CITIGROUP GLOBAL MARKETS HOLDINGS INC.

ANNUAL FINANCIAL REPORT

FOR THE YEAR ENDED DECEMBER 31, 2023

April 30, 2024

Responsibility Statement

The below named authorized officers of Citigroup Global Markets Holdings Inc., a New York corporation (the "Company"), confirm that to the best of their knowledge: (i) the accompanying financial statements (a) were prepared in accordance with Generally Accepted Accounting Principles in the United States of America and (b) give a true and fair view of the assets, liabilities, financial position and income or loss of the Company and the undertakings included in the consolidation taken as a whole; and (ii) the accompanying Management Report includes (a) a fair review of the development and performance of the business and position of the Company and the undertakings included in the consolidation taken as a whole and (b) a description of the principal risks and uncertainties that they face.

CITIGROUP GLOBAL MARKETS HOLDINGS INC.

By: /s/ Jason Mercado
Jason Mercado
Treasurer

By: /s/ John A Valenti
John A Valenti
Chief Financial Officer

CITIGROUP GLOBAL MARKETS HOLDINGS INC.

MANAGEMENT REPORT

CITIGROUP GLOBAL MARKETS HOLDINGS INC.

Citigroup Global Markets Holdings Inc. (**CGMHI**), operating through its subsidiaries, engages in full-service investment banking and securities brokerage business. Throughout these disclosures, “CGMHI” and the “Company” refer to Citigroup Global Markets Holdings Inc. and its consolidated subsidiaries. CGMHI is managed in the *Institutional Clients Group (ICG)* operating segment.

CGMHI's parent, Citigroup Inc. (**Citigroup**, or **Citi**), is a global diversified financial services holding company whose businesses provide consumers, corporations, governments and institutions with a broad, yet focused, range of financial products and services, including consumer banking and credit, corporate and investment banking, securities brokerage, trade and securities services and wealth management. Citi does business in nearly 160 countries and jurisdictions.

Effective as of the fourth quarter of 2023, Citigroup was managed pursuant to five operating segments: *Services*, *Markets*, *Banking*, *U.S. Personal Banking* and *Wealth*. Activities not assigned to the operating segments are included in *All Other*.

The principal offices of CGMHI are located at 388 Greenwich Street, New York, NY, 10013. CGMHI was incorporated in New York on 23 February 1977 and is the successor to Salomon Smith Barney Holdings Inc. On 7 April 2003, CGMHI filed a Restated Certificate of Incorporation, changing its name from Salomon Smith Barney Holdings Inc. to Citigroup Global Markets Holdings Inc.

MARKETS

Markets provides corporate, institutional and public sector clients around the world with a full range of sales and trading services across equities, foreign exchange, rates, spread products and commodities. The range of services includes market-making across asset classes, risk management solutions, financing, prime brokerage, research, securities clearing and settlement.

As a market maker, *Markets* facilitates transactions, including holding product inventory to meet client demand, and earns the differential between the price at which it buys and sells the products. These price differentials and the unrealized gains and losses on the inventory are recorded in *Principal transactions*. Interest income earned on assets held, less interest paid on long- and short-term debt and secured funding transactions, is recorded as *Net interest income*.

The amount and types of *Markets* revenues are impacted by a variety of interrelated factors, including market liquidity; changes in market variables such as interest rates, foreign exchange rates, equity prices, commodity prices and credit spreads, as well as their implied volatilities; investor confidence; and other macroeconomic conditions. *Markets* revenues include revenues earned by Citi that are subject to a revenue sharing arrangement with *Banking*—Corporate Lending for Investment Banking, *Markets* and *Services* products sold to Corporate Lending clients.

Assuming all other market conditions do not change, increases in client activity levels or bid/offer spreads generally result in increases in revenues. However, changes in market conditions can significantly impact client activity levels, bid/offer spreads and the fair value of product inventory. Management of the *Markets* businesses involves daily monitoring and evaluation of the above factors.

Markets international presence is supported by trading floors in approximately 80 countries and a proprietary network in 95 countries and jurisdictions.

INFORMATION RELATING TO DERIVATIVE INSTRUMENTS AND RISK MANAGEMENT
DERIVATIVES ACTIVITIES

In the ordinary course of business, the Company enters into various types of derivative transactions, which include:

- *Futures and forward contracts*, which are commitments to buy or sell at a future date a financial instrument, commodity or currency at a contracted price that may be settled in cash or through delivery of an item readily convertible to cash.
- *Swap contracts*, which are commitments to settle in cash at a future date or dates that may range from a few days to a number of years, based on differentials between specified indices or financial instruments, as applied to a notional principal amount.
- *Option contracts*, which give the purchaser, for a premium, the right, but not the obligation, to buy or sell within a specified time a financial instrument, commodity or currency at a contracted price that may also be settled in cash, based on differentials between specified indices or prices.

Swaps, forwards and some option contracts are over-the-counter (OTC) derivatives that are bilaterally negotiated with counterparties and settled with those counterparties, except for swap contracts that are novated and "cleared" through central counterparties (CCPs). Futures contracts and other option contracts are standardized contracts that are traded on an exchange with a CCP as the counterparty from the inception of the transaction. The Company enters into derivative contracts relating to interest rate, foreign currency, commodity and other market/credit risks for the following reasons:

- *Trading Purposes*: The Company trades derivatives as an active market maker. The Company offers its customers derivatives in connection with their risk management actions to transfer, modify or reduce their interest rate, foreign exchange and other market/credit risks or for their own trading purposes. The Company also manages its derivative risk positions through offsetting trade activities.
- *Hedging*: The Company uses derivatives in connection with its own risk management activities to hedge certain risks. Hedging may be accomplished by applying hedge accounting in accordance with ASC 815, *Derivatives and Hedging*. For example, CGMHI issues fixed-rate long-term debt and then enters into a receive-fixed, pay-variable-rate interest rate swap with the same tenor and notional amount to synthetically convert the interest payments to a net variable-rate basis. This strategy is the most common form of an interest rate hedge, as it minimizes net interest cost in certain yield curve environments. Derivatives are also used to manage market risks inherent in specific groups of on-balance sheet assets and liabilities, including commodities and borrowings.

Derivatives may expose the Company to market, credit or liquidity risks in excess of the amounts recorded on the Consolidated Statement of Financial Condition. Market risk on a derivative product is the exposure created by potential fluctuations in interest rates, market prices, foreign exchange rates and other factors and is a function of the type of product, the volume of transactions, the tenor and terms of the agreement and the underlying volatility. Credit risk is the exposure to loss in the event of nonperformance by the other party to satisfy a derivative liability where the value of any collateral held by CGMHI is not adequate to cover such losses. The recognition in earnings of unrealized gains on derivative transactions is subject to management's assessment of the probability of counterparty default. Liquidity risk is the potential exposure that arises when the size of a derivative position may affect the ability to monetize the position in a reasonable period of time and at a reasonable cost in periods of high volatility and financial stress.

Derivative transactions are customarily documented under industry standard master netting agreements, which provide that following an event of default, the non-defaulting party may promptly terminate all transactions between the parties and determine the net amount due to be paid to, or by, the defaulting party. Events of default include (i) failure to make a payment on a derivative transaction that remains uncured following applicable notice and grace periods, (ii) breach of agreement that remains uncured after applicable notice and grace periods, (iii) breach of a representation, (iv) cross default, either to third-party debt or to other derivative transactions entered into between the parties, or, in some cases, their affiliates, (v) the occurrence of a merger or consolidation that results in the creditworthiness of a party becoming materially weaker, and (vi) the cessation or repudiation of any applicable guarantee or other credit support document. Obligations under master netting agreements are often secured by collateral posted under an industry standard credit support annex to the master netting agreement. An event of default may also occur under a credit support annex if a party fails to make a collateral delivery that remains uncured following applicable notice and grace periods.

The netting and collateral rights incorporated in the master netting agreements are considered to be legally enforceable if a supportive legal opinion has been obtained from counsel of recognized standing that provides (i) the requisite level of certainty regarding enforceability and (ii) that the exercise of rights by the non-defaulting party to terminate and close-out transactions on a net basis under these agreements will not be stayed or avoided under applicable law upon an event of default, including bankruptcy, insolvency or similar proceeding.

A legal opinion may not be sought for certain jurisdictions where local law is silent or unclear as to the enforceability of such rights or where adverse case law or conflicting regulation may cast doubt on the enforceability of such rights. In some jurisdictions and for some counterparty types, the insolvency law may not provide the requisite level of certainty. For example, this may be the case for certain sovereigns, municipalities, central banks and U.S. pension plans.

Exposure to credit risk on derivatives is affected by market volatility, which may impair the ability of counterparties to satisfy their obligations to the Company. Credit limits are established and closely monitored for customers engaged in derivatives transactions. CGMHI considers the level of legal certainty regarding enforceability of its offsetting rights under master netting agreements and credit support annexes to be an important factor in its risk management process. Specifically, CGMHI generally transacts much lower volumes of derivatives under master netting agreements where CGMHI does not have the requisite level of legal certainty regarding enforceability, because such derivatives consume greater amounts of single counterparty credit limits than those executed under enforceable master netting agreements.

Cash collateral and security collateral in the form of G10 government debt securities are often posted by a party to a master netting agreement to secure the net open exposure of the other party; the receiving party is free to commingle/rehypothecate such collateral in the ordinary course of its business. Nonstandard collateral such as corporate bonds, municipal bonds, U.S. agency securities and/or MBS may also be pledged as collateral for derivative transactions. Security collateral posted to open and maintain a master netting agreement with a counterparty, in the form of cash and/or securities, may from time to time be segregated in an account at a third-party custodian pursuant to a tri-party account control agreement.

RISK FACTORS

(Extracted from Citigroup's Annual Report on Form 10-K for the fiscal year ended December 31, 2023, filed with the U.S. Securities and Exchange Commission on the 23rd day of February, 2024.)

The following discussion presents what management currently believes could be the material risks and uncertainties that could impact Citi's businesses, results of operations and financial condition. Other risks and uncertainties, including those not currently known to Citi or its management, could also negatively impact Citi's businesses, results of operations and financial condition. Thus, the following should not be considered a complete discussion of all of the risks and uncertainties that Citi may face.

MARKET-RELATED RISKS

Macroeconomic, Geopolitical and Other Challenges and Uncertainties Could Continue to Have a Negative Impact on Citi.

Citi has experienced, and could experience in the future, negative impacts to its businesses, results of operations and financial condition as a result of various macroeconomic, geopolitical and other challenges, uncertainties and volatility. These include, among other things, government fiscal and monetary actions or expected actions, including continued high interest rates, reductions in central bank balance sheets, or other restrictive interest rate or other monetary policies; potential recessions in the U.S., Europe and other regions or countries; and elevated levels of inflation.

For example, in 2023, the U.S., the U.K., the EU and other economies continued to experience elevated levels of inflation. As a result, the Federal Reserve Board (FRB) and other central banks substantially raised interest rates, reduced the size of their balance sheets and took other actions in an aggressive effort to curb inflation. These actions may continue to adversely impact certain sectors sensitive to interest rates and consumer discretionary spending. They may also slow economic growth, increase the risk of recession and increase the unemployment rate in the U.S. and other countries, all of which would likely adversely affect Citi's consumer and institutional clients, businesses and results of operations. In addition, inflation may continue to result in higher labor and other costs, thus putting further pressure on Citi's expenses. More recently, the FRB has signaled that it expects to reduce the benchmark U.S. interest rate in 2024. If the FRB were to reduce interest rates prematurely, inflation could resurge.

Interest rates on loans Citi makes are typically based off or set at a spread over a benchmark interest rate and would likely decline or rise as benchmark rates decline or rise, respectively. For example, while a decline in interest rates would generally be expected to result in lower overall net interest income, it could improve Citi's funding costs. Although higher interest rates would generally be expected to increase overall net interest income, higher rates could adversely affect funding costs, levels of deposits in its consumer and institutional businesses and certain business or product revenues. In addition, Citi's net interest income could be adversely affected due to a flattening (a lower spread between shorter-term versus longer-term interest rates) or longer lasting or more severe inversion (shorter-term interest rates exceeding longer-term interest rates) of the interest rate yield curve, as Citi typically pays interest on deposits based on shorter-term interest rates and earns money on loans based on longer-term interest rates. Additionally, Citi's balance sheet includes interest-rate sensitive fixed-rate assets such as U.S. Treasuries, U.S. agency securities and residential mortgages, among others, whose valuation would be adversely impacted in a higher-rate environment and/or whose hedging costs may increase.

Additional areas of uncertainty include, among others, geopolitical challenges, tensions and conflicts, including those related to Russia's war in Ukraine (see discussion below), as well as a persistent and/or escalating conflict in the Middle East, particularly if the conflict were to widen to involve additional combatants, countries or regions; economic and other geopolitical challenges related to China, including weak economic growth, related policy actions, challenges in the Chinese real estate sector, banking and credit markets, and tensions or conflicts between China and Taiwan and/or China and the U.S.; significant disruptions and volatility in financial markets, including foreign currency volatility and devaluations and continued strength in the U.S. dollar; protracted or widespread trade tensions; natural disasters; new pandemics, including new COVID-19 variants; and political polarization, election outcomes and the effects of divided government, such as with respect to any extended government shutdown in the U.S. For example, Citi's market-making businesses can suffer losses resulting from the widening of credit spreads due to unanticipated changes in financial markets. Moreover, adverse developments or downturns in one or more of the world's larger economies would likely have a significant impact on the global economy or the economies of other countries because of global financial and economic linkages.

Russia's war in Ukraine has caused supply shocks in energy, food and other commodities markets, worsened inflation, increased cybersecurity risks, increased the risk of recession in Europe and heightened geopolitical tensions. Actions by Russia, and any further measures taken by the U.S. or its allies, could continue to have negative impacts on regional and global energy and other commodities and financial markets and macroeconomic conditions, adversely impacting jurisdictions where Citi operates and has customers, clients or employees. Citi's remaining operations in Russia subject Citi to various other risks, among which are foreign currency volatility, including appreciations or devaluations; restrictions arising from retaliatory Russian laws and regulations on the conduct of its remaining businesses, including, without limitation, its provision to its customers of certain securities services; sanctions or asset freezes; and other deconsolidation events. In the event of a loss of control of AO Citibank, Citi would be required to write off its net investment in the entity, recognize a CTA loss through earnings and recognize a loss on intercompany liabilities owed by AO Citibank to other Citi entities outside of Russia. In the sole event of a substantial liquidation, as opposed to a loss of control, Citi would be required to recognize the CTA loss through earnings and would evaluate its remaining net investment as circumstances evolve.

STRATEGIC RISKS

Citi's Ability to Return Capital to Common Shareholders Substantially Depends on Regulatory Capital Requirements, Including the Results of the CCAR Process and Dodd-Frank Act Regulatory Stress Tests, and Other Factors.

Citi's ability to return capital to its common shareholders consistent with its capital planning efforts and targets, whether through its common stock dividend or through a share repurchase program, substantially depends, among other things, on its regulatory capital requirements, including the annual recalibration of the Stress Capital Buffer (SCB), which is based upon the results of the CCAR process required by the FRB, and recalibration of the GSIB surcharge,as well as the supervisory expectations and assessments regarding individual institutions.

The FRB's annual stress testing requirements are integrated into ongoing regulatory capital requirements. Citi's SCB equals the maximum projected decline in its CET1 Capital ratio under the supervisory severely adverse scenario over a nine-quarter CCAR measurement period, plus four quarters of planned common stock dividends as a percentage of Citi's risk-weighted assets, subject to a minimum requirement of 2.5%. The SCB is calculated by the FRB using its proprietary data and modeling of each firm's results. Accordingly, Citi's SCB may change annually, based on the supervisory stress test results, thus potentially resulting in variability in the calculation of Citi's required regulatory CET1 Capital ratio under the Standardized Approach. On October 1, 2023, Citi's required regulatory CET1 Capital ratio increased to 12.3% from 12% under the Standardized Approach, reflecting the increase in the SCB requirement to 4.3% from 4.0%. In addition, a breach of the SCB and other regulatory capital buffers may result in gradual limitations on capital distributions and discretionary bonus payments to executive officers.

Moreover, changes in regulatory capital rules, requirements or interpretations could materially increase Citi's required regulatory capital. For example, the U.S. banking regulators have proposed a number of changes to the U.S. regulatory capital framework, including, but not limited to, significant revisions to the U.S. Basel III rules, known as the Basel III Endgame (capital proposal); changes to the method for calculating the GSIB surcharge; and changes to aspects of the total loss-absorbing capacity (TLAC) requirements. The capital proposal would replace the Advanced Approaches with a new Expanded Risk-based Approach for calculating risk-weighted assets. Under the capital proposal, a single capital buffer, including the SCB, would apply to a firm's risk-based capital ratios, regardless of whether the applicable ratios result from the Expanded Risk-based Approach or the Modified Standardized Approach. Additionally, the capital proposal would make various changes to the calculations of credit risk, market risk and operational risk components of risk-weighted assets. All of these potential changes, if adopted as proposed, would likely materially impact Citi's regulatory capital position and substantially increase Citi's regulatory capital requirements, and thus adversely impact the extent to which Citi is able to return capital to shareholders.

Citi's ability to return capital also depends on its results of operations and financial condition, including the capital impact related to its remaining divestitures, such as, among other things, any temporary capital impact from CTA losses (net of hedges) between transaction signings and closings (see the continued investments and the incorrect assumptions or estimates risk factors below); Citi's effectiveness in planning, managing and calculating its level of regulatory capital and risk-weighted assets under both the Advanced Approaches and the Standardized Approach, as well as the Supplementary Leverage ratio (SLR); its implementation and maintenance of an effective capital planning process and management framework; forecasts of macroeconomic conditions; and deferred tax asset (DTA) utilization (see the ability to utilize DTA risk factor below). The FRB could also limit or prohibit capital actions, such as paying or increasing dividends or repurchasing common stock due to macroeconomic disruptions or events, some of which occurred for a period of time during the COVID-19 pandemic.

All firms subject to CCAR requirements, including Citi, will continue to be subject to a rigorous regulatory evaluation of capital planning practices and other reviews and examinations, including, but not limited to data quality, which is a key regulatory focus, governance, risk management and internal controls. For example, the FRB has stated that it expects capital adequacy practices to continue to evolve and to likely be determined by its yearly cross-firm review of capital plan submissions. Similarly, the FRB has indicated that, as part of its stated goal to continually evolve its annual stress testing requirements, several parameters of the annual stress testing process may continue to be altered, including the number and severity of the stress test scenarios, the FRB modeling of Citi's balance sheet, pre-provision net revenue and stress losses, and the addition of components deemed important by the FRB. Additionally, Citi's ability to return capital may be adversely impacted if a regulatory evaluation or examination results in negative findings regarding absolute capital levels or other aspects of Citi's operations, including as a result of the imposition of additional capital buffers, limitations on capital distributions or otherwise. For information on limitations on Citi's ability to return capital to common shareholders, as well as the CCAR process, supervisory stress test requirements and GSIB surcharge, see the risk management risk factor below.

In December 2023, the FRB announced that it will maintain its current framework for calculating allowances on loans in the supervisory stress test through the 2024 stress test cycle, while continuing to evaluate appropriate future enhancements to this framework. The impacts on Citi's capital adequacy of any potential incorporation by the FRB of CECL into its supervisory stress tests in future stress test cycles, and of other potential regulatory changes in the FRB's stress testing methodologies, remain unclear.

Although various uncertainties exist regarding the extent of, and the ultimate impact to Citi from, changes to regulatory capital, results from the FRB's stress testing and CCAR regimes, and regulatory evaluation or examination findings, these changes could increase the level of capital Citi is required or elects to hold, including as part of Citi's management buffer, thus potentially adversely impacting the extent to which Citi is able to return capital to shareholders.

Citi Must Continually Review, Analyze and Successfully Adapt to Ongoing Regulatory and Legislative Uncertainties and Changes in the U.S. and Globally.

Citi, its management and its businesses continue to face regulatory and legislative uncertainties and changes, both in the U.S. and globally. While the ongoing regulatory and legislative uncertainties and changes facing Citi are too numerous to list completely, examples include, but are not limited to (i) potential changes to various aspects of the U.S. regulatory capital framework and requirements applicable to Citi, including, among others, significant revisions to the U.S. Basel III rules, known as the Basel III Endgame (for information about the Basel III Endgame, see the capital return risk factor); (ii) potential fiscal, monetary, tax, sanctions and other changes promulgated by the U.S. federal government and other governments, including potential changes in regulatory requirements relating to interest rate risk management; and (iii) rapidly evolving legislative and regulatory requirements and other government initiatives in the EU, the U.S. and globally related to climate change and other ESG areas that vary, and may conflict, across jurisdictions, including any new disclosure requirements (see the climate change and heightened regulatory scrutiny and ongoing interpretation of regulatory changes risk factors below). References to "regulatory" refer to both formal regulation and the views and expectations of Citi's regulators in their supervisory roles, which, as they change over time, can have a major impact. In particular, the U.S. regulators have indicated that the level of their expectations is increasing and prompt negative examination findings/ratings and enforcements actions are more likely.

For example, in February 2023, the Consumer Financial Protection Bureau (CFPB) proposed significant changes to the maximum amounts on credit card late fees, which, if adopted as proposed, would reduce credit card fee revenues in Branded Cards and Retail Services in USPB. In addition, U.S. and international regulatory and legislative initiatives have not always been undertaken or implemented on a coordinated basis, and areas of divergence have developed and continue to develop with respect to their scope, interpretation, timing, structure or approach, leading to inconsistent or even conflicting requirements, including within a single jurisdiction.

Further, ongoing regulatory and legislative uncertainties and changes make Citi's long-term business, balance sheet and strategic budget planning difficult, subject to change and potentially more costly and may impact its results of operations. U.S. and other regulators globally have implemented and continue to discuss various changes to certain regulatory requirements, which would require ongoing assessment by management as to the impact to Citi, its businesses and business planning. Business planning must necessarily be based on possible or proposed rules or outcomes, which can change significantly upon finalization, or upon implementation or interpretive guidance from numerous regulatory bodies worldwide, and such guidance can change. Regulatory and legislative changes have also significantly increased Citi's compliance risks and costs (see the implementation and interpretation of regulatory changes risk factor below) and can adversely affect Citi's competitive position, as well as its businesses, results of operations and financial condition.

Citi's Ability to Achieve Its Objectives from Its Transformation, Organizational, Simplification and Other Strategic and Other Initiatives May Not Be as Successful as It Projects or Expects.

As part of its transformation initiatives, Citi continues to make significant investments to improve its risk and controls environment, modernize its data and technology infrastructure and further enhance safety and soundness (see the legal and regulatory proceedings risk factor below). Citi also continues to make business-led investments, as part of the execution of its strategic initiatives. For example, Citi has been making investments across the Company, including hiring front office colleagues in key strategic markets and businesses; enhancing product capabilities and platforms to grow key businesses, improve client digital experiences and add scalability; and implementing new capabilities and partnerships. These business-led investments are designed to grow revenues as well as result in retention and efficiency improvements.

