41,589**	38,748
Trading assets	**52,102**	38,471	**46,826**	38,890
Investments	**35,284**	26,444	**32,734**	25,927
Loans	**146,845**	133,669	**147,885**	128,342
Other interest-earning assets	**31,292**	41,181	**30,239**	40,481
Interest-earning assets	**470,894**	436,066	**463,939**	425,429
Cash and due from banks	**1,615**	1,107	**1,490**	1,202
Other non-interest-earning assets	**43,415**	41,876	**42,081**	38,858
Assets	**$515,924**	$479,049	**$507,510**	$465,489
Liabilities				
Interest-bearing deposits	**$351,565**	$323,353	**$350,048**	$316,711
Collateralized financings	**25,761**	14,876	**22,308**	15,540
Trading liabilities	**14,737**	16,457	**13,334**	14,735
Borrowings	**11,436**	10,733	**10,372**	9,906
Other interest-bearing liabilities	**15,747**	24,348	**15,120**	22,475
Interest-bearing liabilities	**419,246**	389,767	**411,182**	379,367
Non-interest-bearing deposits	**4,160**	4,231	**4,151**	4,477
Other non-interest-bearing liabilities	**41,482**	40,752	**42,065**	38,439
Liabilities	**464,888**	434,750	**457,398**	422,283
Shareholder's equity	**51,036**	44,299	**50,112**	43,206
Liabilities and shareholder's equity	**$515,924**	$479,049	**$507,510**	$465,489

	Interest for the			
	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
Assets				
Deposits with banks	**$ 1,939**	$ 290	**$ 3,788**	$ 336
Collateralized agreements	**721**	37	**1,211**	42
Trading assets	**317**	164	**587**	336
Investments	**163**	48	**259**	89
Loans	**3,124**	1,540	**6,067**	2,746
Other interest-earning assets	**1,064**	357	**1,927**	564
Interest-earning assets	**$ 7,328**	$ 2,436	**$ 13,839**	$ 4,113
Liabilities				
Interest-bearing deposits	**$ 3,488**	$ 665	**$ 6,555**	$ 971
Collateralized financings	**483**	(12)	**761**	(28)
Trading liabilities	**100**	84	**177**	134
Borrowings	**110**	52	**172**	90
Other interest-bearing liabilities	**888**	186	**1,660**	235
Interest-bearing liabilities	**$ 5,069**	$ 975	**$ 9,325**	$ 1,402
Net interest income	**$ 2,259**	$ 1,461	**$ 4,514**	$ 2,711

	Annualized Average Rate for the			
	Three Months Ended June		Six Months Ended June	
	2023	2022	**2023**	2022
Assets				
Deposits with banks	**4.88%**	0.72%	**4.60%**	0.44%
Collateralized agreements	**6.20%**	0.42%	**5.82%**	0.22%
Trading assets	**2.43%**	1.71%	**2.51%**	1.74%
Investments	**1.85%**	0.73%	**1.58%**	0.69%
Loans	**8.51%**	4.61%	**8.21%**	4.30%
Other interest-earning assets	**13.60%**	3.47%	**12.75%**	2.80%
Interest-earning assets	**6.22%**	2.23%	**5.97%**	1.94%
Liabilities				
Interest-bearing deposits	**3.97%**	0.82%	**3.75%**	0.62%
Collateralized financings	**7.50%**	(0.32)%	**6.82%**	(0.36)%
Trading liabilities	**2.71%**	2.04%	**2.65%**	1.83%
Borrowings	**3.85%**	1.94%	**3.32%**	1.83%
Other interest-bearing liabilities	**22.56%**	3.06%	**21.96%**	2.10%
Interest-bearing liabilities	**4.84%**	1.00%	**4.54%**	0.74%
Net interest margin	**1.92%**	1.34%	**1.95%**	1.28%

In the tables above:

- Substantially all deposits with banks consist of deposits held at the Federal Reserve and other central banks.
- Collateralized agreements included $43.84 billion of resale agreements and $2.67 billion of securities borrowed for the three months ended June 2023, $31.50 billion of resale agreements and $3.88 billion of securities borrowed for the three months ended June 2022, $39.08 billion of resale agreements and $2.51 billion of securities borrowed for the six months ended June 2023, and $32.74 billion of resale agreements and $6.00 billion of securities borrowed for the six months ended June 2022. Collateralized financings included $20.05 billion of repurchase agreements and $5.71 billion of securities loaned for the three months ended June 2023, $8.54 billion of repurchase agreements and $6.33 billion of securities loaned for the three months ended June 2022, $17.43 billion of repurchase agreements and $4.88 billion of securities loaned for the six months ended June 2023, and $8.02 billion of repurchase agreements and $7.52 billion of securities loaned for the six months ended June 2022. The average balances for both collateralized agreements and collateralized financings reflect the impact of counterparty netting, while the related interest income and interest expense do not reflect the impact of such counterparty netting. See Note 11 to the consolidated financial statements and "Results of Operations" in Part II of this Quarterly Report for further information about collateralized agreements and collateralized financings and related interest.

- See Notes 4 and 5 to the consolidated financial statements and "Results of Operations" in Part II of this Quarterly Report for further information about financial assets and liabilities and related interest.
- Loans consists of loans held for investment that are accounted for at amortized cost net of allowance for loan losses or at fair value under the fair value option. Loans excludes loans held for sale that are accounted for at the lower of cost or fair value. Such loans are included within other interest-earning assets. Interest on loans is recognized over the life of the loan and is recorded on an accrual basis. See Note 9 to the consolidated financial statements and "Results of Operations" in Part II of this Quarterly Report for further information about loans and related interest.
- Other interest-earning assets consists of customer and other receivables and loans held for sale that are accounted for at the lower of cost or fair value. Other interest-bearing liabilities consists of customer and other payables. The average balances for both other interest-earning assets and other interest-bearing liabilities reflect the impact of counterparty netting, while the related interest income and interest expense do not reflect the impact of such counterparty netting.
- Derivative instruments are included in other non-interest-earning assets and other non-interest-bearing liabilities. See Note 7 to the consolidated financial statements and "Results of Operations" in Part II of this Quarterly Report for further information about derivatives.
- Interest-bearing deposits consists of deposits from private bank clients, U.S. consumers, clients of third-party broker-dealers, institutions, corporations and affiliates. See Note 13 to the consolidated financial statements and "Results of Operations" in Part II of this Quarterly Report for further information about deposits and related interest.
- Borrowings include senior unsecured debt, subordinated borrowings, hybrid financial instruments, borrowings from affiliates and other secured financings. See Notes 11 and 14 to the consolidated financial statements and "Balance Sheet Analysis" in Part II of this Quarterly Report for further information about short-term and long-term borrowings and related interest.
- See Note 21 to the consolidated financial statements for further information about interest income and interest expense.

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

Introduction

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

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

Our principal office is located in New York, New York. GS Bank USA operates two domestic branches, which are located in Salt Lake City, Utah and Draper, Utah. Both branches are regulated by the Utah Department of Financial Institutions. GS Bank USA also operates two foreign branches, which are located in London, United Kingdom and Tokyo, Japan. The London branch is regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority and the Tokyo branch is regulated by the Japan Financial Services Agency. Goldman Sachs Bank Europe SE (GSBE), headquartered in Frankfurt, Germany, is a wholly-owned subsidiary of GS Bank USA. GSBE is directly supervised by the European Central Bank and additionally by the Federal Financial Supervisory Authority and Deutsche Bundesbank in the context of the E.U. Single Supervisory Mechanism. GSBE has branches in Amsterdam, Athens, Copenhagen, Dublin, London, Luxembourg, Madrid, Milan, Paris, Stockholm and Warsaw that are also regulated by the relevant authorities in each jurisdiction in certain areas, including with respect to anti-money laundering. GSBE was authorized by the FCA to provide services from its London branch and on a cross-border basis into the U.K. in April 2023, replacing its previous status under a temporary permission regime, which the U.K. government had established for a limited period post-Brexit.

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

References to revenue-producing units and control and support functions include activities performed by our employees, by dual employees (who are employees who perform services for both us and another GS Group subsidiary) and by affiliate employees under Bank supervision pursuant to Master Services Agreements supplemented by Service Level Agreements (collectively, the Master Services Agreement) between us and our affiliates.

This Management's Discussion and Analysis of Financial Condition and Results of Operations should be read in conjunction with our Annual Report for the year ended December 31, 2022. References to "the 2022 Annual Report" are to our Annual Report for the year ended December 31, 2022. All references to "this Quarterly Report," of which this Management's Discussion and Analysis forms a part, refers to the report dated August 9, 2023. See the 2022 Annual Report for more information relating to our business, the supervision and regulation to which we are subject, risk factors affecting our business, our results of operations and financial condition, as well as our consolidated financial statements.

References to "the consolidated financial statements" or "Supplemental Financial Information" are to Part I of this Quarterly Report. The consolidated financial statements are unaudited. All references to June 2023, March 2023 and June 2022 refer to our periods ended, or the dates, as the context requires, June 30, 2023, March 31, 2023 and June 30, 2022, respectively. All references to December 2022 refer to the date December 31, 2022. Any reference to a future year refers to a year ending on December 31 of that year. Certain reclassifications have been made to previously reported amounts to conform to the current presentation.

We are a financial services provider that engages in banking activities. We are GS Group’s primary lending entity, originating loans to corporate and wealth management clients, as well as issuing credit cards and providing point-of-sale financing through GreenSky, Inc. (GreenSky) to consumers. In April 2023, GS Group announced that it is initiating a process to explore the potential sale of GreenSky. We have also issued unsecured loans to consumers through our digital platform, *Marcus by Goldman Sachs* (Marcus). During the first half of 2023, we completed the sale of substantially all of this portfolio. We are GS Group’s primary deposit-taking entity. Our depositors include private bank clients, U.S. consumers, clients of third-party broker-dealers, institutions, corporations and our affiliates. We conduct our consumer deposit-taking activities through Marcus and also accept deposits from Apple Card customers. We also provide transaction banking services to institutions, corporations and our affiliates. In addition, we enter into interest rate, currency, credit and other derivatives, and transact in certain related cash products, for the purpose of market making and risk management. Our activities in the E.U. include underwriting and market making in debt and equity securities; advisory services; and asset and wealth management services.

Executive Overview

Three Months Ended June 2023 versus June 2022. We generated net earnings of $1.20 billion for the second quarter of 2023, an increase of 82% compared with $661 million for the second quarter of 2022.