Additionally, Citi has been pursuing overall simplification initiatives that include management and operating model changes and actions to enhance focus on clients and reduce expenses. Citi's simplification actions also include divestiture of the Mexico Consumer/SBMM operations and completing other exits and wind-downs in order to streamline Citi and assist in optimizing its allocation of resources. These overall simplification initiatives involve various execution challenges and may result in higher than expected expenses, litigation and regulatory scrutiny, CTA and other losses or other negative financial or strategic impacts, which could be material (for information about potential CTA impacts, see the capital return risk factor above and the incorrect assumptions or estimates risk factor below).

Citi's multiyear transformation, as well as its simplification initiatives, involve significant complexities and uncertainties. In addition, there is inherent risk that Citi's transformation and simplification initiatives will not be as productive or effective as Citi expects, or at all. Conversely, failure to adequately invest in and upgrade Citi's technology and processes or properly implement its enterprise-wide simplification could result in Citi's inability to meet regulatory expectations, be sufficiently competitive, serve clients effectively and avoid disruptions to its businesses and operational errors (see the operational processes and systems and legal and regulatory proceedings risk factors below). Citi's ability to achieve expected returns and operational improvements depends, in part, on factors that it cannot control, including, among others, macroeconomic challenges and uncertainties; customer, client and competitor actions; and ongoing regulatory requirements or changes.

Citi's transformation, strategic and other initiatives may continue to evolve as its business strategies, the market environment and regulatory expectations change, which could make the initiatives more costly and more challenging to implement, and limit their effectiveness.

Climate Change Presents Various Financial and Non-Financial Risks to Citi and Its Customers and Clients.

Climate change presents both immediate and long-term risks to Citi and its customers and clients, with the risks expected to increase over time. Climate risks can arise from both physical risks (those risks related to the physical effects of climate change) and transition risks (risks related to regulatory, market, technological, stakeholder and legal changes from a transition to a low-carbon economy). Physical and transition risks can manifest themselves differently across Citi's risk categories in the short, medium and long terms.

Physical risks from climate change include acute risks, such as hurricanes, floods and droughts, as well as consequences of chronic changes in climate, such as rising sea levels, prolonged droughts and systemic changes to geographies and any resulting population migration. For example, physical risks could have adverse financial, operational and other impacts on Citi, both directly on its business and operations, and indirectly as a result of impacts to Citi's clients, customers, vendors and other counterparties. These impacts can include destruction, damage or impairment of owned or leased properties and other assets, destruction or deterioration of the value of collateral, such as real estate, disruptions to business operations and supply chains and reduced availability or increase in the cost of insurance. Physical risks can also impact Citi's credit risk exposures, for example, in its mortgage and commercial real estate lending businesses.

Transition risks may arise from changes in regulations or market preferences toward low-carbon industries or sectors, which in turn could have negative impacts on asset values, results of operations or the reputations of Citi and its customers and clients. For example, Citi's corporate credit exposures include oil and gas, power and other industries that may experience reduced demand for carbon-intensive products due to the transition to a low-carbon economy. Failure to adequately consider transition risk in developing and executing on its business strategy could lead to a loss of market share, lower revenues and higher credit costs. Transition risks also include potential increased operational, compliance and energy costs driven by government policies to promote decarbonization.

Moreover, increasing legislative and regulatory changes and uncertainties regarding climate-related risk management and disclosures are likely to result in increased regulatory, compliance, credit, reputational and other risks and costs for Citi. New regulations have been enacted and/or are expected in several jurisdictions, including the EU's Corporate Sustainability Reporting Directive (CSRD), the SEC climate-related disclosures that could require disclosure of climate-related information and the State of California's legislation enacted in October 2023 requiring broad disclosure of greenhouse gas emissions and other climate-related information largely beginning in 2026. In addition, Citi could face increased regulatory scrutiny and reputation and litigation risks as a result of its climate risk, sustainability and other ESG-related commitments and disclosures.

Even as some regulators seek to mandate additional disclosure of climate-related information, Citi's ability to comply with such requirements and conduct more robust climate-related risk analyses may be hampered by lack of information and reliable data. Data on climate-related risks is limited in availability, often based on estimated or unverified figures, collected and reported on a time-lag, and variable in quality. Modeling capabilities to analyze climate-related risks and interconnections are improving, but remain incomplete. U.S. and non-U.S. banking regulators and others are increasingly focusing on the issue of climate risk at financial institutions, both directly and with respect to their clients. For example, in October 2023, the FRB, FDIC and OCC jointly released principles that provide a high-level framework for the safe and sound management of exposures to climate-related financial risks, including physical and transition risks, for financial institutions with more than $100 billion in assets.

Additionally, if Citi's response to climate change is perceived to be ineffective or insufficient or Citi is unable to achieve its objectives or commitments relating to climate change, its businesses, reputation, attractiveness to certain investors and efforts to recruit and retain employees may suffer. For example, Citi's approach to supporting client decarbonization in a gradual and orderly way, while promoting energy security, may lead to both continued exposure to carbon-intensive activity and increased reputation risks from stakeholders with divergent points of view. Citi also faces anti-ESG challenges from certain U.S. state and other governments that may impact its ability to conduct certain business within those jurisdictions.

Citi's Ability to Utilize Its DTAs, and Thus Reduce the Negative Impact of the DTAs on Citi's Regulatory Capital, Will Be Driven by Its Ability to Generate U.S. Taxable Income.

At December 31, 2023, Citi's net DTAs were $29.6 billion, net of a valuation allowance of $3.6 billion, of which $12.8 billion was deducted from Citi's CET1 Capital under the U.S. Basel III rules. Of this deducted amount, $12.1 billion related to net operating losses, foreign tax credit and general business credit carry-forwards, with $2.3 billion related to temporary differences in excess of the 10%/15% regulatory limitations, reduced by $1.6 billion of deferred tax liabilities, primarily associated with goodwill and certain other intangible assets that were separately deducted from capital.

Citi's overall ability to realize its DTAs will primarily be dependent upon Citi's ability to generate U.S. taxable income in the relevant reversal periods. Failure to realize any portion of the net DTAs would have a corresponding negative impact on Citi's net income and financial returns.

The accounting treatment for realization of DTAs is complex and requires significant judgment and estimates regarding future taxable earnings in the jurisdictions in which the DTAs arise and available tax planning strategies. Forecasts of future taxable earnings will depend upon various factors, including, among others, macroeconomic conditions. In addition, any future increase in U.S. corporate tax rates could result in an increase in Citi's DTAs, which may subject more of Citi's DTAs to exclusion from regulatory capital.

Citi has not been and does not expect to be subject to the base erosion anti-abuse tax (BEAT), which, if applicable to Citi in any given year, would have a significantly adverse effect on both Citi's net income and regulatory capital.

Citi's Interpretation or Application of the Complex Tax Laws to Which It Is Subject Could Differ from Those of Governmental Authorities, Which Could Result in Litigation or Examinations and the Payment of Additional Taxes, Penalties or Interest.

Citi is subject to various income-based tax laws of the U.S. and its states and municipalities, as well as the numerous non-U.S. jurisdictions in which it operates. These tax laws are inherently complex, and Citi must make judgments and interpretations about the application of these laws to its entities, operations and businesses.

For example, the Organization for Economic Cooperation and Development (OECD) Pillar 2 initiative contemplates a 15% global minimum tax with respect to earnings in each country. EU member states were required to adopt the OECD Pillar 2 rules in 2023, with an effective date of January 1, 2024 (unless an exception applied), and other non-U.S. countries have similarly adopted or are expected to adopt the rules. Under these rules, Citi will be required to pay a "top-up" tax to the extent that Citi's effective tax rate in any given country is below 15%. Beginning in 2024, countries that adopted the OECD Pillar 2 rules in 2023 can collect the top-up tax only with respect to earnings of entities in their jurisdiction or subsidiaries of such entities. Beginning in 2025, all countries that have adopted the OECD Pillar 2 rules can collect a share of the top-up tax owed with respect to any member of the Pillar 2 multinational group. While Citi does not currently expect the rules to have a material impact on its earnings, many aspects of the application of the rules remain uncertain.

Additionally, Citi is subject to litigation or examinations with U.S. and non-U.S. tax authorities regarding non-income-based tax matters. While Citi has appropriately reserved for such matters where there is a probable loss, and has disclosed reasonably possible losses, the outcome of the matters may be different than Citi's expectations. Citi's interpretations or application of the tax laws, including with respect to withholding, stamp, service and other non-income taxes, could differ from that of the relevant governmental taxing authority, which could result in the requirement to pay additional taxes, penalties or interest, the reduction of certain tax benefits or the requirement to make adjustments to amounts recorded, which could be material.

A Deterioration in or Failure to Maintain Citi's Co-Branding or Private Label Credit Card Relationships Could Have a Negative Impact on Citi.

Citi has co-branding and private label relationships through its Branded Cards and Retail Services credit card businesses with various retailers and merchants, whereby in the ordinary course of business Citi issues credit cards to consumers, including customers of the retailers or merchants. The five largest relationships across both businesses in USPB constituted an aggregate of approximately 11% of Citi's revenues in 2023. Citi's co-branding and private label agreements often provide for shared economics between the parties and generally have a fixed term.

Competition among card issuers, including Citi, for these relationships is significant, and Citi may not be able to maintain such relationships on existing terms or at all. Citi's co-branding and private label relationships could also be negatively impacted by, among other things, the general economic environment, including the impacts of continued elevated interest rates and inflation, and lower economic growth rates, as well as a continuing risk of recession; changes in consumer sentiment, spending patterns and credit card usage behaviors; a decline in sales and revenues, partner store closures, any reduction in air and business travel, or other operational difficulties of the retailer or merchant; early termination due to a contractual breach or exercise of other early termination right; or other factors, including bankruptcies, liquidations, restructurings, consolidations or other similar events, whether due to a challenging macroeconomic environment or otherwise.

These events, particularly early termination and bankruptcies or liquidations, could negatively impact the results of operations or financial condition of Branded Cards, Retail Services or Citi as a whole, including as a result of loss of revenues, increased expenses, higher cost of credit, impairment of purchased credit card relationships and contract-related intangibles or other losses.

The Application of U.S. Resolution Plan Requirements May Pose a Greater Risk of Loss to Citi's Debt and Equity Securities Holders, and Citi's Inability in Its Resolution Plan Submissions to Address Any Shortcomings or Deficiencies or Guidance Could Subject Citi to More Stringent Capital, Leverage or Liquidity Requirements, or Restrictions on Its Growth, Activities or Operations, and Could Eventually Require Citi to Divest Assets or Operations.

Title I of the Dodd-Frank Act requires Citi to prepare and submit a plan to the FRB and the FDIC for the orderly resolution of Citigroup (the bank holding company) and its significant legal entities under the U.S. Bankruptcy Code in the event of future material financial distress or failure.

Under Citi's preferred "single point of entry" resolution plan strategy, only Citigroup, the parent holding company, would enter into bankruptcy, while Citigroup's material legal entities (as defined in the public section of its 2023 resolution plan, which can be found on the FRB's and FDIC's websites) would remain operational outside of any resolution or insolvency proceedings. As a result, Citigroup's losses and any losses incurred by its material legal entity subsidiaries would be imposed first on holders of Citigroup's equity securities and thereafter on its unsecured creditors, including holders of eligible long-term debt and other debt securities.

In addition, a wholly owned, direct subsidiary of Citigroup serves as a resolution funding vehicle (the IHC) to which Citigroup has transferred, and has agreed to transfer on an ongoing basis, certain assets. The obligations of Citigroup and of the IHC, respectively, under the amended and restated secured support agreement, are secured on a senior basis by the assets of Citigroup (other than shares in subsidiaries of the parent company and certain other assets), and the assets of the IHC, as applicable. As a result, claims of the operating material legal entities against the assets of Citigroup with respect to such secured assets are effectively senior to unsecured obligations of Citigroup. Citi's single point of entry resolution plan strategy and the obligations under the amended and restated secured support agreement may result in the recapitalization of and/or provision of liquidity to Citi's operating material legal entities, and the commencement of bankruptcy proceedings by Citigroup at an earlier stage of financial stress than might otherwise occur without such mechanisms in place.

In line with the FRB's TLAC rule, Citigroup's shareholders and unsecured creditors—including its unsecured long-term debt holders—would bear any losses resulting from Citigroup's bankruptcy. Accordingly, any value realized by holders of its unsecured long-term debt may not be sufficient to repay the amounts owed to such debt holders in the event of a bankruptcy or other resolution proceeding of Citigroup.

On November 22, 2022, the FRB and FDIC issued feedback on the resolution plans filed on July 1, 2021 by the eight U.S. GSIBs, including Citi. The FRB and FDIC identified one shortcoming, but no deficiencies, in Citi's 2021 resolution plan. The shortcoming related to data integrity and data quality management issues, specifically, weaknesses in Citi's processes and practices for producing certain data that could materially impact its resolution capabilities. If a shortcoming is not satisfactorily explained or addressed before, or in, the submission of the next resolution plan, the shortcoming may be found to be a deficiency in the next resolution plan (see discussion below). Citi submitted its 2023 resolution plan in June 2023. More generally, data continues to be a subject of regulatory focus, and Citi continues to work on enhancing its data availability and quality.

Under Title I, if the FRB and the FDIC jointly determine that Citi's resolution plan is not "credible" (which, although not defined, is generally understood to mean the regulators do not believe the plan is feasible or would otherwise allow Citi to be resolved in a way that protects systemically important functions without severe systemic disruption), or would not facilitate an orderly resolution of Citi under the U.S. Bankruptcy Code, and Citi fails to resubmit a resolution plan that remedies any identified deficiencies, Citi could be subjected to more stringent capital, leverage or liquidity requirements, or restrictions on its growth, activities or operations. If within two years from the imposition of any such requirements or restrictions Citi has still not remediated any identified deficiencies, then Citi could eventually be required to divest certain assets or operations. Any such restrictions or actions would negatively impact Citi's reputation, market and investor perception, operations and strategy.

Citi's Performance and Its Ability to Effectively Execute Its Transformation and Strategic and Other Initiatives Could Be Negatively Impacted if It Is Not Able to Hire and Retain Qualified Employees.

Citi's performance and the performance of its individual businesses largely depend on the talents and efforts of its diverse and highly qualified colleagues. Specifically, Citi's continued ability to compete in each of its lines of business, to manage its businesses effectively and to execute its transformation and strategic and other initiatives, including, for example, hiring front office colleagues to grow businesses or hiring colleagues to support Citi's transformation and strategic and other initiatives, depends on its ability to attract new colleagues and to retain and motivate its existing colleagues. If Citi is unable to continue to attract, retain and motivate highly qualified colleagues, Citi's performance, including its competitive position, the execution of its transformation and strategic and other initiatives and its results of operations could be negatively impacted.

Citi's ability to attract, retain and motivate colleagues depends on numerous factors, some of which are outside of Citi's control. For example, the competition for talent continues to be particularly intense due to factors such as low unemployment and changes in worker expectations, concerns and preferences, including an increased demand for remote work options and other job flexibility. Also, the banking industry generally is subject to more comprehensive regulation of employee compensation than other industries, including deferral and clawback requirements for incentive compensation, which can make it unusually challenging for Citi to compete in labor markets against businesses, including, for example, technology companies, that are not subject to such regulation. In addition, in 2023 Citi announced plans to reduce management layers from 13 to a median of eight as part of organizational simplification initiatives that also involve significant reductions in functional roles, which could also impact its ability to attract and retain colleagues. Other factors that could impact its ability to attract, retain and motivate colleagues include, among other things, Citi's presence in a particular market or region, the professional and development opportunities, its reputation and its diversity.

Citi Faces Increased Competitive Challenges, Including from Financial Services and Other Companies and Emerging Technologies.

Citi operates in an increasingly evolving and competitive business environment, which includes both financial and non-financial services firms, such as traditional banks, online banks, private credit and financial technology companies and others. These companies compete on the basis of, among other factors, size, reach, quality and type of products and services offered, price, technology and reputation. Certain competitors may be subject to different and, in some cases, less stringent legal and regulatory requirements, whether due to size, jurisdiction, entity type or other factors, placing Citi at a competitive disadvantage.

For example, Citi competes with other financial services companies in the U.S. and globally that have grown rapidly over the last several years or have developed and introduced new products and services. Potential mergers and acquisitions involving traditional financial services companies such as regional banks or credit card issuers, as well as networks and merchant acquirers, may also increase competition and impact Citi's ability to offer competitive pricing and rewards. Non-traditional financial services firms, such as private credit and financial technology companies, are less regulated and continue to expand their offerings of services traditionally provided by financial institutions. The growth of certain of these competitors has increased market and counterparty credit risks, particularly in a more challenging macroeconomic environment (see the risk factor on credit and concentrations of risk below). In addition, emerging technologies have the potential to intensify competition and accelerate disruption in the financial services industry. For example, despite difficulties and turmoil faced by the digital asset market in recent years, clients and investors have exhibited a sustained interest in digital assets. Financial services firms and other market participants have begun to offer services related to those assets. Citi may not be able to provide the same or similar services for legal or regulatory reasons, which may be exacerbated by rapidly evolving and conflicting regulatory requirements, and due to increased compliance and other risks. Further, changes in the payments space (e.g., instant and 24x7 payments) are accelerating, and, as a result, certain of Citi's products and services could become less competitive.

Increased competition and emerging technologies have required and could require Citi to change or adapt its products and services, as well as invest in and develop related infrastructure, to attract and retain customers or clients or to compete more effectively with competitors, including new market entrants. Simultaneously, as Citi develops new products and services leveraging emerging technologies, new risks may emerge that, if not designed and governed adequately, may result in control gaps and in Citi operating outside of its risk appetite. For example, failure to strategically embrace the potential of artificial intelligence (AI) may result in a competitive disadvantage to Citi. At the same time, as a new technology, use of AI without sufficient controls, governance and risk management may result in increased risks across all of Citi's risk categories. As another example, instant and 24x7 payments products could be accompanied by challenges to forecasting and managing liquidity, as well as increased operational and compliance risks.

Moreover, Citi relies on third parties to support certain of its product and service offerings, which may put Citi at a disadvantage to competitors who may directly offer a broader array of products and services. Also, Citi's businesses, results of operations and reputation may suffer if any third party is unable to provide adequate support for such product and service offerings, whether due to operational incidents or otherwise (see the operational processes and systems, cybersecurity and emerging markets risk factors below).

To the extent that Citi is not able to compete effectively with financial services companies, including private credit and financial technology companies, and non-financial services firms, Citi could be placed at a competitive disadvantage, which could result in loss of customers and market share, and its businesses, results of operations and financial condition could suffer. For additional information on Citi's competitors, see the co-brand and private label cards and qualified colleagues risk factors above.

OPERATIONAL RISKS

A Failure or Disruption of Citi's Operational Processes or Systems Could Negatively Impact Its Reputation, Customers, Clients, Businesses or Results of Operations and Financial Condition.

Citi's global operations rely heavily on its technology systems and infrastructure, including the accurate, timely and secure processing, management, storage and transmission of data, including confidential transactions, and other information, as well as the monitoring of a substantial amount of data and complex transactions in real time. Citi obtains and stores an extensive amount of personal and client-specific information for its consumer and institutional customers and clients, and must accurately record and reflect their account transactions. Citi's operations must also comply with complex and evolving laws, regulations and heightened regulatory expectations in the countries in which it operates (see the implementation and interpretation of regulatory changes and legal proceedings risk factors below). With the evolving proliferation of new technologies and the increasing use of the internet, mobile devices and cloud services to conduct financial transactions and customers' and clients' increasing use of online banking and trading systems and other platforms, large global financial institutions such as Citi have been, and will continue to be, subject to an ever-increasing risk of operational loss, failure or disruption.

Although Citi has continued to upgrade its technology, including systems to automate processes and gain efficiencies, operational incidents are unpredictable and can arise from numerous sources, not all of which are fully within Citi's control. These include, among others, operational or execution failures, or deficiencies by third parties, including third parties that provide products or services to Citi (e.g., cloud service providers), other market participants or those that otherwise have an ongoing partnership or business relationship with Citi; deficiencies in processes or controls; inadequate management of data governance practices, data controls and monitoring mechanisms that may adversely impact internal or external reporting and decision-making; cyber or information security incidents (see the cybersecurity risk factor below); human error, such as manual transaction processing errors (e.g., erroneous payments to lenders or manual errors by traders that cause system and market disruptions or losses), which can be exacerbated by staffing challenges and processing backlogs; fraud or malice on the part of employees or third parties; insufficient (or limited) straight-through processing between legacy or bespoke systems and any failure to design and effectively operate controls that mitigate operational risks associated with those legacy or bespoke systems, leading to potential risk of errors and operating losses; accidental system or technological failure; electrical or telecommunication outages; failures of or cyber incidents involving computer servers or infrastructure, including cloud services; or other similar losses or damage to Citi's property or assets (see also the climate change risk factor above).

For example, operational incidents can arise as a result of failures by third parties with which Citi does business, such as failures by internet, mobile technology and cloud service providers or other vendors to adequately follow procedures or processes, safeguard their systems or prevent system disruptions or cyberattacks. Failure by Citi to develop, implement and operate a third-party risk management program commensurate with the level of risk, complexity and nature of its third-party relationships can also result in operational incidents. In addition, Citi has experienced and could experience further losses associated with manual transaction processing errors, including erroneous payments to lenders or manual errors by Citi traders that cause system and market disruptions and losses for Citi and its clients. Irrespective of the sophistication of the technology utilized by Citi, there will always be some room for human and other errors. In view of the large transactions in which Citi engages, such errors could result in significant losses. While Citi has change management processes in place to appropriately upgrade its operational processes and systems to ensure that any changes introduced do not adversely impact security and operational continuity, such change management can fail or be ineffective. Furthermore, when Citi introduces new products, systems or processes, new operational risks that may arise from those changes may not be identified, or adequate controls to mitigate the identified risks may not be appropriately implemented or operate as designed.

Incidents that impact information security, technology operations or other operational processes may cause disruptions and/or malfunctions within Citi's businesses (e.g., the temporary loss of availability of Citi's online banking system or mobile banking platform), as well as the operations of its clients, customers or other third parties. In addition, operational incidents could involve the failure or ineffectiveness of internal processes or controls. Given Citi's global footprint and the high volume of transactions processed by Citi, certain failures, errors or actions may be repeated or compounded before they are discovered and rectified, which would further increase the consequences and costs. Operational incidents could result in financial losses and other costs as well as misappropriation, corruption or loss of confidential and other information or assets, which could significantly negatively impact Citi's reputation, customers, clients, businesses or results of operations and financial condition. Cyber-related and other operational incidents can also result in legal and regulatory actions or proceedings, fines and other costs (see the legal and regulatory proceedings risk factor below).

Citi's and Third Parties' Computer Systems and Networks Will Continue to Be Susceptible to an Increasing Risk of Continually Evolving, Sophisticated Cybersecurity Incidents That Could Result in the Theft, Loss, Non-Availability, Misuse or Disclosure of Confidential Client or Customer Information, Damage to Citi's Reputation, Additional Costs to Citi, Regulatory Penalties, Legal Exposure and Financial Losses.