Net revenues were $4.06 billion for the second quarter of 2023, an increase of 41% compared with $2.88 billion for the second quarter of 2022, primarily reflecting higher net interest income.

Net interest income was $2.26 billion for the second quarter of 2023, an increase of 55% compared with $1.46 billion for the second quarter of 2022. This increase was driven by higher interest income, partially offset by higher interest expense.

Non-interest revenues were $1.80 billion for the second quarter of 2023, an increase of 27% compared with $1.42 billion for the second quarter of 2022, primarily reflecting higher gains from financial assets and liabilities.

Provision for credit losses was $730 million for the second quarter of 2023, compared with $557 million for the second quarter of 2022. Provisions for the second quarter of 2023 primarily reflected net provisions related to the credit card and point-of-sale loan portfolios, driven by net charge-offs and growth, and individual impairments on wholesale loans. Provisions for the second quarter of 2022 primarily reflected growth (primarily in credit cards) and the impact of broad macroeconomic concerns.

Operating expenses were $1.70 billion for the second quarter of 2023, an increase of 20% compared with $1.41 billion for the second quarter of 2022, primarily due to increased compensation and benefits expenses.

As of June 2023, our Common Equity Tier 1 capital ratio as calculated in accordance with the Standardized Capital Rules was 13.2% and as calculated in accordance with the Advanced Capital Rules was 16.2%. See Note 19 to the consolidated financial statements for further information about our capital ratios.

Six Months Ended June 2023 versus June 2022. We generated net earnings of $2.86 billion for the first half of 2023, an increase of 78% compared with $1.60 billion for the first half of 2022.

Net revenues were $7.72 billion for the first half of 2023, an increase of 30% compared with $5.95 billion for the first half of 2022, primarily reflecting higher net interest income.

Net interest income was $4.51 billion for the first half of 2023, an increase of 67% compared with $2.71 billion for the first half of 2022. This increase was driven by higher interest income, partially offset by higher interest expense.

Non-interest revenues were $3.20 billion for the first half of 2023, essentially unchanged compared with $3.24 billion for the first half of 2022.

Provision for credit losses was $552 million for the first half of 2023, compared with $1.01 billion for the first half of 2022. Provisions for the first half of 2023 primarily reflected net provisions related to the credit card and point-of-sale loan portfolios, driven by net charge-offs and growth, partially offset by a reserve reduction related to the sale of substantially all of the Marcus loans portfolio. Provisions for the first half of 2022 primarily reflected portfolio growth (primarily in credit cards) and the impact of macroeconomic and geopolitical concerns.

Operating expenses were $3.27 billion for the first half of 2023, an increase of 19% compared with $2.76 billion for the first half of 2022, primarily due to increased compensation and benefits expenses.

Business Environment

During the second quarter of 2023, broad macroeconomic and geopolitical concerns continued to weigh on global economic activity. Stress in the banking sector remained a key focus early in the second quarter, subsiding after regional banks showed stability. Uncertainty heightened regarding a resolution on the U.S. federal debt ceiling before being resolved. Concerns about persistent inflation and the economic outlook remained, but declining inflationary measures and signs of improved sentiment were positive developments. These factors contributed to higher global equity prices compared with the end of the first quarter of 2023, while the commercial real estate market continued to face increased pressure.

There remains uncertainty about the economic outlook, reflecting concerns about geopolitical risks, inflation and the commercial real estate sector, and about potential increases in regulatory requirements.

Critical Accounting Policies

Allowance for Credit Losses

We estimate and record an allowance for credit losses related to our loans held for investment that are accounted for at amortized cost. To determine the allowance for credit losses, we classify our loans accounted for at amortized cost into wholesale and consumer portfolios. These portfolios represent the level at which we have developed and documented our methodology to determine the allowance for credit losses. The allowance for credit losses is measured on a collective basis for loans that exhibit similar risk characteristics using a modeled approach and on an asset-specific basis for loans that do not share similar risk characteristics.

The allowance for credit losses takes into account the weighted average of a range of forecasts of future economic conditions over the expected life of the loans and lending commitments. The expected life of each loan or lending commitment is determined based on the contractual term adjusted for extension options or demand features, or is modeled in the case of revolving credit card loans. The forecasts include baseline, favorable and adverse economic scenarios over a three-year period. For loans with expected lives beyond three years, the model reverts to historical loss information based on a non-linear modeled approach. We apply judgment in weighting individual scenarios each quarter based on a variety of factors, including our internally derived economic outlook, market consensus, recent macroeconomic conditions and industry trends. The forecasted economic scenarios consider a number of risk factors relevant to the wholesale and consumer portfolios. Risk factors for wholesale loans include internal credit ratings, industry default and loss data, expected life, macroeconomic indicators (e.g., unemployment rates and GDP), the borrower's capacity to meet its financial obligations, the borrower's country of risk and industry, loan seniority and collateral type. In addition, for loans backed by real estate, risk factors include loan-to-value ratio, debt service ratio and home price index. Risk factors for installment and credit card loans include Fair Isaac Corporation credit scores, delinquency status, loan vintage and macroeconomic indicators.

The allowance for credit losses also includes qualitative components which reflect the uncertain nature of economic forecasting, capture uncertainty regarding model inputs, and account for model imprecision and concentration risk.

Our estimate of credit losses entails judgment about collectability at the reporting dates, and there are uncertainties inherent in those judgments. The allowance for credit losses is subject to a governance process that involves review and approval by senior management within our independent risk oversight and control functions. Personnel within GS Group's independent risk oversight and control functions are responsible for forecasting the economic variables that underlie the economic scenarios that are used in the modeling of expected credit losses. While we use the best information available to determine this estimate, future adjustments to the allowance may be necessary based on, among other things, changes in the economic environment or variances between actual results and the original assumptions used. Loans are charged off against the allowance for loan losses when deemed to be uncollectible.

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

To estimate the potential impact of an adverse macroeconomic environment on our allowance for credit losses, we, among other things, compared the expected credit losses under the weighted average forecast used in the calculation of allowance for credit losses as of June 2023 (which was weighted towards the baseline and adverse economic scenarios) to the expected credit losses under a 100% weighted adverse economic scenario. The adverse economic scenario of the forecast model reflects a global recession in the second half of 2023 through the first half of 2024 and a more aggressive tightening of monetary policy by central banks, resulting in an economic contraction and rising unemployment rates. A 100% weighting to the adverse economic scenario would have resulted in an approximate $0.6 billion increase in our allowance for credit losses as of June 2023. This hypothetical increase does not take into consideration any potential adjustments to qualitative reserves. The forecasts of macroeconomic conditions are inherently uncertain and do not take into account any other offsetting or correlated effects. The actual credit loss in an adverse macroeconomic environment may differ significantly from this estimate. See Note 9 to the consolidated financial statements for further information about the allowance for credit losses.

Fair Value

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

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

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

Instruments classified in level 3 of the fair value hierarchy are those which require one or more significant inputs that are not observable. Level 3 financial assets represented 0.4% as of June 2023 and 0.5% as of December 2022 of our total assets. See Notes 4 and 5 to the consolidated financial statements for further information about level 3 financial assets, including changes in level 3 financial assets and related fair value measurements. Absent evidence to the contrary, instruments classified in level 3 of the fair value hierarchy are initially valued at transaction price, which is considered to be the best initial estimate of fair value. Subsequent to the transaction date, we use other methodologies to determine fair value, which vary based on the type of instrument. Estimating the fair value of level 3 financial instruments requires judgments to be made. These judgments include:

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

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

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

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

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

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

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

Review of Valuation Models. A model risk management group (Model Risk), consisting of quantitative professionals who are separate from model developers, performs an independent model review and validation process of valuation models. New or changed models are reviewed and approved prior to implementation. Models are reviewed annually to assess the impact of any changes in the product or market and any market developments in pricing theories. See "Risk Management — Model Risk Management" in Part II of the 2022 Annual Report for further information about the review and validation of valuation models.

Use of Estimates

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

Goodwill is assessed for impairment annually in the fourth quarter or more frequently if events occur or circumstances change that indicate an impairment may exist. The Bank consists of a single reporting unit, and as such, the assessment of goodwill for impairment is performed at the overall Bank level. When assessing goodwill for impairment, first, a qualitative assessment can be made to determine whether it is more likely than not that the estimated fair value of the Bank is less than its net book value. If the results of the qualitative assessment are not conclusive, a quantitative test is performed. Alternatively, a quantitative test can be performed without performing a qualitative assessment. During the second quarter of 2023, in connection with the exploration of a potential sale of GreenSky, we performed a quantitative test and determined that the estimated fair value of the Bank exceeded its net book value as of June 2023 and therefore, goodwill was not impaired. The estimated fair value was not substantially in excess of net book value, and we will continue to monitor goodwill to determine whether an impairment is required in the future.

Identifiable intangible assets are tested for impairment when events or changes in circumstances suggest that an asset’s or asset group’s carrying value may not be fully recoverable. In connection with the exploration of a potential sale of GreenSky, we quantitatively tested GreenSky’s identifiable intangible assets for impairment and determined that these assets were not impaired. We will continue to evaluate these assets to determine whether an impairment is required in the future. The identifiable intangible assets related to GreenSky were approximately $625 million as of June 2023 and approximately $660 million as of December 2022.

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

In accounting for income taxes, we recognize tax positions in the financial statements only when it is more likely than not that the position will be sustained on examination by the relevant taxing authority based on the technical merits of the position. We use estimates to recognize current and deferred income taxes in the U.S. federal, state and local and non-U.S. jurisdictions in which we operate. The income tax laws in these jurisdictions are complex and can be subject to different interpretations between taxpayers and taxing authorities. Disputes may arise over these interpretations and can be settled by audit, administrative appeals or judicial proceedings. Our interpretations are reevaluated quarterly based on guidance currently available, tax examination experience and the opinions of legal counsel, among other factors. We recognize deferred taxes based on the amount that will more likely than not be realized in the future based on enacted income tax laws. Our estimate for deferred taxes includes estimates for future taxable earnings, including the level and character of those earnings, and various tax planning strategies. See Note 22 to the consolidated financial statements for further information about income taxes.

Recent Accounting Developments

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

Results of Operations

The composition of our net revenues has varied over time as financial markets and the scope of our operations have changed. The composition of net revenues can also vary over the shorter term due to fluctuations in economic and market conditions. In addition to transactions entered into with third parties, we also enter into transactions with affiliates in the normal course of business, primarily as part of our market-making activities. See “Risk Factors” in Part I of the 2022 Annual Report for further information about the impact of economic and market conditions on our results of operations.

Financial Overview

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

	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
Net revenues	**$ 4,061**	$ 2,879	**$ 7,715**	$ 5,948
Pre-tax earnings	**$ 1,634**	$ 911	**$ 3,891**	$ 2,182
Net earnings	**$ 1,203**	$ 661	**$ 2,857**	$ 1,601
Net earnings to average assets	**0.9%**	0.6%	**1.1%**	0.7%
Return on shareholder's equity	**9.4%**	6.0%	**11.4%**	7.5%
Average equity to average assets	**9.9%**	9.2%	**9.9%**	9.3%

In the table above:

- Net earnings to average assets and return on average shareholder's equity are annualized amounts.
- Net earnings to average assets is calculated by dividing annualized net earnings by average total assets.
- Return on shareholder's equity is calculated by dividing annualized net earnings by average monthly shareholder's equity.
- Average equity to average assets is calculated by dividing average total shareholder's equity by average total assets.

Net Revenues

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

	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
Interest income	**$ 7,328**	$ 2,436	**$ 13,839**	$ 4,113
Interest expense	**5,069**	975	**9,325**	1,402
Net interest income	**2,259**	1,461	**4,514**	2,711
Non-interest revenues	**1,802**	1,418	**3,201**	3,237
Net revenues	**$ 4,061**	$ 2,879	**$ 7,715**	$ 5,948
Net interest margin	**1.92%**	1.34%	**1.95%**	1.28%

In the table above:

- Interest income includes interest earned from our lending portfolio, consisting of corporate lending, commercial real estate lending, residential real estate lending, securities-based lending, other collateralized lending, installment lending, credit card lending and other lending. Interest income is also earned from cash deposits held primarily at the Federal Reserve. In addition, interest is earned from certain trading assets, investments, collateralized agreements, collateral balances posted to counterparties and foreign currency funding facilities.
- Interest expense includes interest related to deposit-taking activities. Interest expense also includes interest related to certain trading liabilities, collateralized financings, unsecured borrowings, collateral balances received from counterparties and foreign currency funding facilities. We apply hedge accounting to certain interest rate swaps used to manage the interest rate exposure of certain fixed-rate term certificates of deposit and certain U.S. government securities classified as available-for-sale. For qualifying fair value hedges, gains and losses on derivatives are included in interest expense. See Note 7 to the consolidated financial statements for further information about hedge accounting.
- Non-interest revenues includes gains and losses from financial assets and liabilities related to market-making and risk management activities in interest rate, currency, credit, equity and commodity derivatives and certain related products which are primarily accounted for at fair value. Non-interest revenues also includes net gains and losses from loans and lending commitments primarily accounted for at fair value. In addition, non-interest revenues includes revenues earned from relationships with affiliates, loan syndication fees, fees for financial advisory services relating to mergers and acquisitions and other corporate reorganizations, fees related to our credit card business and other fees.

Three Months Ended June 2023 versus June 2022. Net revenues in the consolidated statements of earnings were $4.06 billion for the second quarter of 2023, an increase of 41% compared with $2.88 billion for the second quarter of 2022, primarily reflecting higher net interest income.

Net Interest Income

Net interest income in the consolidated statements of earnings was $2.26 billion for the second quarter of 2023, an increase of 55% compared with $1.46 billion for the second quarter of 2022, driven by higher interest income, partially offset by higher interest expense. Net interest income was 56% of net revenues in the second quarter of 2023, compared with 51% in the second quarter of 2022.

Net Interest Margin

Net interest margin was 192 basis points for the second quarter of 2023, an increase of 58 basis points compared with 134 basis points for the second quarter of 2022, primarily driven by the higher interest rate environment.

Non-Interest Revenues

Non-interest revenues were $1.80 billion for the second quarter of 2023, an increase of 27% compared with $1.42 billion for the second quarter of 2022, primarily reflecting higher gains from financial assets and liabilities.

Six Months Ended June 2023 versus June 2022. Net revenues in the consolidated statements of earnings were $7.72 billion for the first half of 2023, an increase of 30% compared with $5.95 billion for the first half of 2022, primarily reflecting higher net interest income.

Net Interest Income

Net interest income in the consolidated statements of earnings was $4.51 billion for the first half of 2023, an increase of 67% compared with $2.71 billion for the first half of 2022, driven by higher interest income, partially offset by higher interest expense. Net interest income was 59% of net revenues in the first half of 2023, compared with 46% in the first half of 2022.

Net Interest Margin

Net interest margin was 195 basis points for the first half of 2023, an increase of 66 basis points compared with 128 basis points for the first half of 2022, primarily driven by the higher interest rate environment.

Non-Interest Revenues

Non-interest revenues were $3.20 billion for the first half of 2023, essentially unchanged compared with $3.24 billion for the first half of 2022.

Interest Income

The table below presents our sources of interest income.

	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
Deposits with banks	**$ 1,939**	$ 290	**$ 3,788**	$ 336
Collateralized agreements	**721**	37	**1,211**	42
Trading assets	**317**	164	**587**	336
Investments	**163**	48	**259**	89
Loans	**3,124**	1,540	**6,067**	2,746
Other	**1,064**	357	**1,927**	564
Total interest income	**$ 7,328**	$ 2,436	**$ 13,839**	$ 4,113

Three Months Ended June 2023 versus June 2022. Interest income in the consolidated statements of earnings was $7.33 billion for the second quarter of 2023, $4.89 billion higher than the second quarter of 2022. See below and “Supplemental Financial Information — Distribution of Assets, Liabilities and Shareholder’s Equity” for further information about our sources of interest income, including average balances and rates.

Interest income from deposits with banks was $1.94 billion for the second quarter of 2023, $1.65 billion higher than the second quarter of 2022, primarily due to higher rates. See Note 3 to the consolidated financial statements for further information about our cash.

Interest income from collateralized agreements was $721 million for the second quarter of 2023, $684 million higher than the second quarter of 2022, primarily due to higher rates. See Note 11 to the consolidated financial statements for further information about collateralized agreements.

Interest income from trading assets was $317 million for the second quarter of 2023, $153 million higher than the second quarter of 2022, primarily due to higher balances. See Note 6 to the consolidated financial statements for further information about trading assets.

Interest income from investments was $163 million for the second quarter of 2023, $115 million higher than the second quarter of 2022, primarily due to higher rates. See Note 8 to the consolidated financial statements for further information about investments.

Interest income from loans was $3.12 billion for the second quarter of 2023, $1.58 billion higher than the second quarter of 2022, primarily due to higher rates. See Note 9 to the consolidated financial statements for further information about loans.

Other interest income was $1.06 billion for the second quarter of 2023, $707 million higher than the second quarter of 2022, primarily due to higher rates, partially offset by lower balances. Other interest income primarily includes interest income on loans held for sale that are accounted for at the lower of cost or fair value, collateral balances posted to counterparties and foreign currency funding facilities.

Six Months Ended June 2023 versus June 2022. Interest income in the consolidated statements of earnings was $13.84 billion for the first half of 2023, $9.73 billion higher than the first half of 2022. See below and “Supplemental Financial Information — Distribution of Assets, Liabilities and Shareholder’s Equity” for further information about our sources of interest income, including average balances and rates.

Interest income from deposits with banks was $3.79 billion for the first half of 2023, $3.45 billion higher than the first half of 2022, primarily due to higher rates. See Note 3 to the consolidated financial statements for further information about our cash.

Interest income from collateralized agreements was $1.21 billion for the first half of 2023, $1.17 billion higher than the first half of 2022, primarily due to higher rates. See Note 11 to the consolidated financial statements for further information about collateralized agreements.

Interest income from trading assets was $587 million for the first half of 2023, $251 million higher than the first half of 2022, primarily due to higher rates. See Note 6 to the consolidated financial statements for further information about trading assets.

Interest income from investments was $259 million for the first half of 2023, $170 million higher than the first half of 2022, primarily due to higher rates. See Note 8 to the consolidated financial statements for further information about investments.

Interest income from loans was $6.07 billion for the first half of 2023, $3.32 billion higher than the first half of 2022, primarily due to higher rates. See Note 9 to the consolidated financial statements for further information about loans.

Other interest income was $1.93 billion for the first half of 2023, $1.36 billion higher than the first half of 2022, primarily due to higher rates, partially offset by lower balances. Other interest income primarily includes interest income on loans held for sale that are accounted for at the lower of cost or fair value, collateral balances posted to counterparties and foreign currency funding facilities.

Interest Expense

The table below presents our sources of interest expense.

	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
Deposits	**$ 3,488**	$ 665	**$ 6,555**	$ 971
Collateralized financings	**483**	(12)	**761**	(28)
Trading liabilities	**100**	84	**177**	134
Borrowings	**110**	52	**172**	90
Other	**888**	186	**1,660**	235
Total interest expense	**$ 5,069**	$ 975	**$ 9,325**	$ 1,402

Three Months Ended June 2023 versus June 2022. Interest expense in the consolidated statements of earnings was $5.07 billion for the second quarter of 2023, $4.09 billion higher than the second quarter of 2022. See below and "Supplemental Financial Information — Distribution of Assets, Liabilities and Shareholder's Equity" for further information about our sources of interest expense, including average balances and rates.

Interest expense from deposits was $3.49 billion for the second quarter of 2023, $2.82 billion higher than the second quarter of 2022, primarily due to higher rates.

Interest expense from collateralized financings was $483 million for the second quarter of 2023, $495 million higher than the second quarter of 2022, primarily due to higher rates.

Interest expense from trading liabilities was $100 million for the second quarter of 2023, $16 million higher than the second quarter of 2022, primarily due to higher rates.

Interest expense from borrowings was $110 million for the second quarter of 2023, $58 million higher than the second quarter of 2022, primarily due to higher rates.

Other interest expense was $888 million for the second quarter of 2023, $702 million higher than the second quarter of 2022, primarily due to higher rates, partially offset by lower balances. Other interest expense primarily includes interest expense on collateral balances received from counterparties and interest expense on foreign currency funding facilities.

Six Months Ended June 2023 versus June 2022. Interest expense in the consolidated statements of earnings was $9.33 billion for the first half of 2023, $7.92 billion higher than the first half of 2022. See below and "Supplemental Financial Information — Distribution of Assets, Liabilities and Shareholder's Equity" for further information about our sources of interest expense, including average balances and rates.