Citi's computer systems, software and networks are subject to ongoing attempted cyberattacks, such as unauthorized access, loss or destruction of data (including confidential client information), account takeovers, disruptions of service, phishing, malware, ransomware, computer viruses or other malicious code and other similar events. These threats can arise from external parties, including cyber criminals, cyber terrorists, hacktivists (individuals or groups using cyberattacks to promote a political or social agenda) and nation-state actors, as well as insiders who knowingly or unknowingly engage in or enable malicious cyber activities. Citi develops its own software and relies on third-party applications and software, which are susceptible to vulnerability exploitations. Software leveraged in financial services and other industries continues to be impacted by an increasing number of zero-day vulnerabilities, thus increasing inherent cyber risk to Citi.

The increasing use of mobile and other digital banking platforms and services, cloud technologies and connectivity solutions to facilitate remote working for Citi's employees all increase Citi's exposure to cybersecurity risks. Citi is also susceptible to cyberattacks given, among other things, its size and scale, high-profile brand, global footprint and prominent role in the financial system, as well as the ongoing wind-down of its businesses in Russia (see the macroeconomic and geopolitical risk factor above). Additionally, Citi continues to operate in multiple jurisdictions in the midst of geopolitical unrest, including active conflicts in Ukraine and the Middle East, which could expose Citi to heightened risk of insider threat, politically motivated hacktivism or other cyber threats.

Citi continues to experience increased exposure to cyberattacks through third parties, in part because financial institutions are becoming increasingly interconnected with central agents, exchanges and clearing houses. Third parties with which Citi does business, as well as retailers and other third parties with which Citi's customers do business, and any such third parties' downstream service providers, also pose cybersecurity risks, particularly where activities of customers are beyond Citi's security and control systems. For example, Citi outsources certain functions, such as processing customer credit card transactions, uploading content on customer-facing websites and developing software for new products and services. These relationships allow for the storage and processing of customer information by third-party hosting of, or access to, Citi websites. This could lead to compromise or the potential to introduce vulnerable or malicious code, resulting in security breaches or business disruptions impacting Citi customers, employees or operations. While many of Citi's agreements with third parties include indemnification provisions, Citi may not be able to recover sufficiently, or at all, under these provisions to adequately offset any losses and other adverse impacts Citi may incur from third-party cyber incidents.

Citi and some of its third-party partners have been subjected to attempted and sometimes successful cyberattacks over the last several years, including (i) denial of service attacks, which attempt to interrupt service to clients and customers; (ii) hacking and malicious software installations intended to gain unauthorized access to information systems or to disrupt those systems and/or impact availability or privacy of confidential data, with objectives including, but not limited to, extortion payments or causing reputational damage; (iii) data breaches due to unauthorized access to customer account or other data; and (iv) malicious software attacks on client systems, in attempts to gain unauthorized access to Citi systems or client data under the guise of normal client transactions.

While Citi's monitoring and protection services have historically generally succeeded in detecting, thwarting and/or responding to attacks targeting its systems before they become significant, certain past incidents resulted in limited losses, as well as increases in expenditures to monitor against the threat of similar future cyber incidents. There can be no assurance that such cyber incidents will not occur again, and they could occur more frequently, via novel tactics, including leveraging of tools made possible by emerging technologies, and on a more significant scale. Despite the significant resources Citi allocates to implement, maintain, monitor and regularly upgrade its systems and networks with measures such as intrusion detection and prevention systems and firewalls to safeguard critical business applications, there is no guarantee that these measures or any other measures can provide sufficient security. Because the techniques used to initiate cyberattacks change frequently or, in some cases, are not recognized until launched or even later, Citi may be unable to implement effective preventive measures or otherwise proactively address these methods. In addition, cyber threats and cyberattack techniques change, develop and evolve rapidly, including from emerging technologies such as artificial intelligence, cloud computing and quantum computing. Given the frequency and sophistication of cyberattacks, the determination of the severity and potential impact of a cyber incident may not become apparent for a substantial period of time following detection of the incident. Also, while Citi strives to implement measures to reduce the exposure resulting from outsourcing risks, such as performing security control assessments of third-party vendors and limiting third-party access to the least privileged level necessary to perform job functions, these measures cannot prevent all third-party related cyberattacks or data breaches. In addition, the risk of insider threat may be elevated in the near term due to Citi's overall simplification initiatives, including streamlining its global staff functions.

Cyber incidents can result in the disclosure of personal, confidential or proprietary customer, client or employee information; damage to Citi's reputation with its clients, other counterparties and the market; customer dissatisfaction; and additional costs to Citi, including expenses such as repairing or replacing systems, replacing customer payment cards, credit monitoring or adding new personnel or protection technologies. Cyber incidents can also result in regulatory penalties, loss of revenues, deposit flight, exposure to litigation and other financial losses, including loss of funds to both Citi and its clients and customers, and disruption to Citi's operational systems (see the operational processes and systems risk factor above). Moreover, the increasing risk of cyber incidents has resulted in increased legislative and regulatory action on cybersecurity, including, among other things, scrutiny of firms' cybersecurity protection services, laws and regulations to enhance protection of consumers' personal data and mandated disclosure on cybersecurity matters. For example, in July 2023, the SEC finalized new rules requiring timely disclosure of material cybersecurity incidents as well as other annual cyber-related disclosures.

While Citi maintains insurance coverage that may, subject to policy terms and conditions including significant self-insured deductibles, cover certain aspects of cyber risks, such insurance coverage may be insufficient to cover all losses and may not take into account reputational harm, the costs of which are impossible to quantify.

Changes or Errors in Accounting Assumptions, Judgments or Estimates, or the Application of Certain Accounting Principles, Could Result in Significant Losses or Other Adverse Impacts.

U.S. GAAP requires Citi to use certain assumptions, judgments and estimates in preparing its financial statements, including, among other items, the estimate of the ACL; reserves related to litigation, regulatory and tax matters; valuation of DTAs; the fair values of certain assets and liabilities; and the assessment of goodwill and other assets for impairment. These assumptions, judgments and estimates are inherently limited because they involve techniques, including the use of historical data in many circumstances, that cannot anticipate every economic and financial outcome in the markets in which Citi operates, nor can they anticipate the specifics and timing of such outcomes. For example, many models used by Citi include assumptions about correlation or lack thereof among prices of various asset classes or other market indicators that may not hold in times of market stress, limited liquidity or other unforeseen circumstances.

If Citi's assumptions, judgments or estimates underlying its financial statements are incorrect or differ from actual or subsequent events, Citi could experience unexpected losses or other adverse impacts, some of which could be significant. Citi could also experience declines in its stock price, be subject to legal and regulatory proceedings and incur fines and other losses. For example, the CECL methodology requires that Citi provide reserves for a current estimate of lifetime expected credit losses for its loan portfolios and other financial assets, as applicable, at the time those assets are originated or acquired. This estimate is adjusted each period for changes in expected lifetime credit losses. Citi's ACL estimate depends upon its CECL models and assumptions; forecasted macroeconomic conditions, including, among other things, the U.S. unemployment rate and U.S. inflation-adjusted gross domestic product (real GDP); and the credit indicators, composition and other characteristics of Citi's loan portfolios and other applicable financial assets. These model assumptions and forecasted macroeconomic conditions will change over time, resulting in variability in Citi's ACL and, thus, impact its results of operations and financial condition, as well as regulatory capital due to the CECL phase-in (see the capital return risk factor above).

Moreover, Citi has incurred losses related to its foreign operations that are reported in the CTA components of *Accumulated other comprehensive income (loss) (AOCI)*. In accordance with U.S. GAAP, a sale, substantial liquidation or other deconsolidation event of any foreign operations, such as those related to Citi's remaining divestitures or legacy businesses, would result in reclassification of any foreign CTA component of *AOCI* related to that foreign operation, including related hedges and taxes, into Citi's earnings. For example, Citi could incur a significant loss on sale due to CTA losses related to any signing of a sale agreement for its remaining consumer banking divestitures (see the capital return and continued investments risk factors above). The majority of these losses would be regulatory capital neutral at closing.

Changes to Financial Accounting and Reporting Standards or Interpretations Could Have a Material Impact on How Citi Records and Reports Its Financial Condition and Results of Operations.

Periodically, the Financial Accounting Standards Board (FASB) issues financial accounting and reporting standards that govern key aspects of Citi's financial statements or interpretations thereof when those standards become effective, including those areas where Citi is required to make assumptions or estimates. Changes to financial accounting or reporting standards or interpretations, whether promulgated or required by the FASB, the SEC, U.S. banking regulators or others, could present operational challenges and could also require Citi to change certain of the assumptions or estimates it previously used in preparing its financial statements, which could negatively impact how it records and reports its financial condition and results of operations generally and/or with respect to particular businesses.

If Citi's Risk Management and Other Processes, Strategies or Models Are Deficient or Ineffective, Citi May Incur Significant Losses and Its Regulatory Capital and Capital Ratios Could Be Negatively Impacted.

Citi utilizes a broad and diversified set of risk management and other processes and strategies, including the use of models in analyzing and monitoring the various risks Citi assumes in conducting its activities. For example, Citi uses models as part of its comprehensive stress testing initiatives across the Company. Citi also relies on data to aggregate, assess and manage various risk exposures. Management of these risks and the reliability of the data are made more challenging within a large, global financial institution, such as Citi, particularly due to complex, diverse and rapidly changing financial markets and conditions in which Citi operates. Unexpected losses can result from untimely, inaccurate or incomplete processes and data. As discussed below, in October 2020, Citigroup and Citibank entered into consent orders with the FRB and OCC that require Citigroup and Citibank to make improvements in various aspects of enterprise-wide risk management, compliance, data quality management and governance, and internal controls (see the legal and regulatory proceedings risk factor below).

Citi's risk management and other processes, strategies and models are inherently limited because they involve techniques, including the use of historical data in many circumstances, assumptions and judgments that cannot anticipate every economic and financial outcome in the markets in which Citi operates, particularly given various macroeconomic, geopolitical and other challenges and uncertainties (see the macroeconomic challenges and uncertainties risk factor above), nor can they anticipate the specifics and timing of such outcomes. For example, many models used by Citi include assumptions about correlation or lack thereof among prices of various asset classes or other market indicators that may not necessarily hold in times of market stress, limited liquidity or other unforeseen circumstances, or identify changes in markets or client behaviors not yet inherent in historical data. Citi could incur significant losses, receive negative regulatory evaluation or examination findings or be subject to additional enforcement actions, and its regulatory capital, capital ratios and ability to return capital could be negatively impacted, if Citi's risk management and other processes, including its ability to manage and aggregate data in a timely and accurate manner, strategies or models are deficient or ineffective. For additional information, see the capital return risk factor above and the heightened regulatory scrutiny and ongoing interpretation of regulatory changes risk factor below. Such deficiencies or ineffectiveness could also result in inaccurate financial, regulatory or risk reporting.

Moreover, Citi's Basel III regulatory capital models, including its credit, market and operational risk models, currently remain subject to ongoing regulatory review and approval, which may result in refinements, modifications or enhancements (required or otherwise) to these models. Citi is required to notify and obtain preapproval from both the OCC and FRB prior to implementing certain risk-weighted asset treatments, as well as certain model changes, resulting in a more challenging environment within which Citi must operate in managing its risk-weighted assets. Modifications or requirements resulting from these ongoing reviews, as well as any future changes or guidance provided by the U.S. banking regulators regarding the U.S. regulatory capital framework applicable to Citi, including, but not limited to, potential revisions to the U.S. Basel III rules, known as the Basel III Endgame (for information about the Basel III Endgame, see the capital return risk factor above), have resulted in, and could continue to result in, significant changes to Citi's risk-weighted assets. These changes can negatively impact Citi's capital ratios and its ability to meet its regulatory capital requirements.

CREDIT RISKS

Credit Risk and Concentrations of Risk Can Increase the Potential for Citi to Incur Significant Losses.

Citi has credit exposures to consumer, corporate and public sector borrowers and other counterparties in the U.S. and various countries and jurisdictions globally, including end-of-period consumer loans of $389 billion and end-of-period corporate loans of $300 billion at December 31, 2023.

A default by or a significant downgrade in the credit ratings of a borrower or other counterparty, or a decline in the credit quality or value of any underlying collateral, exposes Citi to credit risk. Despite Citi's target client strategy, various macroeconomic, geopolitical, market and other factors, among other things, can increase Citi's credit risk and credit costs, particularly for vulnerable sectors, industries or countries (see the macroeconomic challenges and uncertainties and co-branding and private label credit card risk factors above and the emerging markets risk factor below). For example, a weakening of economic conditions can adversely affect borrowers' ability to repay their obligations, as well as result in Citi being unable to liquidate the collateral it holds or forced to liquidate the collateral at prices that do not cover the full amount owed to Citi. Citi is also a member of various central clearing counterparties and could incur financial losses as a result of defaults by other clearing members due to the requirements of clearing members to share losses. Additionally, due to the interconnectedness among financial institutions, concerns about the creditworthiness of or defaults by a financial institution could spread to other financial market participants and result in market-wide losses and disruption. For example, the failure of regional banks and other banking stresses in the first half of 2023 resulted in market volatility across the financial sector.

While Citi provides reserves for expected losses for its credit exposures, as applicable, such reserves are subject to judgments and estimates that could be incorrect or differ from actual future events. Under the CECL accounting standard, the ACL reflects expected losses, which has resulted in and could lead to additional volatility in the allowance and the provision for credit losses (including provisions for loans and unfunded lending commitments, and ACL builds for *Other assets*) as forecasts of economic conditions change. For additional information, see the incorrect assumptions or estimates and changes to financial accounting and reporting standards risk factors above.

Concentrations of risk to clients or counterparties engaged in the same or related industries or doing business in a particular geography, or to a particular product or asset class, especially credit and market risks, can also increase Citi's risk of significant losses. For example, Citi routinely executes a high volume of securities, trading, derivative and foreign exchange transactions with non-U.S. sovereigns and with counterparties in the financial services industry, including banks, insurance companies, investment banks, governments, central banks and other financial institutions. Moreover, Citi has indemnification obligations in connection with various transactions that expose it to concentrations of risk, including credit risk from hedging or reinsurance arrangements related to those obligations. A rapid deterioration of a large borrower or other counterparty or within a sector or country in which Citi has large exposures or indemnifications or unexpected market dislocations could lead to concerns about the creditworthiness of other borrowers or counterparties in a certain geography and in related or dependent industries, and such conditions could cause Citi to incur significant losses.

LIQUIDITY RISKS

Citi's Businesses, Results of Operations and Financial Condition Could Be Negatively Impacted if It Does Not Effectively Manage Its Liquidity.

As a large, global financial institution, adequate liquidity and sources of funding are essential to Citi's businesses. Citi's liquidity, sources of funding and costs of funding can be significantly and negatively impacted by factors it cannot control, such as general disruptions in the financial markets (e.g., the failure of regional banks and other banking stresses in the first half of 2023); changes in fiscal and monetary policies and regulatory requirements; negative investor perceptions of Citi's creditworthiness; deposit outflows or unfavorable changes in deposit mix; unexpected increases in cash or collateral requirements; credit ratings; and the consequent inability to monetize available liquidity resources. In addition, Citi competes with other banks and financial institutions for both institutional and consumer deposits, which represent Citi's most stable and lowest cost source of long-term funding. The competition for deposits has continued to increase, including as a result of quantitative tightening by central banks, the current higher interest rate environment and fixed income alternatives for customer funds.

Further, Citi's costs to obtain and access wholesale funding are directly related to changes in interest and currency exchange rates and its credit spreads. Changes in Citi's credit spreads are driven by both external market factors and factors specific to Citi, such as negative views by investors of the financial services industry or Citi's financial prospects, and can be highly volatile.

Citi's ability to obtain funding may be impaired and its cost of funding could also increase if other market participants are seeking to access the markets at the same time or to a greater extent than expected, or if market appetite for corporate debt securities declines, as is likely to occur in a liquidity stress event or other market crisis. Citi's ability to sell assets may also be impaired if other market participants are seeking to sell similar assets at the same time or a liquid market does not exist for such assets. Additionally, unexpected changes in client needs due to idiosyncratic events or market conditions could result in greater than expected drawdowns from off-balance sheet committed facilities. A sudden drop in market liquidity could also cause a temporary or protracted dislocation of capital markets activity. In addition, clearing organizations, central banks, clients and financial institutions with which Citi interacts may exercise the right to require additional collateral during challenging market conditions, which could further impair Citi's liquidity. If Citi fails to effectively manage its liquidity, its businesses, results of operations and financial condition could be negatively impacted.

Limitations on the payments that Citigroup Inc. receives from its subsidiaries could also impact its liquidity. As a holding company, Citigroup Inc. relies on interest, dividends, distributions and other payments from its subsidiaries to fund dividends as well as to satisfy its debt and other obligations. Several of Citi's U.S. and non-U.S. subsidiaries are or may be subject to capital adequacy or other liquidity, regulatory or contractual restrictions on their ability to provide such payments, including any local regulatory stress test requirements and inter-affiliate arrangements entered into in connection with Citigroup Inc.'s resolution plan. Citigroup Inc.'s broker-dealer and bank subsidiaries are subject to restrictions on their ability to lend or transact with affiliates, as well as restrictions on their ability to use funds deposited with them in brokerage or bank accounts to fund their businesses.

A bank holding company is also required by law to act as a source of financial and managerial strength for its subsidiary banks. As a result, the FRB may require Citigroup Inc. to commit resources to its subsidiary banks even if doing so is not otherwise in the interests of Citigroup Inc. or its shareholders or creditors, reducing the amount of funds available to meet its obligations.

A Ratings Downgrade Could Adversely Impact Citi's Funding and Liquidity.

The credit rating agencies, such as Fitch Ratings, Moody's Investors Service and S&P Global Ratings, continuously evaluate Citi and certain of its subsidiaries. Their ratings of Citi and its rated subsidiaries' long-term debt and short-term obligations are based on firm-specific factors, including the financial strength of Citi and such subsidiaries, as well as factors that are not entirely within the control of Citi and its subsidiaries, such as the agencies' proprietary rating methodologies and assumptions, potential impact from negative actions on U.S. sovereign ratings and conditions affecting the financial services industry and markets generally.

Citi and its subsidiaries may not be able to maintain their current respective ratings and outlooks. Rating downgrades could negatively impact Citi and its rated subsidiaries' ability to access the capital markets and other sources of funds as well as increase credit spreads and the costs of those funds. A ratings downgrade could also have a negative impact on Citi and its rated subsidiaries' ability to obtain funding and liquidity due to reduced funding capacity and the impact from derivative triggers, which could require Citi and its rated subsidiaries to meet cash obligations and collateral requirements or permit counterparties to terminate certain contracts. In addition, a ratings downgrade could have a negative impact on other funding sources such as secured financing and other margined transactions for which there may be no explicit triggers.

Furthermore, a credit ratings downgrade could have impacts that may not be currently known to Citi or are not possible to quantify. Some of Citi's counterparties and clients could have ratings limitations on their permissible counterparties, of which Citi may or may not be aware. Certain of Citi's corporate customers and trading counterparties, among other clients, could re-evaluate their business relationships with Citi and limit the trading of certain market instruments, and limit or withdraw deposits placed with Citi in response to ratings downgrades. Changes in customer and counterparty behavior could impact not only Citi's funding and liquidity but also the results of operations of certain Citi businesses.

COMPLIANCE RISKS

Significantly Heightened Regulatory Expectations and Scrutiny in the U.S. and Globally and Ongoing Interpretation and Implementation of Regulatory and Legislative Requirements and Changes Have Increased Citi's Compliance, Regulatory and Other Risks and Costs.

Large financial institutions, such as Citi, face significantly heightened regulatory expectations and scrutiny in the U.S. and globally, including with respect to, among other things, governance, infrastructure, data and risk management practices and controls. These regulatory expectations extend to their employees and agents and also include, among other things, those related to customer and client protection, market practices, anti-money laundering, increasingly complex sanctions and disclosure regimes and various regulatory reporting requirements. U.S. financial institutions also face increased expectations and scrutiny in the wake of the failures of several regional banks and other banking stresses in the first half of 2023. In addition, Citi is continually required to interpret and implement extensive and frequently changing regulatory and legislative requirements in the U.S. and other jurisdictions in which it does business, which may overlap or conflict across jurisdictions, resulting in substantial compliance, regulatory and other risks and costs.

A failure to comply with these expectations and requirements, even if inadvertent, or resolve any identified deficiencies in a timely and sufficiently satisfactory manner to regulators, could result in increased regulatory oversight; material restrictions, including, among others, imposition of additional capital buffers and limitations on capital distributions; enforcement proceedings; penalties; and fines (see the capital return risk factor above and legal and regulatory proceedings risk factor below).

Over the past several years, Citi has been required to implement a large number of regulatory and legislative changes, including new regulatory or legislative requirements or regimes, across its businesses and functions, and these changes continue. The changes themselves may be complex and subject to interpretation, and result in changes to Citi's businesses. In addition, the changes require continued substantial technology and other investments. In some cases, Citi's implementation of a regulatory or legislative requirement is occurring simultaneously with changing or conflicting regulatory guidance from multiple jurisdictions (including various U.S. states) and regulators, legal challenges or legislative action to modify or repeal existing rules or enact new rules.

Examples of regulatory or legislative changes that have resulted in increased compliance risks and costs include (i) the U.S. regulatory capital framework and requirements, which have continued to evolve (see the capital return risk factor); (ii) various laws relating to the limitation of cross-border data movement and/or collection and use of customer information, including data localization and protection and privacy laws, which also can conflict with or increase compliance complexity with respect to other laws, including anti-money laundering laws; and (iii) the EU's Corporate Sustainability Reporting Directive, which may overlap but also diverge from climate-related disclosure requirements expected to come into effect in other jurisdictions, including in the U.S. In addition, certain U.S. regulatory agencies and states and non-U.S. authorities have prioritized issues of social, economic and racial justice, and are in the process of considering ways in which these issues can be mitigated, including through rulemaking, supervision and other means, even while certain U.S. state and other governments are pursuing and signaling challenges that may conflict with corporate ESG initiatives.

Citi Is Subject to Extensive Legal and Regulatory Proceedings, Examinations, Investigations, Consent Orders and Related Compliance Efforts and Other Inquiries That Could Result in Large Monetary Penalties, Supervisory or Enforcement Orders, Business Restrictions, Limitations on Dividends, Changes to Directors and/or Officers and Collateral Consequences Arising from Such Outcomes.

At any given time, Citi is a party to a significant number of legal and regulatory proceedings and is subject to numerous governmental and regulatory examinations. Additionally, Citi remains subject to governmental and regulatory investigations, consent orders (see discussion below) and related compliance efforts, and other inquiries. Citi could also be subject to enforcement proceedings and negative regulatory evaluation or examination findings not only because of violations of laws and regulations, but also due to failures, as determined by its regulators, to have adequate policies and procedures, or to remedy deficiencies on a timely basis (see also the capital return and resolution plan risk factors above). Citi's regulators have broad powers and discretion under their prudential and supervisory authority, and have pursued active inspection and investigatory oversight.