Interest expense from deposits was $6.56 billion for the first half of 2023, $5.58 billion higher than the first half of 2022, primarily due to higher rates.

Interest expense from collateralized financings was $761 million for the first half of 2023, $789 million higher than the first half of 2022, primarily due to higher rates.

Interest expense from trading liabilities was $177 million for the first half of 2023, $43 million higher than the first half of 2022, primarily due to higher rates.

Interest expense from borrowings was $172 million for the first half of 2023, $82 million higher than the first half of 2022, primarily due to higher rates.

Other interest expense was $1.66 billion for the first half of 2023, $1.43 billion higher than the first half of 2022, primarily due to higher rates, partially offset by lower balances. Other interest expense primarily includes interest expense on collateral balances received from counterparties and interest expense on foreign currency funding facilities.

Provision for Credit Losses

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

The table below presents our provision for credit losses.

	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
Provision for credit losses	**$ 730**	$ 557	**$ 552**	$ 1,005

Three Months Ended June 2023 versus June 2022. Provision for credit losses was $730 million for the second quarter of 2023, compared with $557 million for the second quarter of 2022. Provisions for the second quarter of 2023 primarily reflected net provisions related to the credit card and point-of-sale loan portfolios, driven by net charge-offs and growth, and individual impairments on wholesale loans. Provisions for the second quarter of 2022 primarily reflected growth (primarily in credit cards) and the impact of broad macroeconomic concerns.

Six Months Ended June 2023 versus June 2022. Provision for credit losses was $552 million for the first half of 2023, compared with $1.01 billion for the first half of 2022. Provisions for the first half of 2023 primarily reflected net provisions related to the credit card and point-of-sale loan portfolios, driven by net charge-offs and growth, partially offset by a reserve reduction related to the sale of substantially all of the Marcus loans portfolio. Provisions for the first half of 2022 primarily reflected portfolio growth (primarily in credit cards) and the impact of macroeconomic and geopolitical concerns.

Operating Expenses

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

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

	Three Months Ended June		Six Months Ended June	
$ in millions	**2023**	2022	**2023**	2022
Compensation and benefits	**$ 631**	$ 426	**$ 1,210**	$ 834
Service charges	**206**	198	**390**	403
Professional fees	**116**	122	**216**	238
Transaction based	**142**	118	**294**	261
Market development	**37**	82	**83**	149
Communications and technology	**107**	89	**208**	175
Regulatory and agency fees	**117**	77	**190**	130
Depreciation and amortization	**92**	71	**207**	110
Other expenses	**249**	228	**474**	461
Total operating expenses	**$ 1,697**	$ 1,411	**$ 3,272**	$ 2,761
Headcount at period-end	**4,818**	4,908		

In the table above:

- Compensation and benefits and service charges include employee-related expenses. As described above, compensation and benefits are expenses of direct Bank employees. Service charges are expenses related to dual employees and employees of affiliates who provide services to us pursuant to the Master Services Agreement.
- Other expenses primarily includes origination and servicing expenses and certain expenses charged by affiliates.

Three Months Ended June 2023 versus June 2022. Operating expenses in the consolidated statements of earnings were $1.70 billion for the second quarter of 2023, 20% higher than the second quarter of 2022.

Compensation and benefits expenses in the consolidated statements of earnings were $631 million for the second quarter of 2023, 48% higher than the second quarter of 2022, reflecting an increase in operating performance.

Service charges in the consolidated statements of earnings were $206 million for the second quarter of 2023, 4% higher than the second quarter of 2022, primarily reflecting an increase in compensation expenses charged by affiliates pursuant to the Master Services Agreement.

Professional fees in the consolidated statements of earnings were $116 million for the second quarter of 2023, 5% lower than the second quarter of 2022, primarily due to decreased expenses related to our consumer activities.

Transaction based expenses in the consolidated statements of earnings were $142 million for the second quarter of 2023, 20% higher than the second quarter of 2022, primarily reflecting higher brokerage and clearing-related expenses.

Market development expenses in the consolidated statements of earnings were $37 million for the second quarter of 2023, 55% lower than the second quarter of 2022, primarily reflecting decreased expenses related to our consumer activities.

Communications and technology expenses in the consolidated statements of earnings were $107 million for the second quarter of 2023, 20% higher than the second quarter of 2022, primarily reflecting increased software expenses.

Regulatory and agency fees in the consolidated statements of earnings were $117 million for the second quarter of 2023, 52% higher than the second quarter of 2022, primarily reflecting an increase in regulatory fees in the U.S.

Depreciation and amortization expenses in the consolidated statements of earnings were $92 million for the second quarter of 2023, 30% higher than the second quarter of 2022, primarily related to amortization of capitalized software.

Other expenses in the consolidated statements of earnings were $249 million for the second quarter of 2023, 9% higher than the second quarter of 2022, primarily due to increased other expenses charged by affiliates.

Six Months Ended June 2023 versus June 2022. Operating expenses in the consolidated statements of earnings were $3.27 billion for the first half of 2023, 19% higher than the first half of 2022.

Compensation and benefits expenses in the consolidated statements of earnings were $1.21 billion for the first half of 2023, 45% higher than the first half of 2022, reflecting an increase in operating performance.

Professional fees in the consolidated statements of earnings were $216 million for the first half of 2023, 9% lower than the first half of 2022, primarily due to decreased expenses related to our consumer activities.

Transaction based expenses in the consolidated statements of earnings were $294 million for the first half of 2023, 13% higher than the first half of 2022, primarily reflecting higher brokerage and clearing-related expenses.

Market development expenses in the consolidated statements of earnings were $83 million for the first half of 2023, 44% lower than the first half of 2022, primarily reflecting decreased expenses related to our consumer activities.

Communications and technology expenses in the consolidated statements of earnings were $208 million for the first half of 2023, 19% higher than the first half of 2022, primarily reflecting increased software expenses.

Regulatory and agency fees in the consolidated statements of earnings were $190 million for the first half of 2023, 46% higher than the first half of 2022, primarily reflecting an increase in regulatory fees in the U.S.

Depreciation and amortization expenses in the consolidated statements of earnings were $207 million for the first half of 2023, 88% higher than the first half of 2022, primarily related to amortization of capitalized software.

Provision for Taxes

The effective income tax rate for the first half of 2023 was 26.6%, down from the full year income tax rate of 27.4% for 2022, primarily due to an increase in benefits from tax credits and a decrease in the impact of nondeductible expenses, partially offset by changes in the geographic mix of earnings.

In May 2023, the New York State fiscal year 2024 budget was enacted. The legislation extends the temporary increase in the New York State corporate income tax rate from 6.5% to 7.25% through calendar year 2026. The legislation is not expected to have a material impact on our 2023 annual effective tax rate.

In July 2023, the U.K. Finance (No. 2) Act 2023 was enacted. The legislation enacts a domestic and multinational top-up tax to implement the Domestic Minimum Top-up Tax and Income Inclusion Rule, two of the Organisation for Economic Co-operation and Development Global Anti-Base Erosion Model Rules (Pillar Two), which will apply to us beginning in calendar year 2024. Pillar Two aims to ensure that multinationals pay a minimum effective corporate tax rate of 15% in each jurisdiction in which they operate. The legislation will not impact our 2023 annual effective tax rate and we are currently evaluating the impact on our 2024 annual effective tax rate.

Balance Sheet and Funding Sources

See "Balance Sheet and Funding Sources" in Part II of the 2022 Annual Report for further information about our balance sheet management process and our funding sources.

Balance Sheet Analysis

As of June 2023, total assets in our consolidated balance sheets were $517.11 billion, an increase of $31.55 billion from December 2022, primarily reflecting increases in securities purchased under agreements to resell (resale agreements) of $23.19 billion (due to increases in activity), trading assets of $22.26 billion (due to increases in government and agency obligations) and customer and other receivables of $17.17 billion. These increases were partially offset by a decrease in cash of $37.61 billion.

As of June 2023, total liabilities in our consolidated balance sheets were $465.52 billion, an increase of $28.27 billion from December 2022, primarily reflecting increases in collateralized financings of $15.99 billion (primarily due to increases in transactions with affiliates), customer and other payables of $6.03 billion, and trading liabilities of $4.10 billion (primarily due to increases in government and agency obligations).

Funding Sources

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

The table below presents information about our funding sources.

	As of			
$ in millions	**June 2023**		December 2022	
Deposits	**$ 366,162**	**81%**	$ 362,855	85%
Collateralized financings	**28,430**	**6%**	12,443	3%
Unsecured borrowings	**3,884**	**1%**	6,431	1%
Total shareholder's equity	**51,583**	**12%**	48,302	11%
Total	**$ 450,059**	**100%**	$ 430,031	100%

Substantially all of our funding is raised in U.S. dollars. We generally distribute our funding products, through third-party distributors and private wealth advisors, to a depositor base in a variety of markets and directly to U.S. consumers, through our digital deposit platform. We believe that our relationships with our creditors are critical to our liquidity. Our creditors include individuals, financial institutions, nonfinancial institutions, corporations and asset managers. We have imposed various internal guidelines to monitor creditor concentration across our funding programs.

Deposits. Our deposits provide us with a diversified source of funding and reduce our reliance on wholesale funding. We accept deposits, including savings, demand and time deposits, from private bank clients, U.S. consumers, clients of third-party broker-dealers, institutions, corporations and affiliates.

We also accept deposits from affiliates, including Goldman Sachs Funding LLC (Funding IHC) and Group Inc.

The average annualized interest rate on our interest-bearing deposits was 3.97% for the three months ended June 2023, 0.82% for the three months ended June 2022, 3.75% for the six months ended June 2023, and 0.62% for the six months ended June 2022.

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

	Three Months Ended June		Six Months Ended June	
	2023	2022	**2023**	2022
Savings and demand	**3.91%**	0.71%	**3.72%**	0.52%
Time	**4.28%**	1.19%	**3.93%**	0.98%

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

Collateralized Financings. We fund certain of our inventory and a portion of investments on a secured basis by entering into collateralized financing agreements, such as securities sold under agreements to repurchase (repurchase agreements). We are also a member of the Federal Home Loan Bank of New York (FHLB). We had no outstanding borrowings from the FHLB as of both June 2023 and December 2022. See Note 11 to the consolidated financial statements for further information about collateralized financings, including its maturity profile. Additionally, we have access to funding through the Federal Reserve discount window. However, we do not rely on this funding in our liquidity planning and stress testing.