As previously disclosed, the October 2020 FRB and OCC consent orders require Citigroup and Citibank to implement extensive targeted action plans and submit quarterly progress reports on a timely and sufficient basis detailing the results and status of improvements relating principally to various aspects of enterprise-wide risk management, compliance, data quality management and governance, and internal controls. These improvements will result in continued significant investments by Citi during 2024 and beyond, as an essential part of Citi's broader transformation efforts to enhance its risk, controls, data and finance infrastructure and compliance. There can be no assurance that such improvements will be implemented in a manner satisfactory, in both timing and sufficiency, to the FRB and OCC.

Although there are no restrictions on Citi's ability to serve its clients, the OCC consent order requires Citibank to obtain prior approval of any significant new acquisition, including any portfolio or business acquisition, excluding ordinary course transactions. Moreover, the OCC consent order provides that the OCC has the right to assess future civil money penalties or take other supervisory and/or enforcement actions. Such actions by the OCC could include imposing business restrictions, including possible limitations on the declaration or payment of dividends and changes in directors and/or senior executive officers. More generally, the OCC and/or the FRB could take additional enforcement or other actions if the regulatory agency believes that Citi has not met regulatory expectations regarding compliance with the consent orders.

The global judicial, regulatory and political environment has generally been challenging for large financial institutions, which have been subject to increased regulatory scrutiny. The complexity of the federal and state regulatory and enforcement regimes in the U.S., coupled with the global scope of Citi's operations, also means that a single event or issue may give rise to a large number of overlapping investigations and regulatory proceedings, either by multiple federal and state agencies and authorities in the U.S. or by multiple regulators and other governmental entities in foreign jurisdictions, as well as multiple civil litigation claims in multiple jurisdictions. Violations of law by other financial institutions may also result in regulatory scrutiny of Citi. Responding to regulatory inquiries and proceedings can be time consuming and costly, and divert management attention from Citi's businesses.

U.S. and non-U.S. regulators have been increasingly focused on the culture of financial services firms, including Citi, as well as "conduct risk," a term used to describe the risks associated with behavior by employees and agents, including third parties, that could harm clients, customers, employees or the integrity of the markets, such as improperly creating, selling, marketing or managing products and services or improper incentive compensation programs with respect thereto, failures to safeguard a party's personal information, or failures to identify and manage conflicts of interest.

In addition to the greater focus on conduct risk, the general heightened scrutiny and expectations from regulators could lead to investigations and other inquiries, as well as remediation requirements, regulatory restrictions, structural changes, more regulatory or other enforcement proceedings, civil litigation and higher compliance and other risks and costs. For additional information, see the capital return and heightened regulatory scrutiny and ongoing interpretation of regulatory changes risk factors above. Further, while Citi takes numerous steps to prevent and detect conduct by employees and agents that could potentially harm clients, customers, employees or the integrity of the markets, such behavior may not always be deterred or prevented.

Moreover, the severity of the remedies sought in legal and regulatory proceedings to which Citi is subject has remained elevated. For example, U.S. and certain non-U.S. governmental entities have increasingly brought criminal actions against, or have sought and obtained criminal guilty pleas or deferred prosecution agreements from, financial institutions and individual employees. These types of actions by U.S. and other governments may, in the future, have significant collateral consequences for Citi, including loss of customers and business, operational loss, and the inability to offer certain products or services and/or operate certain businesses. Citi may be required to accept or be subject to similar types of criminal remedies, consent orders, sanctions, substantial fines and penalties, remediation and other financial costs or other requirements in the future, including for matters or practices not yet known to Citi, any of which could materially and negatively affect Citi's businesses, business practices, financial condition or results of operations, require material changes in Citi's operations or cause Citi substantial reputational harm.

Additionally, many large claims—both private civil and regulatory—asserted against Citi are highly complex, slow to develop and may involve novel or untested legal theories. The outcome of such proceedings is difficult to predict or estimate until late in the proceedings. Although Citi establishes accruals for its legal and regulatory matters according to accounting requirements, Citi's estimates of, and changes to, these accruals involve significant judgment and may be subject to significant uncertainty, and the amount of loss ultimately incurred in relation to those matters may be substantially higher than the amounts accrued (see the incorrect assumptions or estimates risk factor above). In addition, certain settlements are subject to court approval and may not be approved. For further information on Citi's legal and regulatory proceedings.

OTHER RISKS

Citi's Emerging Markets Presence Subjects It to Various Risks as well as Increased Compliance and Regulatory Risks and Costs.

During 2023, emerging markets revenues accounted for approximately 40% of Citi's total revenues (Citi generally defines emerging markets as countries in Latin America, Asia (other than Japan, Australia and New Zealand), and central and Eastern Europe, the Middle East and Africa). Citi's presence in the emerging markets subjects it to various risks.

Emerging market risks include, among others, limitations or unavailability of hedges on foreign investments; foreign currency volatility, including devaluations and strength in the U.S. dollar; sustained elevated interest rates and quantitative tightening; elevated inflation and hyperinflation; foreign exchange controls, including an inability to access indirect foreign exchange mechanisms; macroeconomic, geopolitical and domestic political challenges, uncertainties and volatility, including with respect to Russia (see the macroeconomic and geopolitical risk factor above); cyberattacks; restrictions arising from retaliatory laws and regulations; sanctions or asset freezes; sovereign debt volatility; fluctuations in commodity prices; election outcomes; regulatory changes, including potential conflicts among regulations with other jurisdictions where Citi does business; limitations on foreign investment; sociopolitical instability; civil unrest; crime, corruption and fraud; nationalization or loss of licenses; potential criminal charges; closure of branches or subsidiaries; and confiscation of assets; and these risks can be exacerbated in the event of a deterioration in the relationship between the U.S. and an emerging market country.

For example, Citi operates in several countries that have, or have had in the past, strict capital controls, currency controls and/or sanctions, such as Argentina and Russia, that limit its ability to convert local currency into U.S. dollars and/or transfer funds outside of those countries. For instance, Citi may need to record additional translation losses due to currency controls in Argentina. Moreover, Citi may need to record additional reserves for expected losses for its credit exposures based on the transfer risk associated with exposures outside the U.S., driven by safety and soundness considerations under U.S. banking law.

In addition, political turmoil and instability; geopolitical challenges, tensions and conflicts (including those related to Russia's war in Ukraine as well as a persistent and/or escalating conflict in the Middle East); terrorism; and other instabilities have occurred in various regions and emerging market countries across the globe, which impact Citi's businesses, results of operations and financial conditions in affected countries and have required, and may continue to require, management time and attention and other resources, such as managing the impact of sanctions and their effect on Citi's operations in certain emerging market countries. For additional information, see the macroeconomic challenges and uncertainties risk factor above.

MANAGING GLOBAL RISK

Overview

For Citi, effective risk management is of primary importance to its overall operations. Accordingly, Citi has established an Enterprise Risk Management (ERM) Framework to ensure that all of Citi's risks are managed appropriately and consistently across the Company and at an aggregate, enterprise-wide level. Citi's culture drives a strong risk and control environment, and is at the heart of the ERM Framework, underpinning the way Citi conducts business. The activities that Citi engages in, and the risks those activities generate, must be consistent with Citi's Mission and Value Proposition (see below) and the key Leadership Principles that support it, as well as Citi's risk appetite. As discussed above, Citi also continues its efforts to comply with the FRB and OCC consent orders, relating principally to various aspects of risk management, compliance, data quality management and governance, and internal controls (see "Risk Factors—Compliance Risks" above).

Under Citi's Mission and Value Proposition, which was developed by its senior leadership and distributed throughout the Company, Citi strives to serve its clients as a trusted partner by responsibly providing financial services that enable growth and economic progress while earning and maintaining the public's trust by constantly adhering to the highest ethical standards. As such, Citi asks all colleagues to ensure that their decisions pass three tests: they are in Citi's clients' best interests, create economic value and are always systemically responsible.

Citi has designed Leadership Principles that represent the qualities, behaviors and expectations all employees must exhibit to deliver on Citi's mission of enabling growth and economic progress. The Leadership Principles inform Citi's ERM Framework and contribute to creating a culture that drives client, control and operational excellence. Citi colleagues share a common responsibility to uphold these Leadership Principles and hold themselves to the highest standards of ethics and professional behavior in dealing with Citi's clients, business colleagues, shareholders, communities and each other.

Citi's ERM Framework details the principles used to support effective enterprise-wide risk management across the end-to-end risk management lifecycle. The ERM Framework covers the risk management roles and responsibilities of the Citigroup Board of Directors (the Board), Citi's Executive Management Team and employees across the lines of defense. The underlying pillars of the framework encompass:

- *Culture*— the core principles and behaviors that underpin a strong culture of risk awareness, in line with Citi's Mission and Value Proposition, and Leadership Principles;
- *Governance*— the committee structure and reporting arrangements that support the appropriate oversight of risk management activities at the Board and Executive Management Team levels and establishes Citi's Lines of Defense model;
- *Risk Management*— the end-to-end risk management cycle including the identification, measurement, monitoring, controlling and reporting of all risks including top, material, growing, idiosyncratic and emerging risks, and aggregated to an enterprise-wide level; and
- *Enterprise Programs*— the key risk management programs performed across the risk management lifecycle for all risk categories.

Each of these pillars is underpinned by supporting capabilities covering people, infrastructure and tools that are in place to enable the execution of the ERM Framework.

Citi's approach to risk management requires that its risk-taking be consistent with its risk appetite. Risk appetite is the aggregate level of risk that Citi is willing to tolerate in order to achieve its strategic objectives and business plan. Risk limits and thresholds represent allocations of Citi's risk appetite to businesses and risk categories. Concentration risks are controlled through a subset of these limits and thresholds.

Citi's risks are generally categorized and summarized as follows:

- *Credit risk* is the risk of loss resulting from the decline in credit quality (or downgrade risk) or failure of a borrower, counterparty, third party or issuer to honor its financial or contractual obligations.
- *Liquidity risk* is the risk that Citi will not be able to efficiently meet both expected and unexpected current and future cash flow and collateral needs without adversely affecting either daily operations or financial conditions of Citi. Risk may be exacerbated by the inability of the Company to access funding sources or monetize assets and the composition of liability funding and liquid assets.
- *Market risk (Trading and Non-Trading)*: Market risk of trading portfolios is the risk of loss arising from changes in the value of Citi's assets and liabilities resulting from changes in market variables, such as interest rates, equity and commodity prices, foreign exchange rates or credit spreads. Market risk of non-trading portfolios is the impact of adverse changes in market variables such as interest rates, foreign exchange rates, credit spreads and equity prices on Citi's net interest income, economic value of equity, or *AOCI*.
- *Operational risk* is the risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events. It includes legal risk, which is the risk of loss (including litigation costs, settlements and regulatory fines) resulting from Citi's failure to comply with laws, regulations, prudent ethical standards or contractual obligations in any aspect of Citi's business, but excludes strategic and reputation risks (see below).
- *Compliance risk* is the risk to current or projected financial condition and resilience arising from violations of laws, rules or regulations, or from non-conformance with prescribed practices, internal policies and procedures or ethical standards.

- *Reputation risk* is the risk to current or projected financial conditions and resilience from negative opinion held by stakeholders. This risk may impair Citi's competitiveness by affecting its ability to establish new relationships or services or continue servicing existing relationships.
- *Strategic risk* is the risk of a sustained impact (not episodic impact) to Citi's core strategic objectives as measured by impacts on anticipated earnings, market capitalization or capital, arising from the external factors affecting the Company's operating environment; as well as the risks associated with defining the strategy and executing the strategy, which are identified, measured and managed as part of the Strategic Risk Framework at the Enterprise Level.

Citi uses a lines of defense model as a key component of its ERM Framework to manage its risks. As discussed below, the lines of defense model brings together risk-taking, risk oversight and risk assurance under one umbrella and provides an avenue for risk accountability of the first line of defense, a construct for effective challenge by the second line of defense (Independent Risk Management and Independent Compliance Risk Management), and empowers independent risk assurance by the third line of defense (Internal Audit). In addition, the lines of defense model includes organizational units tasked with supporting a strong control environment ("enterprise support functions"). The first, second and third lines of defense, along with enterprise support functions, have distinct roles and responsibilities and are empowered to perform relevant risk management processes and responsibilities in order to manage Citi's risks in a consistent and effective manner.

CREDIT RISK

Overview

Credit risk is the risk of loss resulting from the decline in credit quality of a client, customer or counterparty (or downgrade risk) or the failure of a borrower, counterparty, third party or issuer to honor its financial or contractual obligations. Credit risk is one of the most significant risks Citi faces as an institution (see "Risk Factors—Credit Risks" above). Credit risk arises in many of Citigroup's business activities, including:

- consumer, commercial and corporate lending;
- capital markets derivative transactions;
- structured finance; and
- securities financing transactions (repurchase and reverse repurchase agreements, and securities loaned and borrowed).

Credit risk also arises from clearing and settlement activities, when Citi transfers an asset in advance of receiving its counter-value or advances funds to settle a transaction on behalf of a client. Concentration risk, within credit risk, is the risk associated with having credit exposure concentrated within a specific client, industry, region or other category.

Citi has an established framework in place for managing credit risk across all businesses that includes a defined risk appetite, credit limits and credit policies. Citi's credit risk management framework also includes policies and procedures to manage problem exposures.

To manage concentration risk, Citi has in place a framework consisting of industry limits, single-name concentrations for each business and across Citigroup and a specialized product limit framework.

Credit exposures are generally reported in notional terms for accrual loans, reflecting the value at which the loans as well as other off-balance sheet commitments are carried on the Consolidated Balance Sheet. Credit exposure arising from capital markets activities is generally expressed as the current mark-to-market, net of margin, reflecting the net value owed to Citi by a given counterparty.

The credit risk associated with Citi's credit exposures is a function of the idiosyncratic creditworthiness of the obligor, as well as the terms and conditions of the specific obligation. Citi assesses the credit risk associated with its credit exposures on a regular basis through its allowance for credit losses (ACL) process, as well as through regular stress testing at the company, business, geography and product levels. These stress-testing processes typically estimate potential incremental credit costs that would occur as a result of either downgrades in the credit quality or defaults of the obligors or counterparties.

LIQUIDITY RISK

Overview

Adequate and diverse sources of funding and liquidity are essential to Citi's businesses. Funding and liquidity risks arise from several factors, many of which are mostly or entirely outside of Citi's control, such as disruptions in the financial markets, changes in key funding sources, credit spreads, changes in Citi's credit ratings and macroeconomic, geopolitical and other conditions. For additional information, see "Risk Factors—Liquidity Risks" above.

Citi's funding and liquidity management objectives are aimed at (i) funding its existing asset base, (ii) growing its core businesses, (iii) maintaining sufficient liquidity, structured appropriately, so that Citi can operate under a variety of adverse circumstances, including potential Company-specific and/or market liquidity events in varying durations and severity, and (iv) satisfying regulatory requirements, including, but not limited to, those related to resolution planning. Citigroup's primary liquidity objectives are established by entity, and in aggregate, across two major categories:

- Citibank (including Citibank Europe plc, Citibank Singapore Ltd. and Citibank (Hong Kong) Ltd.); and
- Citi's non-bank and other entities, including the parent holding company (Citigroup Inc.), Citi's primary intermediate holding company (Citicorp LLC), Citi's broker-dealer subsidiaries (including Citigroup Global Markets Inc., Citigroup Global Markets Limited and Citigroup Global Markets Japan Inc.) and other bank and non-bank subsidiaries that are consolidated into Citigroup (including Citibanamex).

At an aggregate Citigroup level, Citi's goal is to maintain sufficient funding in amount and tenor to fully fund customer assets and to provide an appropriate amount of cash and high-quality liquid assets (as discussed below), even in times of stress, in order to meet its payment obligations as they come due. The liquidity risk management framework provides that, in addition to the aggregate requirements, certain entities be self-sufficient or net providers of liquidity, including in conditions established under their designated stress tests.

Citi's primary funding sources include (i) corporate and consumer deposits via Citi's bank subsidiaries, including Citibank, N.A. (Citibank), (ii) long-term debt (primarily senior and subordinated debt) mainly issued by Citigroup Inc., as the parent, and Citibank, and (iii) stockholders' equity. These sources may be supplemented by short-term borrowings, primarily in the form of secured funding transactions.

Citi's funding and liquidity framework, working in concert with overall asset/liability management, helps ensure that there is sufficient liquidity and tenor in the overall liability structure (including funding products) of the Company relative to the liquidity requirements of Citi's assets. This reduces the risk that liabilities will become due before assets mature or are monetized. The Company holds excess liquidity, primarily in the form of high-quality liquid assets (HQLA).

Citi's liquidity is managed centrally by Corporate Treasury, in conjunction with regional and in-country treasurers with oversight provided by Independent Risk Management and various Asset & Liability Committees (ALCOs) at the individual entity, region, country and business levels. Pursuant to this approach, Citi's HQLA are managed with emphasis on asset/liability management and entity-level liquidity adequacy throughout Citi.

Citi's CRO and CFO co-chair Citigroup's ALCO, which includes Citi's Treasurer and other senior executives. The ALCO sets the strategy of the liquidity portfolio and monitors portfolio performance. Significant changes to portfolio asset allocations are approved by the ALCO. Citi also has other ALCOs, which are established at various organizational levels to ensure appropriate oversight for individual entities, countries, franchise businesses and regions, serving as the primary governance committees for managing Citi's balance sheet and liquidity.

As a supplement to ALCO, Citi's Funding and Liquidity Risk Committee (FLRC) is focused on funding and liquidity risk matters. The FLRC reviews and discusses the funding and liquidity risk profile of, as well as risk management practices for, Citigroup and Citibank and reports its findings and recommendations to each relevant ALCO as appropriate.

MARKET RISK

Overview

Market risk is the potential for losses arising from changes in the value of Citi’s assets and liabilities resulting from changes in market variables such as interest rates, foreign exchange rates, equity prices, commodity prices and credit spreads, as well as their implied volatilities. Market risk arises from both Citi’s trading and non-trading portfolios. For additional information on market risk and market risk management at Citi, see “Risk Factors” above.

Each business is required to establish, with approval from Citi’s market risk management, a market risk limit framework for identified risk factors that clearly defines approved risk profiles and is within the parameters of Citi’s overall risk appetite. These limits are monitored by the Risk organization, including various regional, legal entity and business Risk Management committees, Citi’s country and business Asset & Liability Committees and the Citigroup Risk Management and Asset & Liability Committees. In all cases, the businesses are ultimately responsible for the market risks taken and for remaining within their defined limits.

Market Risk of Trading Portfolios

Trading portfolios include positions resulting from market-making activities, the CVA relating to derivative counterparties and all associated hedges and fair value option loans.

The market risk of CGMHI’s trading portfolios is monitored using a combination of quantitative and qualitative measures, including, but not limited to, factor sensitivities, value at risk (VAR) and stress testing. Each trading portfolio across CGMHI’s businesses has its own market risk limit framework encompassing these measures and other controls, including trading mandates, new product approval, permitted product lists and pre-trade approval for larger, more complex and less liquid transactions. These controls enable the monitoring and management of CGMHI’s top market risks.

Factor Sensitivities

Factor sensitivities are expressed as the change in the value of a position for a defined change in a market risk factor, such as a change in the value of a U.S. Treasury Bond for a one-basis-point change in interest rates. Citi’s Global Market Risk function, within the Independent Risk Management organization, works to ensure that factor sensitivities are calculated, monitored and limited for all material risks taken in the trading portfolios.

Value at Risk (VAR)

VAR estimates, at a 99% confidence level, the potential decline in the value of a position or a portfolio under normal market conditions assuming a one-day holding period. VAR statistics, which are based on historical data, can be materially different across firms due to differences in portfolio composition, VAR methodologies and model parameters. As a result, Citi believes VAR statistics can be used more effectively as indicators of trends in risk-taking within a firm, rather than as a basis for inferring differences in risk-taking across firms.

Citi uses a single, independently approved Monte Carlo simulation VAR model, which has been designed to capture material risk sensitivities (such as first- and second-order sensitivities of positions to changes in market prices) of various asset classes/risk types (such as interest rate, credit spread, foreign exchange, equity and commodity risks). Citi’s VAR includes positions that are measured at fair value.

Citi believes its VAR model is conservatively calibrated to incorporate fat-tail scaling and the greater of short-term (approximately the most recent month) and long-term (18 months for commodities and three years for others) market volatility. The Monte Carlo simulation involves approximately 550,000 market factors, making use of approximately 480,000 time series, with sensitivities updated daily, volatility parameters updated intra-monthly and correlation parameters updated monthly. The conservative features of the VAR calibration contribute an approximate 30% add-on to what would be a VAR estimated under the assumption of stable and perfectly, normally distributed markets.

Year-end and Average Trading VAR and Trading and Credit Portfolio VAR

In millions of dollars	December 31, 2023	2023 Average	December 31, 2022	2022 Average
Interest rate	$ 75	$ 95	$ 109	$ 85
Equity	21	21	36	32
Commodity	14	23	30	32
Foreign exchange	18	10	7	8
Covariance adjustment (1)	(52)	(54)	(66)	(63)
Total trading VAR—all market risk factors, including general and specific risk (excluding credit portfolios) (2)	76	95	116	94
Specific risk-only component (3)	(1)	—	—	12
Total trading VAR—general market risk factors only (excluding credit portfolios)	77	95	116	82
Incremental impact of the credit portfolio (4)	1	1	8	4
Total trading and credit portfolio VAR	$ 77	$ 96	$ 124	$ 98

(1) Covariance adjustment (also known as diversification benefit) equals the difference between the total VAR and the sum of the VARs tied to each risk type. The benefit reflects the fact that the risks within individual and across risk types are not perfectly correlated and, consequently, the total VAR on a given day will be lower than the sum of the VARs relating to each risk type. The determination of the primary drivers of changes to the covariance adjustment is made by an examination of the impact of both model parameter and position changes.

(2) The total trading VAR includes mark-to-market and certain fair value option trading positions in CGMHI, with the exception of fair value option loans and all CVA exposures.

(3) The specific risk-only component represents the level of equity and fixed income issuer-specific risk embedded in VAR.

(4) The credit portfolio is composed of mark-to-market positions associated with the CVA relating to derivative counterparties, all associated CVA hedges and market sensitivity FVA hedges. FVA and DVA are not included. The credit portfolio also includes hedges of the loan portfolio, fair value option loans and hedges of the leveraged finance pipeline within capital markets origination in CGMHI.

The table below provides the range of market factor VARs associated with CGMHI's total trading VAR, inclusive of specific risk:

	2023		2022	
In millions of dollars	Low	High	Low	High
Interest rate	$ 71	$ 130	$ 53	$ 129
Equity	12	37	16	65
Commodity	13	37	23	52
Foreign exchange	5	20	4	17
Total trading	$ 67	$ 134	$ 64	$ 135
Total trading and credit portfolio	68	137	67	141

Note: No covariance adjustment can be inferred from the above table as the high and low for each market factor will be from different close-of-business dates.

VAR Model Review and Validation

Generally, Citi's VAR review and model validation process entails reviewing the model framework, major assumptions and implementation of the mathematical algorithm. In addition, product-specific back-testing on portfolios is periodically completed as part of the ongoing model performance monitoring process and reviewed with Citi's U.S. banking regulators.

Material VAR model and assumption changes must be independently validated within Citi's Independent Risk Management organization. All model changes, including those for the VAR model, are validated by the model validation group within Citi's Model Risk Management. In the event of significant model changes, parallel model runs are undertaken prior to implementation. In addition, significant model and assumption changes are subject to the periodic reviews and approval by Citi's U.S. banking regulators.

Stress Testing

Citi performs market risk stress testing on a regular basis to estimate the impact of extreme market movements. It is performed on individual positions and trading portfolios, as well as in aggregate, inclusive of multiple trading portfolios. Citi's market risk management, after consultations with the businesses, develops both systemic and specific stress scenarios, reviews the output of periodic stress testing exercises and uses the information to assess the ongoing appropriateness of exposure levels and limits. Citi uses two complementary approaches to market risk stress testing across all major risk factors (i.e., equity, foreign exchange, commodity, interest rate and credit spreads): top-down systemic stresses and bottom-up business-specific stresses. Systemic stresses are designed to quantify the potential impact of extreme market movements on an institution-wide basis, and are constructed using both historical periods of market stress and projections of adverse economic scenarios. Business-specific stresses are designed to probe the risks of particular portfolios and market segments, especially those risks that are not fully captured in VAR and systemic stresses.

In general, changes in market values are defined over a one-year horizon. For the most liquid positions and market factors, changes in market values are defined over a shorter two-month horizon. The limited set of positions and market factors whose market value changes are defined over a two-month horizon are those that in management's judgment have historically remained very liquid during financial crises, even as the trading liquidity of most other positions and market factors materially declined.

OPERATIONAL RISK

Overview

Operational risk is the risk of loss resulting from inadequate or failed internal processes or systems, including human error or misjudgment, or from external events. This includes legal risk, which is the risk of loss (including litigation costs, settlements and regulatory fines) resulting from the failure of Citi to comply with laws, regulations, prudent ethical standards and contractual obligations in any aspect of its businesses, but excludes strategic and reputation risks. Citi also recognizes the impact of operational risk on the reputation risk associated with Citi's business activities.

Operational risk is inherent in Citi's global business activities, as well as related support functions, and can result in losses. Citi maintains a comprehensive Company-wide risk taxonomy to classify operational risks that it faces using standardized definitions across Citi's Operational Risk Management Framework (see discussion below). This taxonomy also supports regulatory requirements and expectations inclusive of those related to U.S. Basel III, Comprehensive Capital Analysis and Review (CCAR), Heightened Standards for Large Financial Institutions and Dodd-Frank Act Stress Testing (DFAST).

Citi manages operational risk consistent with the overall framework described in "Managing Global Risk—Overview" above. Citi's goal is to keep operational risk at appropriate levels relative to the characteristics of its businesses, the markets in which it operates, its capital and liquidity and the competitive, economic and regulatory environment. This includes effectively managing operational risk and maintaining or reducing operational risk exposures within Citi's operational risk appetite.

Citi's Independent Operational Risk Management group has established a global Operational Risk Management Framework with policies and practices for identification, measurement, monitoring, managing and reporting operational risks and the overall operating effectiveness of the internal control environment. As part of this framework, Citi has defined its operational risk appetite and established a manager's control assessment (MCA) process for self-identification of significant operational risks, assessment of the performance of key controls and mitigation of residual risk above acceptable levels.

Each Citi operating segment must implement operational risk processes consistent with the requirements of this framework. This includes:

- understanding the operational risks they are exposed to;
- designing controls to mitigate identified risks;

- establishing key indicators;
- monitoring and reporting whether the operational risk exposures are in or out of their operational risk appetite;
- having processes in place to bring operational risk exposures within acceptable levels;
- periodically estimating and aggregating the operational risks they are exposed to; and
- ensuring that sufficient resources are available to actively improve the operational risk environment and mitigate emerging risks.

Citi considers operational risks that result from the introduction of new or changes to existing products, or result from significant changes in its organizational structures, systems, processes and personnel.

Citi has a governance structure for the oversight of operational risk exposures through Business Risk and Controls Committees (BRCCs), which are focused at the group, business or function, or geography level. BRCCs provide channels to inform senior management about operational risk exposures, control issues and operational risk events, and allow them to take and document decisions around the mitigation, remediation or acceptance of operational risk exposures.

In addition, Independent Risk Management, including the Operational Risk Management group, works proactively with Citi's businesses and functions to drive a strong and embedded operational risk management culture and framework across Citi. The Operational Risk Management group actively challenges business and functions implementation of the Operational Risk Management Framework requirements and the quality of operational risk management practices and outcomes.

Information about businesses' key operational risks, historical operational risk losses and the control environment is reported by each major business segment and functional area. Citi's operational risk profile and related information is summarized and reported to senior management, as well as to the Audit and Risk Committees of Citi's Board of Directors by the Head of Operational Risk Management.

Operational risk is measured through Operational Risk Capital and Operational Risk Regulatory Capital for the Advanced Approaches under Basel III. Projected operational risk losses under stress scenarios are estimated as a required part of the FRB's CCAR process.

For additional information on Citi's operational risks, see "Risk Factors—Operational Risks" above.

Cybersecurity Risk

Overview

Cybersecurity risk is the business risk associated with the threat posed by a cyberattack, cyber breach or the failure to protect Citi's most vital business information assets or operations, resulting in a financial or reputational loss (see the operational processes and systems and cybersecurity risk factors in "Risk Factors—Operational Risks" above). With an evolving threat landscape, ever-increasing sophistication of threat actor tactics, techniques and procedures, ongoing and emerging geopolitical conflicts, and the use of new technologies, including those enabled by artificial intelligence and machine learning capabilities, to conduct financial transactions, Citi and its clients, customers and third parties (and fourth parties, etc.) continue to be at risk from cyberattacks and information security incidents. Citi leverages a threat-focused, defense-in-depth strategy that ensures that multiple controls work in tandem against various threats to increase the likelihood that malicious activity will be prevented, detected and mitigated.

Citi has a mature cybersecurity threat identification and management program that relies on an industry-aligned defense-in-depth approach, including an internal cybersecurity intelligence center, participation in industry and government information-sharing programs, vulnerability assessment and scanning tools, intrusion detection and prevention systems, security incident and event management systems, firewalls, penetration testing, adversary emulation exercises, data management (including classification, encryption at rest and in transit, and access management), multi-factor authentication requirements and other logical, physical and technical controls designed to prevent, deter, mitigate and respond to cybersecurity threats.

Citi's cyber and information security program is supported by comprehensive governance, including policies, standards and procedures that dictate requirements and best practices around various topics, including, but not limited to, third-party risk management, data management, asset management, information security practices, security incident management, and regulatory and disclosure compliance. Citi's Chief Information Security Office's risks and controls are measured against its Cybersecurity Risk Appetite Statement, which was initially approved by the Risk Management Committee of the Board of Directors and is reapproved annually by Citi's Risk Committee, chaired by Citi's Chief Risk Officer. Citi's Cybersecurity Risk Appetite Statement leverages key risk indicators to establish enterprise risk tolerance and define risk management strategy with respect to cyber and information security. Further, Citi actively participates in financial industry, government and cross-sector knowledge-sharing groups to enhance individual and collective cybersecurity preparedness and resilience.

Cybersecurity Risk Management and Governance

Citi's technology and cybersecurity risk management program is built on Citi's three lines of defense, each of which is integrated into Citi's overall risk management systems and processes.

Citi's Chief Information Security Office, which is led by Citi's Chief Information Security Officer (CISO), serves as the first line of defense. This office provides frontline business, operational and technical controls and capabilities to (1) protect against cybersecurity risks, and (2) respond to cyber incidents and data breaches. Citi manages cybersecurity threats through its state-of-the-art fusion centers, which serve as central commands for monitoring and coordinating responses to cyber threats.

Citi's Chief Information Security Office is responsible for application and infrastructure defense and security controls, performing vulnerability assessments and third-party information security assessments (including cybersecurity risk assessments associated with Citi's use of products and services from vendors and other third-party providers), employee awareness and training programs and security incident management. In each case, the enterprise information security team works in coordination with a network of information security officers who are embedded within Citi's global businesses and functions, consistent with Citi's philosophy that all Citi stakeholders have a responsibility in managing cyber and information security risks.

Citi's Technology and Cyber Compliance and Operational Risk Office (TCCORO) serves as the second line of defense. This office independently evaluates and challenges Citi's risk mitigation practices and capabilities, from a fused operational risk and compliance lens. It functions as a joint second line of defense and in accordance with Citi's Cybersecurity Risk Appetite Statement. TCCORO also advises first line partners in CISO, supporting enterprise-wide efforts to proactively identify and remediate cybersecurity risks before they materialize as incidents that negatively affect business operations.

To address evolving cybersecurity risks and corresponding regulations, TCCORO monitors cybersecurity legal and regulatory requirements, identifies and defines emerging risks, executes strategic cybersecurity threat assessments, performs new product and initiative reviews, performs data management risk oversight and conducts cybersecurity risk assurance reviews (inclusive of third-party assessments). In addition, this office oversees and challenges metrics related to cybersecurity and technology and ensures they remain aligned with Citi's overall operational risk management framework to effectively track, identify and manage risk. TCCORO presents an independent viewpoint on enterprise cybersecurity risk posture, and oversees CISO's cybersecurity risk identification, measurement and enterprisewide governance of cybersecurity risk.

Internal Audit serves as Citi's third line of defense and provides independent assurance to the Audit Committee of the Board on the effectiveness of controls operated by the first and second lines of defense to manage cybersecurity risk.

Citi recognizes the risks associated with outsourcing services to, sharing data with, and/or technologically interacting with third parties. Citi has built a robust third-party information security risk management program that governs third-party engagements from selection, to the establishment of legal agreements that govern the relationship, to ongoing monitoring through the duration of the relationship. Third-party risk management includes contractual requirements around data and cybersecurity, vulnerability assessments, third-party information security assessments performed at intervals determined by risk, governance to manage end-of-life and end-of-vendor-support risks, and third-party incident response protocols.

COMPLIANCE RISK

Compliance risk is the risk to current or projected financial condition and resilience arising from violations of laws, rules or regulations, or from non-conformance with prescribed practices, internal policies and procedures or ethical standards. Compliance risk exposes Citi to fines, civil money penalties, payment of damages and the voiding of contracts. Compliance risk can result in diminished reputation, harm to Citi's customers, limited business opportunities and lessened expansion potential. It encompasses the risk of noncompliance with all laws and regulations, as well as prudent ethical standards and some contractual obligations. It could also include exposure to litigation (known as legal risk) from all aspects of traditional and non-traditional banking.

Citi seeks to operate with integrity, maintain strong ethical standards and adhere to applicable policies and regulatory and legal requirements. Citi must maintain and execute a proactive Compliance Risk Management (CRM) Framework (as set forth in the CRM Policy) that is designed to manage compliance risk effectively across Citi, with a view to fundamentally strengthen the compliance risk management culture across the lines of defense taking into account Citi's risk governance framework and regulatory requirements. Independent Compliance Risk Management's (ICRM) primary objectives are to:

- Drive and embed a culture of compliance and control throughout Citi;
- Maintain and oversee an integrated CRM Framework that facilitates enterprise-wide compliance with local, national or cross-border laws, rules or regulations, Citi's internal policies, standards and procedures and relevant standards of conduct;
- Assess compliance risks and issues across product lines, functions and geographies, supported by globally consistent systems and compliance risk management processes; and
- Provide compliance risk data aggregation and reporting capabilities.

Citi carries out its objectives and fulfills its responsibilities through the CRM Framework, which is composed of the following integrated key activities, to holistically manage compliance risk:

- Management of Citi's compliance with laws, rules and regulations by identifying and analyzing changes, assessing the impact, and implementing appropriate policies, processes and controls;
- Developing and providing compliance training to ensure colleagues are aware of and understand the key laws, rules and regulations;
- Monitoring the Compliance Risk Appetite, which is articulated through qualitative compliance risk statements describing Citi's appetite for certain types of risk and quantitative measures to monitor the Company's compliance risk exposure;
- Executing Compliance Risk Assessments, the results of which inform Compliance Risk Monitoring and testing of compliance risks and controls in assessing conformance with laws, rules, regulations and internal policies; and
- Issue identification, escalation and remediation to drive accountability, including measurement and reporting of compliance risk metrics against established thresholds in support of the CRM Policy and Compliance Risk Appetite.

To anticipate, control and mitigate compliance risk, Citi has established the CRM Policy to achieve standardization and centralization of methodologies and processes, and to enable more consistent and comprehensive execution of compliance risk management.

Citi has a commitment, as well as an obligation, to identify, assess and mitigate compliance risks associated with its businesses and functions. ICRM is responsible for oversight of Citi's CRM Policy, while all businesses and global control functions are responsible for managing their compliance risks and operating within the Compliance Risk Appetite.

As discussed above, Citi is working to address the FRB and OCC consent orders, which include improvements to Citi's CRM Framework and its enterprise-wide application.

REPUTATION RISK

Citi's reputation is a vital asset in building trust, and Citi is diligent in enhancing and protecting its reputation with its key stakeholders. To support this, Citi has developed a reputation risk framework. Under this framework, Citigroup and Citibank, N.A. have implemented a risk appetite statement and related key indicators to monitor corporate activities and operations relative to Citi's risk appetite. The framework also requires that business segments escalate potential material reputation risks that require review or mitigation through the applicable business Management Forum or Group Reputation Risk Committee.

The Group Reputation Risk Committee and Management Forums, which are composed of Citi's senior executives, govern the process by which material reputation risks are identified, measured, monitored, controlled, escalated and reported. The Group Reputation Risk Committee and Management Forums determine the appropriate actions to be taken in line with risk appetite and regulatory expectations, while promoting a culture of risk awareness and high standards of integrity and ethical behavior across the Company, consistent with Citi's Mission and Value Proposition. The Group Reputation Risk Committee may escalate reputation risks to the Nomination, Governance and Public Affairs Committee or other appropriate committee of the Citigroup Board of Directors.

Every Citi employee is responsible for safeguarding Citi's reputation, guided by Citi's Code of Conduct. Colleagues are expected to exercise sound judgment and common sense in decisions and actions. They are also expected to promptly escalate all issues that present material reputation risk in line with policy.

STRATEGIC RISK

As discussed above, strategic risk is the risk of a sustained impact (not episodic impact) to Citi's core strategic objectives as measured by impacts on anticipated earnings, market capitalization or capital, arising from external factors affecting the Company's operating environment, as well as the risks associated with defining and executing the strategy, which are identified, measured and managed as part of the Strategic Risk Framework at the Enterprise Level.

In this context, external factors affecting Citi's operating environment are the economic conditions, geopolitical/political landscape, industry/competitive landscape, customer/client behavior, regulatory/legislative environment and trends related to investors/shareholders. Material strategic risks that Citi is monitoring include the impacts of an extended period of high inflation and interest rates, as well as macroeconomic uncertainties driven by low global growth and geopolitical issues including the Middle East conflict, the Russia–Ukraine war and U.S.–China tensions. Heightened regulatory requirements, specifically with regard to capital as well as climate-related transition risk, remain in focus. In addition to external factors affecting Citi's operating environment, Citi also monitors risks related to the execution of its strategy, with heightened focus on delivering the transformation of its risk and control environment pursuant to the FRB and OCC consent orders.

Citi's Executive Management Team is responsible for the development and execution of Citi's strategy. This strategy is translated into forward-looking plans (collectively Citi's Strategic Plan) that are then cascaded across the organization. Citi's Strategic Plan is presented to the Board on an annual basis, and is aligned with risk appetite thresholds and includes a risk assessment as required by internal frameworks. It is also aligned with limit requirements for capital allocation. Governance and oversight of strategic risk is facilitated by internal committees on a group-wide basis.

Citi works to ensure that strategic risks are adequately considered and addressed across its various risk management activities, and that strategic risks are assessed in the context of Citi's risk appetite. Citi conducts a top-down, bottom-up risk identification process to identify risks, including strategic risks. Business segments undertake a quarterly risk identification process to systematically identify and document all material risks faced by Citi. Independent Risk Management oversees the risk identification process through regular reviews and coordinates identification and monitoring of top risks. In addition, Citi performs a quarterly Risk Assessment of the Plan (RAOP) and continuously monitors risks associated with its execution of strategy. Independent Risk Management also manages strategic risk by monitoring risk appetite thresholds in conjunction with its Global Strategic Risk Committee, which is part of the governance structure that Citi has in place to manage its strategic risks.

For additional information on Citi's strategic risks, see "Risk Factors—Strategic Risks" above.

Climate Risk

Climate change presents immediate and long-term risks to Citi and its clients and customers, with the risks expected to increase over time. Climate risk refers to the risk of loss arising from climate change and comprises both physical risk and transition risk.

Climate risk is an overarching risk that can act as a driver of other categories of risk, such as credit risk from obligors exposed to high climate risk, strategic risks if Citi fails to consider transition risk in client selection, reputational risk from increased stakeholder concerns about financing or failing to finance high-carbon industries and operational risk from physical risks to Citi's facilities. Citi's focus on climate risk continues to advance, driven by materiality of strategic, reputation and financial risk considerations. Citi continues to make progress toward embedding these considerations into its overarching risk management approach. For additional information on climate risk, see "Risk Factors—Strategic Risks" above.

Citi continues to develop globally consistent principles and approaches for managing climate risk across the Company through the implementation of its Climate Risk Management Framework (Climate RMF). The Climate RMF provides information on the governance, roles and responsibilities, and principles to support the identification, measurement, monitoring, controlling and reporting of climate risks. Through this implementation, climate risk is being embedded into relevant policies and processes over time.

Citi continues to enhance its methodologies for quantifying how climate risks could impact the individual credit profiles of its clients across various sectors. Citi has developed and embedded sector-specific climate risk assessments in its credit underwriting process for certain sectors that Citi has identified as higher climate risk. Such climate risk assessments are designed to incorporate publicly available client disclosures and data from third-party providers and facilitate conversations with clients on their most material climate risks and management plans for adaptation and mitigation. This helps Citi better understand its clients' businesses and climate-related risks and support their financial needs. Citi's Net Zero plan implementation is leading to the further integration of climate risk discussions into client engagement and client selection.

Citi also reviews factors related to climate risk under its Environmental and Social Risk Management (ESRM) Policy, which includes a focus on climate risk related to financed projects and clients in certain sectors. Considering the credit risk of stranded assets, as well as the reputational risks, Citi's ESRM Policy describes sector approaches to certain high-carbon sectors, including thermal coal mining and power.

Furthermore, Citi continues to participate in financial industry initiatives and develop and pilot methodologies and approaches for measuring and assessing the potential financial risks of climate change, including scenario analysis. Citi also continues to monitor regulatory developments on climate risk and sustainable finance and actively engage with regulators on these topics.

OTHER RISKS

LIBOR Transition Risk

As previously disclosed, the USD LIBOR bank panel ended on June 30, 2023. The overnight and 12-month USD LIBOR settings have permanently ceased, and the Financial Conduct Authority is requiring ICE Benchmark Administration to continue publishing one-, three- and six-month USD LIBOR settings using a synthetic methodology, which is based on the relevant CME Term SOFR Reference Rate plus the respective ISDA fixed spread adjustment. These synthetic settings are expected to cease on September 30, 2024. As previously disclosed, as of June 30, 2023, Citi transitioned nearly all of its USD LIBOR-referencing contracts to SOFR plus a credit spread adjustment. There remain a de minimis number of unremediated USD LIBOR-referencing contracts that are temporarily utilizing synthetic LIBOR, and Citi is continuing to focus on remediating these remaining contracts.

UNREGISTERED SALES OF EQUITY SECURITIES, REPURCHASES OF EQUITY SECURITIES AND DIVIDENDS

(Extracted from (i) Citigroup's Quarterly Report on Form 10-Q for the fiscal quarter ended 30 September 2023, filed with the U.S. Securities and Exchange Commission on the 3rd day of November, 2023, and (ii) Citigroup's Annual Report on Form 10-K for the fiscal year ended 31 December 2023, filed with the U.S. Securities and Exchange Commission on the 23rd day of February, 2024.)

Unregistered Sales of Equity Securities
None.

Equity Security Repurchases
All large banks, including Citi, are subject to limitations on capital distributions in the event of a breach of any regulatory capital buffers, including the Stress Capital Buffer, with the degree of such restrictions based on the extent to which the buffers are breached. For additional information, see "Risk Factors—Strategic Risks," above.

The following table summarizes Citi's common share repurchases for the third quarter of 2023:

In millions, except per share amounts	**Total shares purchased**	**Average price paid per share**
July 2023		
Open market repurchases [1]	—	$ —
Employee transactions [2]	—	—
August 2023		
Open market repurchases [1]	—	—
Employee transactions [2]	—	—
September 2023		
Open market repurchases [1]	11.95	41.82
Employee transactions [2]	—	—
Total for 3Q23	11.95	$ 41.82

(1) Repurchases not made pursuant to any publicly announced plan or program.

(2) During the third quarter, pursuant to Citigroup's Board of Directors' authorization, Citi withheld an insignificant number of shares of common stock, added to treasury stock, related to activity on employee stock programs to satisfy the employee tax requirements.

As previously announced, Citi will continue to assess common share repurchases on a quarter-by-quarter basis given uncertainty regarding regulatory capital requirements.

Dividends
Citi paid common dividends of $0.53 per share for the third quarter of 2023, and on October 19, 2023, declared common dividends of $0.53 per share for the fourth quarter of 2023. Citi intends to maintain a quarterly common dividend of at least $0.53 per share, subject to financial and macroeconomic conditions as well as its Board of Directors' approval.

As discussed above, Citi's ability to pay common stock dividends is subject to limitations on capital distributions in the event of a breach of any regulatory capital buffers, including the Stress Capital Buffer, with the degree of such restrictions based on the extent to which the buffers are breached. For additional information, see "Risk Factors—Strategic Risks," "—Operational Risks" and "—Compliance Risks" above.

Any dividend on Citi's outstanding common stock would also need to be in compliance with Citi's obligations on its outstanding preferred stock.

On October 19, 2023, Citi declared preferred dividends of approximately $300 million for the fourth quarter of 2023.

Equity Security Repurchases

The following table summarizes Citi's common share repurchases for the fourth quarter of 2023:

In millions, except per share amounts	Total shares purchased	Average price paid per share
October 2023		
Open market repurchases [1]	1,080	$ 38.80
Employee transactions [2]	—	—
November 2023		
Open market repurchases [1]	5,238	43.45
Employee transactions [2]	—	—
December 2023		
Open market repurchases [1]	4,658	49.48
Employee transactions [2]	—	—
Total for 4Q23	10,976	$ 45.55

(1) Repurchases not made pursuant to any publicly announced plan or program.

(2) During the fourth quarter, pursuant to Citigroup's Board of Directors' authorization, Citi withheld an insignificant number of shares of common stock, added to treasury stock, related to activity on employee stock programs to satisfy the employee tax requirements.

Dividends

Citi paid common dividends of $0.53 per share for the fourth quarter of 2023 and the first quarter of 2024. Citi intends to maintain a quarterly common dividend of at least $0.53 per share, subject to financial and macroeconomic conditions and its Board of Directors' approval.