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

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

Capital Management and Regulatory Capital

Capital adequacy is of critical importance to us. We have in place a comprehensive capital management policy that provides a framework, defines objectives and establishes guidelines to assist us in maintaining the appropriate level and composition of capital in both business-as-usual and stressed conditions. See "Equity Capital Management and Regulatory Capital" in Part II of the 2022 Annual Report for further information about our equity capital management process and regulatory capital requirements.

Restrictions on Payments. Our payment of dividends to Group Inc. is subject to certain restrictions. For example, the amount of dividends that may be paid is limited to the lesser of the amounts calculated under a recent earnings test and an undivided profits test. In addition to limitations on the payment of dividends imposed by federal and state laws, the FRB and the FDIC have the authority to prohibit or limit the payment of dividends by the banking organizations they supervise if, in their opinion, payment of a dividend would constitute an unsafe or unsound practice in light of the financial condition of the banking organization, pursuant to applicable FRB regulations.

During both the six months ended June 2023 and the year ended December 2022, we did not declare or pay any dividends to Group Inc. As a result of dividend payments made to Group Inc. in connection with the acquisition of GSBE in 2021, we cannot currently declare any dividends without prior regulatory approval.

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

We are required to conduct stress tests on an annual basis and publish a summary of certain results. We published a summary of our annual U.S. Dodd-Frank Wall Street Reform and Consumer Protection Act Stress Test results in June 2023. See "Available Information" in Part I of the 2022 Annual Report for further information.

GSBE also has its own capital planning and stress testing processes, which incorporates internally designed stress tests developed in accordance with the guidelines of its regulators.

Resolution Plan. Group Inc. submitted its 2023 resolution plan in June 2023, in which we were included as a material operating entity. GSBE was also included in the submission as a material operating entity.

We are also required to submit an insured depository institution resolution plan to the FDIC. Our submission is due by December 1, 2023.

See "Regulation" in Part I of the 2022 Annual Report for further information.

Regulatory and Other Matters

Regulatory Matters

See "Regulation" in Part I of the 2022 Annual Report for further information about the laws, rules and regulations and proposed laws, rules and regulations that apply to us and our operations. In addition, see Note 19 to the consolidated financial statements for information about our risk-based capital ratios and leverage ratios.

Community Reinvestment Act (CRA). We are subject to the provisions of the CRA. Under the terms of the CRA, we have a continuing and affirmative obligation, consistent with safe and sound operation, to help meet the credit needs of the local communities in which we operate. In 2023, we will no longer be designated as a "wholesale bank" for CRA compliance purposes and will, instead, be assessed pursuant either to the framework applicable to large commercial banks or to a strategic plan that is subject to regulatory approval. We made a proposed strategic plan available for public comment in May 2023 and submitted a revised plan to each of the FRB and NYDFS for review in compliance with Federal and New York State regulations. Any failure to comply with different or expanded CRA requirements as a result of this change in assessment method could negatively impact GS Bank USA's CRA ratings, cause reputational harm and result in limits on GS Group's ability to make future acquisitions or engage in certain new activities.

Basel Committee on Banking Supervision's (Basel Committee) Capital Framework for Strengthening International Capital Standards Reforms. In July 2023, the U.S. federal bank regulatory authorities proposed a rule implementing the Basel Committee's finalization of the post-crisis regulatory capital reforms. The proposal provides for a July 1, 2025 effective date, subject to a three-year transition period. The proposal includes the Fundamental Review of the Trading Book, which replaces the market risk rule, and introduces new standardized approaches for credit risk, operational risk and credit valuation adjustment (CVA) risk, which would replace the current models-based approaches. The proposal is currently open for comment. We are currently evaluating the impact of the proposed rule, but expect that the rule, if adopted as proposed, could materially increase our regulatory capital requirements.

Other Matters

Replacement of Interbank Offered Rates (IBORs), including London Interbank Offered Rate (LIBOR). As of July 1, 2023, the publication of all LIBOR settings as representative rates has ceased. The FCA has allowed the publication and use of synthetic rates for certain GBP LIBOR settings in legacy GBP LIBOR-based contracts through March 2024 and for certain USD LIBOR settings in legacy USD LIBOR-based contracts through September 2024.

The International Swaps and Derivatives Association (ISDA) 2020 IBOR Fallbacks Protocol (IBOR Protocol) has provided derivatives market participants with amended fallbacks for legacy and new derivative contracts to mitigate legal or economic uncertainty. Both counterparties had to adhere to the IBOR Protocol or engage in bilateral amendments for the terms to be effective for derivative contracts. The FCA's formal announcement to cease all LIBOR settings fixed the spread adjustment for all LIBOR rates and, as of July 1, 2023, the fallbacks have been applied for all LIBOR settings. Rules adopted by the FRB under the Adjustable Interest Rate (LIBOR) Act provide different Secured Overnight Financing Rate (SOFR)-based rates for contracts governed by U.S. law that have no fallbacks or fallbacks that would require the use of a poll or LIBOR-based rate.

In connection with the cessation of USD LIBOR, all of our USD LIBOR-based derivative contracts have been transitioned to alternative risk-free reference rates. In addition, our legacy USD LIBOR-based loans have been transitioned to alternative risk-free reference rates in accordance with fallback provisions.

Stress in the Banking Sector. During the second quarter of 2023, the level of stress in the banking sector eased compared to the circumstances that arose in March 2023, which had led to the failure of certain regional banks in the U.S. and the combination of Switzerland's two largest banks. As a member of a consortium of banks that provided liquidity support to First Republic Bank (First Republic), GS Group made a deposit of $2.5 billion with First Republic in March 2023. Following the FDIC's seizure and sale of First Republic in May 2023, this deposit was fully repaid to GS Group.

In May 2023, the FDIC released a proposed rule that would impose special assessments to recover the losses to the deposit insurance fund resulting from the receiverships of Silicon Valley Bank and Signature Bank. The FDIC stated that it currently estimates those assessed losses to total $15.8 billion and that the amount of the special assessments would be adjusted as the loss estimate changes. Under the proposed rule, the assessment base would be an insured depository institution's estimated uninsured deposits as of December 2022, excluding the first $5 billion of uninsured deposits. The special assessments would be collected at an annual rate of approximately 12.5 basis points per year over eight quarters beginning in 2024 and through 2025. If the rule is adopted as currently proposed, the estimated cost of this special assessment for us would be approximately $400 million (pre-tax) and such expense would be recognized entirely in the quarter in which the rule is adopted.

The events in the first quarter of 2023 placed heightened focus on the impact that rising interest rates have had on the market values of available-for-sale and held-to-maturity securities portfolios of banks. As of June 2023, the carrying value of our available-for-sale securities portfolio was $25.70 billion, which consisted of U.S. government obligations. As of June 2023, the pre-tax net unrealized losses included in accumulated other comprehensive income/(loss) and our regulatory capital ratios relating to these securities were $1.70 billion. As of June 2023, the carrying value of our held-to-maturity securities portfolio was $10.94 billion, which was comprised of U.S. government obligations. The pre-tax net unrealized losses on these securities were $325 million. If the unrealized losses on held-to-maturity securities had been recognized as a reduction to our regulatory capital, the after-tax impact to our regulatory capital ratios as of June 2023 would not have been material. See Note 8 for further information about available-for-sale and held-to-maturity securities.

Our liquidity position during the second quarter of 2023 remained strong, as our global core liquid assets (GCLA) averaged $216.94 billion for the quarter. Our deposits were $366.16 billion, compared with $337.63 billion as of March 2023. As of June 2023, approximately $211.21 billion of deposits were insured by the FDIC and $757 million were insured by non-U.S. insurance programs. See Note 13 for further information about deposits.

Any future systemic spread of concerns regarding the financial stability or solvency of banks could negatively impact our liquidity, results of operations and financial condition.

Impact of Russian Invasion of Ukraine. The Russian invasion of Ukraine has negatively affected the global economy and resulted in significant disruptions in financial markets and increased macroeconomic uncertainty. GS Group has curtailed its operations in Russia to those necessary to meet its legal and regulatory obligations.

Our total credit exposure to Russian or Ukrainian counterparties or borrowers and our total market exposure relating to Russian or Ukrainian issuers was not material as of June 2023. See "Risk Factors" in Part I of the 2022 Annual Report for further information about our risks related to Russia's invasion of Ukraine.

Risk Management

Risks are inherent in our businesses and include liquidity, market, credit, operational, model, legal, compliance, conduct, regulatory and reputational risks. For further information about our risk management processes, see "Overview and Structure of Risk Management," and for information about our areas of risk, see "Liquidity Risk Management," "Market Risk Management," "Credit Risk Management," "Operational Risk Management," "Model Risk Management," "Capital Risk Management" and "Risk Factors" in Parts I and II of the 2022 Annual Report.

Liquidity Risk Management

Overview

Liquidity risk is the risk that we will be unable to fund ourselves or meet our liquidity needs in the event of Bank-specific, GS Group, broader industry or market liquidity stress events. We have in place a comprehensive and conservative set of liquidity and funding policies. Our principal objective is to be able to fund ourselves and to enable our core businesses to continue to serve clients and generate revenues, even under adverse circumstances. See "Liquidity Risk Management" in Part II of the 2022 Annual Report for further information about our liquidity risk management process.

GCLA Metrics

Based on the results of our internal liquidity risk models, described above, as well as our consideration of other factors, including, but not limited to, a qualitative assessment of GS Group's, inclusive of our condition, as well as the financial markets, we believe our liquidity position as of both June 2023 and December 2022 was appropriate. We strictly limit our GCLA to a narrowly defined list of securities and cash because they are highly liquid, even in a difficult funding environment. We do not include other potential sources of excess liquidity in our GCLA, such as less liquid unencumbered securities or committed credit facilities.

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

	Average for the Three Months Ended	
	June	March
$ in millions	**2023**	2023
Overnight cash deposits	**$ 156,984**	$ 168,481
U.S. government obligations	**41,413**	36,463
U.S. agency obligations	**11,715**	7,780
Non-U.S. government obligations	**6,832**	5,148
Total	**$ 216,944**	$ 217,872

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

Liquidity Regulatory Framework

We are subject to a minimum Liquidity Coverage Ratio (LCR) under the LCR rule approved by the U.S. federal bank regulatory agencies. The LCR rule requires organizations to maintain an adequate ratio of eligible high-quality liquid assets to expected net cash outflows under an acute, short-term liquidity stress scenario. We are required to maintain a minimum LCR of 100%. As of June 2023, our LCR exceeded the minimum requirement.

We are subject to a minimum Net Stable Funding Ratio (NSFR) under the NSFR rule approved by the U.S. federal bank regulatory agencies, which requires large U.S. banking organizations to ensure they have access to stable funding over a one-year time horizon. Our NSFR as of June 2023 exceeded the minimum requirement.

GSBE is subject to a minimum LCR of 100% under the LCR rule approved by the European Parliament and Council. GSBE's average monthly LCR for the trailing twelve-month period ended June 2023 exceeded the minimum requirement. GSBE is subject to the applicable NSFR requirement in the E.U. As of June 2023, GSBE's NSFR exceeded the minimum requirement.

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

Credit Ratings

Credit ratings are important when we are competing in certain markets, such as over-the-counter (OTC) derivatives, and when we seek to engage in longer-term transactions.

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

	As of June 2023		
	Fitch	**Moody's**	**S&P**
GS Bank USA			
Short-term debt	**F1**	**P-1**	**A-1**
Long-term debt	**A+**	**A1**	**A+**
Short-term bank deposits	**F1+**	**P-1**	**N/A**
Long-term bank deposits	**AA-**	**A1**	**N/A**
Ratings outlook	**Stable**	**Stable**	**Stable**
GSBE			
Short-term debt	**F1**	**P-1**	**A-1**
Long-term debt	**A+**	**A1**	**A+**
Short-term bank deposits	**N/A**	**P-1**	**N/A**
Long-term bank deposits	**N/A**	**A1**	**N/A**
Ratings outlook	**Stable**	**Stable**	**Stable**

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

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

Market Risk Management

Overview

Market risk is the risk of an adverse impact to our earnings due to changes in market conditions. Our assets and liabilities that give rise to market risk primarily include positions held for market making for our clients and for our investing and financing activities, and these positions change based on client demands and our investment opportunities. We employ a variety of risk measures, each described in the respective sections below, to monitor market risk.

Categories of market risk include the following:

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

See "Market Risk Management" in Part II of the 2022 Annual Report for further information about our market risk management process.

Metrics

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

During the first quarter of 2023, we added the currency exposure on certain debt positions to VaR and removed certain debt positions (and related hedges) from VaR as our management believes that the risk of these positions is more appropriately measured and monitored using 10% sensitivity measures. Prior period amounts for average daily VaR, period-end VaR and high and low VaR have been conformed to the current presentation. The impact of such changes to prior period total VaR was not material.

The table below presents our average daily VaR.

	Three Months Ended			Six Months Ended June	
	June	March	June		
$ in millions	**2023**	2023	2022	**2023**	2022
Categories					
Interest rates	**$ 111**	$ 85	$ 92	**$ 94**	$ 63
Currency rates	**11**	16	18	**14**	11
Equity prices	**5**	3	3	**3**	2
Diversification effect	**(22)**	(19)	(21)	**(19)**	(14)
Total	**$ 105**	$ 85	$ 92	**$ 92**	$ 62

Our average daily VaR increased to $105 million for the three months ended June 2023 from $85 million for the three months ended March 2023, primarily due to higher levels of volatility and increased exposures. The total increase was primarily driven by an increase in the interest rates category.

Our average daily VaR increased to $105 million for the three months ended June 2023 from $92 million for the three months ended June 2022, primarily due to increased exposures, partially offset by lower levels of volatility. The total increase was primarily driven by an increase in the interest rates category.

Our average daily VaR increased to $92 million for the six months ended June 2023 from $62 million for the six months ended June 2022, primarily due to increased exposures, partially offset by lower levels of volatility. The total increase was primarily driven by an increase in the interest rates category.

The table below presents our period-end VaR.

	As of		
	June	March	June
$ in millions	**2023**	2023	2022
Categories			
Interest rates	**$ 81**	$ 113	$ 111
Currency rates	**9**	12	15
Equity prices	**3**	5	3
Diversification effect	**(14)**	(24)	(14)
Total	**$ 79**	$ 106	$ 115

Our period-end VaR decreased to $79 million as of June 2023 from $106 million as of March 2023, primarily due to lower levels of volatility. The total decrease was primarily driven by a decrease in the interest rates category.

Our period-end VaR decreased to $79 million as of June 2023 from $115 million as of June 2022, due to lower levels of volatility, partially offset by increased exposures. The total decrease was primarily driven by a decrease in the interest rates category.

During the six months ended June 2023, our total VaR risk limit was not exceeded and there was one permanent change to the VaR risk limit. The VaR risk limit was temporarily raised on five occasions due to higher levels of volatility generally as a result of changes in the market environment. During 2022, our total VaR risk limit was exceeded on three occasions primarily due to higher levels of volatility generally resulting from broad macroeconomic and geopolitical concerns. These limit breaches were resolved by temporary increases in the VaR risk limit and subsequent risk reductions.

The table below presents our high and low VaR.

	Three Months Ended					
	June 2023		March 2023		June 2022	
$ in millions	**High**	**Low**	High	Low	High	Low
Categories						
Interest rates	**$ 131**	**$ 76**	$ 136	$ 66	$ 111	$ 77
Currency rates	**$ 17**	**$ 8**	$ 119	$ 9	$ 30	$ 7
Equity prices	**$ 9**	**$ 3**	$ 8	$ 1	$ 4	$ 2
Bank						
VaR	**$ 126**	**$ 74**	$ 160	$ 66	$ 118	$ 74

Sensitivity Measures

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

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

	As of		
	June	March	June
$ in millions	2023	2023	2022
Debt	$ 456	$ 491	$ 510
Equity	26	20	6
Total	**$ 482**	$ 511	$ 516

In the table above:

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

Interest Rate Sensitivity. Loans accounted for at amortized cost were $142.19 billion as of June 2023 and $141.82 billion as of December 2022, substantially all of which had floating interest rates. The estimated sensitivity to a 100 basis point increase in interest rates on such loans was $1.13 billion as of June 2023 and $1.12 billion as of December 2022 of additional interest income over a twelve-month period, which does not take into account the potential impact of an increase in costs to fund such loans. In addition, we manage our exposure to structural interest rate risk generated by our net asset-liability position, which is primarily a function of our fixed rate term deposits and non-maturity deposits. See Note 9 to the consolidated financial statements for further information about loans that are held for investment and Note 13 for further information about deposits.

Other Market Risk Considerations

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

Credit Risk Management

Overview

Credit risk represents the potential for loss due to the default or deterioration in credit quality of a counterparty (e.g., an OTC derivatives counterparty or a borrower) or an issuer of securities or other instruments we hold. Our exposure to credit risk comes mostly from client transactions in loans and lending commitments and OTC derivatives. Credit risk also comes from cash placed with banks, securities financing transactions (i.e., resale agreements and repurchase agreements) and customer and other receivables. See “Credit Risk Management” in Part II of the 2022 Annual Report for further information about our credit risk management process.

Credit Exposures

As of June 2023, our aggregate credit exposure decreased compared with December 2022, primarily reflecting a decrease in cash deposits with the Federal Reserve. The percentage of our credit exposures arising from non-investment-grade counterparties (based on our internally determined public rating agency equivalents) increased slightly compared with December 2022, primarily reflecting a decrease in investment-grade credit exposure related to cash deposits with the Federal Reserve. Our credit exposures are described further below.

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

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

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

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

$ in millions	As of June 2023	As of December 2022
OTC derivative assets	**$ 11,067**	$ 15,143
Collateral (not netted under U.S. GAAP)	**(4,385)**	(4,881)
Net credit exposure	**$ 6,682**	$ 10,262
Industry		
Consumer & Retail	**8%**	6%
Diversified Industrials	**8%**	6%
Financial Institutions	**31%**	42%
Funds	**12%**	12%
Healthcare	**2%**	2%
Municipalities & Nonprofit	**10%**	7%
Natural Resources & Utilities	**9%**	9%
Sovereign	**2%**	1%
Technology, Media & Telecommunications	**9%**	8%
Other (including Special Purpose Vehicles)	**9%**	7%
Total	**100%**	100%
Region		
Americas	**53%**	34%
EMEA	**44%**	65%
Asia	**3%**	1%
Total	**100%**	100%

In the table above:

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

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

$ in millions	Investment-Grade	Non-Investment-Grade / Unrated	Total
As of June 2023			
Less than 1 year	**$ 6,668**	**$ 626**	**$ 7,294**
1 - 5 years	**20,117**	**575**	**20,692**
Greater than 5 years	**39,664**	**631**	**40,295**
Total	**66,449**	**1,832**	**68,281**
Netting	**(60,902)**	**(697)**	**(61,599)**
Net credit exposure	**$ 5,547**	**$ 1,135**	**$ 6,682**
As of December 2022			
Less than 1 year	$ 11,888	$ 690	$ 12,578
1 - 5 years	16,935	535	17,470
Greater than 5 years	53,731	617	54,348
Total	82,554	1,842	84,396
Netting	(73,488)	(646)	(74,134)
Net credit exposure	$ 9,066	$ 1,196	$ 10,262

In the table above:

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

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

	Investment-Grade				
$ in millions	AAA	AA	A	BBB	Total
As of June 2023					
Less than 1 year	**$ 79**	**$ 843**	**$ 4,275**	**$ 1,471**	**$ 6,668**
1 - 5 years	**712**	**4,503**	**12,164**	**2,738**	**20,117**
Greater than 5 years	**2,101**	**12,934**	**18,237**	**6,392**	**39,664**
Total	**2,892**	**18,280**	**34,676**	**10,601**	**66,449**
Netting	**(2,220)**	**(17,679)**	**(32,858)**	**(8,145)**	**(60,902)**
Net credit exposure	**$ 672**	**$ 601**	**$ 1,818**	**$ 2,456**	**$ 5,547**
As of December 2022					
Less than 1 year	$ 101	$ 1,434	$ 8,733	$ 1,620	$ 11,888
1 - 5 years	642	4,342	8,117	3,834	16,935
Greater than 5 years	2,015	12,645	31,852	7,219	53,731
Total	2,758	18,421	48,702	12,673	82,554
Netting	(2,188)	(16,928)	(43,787)	(10,585)	(73,488)
Net credit exposure	$ 570	$ 1,493	$ 4,915	$ 2,088	$ 9,066

	Non-Investment-Grade / Unrated		
$ in millions	BB or lower	Unrated	Total
As of June 2023			
Less than 1 year	**$ 562**	**$ 64**	**$ 626**
1 - 5 years	**460**	**115**	**575**
Greater than 5 years	**627**	**4**	**631**
Total	**1,649**	**183**	**1,832**
Netting	**(680)**	**(17)**	**(697)**
Net credit exposure	**$ 969**	**$ 166**	**$ 1,135**
As of December 2022			
Less than 1 year	$ 575	$ 115	$ 690
1 - 5 years	513	22	535
Greater than 5 years	592	25	617
Total	1,680	162	1,842
Netting	(646)	—	(646)
Net credit exposure	$ 1,034	$ 162	$ 1,196

Lending Activities. We manage our lending activities using the credit risk process, measures, limits and risk mitigants. Other lending positions, including secondary trading positions, are risk-managed as a component of market risk. Beginning in the first quarter of 2023, we take into consideration collateral received or other credit support arrangements when determining an internal credit rating for collateralized loans, as management believes that this methodology better reflects the credit quality of the underlying loans and lending commitments. Prior period amounts have been conformed to reflect the current methodology. The impact to December 2022 was to increase loans and lending commitments classified as investment-grade and decrease loans and lending commitments classified as non-investment-grade by $28.9 billion (loans of $24.4 billion and lending commitments of $4.5 billion). The impact of this change was in real estate (warehouse loans) and other collateralized loans and lending commitments.