As discussed above, Citi's ability to pay common stock dividends is subject to limitations on capital distributions in the event of a breach of any regulatory capital buffers, including the Stress Capital Buffer, with the degree of such restrictions based on the extent to which the buffers are breached. For additional information, see "Risk Factors—Strategic Risks," "—Operational Risks" and "—Compliance Risks" above.

Any dividend on Citi's outstanding common stock would also need to be in compliance with Citi's obligations on its outstanding preferred stock.

During 2023, Citi distributed $1,198 million in dividends on its outstanding preferred stock. On January 11, 2024, Citi declared preferred dividends of approximately $279 million for the first quarter of 2024.

CITIGROUP GLOBAL MARKETS HOLDINGS INC.
AND SUBSIDIARIES

CONSOLIDATED FINANCIAL STATEMENTS
AS OF DECEMBER 31, 2023 AND 2022
AND FOR EACH OF THE YEARS
IN THE THREE YEAR PERIOD ENDED
DECEMBER 31, 2023

CITIGROUP GLOBAL MARKETS HOLDINGS INC. AND SUBSIDIARIES

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

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

Independent Auditors' Report

To the Stockholder and the Board of Directors
Citigroup Global Markets Holdings Inc.:

Report on the Audit of the Consolidated Financial Statements

Opinion

We have audited the consolidated financial statements of Citigroup Global Markets Holdings Inc. and its subsidiaries (the Company), which comprise the consolidated statements of financial condition as of December 31, 2023 and 2022, and the related consolidated statements of operations, comprehensive income (loss), changes in stockholder's equity, and cash flows for each of the years in the three-year period ended December 31, 2023, and the related notes to the consolidated financial statements.

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2023 and 2022, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2023 in accordance with U.S. generally accepted accounting principles.

Basis for Opinion

We conducted our audits in accordance with auditing standards generally accepted in the United States of America (GAAS). Our responsibilities under those standards are further described in the Auditors' Responsibilities for the Audit of the Consolidated Financial Statements section of our report. 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 audits. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Responsibilities of Management for the Consolidated Financial Statements

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

Management is responsible for presenting the consolidated financial statements in accordance with the requirements set forth in the Commission Delegated Regulation 2019/815 on European Single Electronic Format (the ESEF Regulation).

In preparing the consolidated financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Company's ability to continue as a going concern for one year after the date that the consolidated financial statements are available to be issued.

Auditors' Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the consolidated financial statements.

In performing an audit in accordance with GAAS, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the consolidated financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the Company's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control related matters that we identified during the audit.

Other Information Included in the Annual Financial Report

Management is responsible for the other information included in the annual financial report. The other information comprises the information included in the annual financial report but does not include the consolidated financial statements and our auditors' report thereon. Our opinion on the consolidated financial statements does not cover the other information, and we do not express an opinion or any form of assurance thereon.

In connection with our audit of the consolidated financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the consolidated financial statements, or the other information otherwise appears to be materially misstated. If, based on the work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

Report on Other Legal and Regulatory Requirements

We have evaluated the compliance of the consolidated financial statements of the Company as of December 31, 2023 and 2022 and for each of the years in the three-year period ended December 31, 2023 with the relevant statutory requirements set forth in the ESEF Regulation that are applicable to consolidated financial statements.

For the Company, the relevant statutory requirements relate to consolidated financial statements being prepared in a valid XHTML format.

In our opinion, the consolidated financial statements of the Company as of December 31, 2023 and 2022 and for each of the years in the three-year period ended December 31, 2023, identified as CGMHI Annual FR 2023, have been prepared, in all material respects, in compliance with the requirements set forth in the ESEF Regulation.

KPMG LLP

New York, New York
April 30, 2024

CITIGROUP GLOBAL MARKETS HOLDINGS INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS

	Years ended December 31,		
In millions of dollars	2023	2022	2021
Revenues:			
Investment banking	$ 2,835	$ 3,143	$ 6,331
Principal transactions	2,467	3,456	3,326
Commissions and fees	1,525	1,601	1,846
Fiduciary fees	277	323	320
Other	109	112	196
Total non-interest revenues	7,213	8,635	12,019
Interest income	39,946	12,345	4,097
Interest expense	36,511	10,296	2,098
Net interest income	3,435	2,049	1,999
Total revenues, net of interest expense	10,648	10,684	14,018
Non-interest expenses:			
Compensation and benefits	5,578	5,450	5,251
Technology, communications and equipment	1,715	1,617	1,531
Brokerage, clearing and exchange fees	1,403	1,337	1,471
Professional services	334	390	543
Occupancy	278	250	269
Restructuring	132	—	—
Other operating and administrative expenses	2,238	2,083	1,887
Total non-interest expenses	11,678	11,127	10,952
Income (loss) before income taxes	(1,030)	(443)	3,066
Provision (benefit) for income taxes	(45)	(283)	819
Net income (loss)	$ (985)	$ (160)	$ 2,247

The accompanying Notes are an integral part of these Consolidated Financial Statements.

CITIGROUP GLOBAL MARKETS HOLDINGS INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

	Years ended December 31,		
In millions of dollars	2023	2022	2021
Net income (loss)	$ (985)	$ (160)	$ 2,247
Add: Other comprehensive income (loss)			
Net change in debt valuation adjustment (DVA), pretax [1]	(817)	1,462	171
Benefit plans liability adjustment, pretax	(25)	(103)	120
Foreign currency translation adjustment, pretax	158	(302)	(368)
Income tax on items reflected in Other comprehensive income [2]	100	(102)	(15)
Total other comprehensive income (loss)	(584)	955	(92)
Total comprehensive income (loss)	$ (1,569)	$ 795	$ 2,155

(1) See Note 11.
(2) See Note 4.

The accompanying Notes are an integral part of these Consolidated Financial Statements.

CITIGROUP GLOBAL MARKETS HOLDINGS INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF FINANCIAL CONDITION

In millions of dollars		December 31, 2023		December 31, 2022
Assets				
Cash and cash equivalents		$ 13,590		$ 14,381
Cash segregated under federal and other regulations		10,166		12,741
Securities borrowed and purchased under agreements to resell (including $187,719 and $222,134 as of December 31, 2023 and 2022, respectively, at fair value)		283,174		306,273
Trading account assets (including $192,924 and $128,364 pledged to creditors at December 31, 2023 and 2022, respectively):				
U.S. Treasury and federal agency securities	88,100		49,209	
Mortgage-backed securities	81,755		38,407	
Equity securities	33,579		41,968	
Foreign government securities	24,926		26,864	
Derivatives	20,820		29,826	
Corporate	17,172		16,554	
Asset-backed securities	1,721		2,265	
State and municipal securities	445		2,110	
Other trading assets	4,861		2,753	
Total trading account assets		273,379		209,956
Brokerage receivables:				
Customers	15,448		15,151	
Brokers, dealers and clearing organizations	35,138		31,406	
Total brokerage receivables		50,586		46,557
Loans to affiliates		92,063		93,670
Goodwill		2,190		2,191
Other assets (including $6,288 and $5,829 as of December 31, 2023 and 2022, respectively, at fair value)		22,770		21,402
Total assets		$747,918		$707,171

The accompanying Notes are an integral part of these Consolidated Financial Statements.

CITIGROUP GLOBAL MARKETS HOLDINGS INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF FINANCIAL CONDITION
(Continued)

In millions of dollars, except shares		December 31, 2023		December 31, 2022
Liabilities				
Short-term borrowings (including $5,175 and $5,336 as of December 31, 2023 and 2022, respectively, at fair value)		$ 20,481		$ 43,850
Securities loaned and sold under agreements to repurchase (including $62,435 and $66,389 as of December 31, 2023 and 2022, respectively, at fair value)		309,862		245,916
Trading account liabilities		111,233		115,929
Brokerage payables (including $4,321 and $4,439 as of December 31, 2023 and 2022, respectively, at fair value)				
Customers	61,888		65,729	
Brokers, dealers and clearing organizations	12,684		11,245	
Total brokerage payables		74,572		76,974
Other liabilities		10,503		13,702
Long-term debt (including $91,951 and $87,865 as of December 31, 2023 and 2022, respectively, at fair value)		184,083		172,068
Total liabilities		710,734		668,439
Stockholder's equity				
Common stock (par value $.01 per share, 1,000 shares authorized; 1,000 shares issued and outstanding)		—		—
Additional paid-in capital		29,148		29,104
Retained earnings		8,970		9,978
Accumulated other comprehensive income (loss) (AOCI)		(934)		(350)
Total stockholder's equity		37,184		38,732
Total liabilities and equity		$747,918		$707,171

The accompanying Notes are an integral part of these Consolidated Financial Statements.

CITIGROUP GLOBAL MARKETS HOLDINGS INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDER'S EQUITY

	Years ended December 31,		
In millions of dollars	2023	2022	2021
Common stock and additional paid-in capital			
Balance, beginning of year	$ 29,104	$ 28,712	$ 28,629
Capital contributions from Citigroup	—	380	90
Capital distributions to Citigroup	—	—	(19)
Employee benefit plans	44	12	12
Balance, end of year	29,148	29,104	28,712
Retained earnings			
Balance, beginning of year	9,978	10,418	8,367
Net income (loss)	(985)	(160)	2,247
Dividends	(23)	(280)	(196)
Balance, end of year	8,970	9,978	10,418
Accumulated other comprehensive income (loss)			
Balance, beginning of year	(350)	(1,305)	(1,213)
Total other comprehensive income (loss)	(584)	955	(92)
Balance, end of year	(934)	(350)	(1,305)
Total stockholder's equity	$ 37,184	$ 38,732	$ 37,825

The accompanying Notes are an integral part of these Consolidated Financial Statements.

CITIGROUP GLOBAL MARKETS HOLDINGS INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS

	Years ended December 31,		
In millions of dollars	2023	2022	2021
Cash flows from operating activities:			
CGMHI's net income (loss)	$ (985)	$ (160)	$ 2,247
Adjustments to reconcile net income (loss) to net cash provided by (used in) operating activities:			
Deferred income taxes	148	(452)	197
Depreciation and amortization	67	66	63
Net change in:			
Trading account assets	(63,423)	(18,771)	33,431
Trading account liabilities	(4,696)	(6,953)	8,255
Brokerage receivables net of brokerage payables	(6,431)	12,072	(4,361)
Other assets	4,887	(8,482)	872
Other liabilities	(3,199)	4,174	2,524
Net cash provided by (used in) operating activities	(73,632)	(18,506)	43,228
Cash flows from investing activities:			
Securities borrowed and purchased under agreements to resell	23,099	(13,302)	(29,944)
Loans to affiliates	1,607	(33,929)	(9,040)
Other, net	(87)	(65)	(2)
Net cash provided by (used in) investing activities	24,619	(47,296)	(38,986)
Cash flows from financing activities:			
Dividends paid	(23)	(280)	(196)
Securities loaned and sold under agreements to repurchase	63,946	11,901	(27,241)
Capital contributions from Citigroup	—	380	90
Capital distributions to Citigroup	—	—	(19)
Employee benefit plans	44	12	12
Proceeds from issuance of long-term debt	48,410	117,589	87,451
Repayment of long-term debt	(50,791)	(72,338)	(57,970)
Short-term borrowings, net	(15,939)	8,995	185
Net cash provided by financing activities	45,647	66,259	2,312
Change in cash and cash segregated under federal and other regulations	(3,366)	457	6,554
Cash and cash segregated under federal and other regulations at beginning of year	27,122	26,665	20,111
Cash and cash segregated under federal and other regulations at end of year	$ 23,756	$ 27,122	$ 26,665
Cash and cash equivalents	$ 13,590	$ 14,381	$ 12,961
Cash segregated under federal and other regulations	10,166	12,741	13,704
Cash and cash segregated under federal and other regulations at end of year	$ 23,756	$ 27,122	$ 26,665
Cash paid during the year for interest	$ 35,213	$ 9,936	$ 2,210
Change in tenor of long-term debt (1)	$ 7,430	$ (4,200)	$ (5,390)

(1) During 2023, the Company amended the tenor of $7.4 billion in debt with Citicorp LLC (Citicorp), a direct wholly owned subsidiary of Citigroup Inc., from short-term to long-term. During 2022 and 2021, the Company amended the tenor of $4.2 billion and $5.4 billion, respectively, in debt with Citicorp from long-term to short-term.

The accompanying Notes are an integral part of these Consolidated Financial Statements.

1. ORGANIZATION AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Organization
Citigroup Global Markets Holdings Inc. (together with its consolidated subsidiaries, "CGMHI" or "the Company") is a direct, wholly owned subsidiary of Citigroup Inc., a Delaware corporation and a financial holding company under the Bank Holding Company Act (Citigroup and its consolidated subsidiaries are referred to herein as "Citigroup" or "Citi").

The Company is a New York Corporation and provides corporate, institutional and public sector clients around the world with a full range of brokerage products and trading services across equities, foreign exchange, rates, spread products and commodities. The range of services includes market-making across asset classes, risk management solutions, financing, prime brokerage, research, securities clearing and settlement.

Certain reclassifications and updates have been made to the prior periods' financial statements and notes to conform to the current period's presentation.

The Company evaluated subsequent events through February 23, 2024, the date that Citigroup's Consolidated Financial Statements and Notes were submitted to the U.S. Securities and Exchange Commission (SEC) in its Annual Report on Form 10-K for the year ended December 31, 2023.

Principles of Consolidation
The Consolidated Financial Statements include the accounts of CGMHI and its subsidiaries prepared in accordance with U.S. generally accepted accounting principles (GAAP). The Company consolidates subsidiaries in which it holds, directly or indirectly, more than 50% of the voting rights or where it exercises control. Entities in which the Company holds 20% to 50% of the voting rights and/or has the ability to exercise significant influence, other than investments of designated venture capital subsidiaries or investments accounted for at fair value under the fair value option, are accounted for under the equity method, and the pro rata share of their income (loss) is included in *Other revenue*. Income from investments in less-than-20%-owned companies is recognized when dividends are received. As discussed in more detail in Note 8, CGMHI also consolidates entities deemed to be variable interest entities when CGMHI is determined to be the primary beneficiary.

Use of Estimates
Management must make estimates and assumptions that affect the Consolidated Financial Statements and the related Notes. Such estimates are used in connection with certain fair value measurements. See Note 11 for further discussions on estimates used in the determination of fair value. Moreover, estimates are significant in determining the amounts of impairments of goodwill and other intangible assets, provisions for probable losses that may arise from credit-related exposures, probable and estimable losses related to litigation and regulatory proceedings, and income taxes. While management makes its best judgment, actual amounts or results could differ from those estimates.

Variable Interest Entities (VIEs)
An entity is a variable interest entity (VIE) if it meets either of the criteria outlined in Accounting Standards Codification (ASC) Topic 810, *Consolidation*, which are (i) the entity has equity that is insufficient to permit the entity to finance its activities without additional subordinated financial support from other parties, or (ii) the entity has equity investors that cannot make significant decisions about the entity's operations or that do not absorb their proportionate share of the entity's expected losses or expected returns.

The Company consolidates a VIE when it has both the power to direct the activities that most significantly impact the VIE's economic performance and a right to receive benefits or the obligation to absorb losses of the entity that could be potentially significant to the VIE (that is, CGMHI is the primary beneficiary). In addition to variable interests held in consolidated VIEs, the Company has variable interests in other VIEs that are not consolidated because the Company is not the primary beneficiary.

All unconsolidated VIEs are monitored by the Company to assess whether any events have occurred to cause its primary beneficiary status to change. All entities not deemed to be VIEs with which the Company has involvement are evaluated for consolidation under other subtopics of ASC 810. See Note 8 for more detailed information.

Foreign Currency Translation
Assets and liabilities of CGMHI's foreign operations are translated from their respective functional currencies into U.S. dollars using period-end spot foreign exchange rates. The effects of those translation adjustments are reported in *Accumulated other comprehensive income (loss) (AOCI)*, a component of stockholder's equity, net of any related tax effects, until realized upon sale or substantial liquidation of the foreign entity, at which point such amounts are reclassified

into earnings. Revenues and expenses of CGMHI's foreign operations are translated monthly from their respective functional currencies into U.S. dollars at amounts that approximate weighted-average exchange rates.

For transactions that are denominated in a currency other than the functional currency, including transactions denominated in the local currencies of foreign operations that use the U.S. dollar as their functional currency, the effects of changes in exchange rates are primarily included in *Principal transactions*. Foreign operations in countries with highly inflationary economies designate the U.S. dollar as their functional currency, with the effects of changes in exchange rates primarily included in *Other revenue*.

Cash and Cash Equivalents
Cash and cash equivalents represents funds deposited with financial institutions.

Cash Segregated under Federal and Other Regulations
Certain U.S. and non-U.S. broker-dealer subsidiaries are subject to various securities and commodities regulations promulgated by the regulatory and exchange authorities of the countries in which they operate. CGMHI's broker-dealer subsidiaries are required by their primary regulators, including the SEC, the Commodities Future Trading Commission and the United Kingdom's Prudential Regulation Authority, to segregate cash to satisfy rules regarding the protection of customer assets.

Trading Account Assets and Liabilities
Trading account assets include debt and marketable equity securities, derivatives in a receivable position, residual interests in securitizations and physical commodities inventory. *Trading account liabilities* include securities sold, not yet purchased (short positions) and derivatives in a net payable position.

Other than physical commodities inventory, all trading account assets and liabilities are carried at fair value. Revenues generated from trading assets and trading liabilities are generally reported in *Principal transactions* and include realized gains and losses as well as unrealized gains and losses resulting from changes in the fair value of such instruments. Interest income on trading assets is recorded in *Interest income* reduced by interest expense on trading liabilities.

As part of its commodity trading activities, the Company trades various physical commodities including carbon emissions credits, base metals, natural gas and oil and other refined products. The Company's physical commodities inventory is carried at the lower of cost or market. The carrying amount of physical commodities inventory designated as part of a fair value hedge is adjusted for changes in fair value in accordance with ASC 815, *Derivatives and Hedging*.

Derivatives used for trading purposes include interest rate, currency, equity, credit and commodity swap agreements, options, caps and floors, warrants, and financial and commodity futures and forward contracts. Derivative asset and liability positions are presented net by counterparty on the Consolidated Statement of Financial Condition when a valid master netting agreement exists and the other conditions set out in ASC Topic 210-20, *Balance Sheet—Offsetting*, are met. See Note 9.

The Company uses a number of techniques to determine the fair value of trading assets and liabilities, which are described in Note 11.

Securities Borrowed and Securities Loaned
Securities borrowing and lending transactions do not constitute a sale of the underlying securities for accounting purposes and are treated as collateralized financing transactions. Such transactions are recorded at the amount of proceeds advanced or received plus accrued interest. As described in Note 12, the Company has elected to apply fair value accounting to a number of securities borrowing and lending transactions. Fees received or paid for all securities borrowing and lending transactions are recorded in *Interest income* or *Interest expense* at the contractually specified rate.

Where the conditions of ASC 210-20-45-1, *Balance Sheet—Offsetting: Right of Setoff Conditions*, are met, securities borrowing and lending transactions are presented net on the Consolidated Statement of Financial Condition.

The Company monitors the fair value of securities borrowed or loaned on a daily basis and obtains or posts additional collateral in order to maintain contractual margin protection.

As described in Note 11, the Company uses a discounted cash flow technique to determine the fair value of securities lending and borrowing transactions carried at fair value.

Repurchase and Resale Agreements
Securities sold under agreements to repurchase (repos) and securities purchased under agreements to resell (reverse repos) do not constitute a sale (or purchase) of the underlying securities for accounting purposes and are treated as collateralized financing transactions. As described in Note 12, the Company has elected to apply fair value accounting to certain portions of such transactions, with changes in fair value reported in earnings. Any transactions for which fair value accounting has not been elected, including all repo and reverse repo transactions with related parties, are recorded at the amount of cash advanced or received plus accrued interest. Irrespective of whether the Company has elected fair value accounting, interest paid or received on all repo and reverse repo transactions is recorded in *Interest expense* or *Interest income* at the contractually specified rate.

Where the conditions of ASC 210-20-45-11, *Balance Sheet—Offsetting: Repurchase and Reverse Repurchase Agreements*, are met, repos and reverse repos are presented net on the Consolidated Statement of Financial Condition.

The Company's policy is to take possession of securities purchased under reverse repurchase agreements. The Company monitors the fair value of securities subject to repurchase or resale on a daily basis and obtains or posts additional collateral in order to maintain contractual margin protection.

As described in Note 11, the Company uses a discounted cash flow technique to determine the fair value of repo and reverse repo transactions carried at fair value.

Allowances for Credit Losses (ACL)
The current expected credit losses (CECL) methodology is based on relevant information about past events, including historical experience, current conditions and reasonable and supportable forecasts that affect the collectability of the reported financial asset balances.

Secured Financing Transactions
Most of CGMHI's reverse repurchase agreements, securities borrowing arrangements and margin loans require that the borrower continually adjust the amount of the collateral securing CGMHI's interest, primarily resulting from changes in the fair value of such collateral. In such arrangements, ACLs are recorded based only on the amount by which the asset's amortized cost basis exceeds the fair value of the collateral. No ACLs are recorded where the fair value of the collateral is equal to or exceeds the asset's amortized cost basis, as CGMHI does not expect to incur credit losses on such well-collateralized exposures.

Brokerage Receivables and Brokerage Payables
The Company has receivables and payables for financial instruments sold to and purchased from brokers, dealers and customers, which arise in the ordinary course of business. The Company is exposed to risk of loss from the inability of brokers, dealers or customers to pay for purchases or to deliver the financial instruments sold, in which case the Company would have to sell or purchase the financial instruments at prevailing market prices. Credit risk is reduced to the extent that an exchange or clearing organization acts as a counterparty to the transaction and replaces the broker, dealer or customer in question.

The Company seeks to protect itself from the risks associated with customer activities by requiring customers to maintain margin collateral in compliance with regulatory and internal guidelines. Margin levels are monitored daily, and customers deposit additional collateral as required. Where customers cannot meet collateral requirements, the Company may liquidate sufficient underlying financial instruments to bring the customer into compliance with the required margin level.

Exposure to credit risk is impacted by market volatility, which may impair the ability of clients to satisfy their obligations to the Company. Credit limits are established and closely monitored for customers and for brokers and dealers engaged in forwards, futures and other transactions deemed to be credit sensitive. *Brokerage receivables* and *Brokerage payables* are accounted for in accordance with the AICPA Accounting Guide for Brokers and Dealers in Securities as codified in ASC 940-320.

Goodwill
Goodwill represents the excess of acquisition cost over the fair value of net tangible and intangible assets acquired in a business combination. Goodwill is subject to annual impairment testing and interim assessments between annual tests if an event occurs or circumstances change that would more-likely-than-not reduce the fair value of a reporting unit below its carrying amount.

The Company has an option to assess qualitative factors to determine if it is necessary to perform the goodwill impairment test. If, after assessing the totality of events or circumstances, the Company determines that it is not more-likely-than-not that the fair value of a reporting unit is less than its carrying amount, no further testing is necessary. If, however, the Company determines that it is more-likely-than-not that the fair value of a reporting unit is less than its carrying amount, then the Company must perform the quantitative test.

The Company has an unconditional option to bypass the qualitative assessment for any reporting unit in any reporting period and proceed directly to the quantitative test. The Company performed its annual goodwill impairment test as of October 1, 2023, which resulted in no impairment. No triggering events were identified and no goodwill was impaired during 2023.

Securitizations
There are two key accounting determinations that must be made relating to securitizations. The Company first makes a determination as to whether the securitization entity must be consolidated. Second, it determines whether the transfer of financial assets to the entity is considered a sale under GAAP. If the securitization entity is a VIE, the Company consolidates the VIE if it is the primary beneficiary (as discussed in "Variable Interest Entities" above). For all other securitization entities determined not to be VIEs in which the Company participates, consolidation is based on which party has voting control of the entity, giving consideration to removal and liquidation rights in certain partnership structures. Only securitization entities controlled by the Company are consolidated.

Interests in the securitized and sold assets may be retained in the form of subordinated or senior interest-only strips, subordinated tranches and residuals. In the case of consolidated securitization entities, these retained interests are not reported on the Company's Consolidated Statement of Financial Condition. Retained interests in non-consolidated mortgage securitization trusts are classified as *Trading account assets*.

Debt
Short-term borrowings and *Long-term debt* are accounted for at amortized cost, except where the Company has elected to report the debt instruments (including certain structured notes) at fair value.

Transfers of Financial Assets
For a transfer of financial assets to be considered a sale: (i) the assets must be legally isolated from the Company, even in bankruptcy or other receivership, (ii) the purchaser must have the right to pledge or sell the assets transferred (or, if the purchaser is an entity whose sole purpose is to engage in securitization and asset-backed financing activities through the issuance of beneficial interests and that entity is constrained from pledging the assets it receives, each beneficial interest holder must have the right to sell or pledge their beneficial interests), and (iii) the Company may not have an option or obligation to reacquire the assets.

If these sale requirements are met, the assets are removed from the Company's Consolidated Statement of Financial Condition. If the conditions for sale are not met, the transfer is considered to be a secured borrowing, the assets remain on the Consolidated Statement of Financial Condition and the sale proceeds are recognized as the Company's liability. A legal opinion on a sale generally is obtained for complex transactions or where the Company has continuing involvement with the assets transferred or with the securitization entity. For a transfer to be eligible for sale accounting, that opinion must state that the asset transfer would be considered a sale and that the assets transferred would not be consolidated with the Company's other assets in the event of the Company's insolvency. See Note 8 for further discussion.

Risk Management Activities—Derivatives Used for Hedging Purposes
The Company manages its exposures to market movements outside of its trading activities through the use of derivative financial products, including interest rate swaps and commodity futures. These end-user derivatives are carried at fair value. See Note 9 for a further discussion of the Company's hedging and derivative activities.

Instrument-Specific Credit Risk
The Company presents separately in *AOCI* the portion of the total change in the fair value of a liability resulting from a change in the instrument-specific credit risk, when the entity has elected to measure the liability at fair value in accordance with the fair value option for financial instruments. Accordingly, the change in fair value of liabilities for which the fair value option was elected related to changes in Citigroup's own credit spreads is presented in *AOCI*.

Employee Benefits Expense
Employee benefits expense includes current service costs of pension and other postretirement benefit plans (which are accrued on a current basis), contributions and unrestricted awards under other employee plans, the amortization of restricted stock awards and costs of other employee benefits. Benefits earned during the year are reported in *Compensation and benefits expenses* in the Consolidated Statement of Operations. See Note 3.

Stock-Based Compensation
The Company recognizes compensation expense related to Citigroup stock awards over the requisite service period, generally based on the instruments' grant-date fair value, reduced by actual forfeitures as they occur. Compensation cost related to awards granted to employees who meet certain age plus years-of-service requirements (retirement-eligible employees) is accrued in the year prior to the grant date in the same manner as the accrual for cash incentive compensation. Certain stock awards with performance conditions or certain clawback provisions are subject to variable accounting, pursuant to which the associated compensation expense fluctuates with changes in Citigroup's common stock price. See Note 3.

Restructuring
CGMHI incurred restructuring charges of approximately $132 million in the fourth quarter related to the implementation of Citigroup's organizational simplification initiatives. These charges related to severance costs associated with actual headcount reductions (as well as those headcount reductions that were probable and could be reasonably estimated).

Income Taxes
The Company is subject to the income tax laws of the U.S. and its states and municipalities, as well as the non-U.S. jurisdictions in which it operates. These tax laws are complex and may be subject to different interpretations by the taxpayer and the relevant governmental taxing authorities. In establishing a provision for income tax expense, the Company must make judgments and interpretations about these tax laws. The Company must also make estimates about when in the future certain items will affect taxable income in the various tax jurisdictions, both domestic and foreign.

Disputes over interpretations of the tax laws may be subject to review and adjudication by the court systems of the various tax jurisdictions, or may be settled with the taxing authority upon examination or audit. The Company treats interest and penalties on income taxes as a component of *Provision (benefit) for income taxes*.

Deferred taxes are recorded for the future consequences of events that have been recognized in financial statements or tax returns, based upon enacted tax laws and rates. Deferred tax assets are recognized subject to management's judgment about whether realization is more-likely-than-not. ASC 740, *Income Taxes*, sets out a consistent framework to determine the appropriate level of tax reserves to maintain for uncertain tax positions. This interpretation uses a two-step approach wherein a tax benefit is recognized if a position is more-likely-than-not to be sustained. The amount of the benefit is then measured to be the highest tax benefit that is more than 50% likely to be realized. ASC 740 also sets out disclosure requirements to enhance transparency of an entity's tax reserves.

See Note 4 for a further description of the Company's tax provision and related income tax assets and liabilities.

Investment Banking
Investment banking fees are substantially composed of underwriting and advisory revenues. Such fees are recognized at the point in time when CGMHI's performance under the terms of a contractual arrangement is completed, which is typically at the closing of a transaction. Reimbursed expenses related to these transactions are recorded as revenue and are included within investment banking fees. In certain instances for advisory contracts, CGMHI will receive amounts in advance of the deal's closing. In these instances, the amounts received will be recognized as a liability and not recognized in revenue until the transaction closes. For the periods presented, the contract liability amount was negligible.

Out-of-pocket expenses associated with underwriting activity are deferred and recognized at the time the related revenue is recognized, while out-of-pocket expenses associated with advisory arrangements are expensed as incurred. In general, expenses incurred related to investment banking transactions, whether consummated or not, are recorded in *Other operating and administrative expenses*. The Company has determined that it acts as principal in the majority of these transactions and therefore presents expenses gross within *Other operating and administrative expenses*.

Principal Transactions
CGMHI's *Principal transactions* revenues are recognized in income on a trade-date basis and consist of realized and unrealized gains and losses from trading activities. See Note 2 for details of CGMHI's *Principal transactions* revenue.

Commissions and Fees
Commissions and fees revenues primarily include brokerage commissions and fees from the following: executing transactions for clients on exchanges and over-the-counter markets; sales of mutual funds and other annuity products; and assisting clients in clearing transactions, providing brokerage services and other such activities. Brokerage commissions are recognized in *Commissions and fees* at the point in time the associated service is fulfilled, generally on the trade execution date. Certain costs paid to third-party clearing houses and exchanges are recorded net against commission revenue, as the Company is an agent for those services. Sales of certain investment products include a portion of variable consideration associated with the

underlying product. In these instances, a portion of the revenue associated with the sale of the product is not recognized until the variable consideration becomes fixed and determinable. The Company recognized $121 million, $131 million and $146 million of revenue related to such variable consideration for the years ended December 31, 2023, 2022 and 2021, respectively. These amounts primarily relate to performance obligations satisfied in prior periods.

Fiduciary Fees

Fiduciary fees revenue consists of trust services and investment management services. As an escrow agent, CGMHI receives, safekeeps, services and manages clients' escrowed assets, such as cash, securities, property (including intellectual property), contracts or other collateral. CGMHI performs its escrow agent duties by safekeeping the assets during the specified time period agreed upon by all parties and therefore earns its revenue evenly during the contract duration. Investment management services consist of managing assets on behalf of CGMHI's retail and institutional clients. Revenue from these services primarily consists of asset-based fees for advisory accounts, which are based on the market value of the client's assets and recognized monthly, when the market value is fixed. In some instances, the Company contracts with third-party advisors and with third-party custodians. The Company has determined that it acts as principal in the majority of these transactions and therefore presents the amounts paid to third parties gross within *Other operating and administrative expenses*.

Related Party Transactions

The Company has related party transactions with certain of its subsidiaries and affiliates. These transactions, which are primarily short-term in nature, include cash accounts, collateralized financing transactions, margin accounts, derivative transactions, charges for operational support and the borrowing and lending of funds, and are entered into in the ordinary course of business. See Note 15 for details on the Company's related party transactions.

ACCOUNTING CHANGES

Reference Rate Reform

On December 21, 2022, the Financial Accounting Standards Board (FASB) issued ASU No. 2022-06, *Reference Rate Reform (Topic 848): Deferral of the Sunset Date of Topic 848*, which extends the period of time preparers can utilize the reference rate reform relief guidance. In 2020, the FASB issued ASU No. 2020-04, *Reference Rate Reform (Topic 848): Facilitation of the Effects of Reference Rate Reform on Financial Reporting*, which provides optional guidance to ease the potential burden in accounting for (or recognizing the effects of) reference rate reform on financial reporting. In 2021, the U.K. Financial Conduct Authority (FCA) delayed the intended cessation date of certain tenors of USD LIBOR to June 30, 2023. To ensure that the relief in Topic 848 covers the period of time during which a significant number of modifications may take place, the ASU defers the sunset date of Topic 848 from December 31, 2022 to December 31, 2024. The extension allows CGMHI to transition its remaining contracts and maintain hedge accounting. The ASU was adopted by CGMHI upon issuance and did not impact financial results in 2022.

Multiple Macroeconomic Scenarios-Based ACL Approach

During the second quarter of 2022, the Company refined its ACL methodology to utilize multiple macroeconomic scenarios to estimate its allowance for credit losses. The ACL was previously estimated using a combination of a single base-case forecast scenario as part of its quantitative component and a component of its qualitative management adjustment that reflects economic uncertainty from downside macroeconomic scenarios. As a result of this change, the Company now explicitly incorporates multiple macroeconomic scenarios—base, upside, and downside—and associated probabilities in the quantitative component when estimating its ACL, while still retaining certain of its qualitative management adjustments.

This refinement represents a "change in accounting estimate" under ASC Topic 250, *Accounting Changes and Error Corrections,* with prospective application beginning in the period of change. This change in accounting estimate did not have a material impact on the Company.

FUTURE ACCOUNTING CHANGES

Accounting for and Disclosure of Crypto Assets

In December 2023, the FASB issued ASU No. 2023-08, *Intangibles—Goodwill and Other—Crypto Assets (Subtopic 350-60): Accounting for and Disclosure of Crypto Assets*, intended to improve the accounting for certain crypto assets by requiring an entity to measure those assets at fair value each reporting period, with changes in fair value recognized in net income. The amendments also improve the information provided to investors about an entity's crypto asset holdings by requiring disclosure about significant holdings, contractual sale restrictions and changes during the reporting period. The guidance is effective for fiscal years beginning after December 15, 2024, and interim periods within those fiscal years with early adoption permitted. CGMHI does not hold any crypto assets within the scope of the guidance.

Income Taxes (Topic 740): Improvements to Income Tax Disclosures

In December 2023, the FASB issued ASU No. 2023-09, *Income Taxes (Topic 740): Improvements to Income Tax Disclosures*, intended to enhance the transparency and decision usefulness of income tax disclosures. This guidance requires that public business entities disclose on an annual basis a tabular rate reconciliation in eight specific categories disaggregated by nature and for foreign tax effects by jurisdiction that meet a 5% of pretax income multiplied by the applicable statutory tax rate or greater threshold annually. The eight categories include state and local income taxes, net of federal income tax effect; foreign tax effects; enactment of new tax laws or tax credits; effect of cross-border tax laws; valuation allowances; nontaxable items and nondeductible items; and changes in unrecognized tax benefits. Additional disclosures include qualitative description of the state and local jurisdictions that contribute to the majority (greater than 50%) of the effect of the state and local income tax category and explanation of the nature and effect of changes in individual reconciling items. The guidance also requires entities annually to disclose income taxes paid (net of refunds received) disaggregated by federal, state and foreign taxes and by jurisdiction identified based on the same 5% quantitative threshold.

The standard is effective for fiscal years beginning after December 15, 2024. The transition method is prospective with the retrospective method permitted. CGMHI plans to adopt the ASU for the annual reporting period beginning on January 1, 2025, and is currently evaluating the impact on disclosures.

Fair Value Measurement of Equity Securities Subject to Contractual Sale Restrictions

In June 2022, the FASB issued ASU No. 2022-3, *Fair Value Measurement (Topic 820): Fair Value Measurement of Equity Securities Subject to Contractual Sale Restrictions*. The ASU was issued to address diversity in practice whereby certain entities included the impact of contractual restrictions when valuing equity securities, and it clarifies that a contractual restriction on the sale of an equity security should not be considered part of the unit of account of the equity security and, therefore, should not be considered in measuring fair value. The ASU also includes requirements for entities to disclose the fair value of equity securities subject to contractual sale restrictions, the nature and remaining duration of the restrictions and the circumstances that could cause a lapse in the restrictions.

CGMHI adopted the ASU on January 1, 2024, which did not have a material impact to the financial statements of the Company.

2. PRINCIPAL TRANSACTIONS

Principal transactions revenue consists of realized and unrealized gains and losses from trading activities. Trading activities include revenues from fixed income, equities, credit and commodities products and foreign exchange transactions that are managed on a portfolio basis and characterized below based on the primary risk managed by each trading desk (as such, the trading desks can be periodically reorganized and thus the risk categories). Not included in the table below is the impact of net interest income related to trading activities, which is an integral part of trading activities' profitability. Principal transactions include CVA (credit valuation adjustments) and FVA (funding valuation adjustments) on over-the-counter derivatives. These adjustments are discussed further in Note 11.

In certain transactions, CGMHI incurs fees and presents these fees paid to third parties in operating expenses. The following table presents *Principal transactions* revenue:

In millions of dollars	2023	2022	2021
Interest rate risks (1)	$ 545	$ 1,289	$ 1,271
Credit products and risks (2)	1,100	474	760
Commodity and other risks (3)	953	1,405	655
Equity risks (4)	(135)	252	635
Foreign exchange risks (5)	4	36	5
Total principal transactions revenue	$ 2,467	$ 3,456	$ 3,326

(1) Includes revenues from government securities, municipal securities, mortgage securities and other debt instruments. Also includes spot and forward trading of currencies and over-the-counter (OTC) currency options, options on fixed income securities, interest rate swaps, currency swaps, swap options, caps and floors, financial futures, OTC options and forward contracts on fixed income securities.

(2) Includes revenues from corporate debt, mortgage securities, single name and index credit default swaps, and structured credit products.

(3) Primarily includes revenues from crude oil, refined oil products, natural gas and other commodities trades.

(4) Includes revenues from common, preferred and convertible preferred stock, convertible corporate debt, equity-linked notes and exchange-traded and OTC equity options and warrants.

(5) Includes revenues from foreign exchange spot, forward, option and swap contracts, as well as foreign currency translation gains and losses.

3. INCENTIVE PLANS AND EMPLOYEE BENEFITS

Discretionary Annual Incentive Awards

Citigroup grants immediate cash bonus payments and various forms of immediate and deferred awards as part of its discretionary annual incentive award program involving a large segment of Citigroup's employees worldwide, including employees of CGMHI.

Discretionary annual incentive awards are generally awarded in the first quarter of the year based on the previous year's performance. Awards valued at less than U.S. $75,000 (or the local currency equivalent) are generally paid entirely in the form of an immediate cash bonus. Pursuant to Citigroup policy and/or regulatory requirements, certain employees are subject to mandatory deferrals of incentive pay and generally receive 15%–60% of their awards in the form of deferred stock and deferred cash stock units. Discretionary annual incentive awards to certain employees in the EU are subject to deferral requirements regardless of the total award value, with at least 50% of the immediate incentive delivered in the form of a stock payment award subject to a restriction on sale or transfer (generally, for 12 months).

For deferred incentive awards granted in 2022 and after, Citigroup changed the annual deferred compensation structure for certain regulated employees from granting deferred cash awards to deferred stock awards. Certain employees located in countries that have regulations or tax advantages for offering deferred cash or deferred cash stock units received those types of awards as a part of their annual incentive compensation rather than deferred stock.

Subject to certain exceptions (principally, for retirement-eligible employees), continuous employment within Citigroup is required to vest in deferred annual incentive awards. Post employment vesting by retirement-eligible employees and participants who meet other conditions is generally conditioned upon their compliance with certain restrictions during the remaining vesting period.

Generally, the deferred awards vest in equal annual installments over three- or four-year periods. Vested stock awards are delivered in shares of common stock. Deferred cash awards are payable in cash and, except as prohibited by applicable regulatory guidance, earn a fixed notional rate of interest that is paid only if and when the underlying principal award amount vests. Deferred cash stock unit awards are payable in cash at the vesting value of the underlying stock. The value of each deferred stock unit is equal to one share of Citigroup stock, and the award will fluctuate with changes in the stock price. Recipients of deferred stock awards and deferred cash stock unit awards, however, may, except as prohibited by applicable regulatory guidance, be entitled to receive or accrue dividend-equivalent payments during the vesting period. Generally, in the EU, vested shares are subject to a restriction on sale or transfer after vesting, and vested deferred cash awards and deferred cash stock units are subject to hold back (generally, for 6 or 12 months based on award type).

Stock awards, deferred cash stock units and deferred cash awards are subject to one or more cancellation and clawback provisions that apply in certain circumstances, including gross misconduct.

Outstanding (Unvested) Stock Awards

A summary of the unvested stock awards granted as discretionary annual incentive or sign-on and replacement stock awards to employees of CGMHI for each respective year end is presented below:

Unvested stock awards	Shares	Weighted-average grant date fair value per share
Unvested at December 31, 2022	23,355,166	$ 64.90
Granted	17,762,173	48.76
Canceled	(649,329)	65.39
Vested (1)	(8,118,499)	65.22
Unvested at December 31, 2023	32,349,511	$ 55.95

(1) The weighted-average fair value of the shares vesting during 2023 was approximately $49.72 per share on the vesting date, compared to $65.22 on the grant date.

CGMHI did not capitalize any stock-based compensation costs in 2023. Total unrecognized compensation cost related to unvested stock awards for CGMHI employees was $587 million at December 31, 2023. The cost is expected to be recognized over a weighted-average period of 1.7 years.

Performance Share Units

Certain senior executives were awarded performance share units (PSUs) every February from 2020 to 2023, for performance in the year prior to the award date based on two performance metrics. For PSUs awarded in 2020, those metrics were return on average tangible common equity and earnings per share. For PSUs awarded in 2022 and 2023, the metrics were average return on tangible common equity and cumulative tangible book value per share. In each year, the metrics were equally weighted.

For all award years, if the total shareholder return is negative over the three-year performance period, executives may earn no more than 100% of the target PSUs, regardless of the extent to which Citigroup outperforms against performance goals and/or peer firms. The number of PSUs ultimately earned could vary from zero, if performance goals are not met, to as much as 150% of target, if performance goals are meaningfully exceeded. The reported financial metrics during the performance period are adjusted to reflect any mandatory equitable adjustments as required under the applicable award agreements for unusual and non-recurring items as presented to and approved by the Compensation, Performance Management and Culture (CPC) Committee.

For all award years, the value of each PSU is equal to the value of one share of Citigroup common stock. Dividend equivalents are forfeitable, or accrued and paid on the number of earned PSUs after the end of the performance period.

PSUs are subject to variable accounting, pursuant to which the associated value of the award will fluctuate with changes in Citigroup's stock price and the attainment of the specified performance goals for each award. The award is settled solely in cash after the end of the performance period. The value of the award, subject to the performance goals and taking into account any mandatory equitable adjustments per the terms of the award agreement, is estimated using a Citigroup simulation model that incorporates multiple valuation assumptions, including the probability of achieving the specified performance goals of each award. The risk-free rate used in the model is based on the applicable U.S. Treasury yield curve. Other significant assumptions for the awards are as follows:

Valuation assumptions—weighted average	2023	2022
Expected volatility	35.97%	37.01%
Expected dividend yield	4.13	2.96

There were 132,603 outstanding PSUs to employees of CGMHI at December 31, 2023, all of which were issued in 2023. The weighted-average grant date fair value per unit of the granted and outstanding awards is $47.15. No payments were processed for PSU awards in 2023.

Transformation Program

In order to provide an incentive for select employees to effectively execute Citigroup's transformation program, in August 2021 the Personnel and Compensation (P&C) Committee of Citigroup's Board of Directors, the predecessor of the Compensation, Performance Management and Culture (CPC) Committee of Citigroup's Board of Directors, approved a program for the select employees to earn additional compensation based on the achievement of Citigroup's transformation goals from August 2021 through December 2024 and satisfaction of other conditions. Performance under the program is divided into three consecutive periods, ending on December 31, 2022, 2023 and 2024. The awards are subject to variable accounting, pursuant to which the associated value of the award will fluctuate with the attainment of the performance conditions for each tranche and changes to Citigroup's stock price for the third tranche. Payment for each period will be in cash, in a lump sum, with the third payment indexed to changes in the value of Citigroup's common stock from the service inception date through the payment date. Earnings generally will be based on collective performance with respect to Citigroup's transformation goals and will be evaluated and approved by the CPC Committee on an annual basis.

Payments in the event of any category of employment termination or change in job title or employment status are subject to Citigroup's discretion. Cancellation and clawback are provided for in the event of misconduct and certain other circumstances. The program applies to senior leaders, other than Citigroup's CEO, critical to helping deliver a successful transformation with the value of the awards varying based on individual compensation levels.

Other Variable Incentive Compensation

Employees of CGMHI participate in various incentive plans globally that are used to motivate and reward performance primarily in the areas of sales, operational excellence and customer satisfaction. Participation in these plans is generally limited to employees who are not eligible for discretionary annual incentive awards. Other forms of variable compensation include commissions paid to financial advisors.

Summary

Except for awards subject to variable accounting, the total expense recognized for stock awards represents the grant date fair value of such awards, which is generally recognized as a charge to income ratably over the vesting period, other than for awards to retirement-eligible employees and immediately vested awards. Whenever awards are granted or are expected to be granted to retirement-eligible employees, the charge to income is accelerated based on when the applicable conditions for retirement eligibility were or will be met. If the employee is retirement eligible on the grant date, or the award is vested at the grant date, the Company recognizes the expense each year equal to the grant date fair value of the awards that it estimates will be granted in the following year.

Recipients of Citigroup stock awards generally do not have any stockholder rights until shares are delivered upon vesting. Recipients of stock-settled awards and other vested stock awards subject to a sale-restriction period are generally entitled to vote the shares in their award and receive dividends on such shares during the sale-restriction period. Once a stock award vests, the shares delivered to the participant are freely transferable, unless they are subject to a restriction on sale or transfer for a specified period.