The table below presents our loans and lending commitments.

$ in millions	Loans	Lending Commitments	Total
As of June 2023			
Corporate	**$ 24,439**	**$ 133,386**	**$ 157,825**
Commercial real estate	**23,602**	**3,047**	**26,649**
Residential real estate	**22,531**	**2,484**	**25,015**
Securities-based	**12,180**	**769**	**12,949**
Other collateralized	**48,733**	**13,477**	**62,210**
Consumer:			
Installment	**5,134**	**2,496**	**7,630**
Credit cards	**16,879**	**69,538**	**86,417**
Other	**1,359**	**942**	**2,301**
Total	**$ 154,857**	**$ 226,139**	**$ 380,996**
Allowance for loan losses	**$ (4,158)**	**$ (577)**	**$ (4,735)**
As of December 2022			
Corporate	$ 26,414	$ 124,621	$ 151,035
Commercial real estate	23,641	3,348	26,989
Residential real estate	21,770	3,117	24,887
Securities-based	13,545	498	14,043
Other collateralized	46,317	12,878	59,195
Consumer:			
Installment	6,326	1,882	8,208
Credit cards	15,820	62,216	78,036
Other	1,533	920	2,453
Total	$ 155,366	$ 209,480	$ 364,846
Allowance for loan losses	$ (4,252)	$ (527)	$ (4,779)

In the table above, lending commitments excluded $4.17 billion as of June 2023 and $4.10 billion as of December 2022 related to issued letters of credit which are classified as guarantees in our consolidated financial statements. See Note 18 to the consolidated financial statements for further information about guarantees.

See Note 9 to the consolidated financial statements for information about net charge-offs on wholesale and consumer loans, as well as past due and nonaccrual loans accounted for at amortized cost.

Corporate. Corporate includes term loans, revolving lines of credit, letter of credit facilities and bridge loans, and are principally used for operating and general corporate purposes, or in connection with acquisitions. Corporate also includes loans originated as part of our CRA activities. Corporate loans are secured (typically by a senior lien on the assets of the borrower) or unsecured, depending on the loan purpose, the risk profile of the borrower and other factors.

The table below presents our credit exposure from corporate loans and lending commitments, and the concentration by industry, region, internally determined public rating agency equivalents and other credit metrics.

$ in millions	Loans	Lending Commitments	Total
As of June 2023			
Corporate	**$ 24,439**	**$ 133,386**	**$ 157,825**
Industry			
Consumer & Retail	**10%**	**14%**	**13%**
Diversified Industrials	**18%**	**18%**	**18%**
Financial Institutions	**9%**	**9%**	**9%**
Funds	**3%**	**3%**	**3%**
Healthcare	**7%**	**11%**	**10%**
Natural Resources & Utilities	**10%**	**18%**	**17%**
Real Estate	**17%**	**5%**	**7%**
Technology, Media & Telecommunications	**22%**	**17%**	**18%**
Other (including Special Purpose Vehicles)	**4%**	**5%**	**5%**
Total	**100%**	**100%**	**100%**
Region			
Americas	**70%**	**79%**	**78%**
EMEA	**24%**	**20%**	**20%**
Asia	**6%**	**1%**	**2%**
Total	**100%**	**100%**	**100%**
Credit Quality (Credit Rating Equivalent)			
AAA	**—**	**1%**	**1%**
AA	**1%**	**5%**	**4%**
A	**5%**	**20%**	**18%**
BBB	**28%**	**42%**	**39%**
BB or lower	**66%**	**32%**	**38%**
Total	**100%**	**100%**	**100%**
As of December 2022			
Corporate	$ 26,414	$ 124,621	$ 151,035
Industry			
Consumer & Retail	10%	14%	13%
Diversified Industrials	19%	18%	19%
Financial Institutions	8%	8%	8%
Funds	2%	3%	3%
Healthcare	7%	12%	11%
Natural Resources & Utilities	11%	18%	17%
Real Estate	14%	6%	7%
Technology, Media & Telecommunications	23%	20%	20%
Other (including Special Purpose Vehicles)	6%	1%	2%
Total	100%	100%	100%
Region			
Americas	64%	79%	76%
EMEA	30%	20%	22%
Asia	6%	1%	2%
Total	100%	100%	100%
Credit Quality (Credit Rating Equivalent)			
AAA	—	1%	1%
AA	—	6%	5%
A	7%	22%	20%
BBB	28%	41%	38%
BB or lower	65%	30%	36%
Total	100%	100%	100%

Commercial Real Estate. Commercial real estate includes originated loans and lending commitments that are directly or indirectly secured by hotels, retail stores, multifamily housing complexes and commercial and industrial properties. Commercial real estate also includes loans and lending commitments extended to clients who warehouse assets that are directly or indirectly backed by commercial real estate. In addition, commercial real estate includes loans purchased by us and loans originated as part of our CRA activities.

The table below presents our credit exposure from commercial real estate loans and lending commitments, and the concentration by region, internally determined public rating agency equivalents and other credit metrics.

$ in millions	Loans	Lending Commitments	Total
As of June 2023			
Commercial Real Estate	**$ 23,602**	**$ 3,047**	**$ 26,649**
Region			
Americas	**87%**	**73%**	**86%**
EMEA	**13%**	**27%**	**14%**
Total	**100%**	**100%**	**100%**
Credit Quality (Credit Rating Equivalent)			
Investment-grade	**47%**	**50%**	**48%**
Non-investment-grade	**53%**	**50%**	**52%**
Total	**100%**	**100%**	**100%**
As of December 2022			
Commercial Real Estate	$ 23,641	$ 3,348	$ 26,989
Region			
Americas	89%	85%	89%
EMEA	11%	15%	11%
Total	100%	100%	100%
Credit Quality (Credit Rating Equivalent)			
Investment-grade	46%	45%	46%
Non-investment-grade	54%	53%	54%
Unrated	—	2%	—
Total	100%	100%	100%

In the table above, the concentration of loans and lending commitments by asset class as of June 2023 was 41% for warehouse & other indirect, 15% for industrials, 10% for multifamily, 9% for office, 9% for hospitality, 5% for mixed use and 11% for other asset classes.

In addition, we also have credit exposure to commercial real estate loans held for securitization of $522 million as of June 2023 and $45 million as of December 2022. Such loans are included in trading assets in our consolidated balance sheets.

Residential Real Estate. Residential real estate loans and lending commitments are primarily extended to wealth management clients and to clients who warehouse assets that are directly or indirectly secured by residential real estate. In addition, residential real estate includes loans purchased by us.

The table below presents our credit exposure from residential real estate loans and lending commitments, and the concentration by region, internally determined public rating agency equivalents and other credit metrics.

$ in millions	Loans	Lending Commitments	Total
As of June 2023			
Residential Real Estate	**$ 22,531**	**$ 2,484**	**$ 25,015**
Region			
Americas	**99%**	**100%**	**99%**
EMEA	**1%**	**—**	**1%**
Total	**100%**	**100%**	**100%**
Credit Quality (Credit Rating Equivalent)			
Investment-grade	**54%**	**56%**	**54%**
Non-investment-grade	**22%**	**32%**	**23%**
Other metrics	**24%**	**10%**	**23%**
Unrated	**—**	**2%**	**—**
Total	**100%**	**100%**	**100%**
As of December 2022			
Residential Real Estate	$ 21,770	$ 3,117	$ 24,887
Region			
Americas	100%	94%	99%
EMEA	—	6%	1%
Total	100%	100%	100%
Credit Quality (Credit Rating Equivalent)			
Investment-grade	51%	63%	53%
Non-investment-grade	25%	36%	26%
Other metrics	24%	1%	21%
Total	100%	100%	100%

In the table above:

- Credit exposure included loans and lending commitments of $13.70 billion as of June 2023 and $14.31 billion as of December 2022 which are extended to clients who warehouse assets that are directly or indirectly secured by residential real estate.
- Other metrics category consists of loans where we use other key metrics to assess the borrower's credit quality, such as loan-to-value ratio, delinquency status, collateral value, expected cash flows and other risk factors.

In addition, we also have credit exposure to residential real estate loans held for securitization of $4.34 billion as of June 2023 and $5.23 billion as of December 2022. Such loans are included in trading assets in our consolidated balance sheets.

Securities-Based. Securities-based includes loans and lending commitments that are secured by stocks, bonds, mutual funds, and exchange-traded funds. These loans and commitments are primarily extended to wealth management clients and used for purposes other than purchasing, carrying or trading margin stocks. Securities-based loans require borrowers to post additional collateral based on changes in the underlying collateral's fair value. Securities-based also includes loans originated through *Goldman Bank Private Bank Select*.

The table below presents our credit exposure from securities-based loans and lending commitments, and the concentration by region, internally determined public rating agency equivalents and other credit metrics.

$ in millions	Loans	Lending Commitments	Total
As of June 2023			
Securities-based	**$ 12,180**	**$ 769**	**$ 12,949**
Region			
Americas	**100%**	**100%**	**100%**
Total	**100%**	**100%**	**100%**
Credit Quality (Credit Rating Equivalent)			
Investment-grade	**72%**	**38%**	**70%**
Non-investment-grade	**3%**	**—**	**3%**
Other metrics	**25%**	**62%**	**27%**
Total	**100%**	**100%**	**100%**
As of December 2022			
Securities-based	$ 13,545	$ 498	$ 14,043
Region			
Americas	100%	100%	100%
Total	100%	100%	100%
Credit Quality (Credit Rating Equivalent)			
Investment-grade	74%	19%	73%
Non-investment-grade	4%	—	3%
Other metrics	22%	81%	24%
Total	100%	100%	100%

In the table above, other metrics category consists of loans where we use other key metrics to assess the borrower's credit quality, such as collateral value, loan-to-value ratio and delinquency status.

Other Collateralized. Other collateralized includes loans and lending commitments that are backed by specific collateral (other than securities and real estate). Such loans and lending commitments are extended to clients who warehouse assets that are directly or indirectly secured by corporate loans, consumer loans and other assets. Other collateralized also includes loans and lending commitments to investment funds (managed by third parties) that are collateralized by capital commitments of the funds' investors or assets held by the fund, as well as other secured loans and lending commitments extended to wealth management clients.

The table below presents our credit exposure from other collateralized loans and lending commitments, and the concentration by region, internally determined public rating agency equivalents and other credit metrics.

$ in millions	Loans	Lending Commitments	Total
As of June 2023			
Other Collateralized	**$ 48,733**	**$ 13,477**	**$ 62,210**
Region			
Americas	**92%**	**96%**	**93%**
EMEA	**7%**	**4%**	**6%**
Asia	**1%**	**—**	**1%**
Total	**100%**	**100%**	**100%**
Credit Quality (Credit Rating Equivalent)			
Investment-grade	**85%**	**84%**	**85%**
Non-investment-grade	**15%**	**16%**	**15%**
Total	**100%**	**100%**	**100%**
As of December 2022			
Other Collateralized	$ 46,317	$ 12,878	$ 59,195
Region			
Americas	92%	96%	93%
EMEA	7%	4%	6%
Asia	1%	—	1%
Total	100%	100%	100%
Credit Quality (Credit Rating Equivalent)			
Investment-grade	86%	89%	87%
Non-investment-grade	13%	11%	13%
Other metrics	1%	—	—
Total	100%	100%	100%

In the table above, credit exposure included loans and lending commitments extended to clients who warehouse assets of $17.70 billion as of June 2023 and $14.12 billion as of December 2022.

Installment and Credit Cards. We originate unsecured installment loans and credit card loans (pursuant to revolving lines of credit) to consumers in the Americas. The credit card lines are cancellable by us and therefore do not result in credit exposure.

The tables below present our credit exposure from originated installment and credit card funded loans, and the concentration by the five most concentrated U.S. states.

$ in millions	Installment
As of June 2023	
Loans, gross	**$ 5,134**
Texas	**8%**
California	**7%**
New Jersey	**6%**
Florida	**5%**
New York	**5%**
Other	**69%**
Total	**100%**
As of December 2022	
Loans, gross	$ 6,326
California	10%
Texas	9%
Florida	7%
New York	6%
Illinois	4%
Other	64%
Total	100%

$ in millions	Credit Cards
As of June 2023	
Loans, gross	**$ 16,879**
California	**16%**
Texas	**9%**
Florida	**8%**
New York	**8%**
Illinois	**4%**
Other	**55%**
Total	**100%**
As of December 2022	
Loans, gross	$ 15,820
California	16%
Texas	9%
New York	8%
Florida	8%
Illinois	4%
Other	55%
Total	100%

In addition, we had credit exposure of $2.50 billion as of June 2023 and $1.88 billion as of December 2022 related to our commitments to provide unsecured installment loans to consumers.

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

Other. Other includes unsecured loans extended to wealth management clients and unsecured consumer loans purchased by us.

The table below presents our credit exposure from other loans and lending commitments, and the concentration by region, internally determined public rating agency equivalents and other credit metrics.

$ in millions	Loans	Lending Commitments	Total
As of June 2023			
Other	**$ 1,359**	**$ 942**	**$ 2,301**
Region			
Americas	**100%**	**100%**	**100%**
Total	**100%**	**100%**	**100%**
Credit Quality (Credit Rating Equivalent)			
Investment-grade	**58%**	**88%**	**71%**
Non-investment-grade	**18%**	**12%**	**15%**
Other metrics	**24%**	**—**	**14%**
Total	**100%**	**100%**	**100%**
As of December 2022			
Other	$ 1,533	$ 920	$ 2,453
Region			
Americas	100%	100%	100%
Total	100%	100%	100%
Credit Quality (Credit Rating Equivalent)			
Investment-grade	62%	95%	74%
Non-investment-grade	17%	5%	13%
Other metrics	21%	—	13%
Total	100%	100%	100%

In the table above, other metrics primarily includes consumer loans purchased by us. Our risk assessment process for such loans includes reviewing certain key metrics, such as expected cash flows, delinquency status and other risk factors.

In addition, we have credit exposure to other loans held for securitization of $1.45 billion as of June 2023 and $1.72 billion as of December 2022. Such loans are included in trading assets in our consolidated balance sheets.

Credit Hedges. To mitigate the credit risk associated with our lending activities, we obtain credit protection on certain loans and lending commitments through credit default swaps, both single-name and index-based contracts, and through the issuance of credit-linked notes.

Securities Financing Transactions. We enter into securities financing transactions in order to, among other things, facilitate client activities, invest excess cash, acquire securities to cover short positions and finance certain activities. We bear credit risk related to resale agreements only to the extent that cash advanced or the value of securities pledged or delivered to the counterparty exceeds the value of the collateral received. We also have credit exposure on repurchase agreements to the extent that the value of securities pledged or delivered to the counterparty for these transactions exceeds the amount of cash or collateral received. Securities collateral for these transactions primarily includes U.S. government and agency obligations. We had credit exposure related to securities financing transactions of $2.07 billion as of June 2023 and $2.10 billion as of December 2022, reflecting both netting agreements and collateral that we consider when determining credit risk.

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

The table below presents our other credit exposures and the concentration by industry, region and internally determined public rating agency equivalents.

	As of	
$ in millions	**June 2023**	December 2022
Other Credit Exposures	**$ 8,119**	$ 4,112
Industry		
Financial Institutions	**55%**	76%
Funds	**44%**	18%
Other (including Special Purpose Vehicles)	**1%**	6%
Total	**100%**	100%
Region		
Americas	**6%**	10%
EMEA	**94%**	88%
Asia	**—**	2%
Total	**100%**	100%
Credit Quality (Credit Rating Equivalent)		
AAA	**3%**	5%
AA	**85%**	59%
A	**5%**	6%
BBB	**5%**	22%
BB or lower	**2%**	8%
Total	**100%**	100%

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

Operational Risk Management

Operational risk is the risk of an adverse outcome resulting from inadequate or failed internal processes, people, systems or from external events. Our exposure to operational risk arises from routine processing errors, as well as extraordinary incidents, such as major systems failures or legal and regulatory matters. See "Operational Risk Management" in Part II of the 2022 Annual Report for further information about our operational risk management process.

Model Risk Management

Model risk is the potential for adverse consequences from decisions made based on model outputs that may be incorrect or used inappropriately. We rely on quantitative models across our business activities primarily to value certain financial assets and liabilities, to monitor and manage our risk, and to measure and monitor our regulatory capital. See "Model Risk Management" in Part II of the 2022 Annual Report for further information about our model risk management process.

Capital Risk Management

Capital risk is the risk that our capital is insufficient to support our business activities under normal and stressed market conditions or we face capital reductions or risk-weighted asset increases, including from new or revised rules or changes in interpretations of existing rules, and are therefore unable to meet our internal capital targets or external regulatory capital requirements. See "Capital Risk Management" in Part II of the 2022 Annual Report for further information about our capital risk management process.

Forward-Looking Statements

In the preceding discussion and analysis of our financial condition and results of operations, we have included statements that may constitute "forward-looking statements." Forward-looking statements are not historical facts or statements of current conditions, but instead represent only our beliefs regarding future events, many of which, by their nature, are inherently uncertain and outside our control.

By identifying these statements for you in this manner, we are alerting you to the possibility that our actual results, financial condition, liquidity and capital actions may differ, possibly materially, from the anticipated results, financial condition, liquidity and capital actions in these forward-looking statements. Important factors that could cause our results, financial condition and liquidity to differ from those in these statements include, among others, those described below and in "Risk Factors" and "Forward-Looking Statements" in Part I of the 2022 Annual Report.

These statements may relate to, among other things, (i) our future plans and objectives, (ii) our expense savings initiative, (iii) expenses we may incur, including expenses from investing in our consumer and transaction banking activities and new business initiatives, (iv) the growth of our deposits and other funding, asset liability management and funding strategies, (v) our business initiatives, including transaction banking and new consumer financial products, (vi) our expected provisions for credit losses, (vii) the adequacy of our allowance for credit losses (viii) the narrowing of our consumer business initiatives, (ix) the objectives and effectiveness of our risk management and liquidity policies, (x) our resolution plan and strategy, (xi) the impact of regulatory changes applicable to us, and our future status, activities or reporting under banking and financial regulation, (xii) legal proceedings, governmental investigations or other contingencies, (xiii) the replacement of IBORs and our transition to alternative risk-free reference rates, (xiv) the effectiveness of our management of human capital, (xv) future inflation, (xvi) the impact of Russia's invasion of Ukraine and related sanctions and other developments on our business, results and financial position and (xvii) our ability to sell, and the terms of any proposed sale of GreenSky.

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

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

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

Statements about the future state of our liquidity and regulatory capital ratios are subject to the risk that our actual liquidity and regulatory capital ratios may differ, possibly materially, from what is currently expected due to, among other things, increased regulatory requirements resulting from changes in regulations or the interpretation or application of existing regulations and changes to the composition of our balance sheet.

Statements about our objectives in management of human capital are based on our current expectations and are subject to the risk that we may not achieve these objectives and goals due to, among other things, competition in recruiting and attracting diverse candidates and unsuccessful efforts in retaining diverse employees.

Statements about future inflation are subject to the risk that actual inflation may differ, possibly materially, due to, among other things, changes in economic growth, unemployment or consumer demand.

Statements about the impact of Russia's invasion of Ukraine and related sanctions and other developments on our business, results and financial position are subject to the risks that hostilities may escalate and expand, that sanctions may increase and that the actual impact may differ, possibly materially, from what is currently expected.

Statements about the proposed sale of GreenSky are subject to the risks that buyers may not bid on GreenSky's assets or bid at levels, or with terms, that are unacceptable to us, and that the performance of this activity may deteriorate as a result of the announced sale.