Incentive Compensation Cost

The following table presents components of CGMHI compensation expense, relating to the incentive compensation programs described above:

In millions of dollars	2023	2022	2021
Charges for estimated awards to retirement-eligible employees	$ 275	$ 346	$ 422
Amortization of deferred cash awards, deferred cash stock units and performance stock units	139	212	197
Immediately vested stock award expense(1)	71	57	61
Amortization of restricted and deferred stock awards (2)	381	299	242
Other variable incentive compensation	109	88	115
Total	$ 975	$ 1,002	$ 1,037

(1) Represents expense for immediately vested stock awards that generally were stock payments in lieu of cash compensation. The expense is generally accrued as cash incentive compensation in the year prior to grant.
(2) All periods include amortization expense for all unvested awards to non-retirement-eligible employees.
(3) CGMHI recognized an additional $14 million of compensation costs in 2023 that is reflected in the *Restructuring* line (not reflected in the above totals). See Note 1.

Pension, Postretirement, Post Employment and Defined Contribution Plans

The Company participates in several non-contributory defined benefit pension plans sponsored by Citigroup Inc. covering certain U.S. employees and has various defined benefit pension and termination indemnity plans covering employees outside the U.S.

Citigroup's U.S. qualified defined benefit plan was frozen effective January 1, 2008 for most employees. Accordingly, no additional compensation-based contributions have been credited to the cash balance portion of the plan for existing plan participants after 2007. However, certain employees covered under the prior final pay plan formula continue to accrue benefits.

The Company also participates in postretirement health care and life insurance benefits offered by Citigroup Inc. to certain eligible U.S. retired employees, as well as to certain eligible employees outside the U.S.

The Company also participates in a number of non-contributory, nonqualified pension plans. These plans, which are unfunded, provide supplemental defined pension benefits to certain U.S. employees. With the exception of certain employees covered under the prior final pay plan formula, the benefits under these plans were frozen in prior years.

Citigroup sponsors U.S. post employment plans that provide income continuation and health and welfare benefits to certain eligible U.S. employees on long-term disability.

The Company participates in defined contribution plans in the U.S. and in certain non-U.S. locations, all of which are administered in accordance with local laws. The most significant defined contribution plan is the Citi Retirement Savings Plan sponsored by Citigroup in the U.S.

Under the Citi Retirement Savings Plan, eligible U.S. employees received matching contributions of up to 6% of their eligible compensation for 2023 and 2022, subject to statutory limits. In addition, for eligible employees whose eligible compensation is $100,000 or less, a fixed contribution of up to 2% of eligible compensation is provided. All contributions from the plan sponsor are invested according to participants' individual elections.

The Company's allocated pretax expense associated with the Citigroup pension, postretirement, post employment and defined contribution plans amounted to approximately $184 million, $161 million, and $146 million for the years ended December 31, 2023, 2022 and 2021, respectively.

Health Care and Life Insurance Plans
The Company, through Citigroup, offers certain health care and life insurance benefits to its employees. The Company's allocated share of the related pretax expense associated with Citigroup health care and life insurance benefits amounted to approximately $113 million, $104 million, and $97 million for the years ended December 31, 2023, 2022 and 2021, respectively.

4. INCOME TAXES

The Company's U.S. federal, state and local income taxes, and state and local unitary deferred taxes, are determined based on an income tax sharing agreement with Citigroup. Under the tax sharing agreement, the Company settles its current tax liability with Citigroup throughout the year, except for any tax liabilities expected to be payable as a separate taxpayer.

The Company is included in the consolidated U.S. federal income tax return and unitary and combined state returns of Citigroup and combined subsidiaries. The Company's federal income taxes are calculated on a modified separate return method. Under this method, the Company is assumed to file a separate tax return with the taxing authority, thereby, reporting its taxable income or loss and paying the applicable tax or receiving the appropriate refund from Citigroup Inc. Under the income tax sharing agreement, the Company's unitary state and local taxes are calculated based on the Company's contributions to the state apportionment factors, which may be a function of state gross receipts, property and/or payroll depending on the state.

The apportionment of state and local taxes related to certain jurisdictions includes income tax allocations of items reflected in *Other comprehensive income (loss)* (OCI) by Citigroup, such as unrealized gains and losses on debt securities, benefit plan liability adjustments and changes in foreign currency translation adjustments.

Income Tax Provision
Details of the Company's income tax provision are presented below:

In millions of dollars	2023	2022	2021
Current tax provision (benefit):			
Federal	$ (147)	$ (42)	$ 397
Non-U.S.	54	168	242
State and local	(100)	43	(17)
Total current tax provision	(193)	169	622
Deferred tax provision (benefit):			
Federal	(122)	30	(64)
Non-U.S.	15	12	28
State and local	255	(494)	233
Total deferred tax provision (benefit)	148	(452)	197
Provision (benefit) for income taxes	(45)	(283)	819
Income tax expense (benefit) reported in stockholder's equity related to:			
Income tax allocations from Citigroup of items reflected in Other comprehensive income	(100)	102	15
Income taxes	$ (145)	$ (181)	$ 834

The Company paid taxes of $225 million, $363 million and $920 million in 2023, 2022 and 2021, respectively. As of December 31, 2023, the Company had federal, state and local and foreign income taxes receivable in the amount of $1,140 million.

Tax Rate

The reconciliation of the federal statutory income tax rate to the Company's effective income tax rate applicable to income (before the cumulative effect of accounting changes) for each of the periods indicated is as follows:

	2023	2022	2021
Federal statutory rate	21%	21%	21%
State income taxes, net of federal benefit	(15)	83	9
Non-U.S. income tax rate differential	(4)	(22)	(2)
Tax advantaged investments	1	5	(1)
Tax audit resolutions	2	—	—
Effect of tax law changes	4	(3)	(2)
State and local valuation allowance	(1)	—	(2)
Consolidated VIEs	(5)	(13)	2
Other, net	1	(7)	2
Effective income tax rate	4%	64%	27%

Deferred Income Taxes

Deferred income taxes at December 31 related to the following:

In millions of dollars	2023	2022
Deferred tax assets		
Tax credit and net operating loss carry-forwards	$ 1,709	$ 1,951
Allocated deferred state taxes	625	815
Investments	622	601
Deferred compensation and employee benefits	458	300
U.S tax on non-U.S. earnings	351	256
Fixed assets and leases	373	390
Debt issuances	45	—
Restructuring and settlement reserves	34	22
Credit loss deduction	12	10
Other deferred tax assets	111	167
Gross deferred tax assets	4,340	4,512
Valuation allowance	374	296
Deferred tax assets after valuation allowance	3,966	4,216
Deferred tax liabilities		
Federal impact on state taxes	(452)	(502)
Intangibles	(208)	(187)
Debt issuances	—	(89)
Intercompany debt underwriting fees	(57)	(74)
Non-U.S. withholding taxes	(62)	(47)
Other deferred tax liabilities	(13)	(49)
Gross deferred tax liabilities	(792)	(948)
Net deferred tax assets	$ 3,174	$ 3,268

Unrecognized Tax Benefits

The following is a rollforward of the Company's unrecognized tax benefits:

In millions of dollars	2023	2022	2021
Total unrecognized tax benefits at January 1	$ 54	$ 57	$ 72
Net amount of increases for current year's tax positions	1	1	2
Gross amount of increases for prior years' tax positions	19	3	3
Gross amount of decreases for prior years' tax positions	(36)	(5)	(20)
Amounts of decreases relating to settlements	—	(1)	—
Reductions due to lapse of statutes of limitation	—	—	—
Foreign exchange, acquisitions and dispositions	(1)	(1)	—
Total unrecognized tax benefits at December 31	$ 37	$ 54	$ 57

The portions of the total unrecognized tax benefits at December 31, 2023, 2022 and 2021 that, if recognized, would affect CGMHI's tax expense are $33 million, $40 million and $20 million, respectively.

Interest and penalties (not included in unrecognized tax benefits above) are a component of *Provision (benefit) for income taxes*.

	2023		2022		2021	
In millions of dollars	Pretax	Net of tax	Pretax	Net of tax	Pretax	Net of tax
Total interest and penalties on the Consolidated Statement of Financial Condition at January 1	$ 1	$ 1	$ 2	$ 2	$ —	$ —
Total interest and penalties in the Consolidated Statement of Income	7	5	1	—	2	2
Total interest and penalties on the Consolidated Statement of Financial Condition at December 31	7	6	1	1	2	2

As of December 31, 2023, the Company was under audit by the Internal Revenue Service and other major taxing jurisdictions around the world. It is thus reasonably possible that significant changes in the gross balance of unrecognized tax benefits may occur within the next 12 months, although the Company does not expect such audits to result in amounts that would cause a significant change to its effective tax rate.

The following are the major tax jurisdictions in which the Company and its affiliates operate and the earliest tax year subject to examination:

Jurisdiction	**Tax year**
United States	2016
New York State and City	2012
California	2016
United Kingdom	2016

Non-U.S. Earnings

Non-U.S. pretax earnings approximated $55 million in 2023, $531 million in 2022 and $1,193 million in 2021. As a U.S. corporation, CGMHI and its U.S. subsidiaries are currently subject to U.S. taxation on all non-U.S. pretax earnings of non-U.S. branches. Beginning in 2018, there is a separate foreign tax credit (FTC) basket for branches. Also, dividends from a non-U.S. subsidiary or affiliate are effectively exempt from U.S. taxation. The Company provides income taxes on the book over tax basis differences of non-U.S. subsidiaries except to the extent that such differences are indefinitely reinvested outside the U.S.

At December 31, 2023, there are no basis differences of non-U.S. entities that was indefinitely invested. Although no US income taxes would need to be provided, withholding taxes of $26 million would have to be provided if unrepatriated earnings were distributed.

Deferred Tax Assets

At December 31, 2023, the Company had a valuation allowance of $374 million, an increase of $78 million from the balance at December 31, 2022. The increase in the valuation allowance balance mainly relates to the U.S. residual DTAs on the non-U.S. branches. The December 31, 2023 valuation allowance is comprised of $347 million on its U.S. residual DTA related to its non-U.S. branches, $1 million on its FTC carry-forwards, $10 million on state and local net operating loss, $15 million of state and local capital loss carry-forwards, and $1 million on its non-U.S. DTAs. The valuation allowance against U.S. residual DTAs on non-U.S. branches and FTCs results from the impact of the lower tax rate and the new separate FTC basket for non-U.S. branches, as well as the diminished ability under Tax Reform to generate income from sources outside the U.S. to support utilization. The absolute amount of the Company's post-Tax Reform-related valuation allowance may change in future years since the separate FTC basket for non-U.S. branches will result in additional DTAs (for FTCs) requiring a valuation allowance, given that the local tax rate for these branches exceeds on average the U.S. tax rate of 21%. Although realization is not assured, the Company believes that the realization of the recognized net DTAs of $3.2 billion at December 31, 2023 is more-likely-than-not, based upon expectations as to future taxable income in the jurisdictions in which the DTAs arise and consideration of available tax planning strategies (as defined in ASC 740, *Income Taxes*).

Foreign tax credit carry-forwards expire in 2031 and state and local net operating loss (NOL) carry-forwards expire in 2034. In addition, the Company has NOL carry-forwards related to non-consolidated tax return companies that are eventually expected to be utilized in Citigroup's consolidated tax return, and that expire between 2027 and 2031.

5. SECURITIES BORROWED, LOANED AND SUBJECT TO REPURCHASE AGREEMENTS

Securities borrowed and purchased under agreements to resell, at their respective carrying values, consisted of the following:

	December 31,	
In millions of dollars	2023	2022
Securities purchased under agreements to resell (including $165,838 and $194,362 as of December 31, 2023 and 2022, respectively, at fair value)	$ 208,908	$ 235,297
Deposits paid for securities borrowed (including $21,881 and $27,772 as of December 31, 2023 and 2022, respectively, at fair value)	74,266	70,976
Total (1)	$ 283,174	$ 306,273

Securities loaned and sold under agreements to repurchase, at their respective carrying values, consisted of the following:

In millions of dollars	December 31, 2023	December 31, 2022
Securities sold under agreements to repurchase (including $61,851 and $66,255 as of December 31, 2023 and 2022, respectively, at fair value)	$ 296,349	$ 227,073
Deposits received for securities loaned (including $584 and $134 as of December 31, 2023 and 2022, respectively, at fair value)	13,513	18,843
Total (1)	$ 309,862	$ 245,916

(1) The above tables do not include securities-for-securities lending transactions of $4.3 billion and $4.4 billion at December 31, 2023 and 2022, respectively, where the Company acts as lender and receives securities that can be sold or pledged as collateral. In these transactions, the Company recognizes the securities received at fair value within *Other assets* and the obligation to return those securities as a liability within *Brokerage payables*.

The resale and repurchase agreements represent collateralized financing transactions. The Company executes these transactions primarily through its broker-dealer subsidiaries to facilitate customer matched-book activity and to efficiently fund a portion of the Company's trading inventory.

To maintain reliable funding under a wide range of market conditions, including under periods of stress, CGMHI manages these activities by taking into consideration the quality of the underlying collateral and stipulating financing tenor. CGMHI manages the risks in its collateralized financing transactions by conducting daily stress tests to account for changes in capacity, tenors, haircut, collateral profile and client actions. In addition, CGMHI maintains counterparty diversification by establishing concentration triggers and assessing counterparty reliability and stability under stress.

It is the Company's policy to take possession of the underlying collateral, monitor its market value relative to the amounts due under the agreements and, when necessary, require prompt transfer of additional collateral in order to maintain contractual margin protection. For resale and repurchase agreements, when necessary, the Company posts additional collateral in order to maintain contractual margin protection.

Collateral typically consists of government and government-agency securities, corporate and municipal bonds, equities and mortgage- and other asset-backed securities.

The resale and repurchase agreements are generally documented under industry standard agreements that allow the prompt close-out of all transactions (including the liquidation of securities held) and the offsetting of obligations to return cash or securities by the non-defaulting party, following a payment default or other type of default under the relevant master agreement. Events of default generally include (i) failure to deliver cash or securities as required under the transaction, (ii) failure to provide or return cash or securities as used for margining purposes, (iii) breach of representation, (iv) cross-default to another transaction entered into among the parties, or, in some cases, their affiliates, and (v) a repudiation of obligations under the agreement. The counterparty that receives the securities in these transactions is generally unrestricted in its use of the securities, with the exception of transactions executed on a tri-party basis, where the collateral is maintained by a custodian and operational limitations may restrict its use of the securities.

A substantial portion of the resale and repurchase agreements is recorded at fair value as the Company elected the fair value option, as described in Notes 11 and 12. The remaining portion is carried at the amount of cash initially advanced or received, plus accrued interest, as specified in the respective agreements.

The securities borrowing and lending agreements also represent collateralized financing transactions similar to the resale and repurchase agreements. Collateral typically consists of government and government-agency securities and corporate debt and equity securities.

Similar to the resale and repurchase agreements, securities borrowing and lending agreements are generally documented under industry standard agreements that allow the prompt close-out of all transactions (including the liquidation of securities held) and the offsetting of obligations to return cash or securities by the non-defaulting party, following a payment default or other default by the other party under the relevant master agreement. Events of default and rights to use securities under the securities borrowing and lending agreements are similar to the resale and repurchase agreements referenced above.

A substantial portion of securities borrowing and lending agreements is recorded at the amount of cash advanced or received. The remaining portion is recorded at fair value as the Company elected the fair value option for certain securities borrowed and loaned portfolios, as described in Note 12. With respect to securities loaned, the Company receives cash collateral in an amount generally in excess of the market value of the securities loaned. The Company monitors the market value of securities borrowed and securities loaned on a daily basis and posts or obtains additional collateral in order to maintain contractual margin protection.

The enforceability of offsetting rights incorporated in the master netting agreements for resale and repurchase agreements, and securities borrowing and lending agreements, is evidenced to the extent that (i) a supportive legal opinion has been obtained from counsel of recognized standing that provides the requisite level of certainty regarding the enforceability of these agreements and (ii) the exercise of rights by the non-defaulting party to terminate and close out transactions on a net basis under these agreements will not be stayed or avoided under applicable law upon an event of default including bankruptcy, insolvency or similar proceeding.

A legal opinion may not have been sought or obtained for certain jurisdictions where local law is silent or sufficiently ambiguous to determine the enforceability of offsetting rights or where adverse case law or conflicting regulation may cast doubt on the enforceability of such rights. In some jurisdictions and for some counterparty types, the insolvency law for a particular counterparty type may be nonexistent or unclear as overlapping regimes may exist. For example, this may be the case for certain sovereigns, municipalities, central banks and U.S. pension plans.

The following tables present the gross and net resale and repurchase agreements and securities borrowing and lending agreements and the related offsetting amounts permitted under ASC 210-20-45. The tables also include amounts related to financial instruments that are not permitted to be offset under ASC 210-20-45, but would be eligible for offsetting to the extent that an event of default has occurred and a legal opinion supporting enforceability of the offsetting rights has been obtained. Remaining exposures continue to be secured by financial collateral, but the Company may not have sought or been able to obtain a legal opinion evidencing enforceability of the offsetting right.

	As of December 31, 2023				
In millions of dollars	Gross amounts of recognized assets	Gross amounts offset on the Consolidated Balance Sheet (1)	Net amounts of assets included on the Consolidated Balance Sheet	Amounts not offset on the Consolidated Balance Sheet but eligible for offsetting upon counterparty default (2)	Net amounts (3)
Securities purchased under agreements to resell	$ 449,153	$ 240,245	$ 208,908	$ 203,973	$ 4,935
Deposits paid for securities borrowed	93,739	19,473	74,266	22,547	51,719
Total	$ 542,892	$ 259,718	$ 283,174	$ 226,520	$ 56,654

In millions of dollars	Gross amounts of recognized liabilities	Gross amounts offset on the Consolidated Balance Sheet (1)	Net amounts of liabilities included on the Consolidated Balance Sheet	Amounts not offset on the Consolidated Balance Sheet but eligible for offsetting upon counterparty default (2)	Net amounts (3)
Securities sold under agreements to repurchase	$ 536,594	$ 240,245	$ 296,349	$ 221,628	$ 74,721
Deposits received for securities loaned	32,986	19,473	13,513	5,460	8,053
Total	$ 569,580	$ 259,718	$ 309,862	$ 227,088	$ 82,774

	As of December 31, 2022				
In millions of dollars	Gross amounts of recognized assets	Gross amounts offset on the Consolidated Balance Sheet (1)	Net amounts of assets included on the Consolidated Balance Sheet	Amounts not offset on the Consolidated Balance Sheet but eligible for offsetting upon counterparty default (2)	Net amounts (3)
Securities purchased under agreements to resell	$ 342,201	$ 106,904	$ 235,297	$ 197,912	$ 37,385
Deposits paid for securities borrowed	85,628	14,652	70,976	16,836	54,140
Total	$ 427,829	$ 121,556	$ 306,273	$ 214,748	$ 91,525

In millions of dollars	Gross amounts of recognized liabilities	Gross amounts offset on the Consolidated Balance Sheet (1)	Net amounts of liabilities included on the Consolidated Balance Sheet	Amounts not offset on the Consolidated Balance Sheet but eligible for offsetting upon counterparty default (2)	Net amounts (3)
Securities sold under agreements to repurchase	$ 333,977	$ 106,904	$ 227,073	$ 128,673	$ 98,400
Deposits received for securities loaned	33,495	14,652	18,843	2,881	15,962
Total	$ 367,472	$ 121,556	$ 245,916	$ 131,554	$ 114,362

(1) Includes financial instruments subject to enforceable master netting agreements that are permitted to be offset under ASC 210-20-45.
(2) Includes financial instruments subject to enforceable master netting agreements that are not permitted to be offset under ASC 210-20-45, but would be eligible for offsetting to the extent that an event of default has occurred and a legal opinion supporting enforceability of the offsetting right has been obtained.
(3) Remaining exposures continue to be secured by financial collateral, but the Company may not have sought or been able to obtain a legal opinion evidencing enforceability of the offsetting right.

The following tables present the gross amounts of liabilities associated with repurchase agreements and securities lending agreements by remaining contractual maturity:

	As of December 31, 2023				
In millions of dollars	Open and overnight	Up to 30 Days	31-90 Days	Greater than 90 Days	Total
Securities sold under agreements to repurchase	$ 307,969	$ 138,702	$ 37,324	$ 52,599	$ 536,594
Deposits received for securities loaned	27,420	—	1,270	4,296	32,986
Total	$ 335,389	$ 138,702	$ 38,594	$ 56,895	$ 569,580

	As of December 31, 2022				
In millions of dollars	Open and overnight	Up to 30 Days	31-90 Days	Greater than 90 Days	Total
Securities sold under agreements to repurchase	$ 170,532	$ 88,255	$ 29,745	$ 45,445	$ 333,977
Deposits received for securities loaned	28,020	267	1,107	4,101	33,495
Total	$ 198,552	$ 88,522	$ 30,852	$ 49,546	$ 367,472

The following tables present the gross amounts of liabilities associated with repurchase agreements and securities lending agreements by class of underlying collateral:

	As of December 31, 2023		
In millions of dollars	Repurchase agreements	Securities lending agreements	Total
U.S. Treasury and federal agency securities	$ 261,720	$ 461	$ 262,181
State and municipal securities	453	2	455
Foreign government securities	160,388	118	160,506
Corporate bonds	11,655	195	11,850
Equity securities	6,028	31,972	38,000
Mortgage-backed securities	85,504	21	85,525
Asset-backed securities	3,031	178	3,209
Other trading assets	7,815	39	7,854
Total	$ 536,594	$ 32,986	$ 569,580

	As of December 31, 2022		
In millions of dollars	Repurchase agreements	Securities lending agreements	Total
U.S. Treasury and federal agency securities	$ 153,297	$ 106	$ 153,403
State and municipal securities	1,911	—	1,911
Foreign government securities	109,309	13	109,322
Corporate bonds	13,927	45	13,972
Equity securities	9,615	33,318	42,933
Mortgage-backed securities	36,185	—	36,185
Asset-backed securities	1,755	—	1,755
Other trading assets	7,978	13	7,991
Total	$ 333,977	$ 33,495	$ 367,472

6. DEBT

Short-Term Borrowings

	2023		2022	
In millions of dollars	Balance	Weighted average coupon (1)	Balance	Weighted average coupon (1)
Commercial paper	$ 9,106	5.9%	$ 14,345	4.2%
Other borrowings	11,375	6.6%	29,505	5.0%
Total	$ 20,481		$ 43,850	

(1) The weighted-average coupon excludes structured notes accounted for at fair value and the effect of hedges.

Short-term borrowings with affiliates totaled $5.7 billion and $23.5 billion at December 31, 2023 and 2022, respectively.

Long-Term Debt

			Balances at December 31,	
In millions of dollars	Weighted average coupon (1)	Maturities	2023	2022
Senior notes	6.8%	2024-2070	$ 160,458	$ 148,443
Subordinated notes with affiliates	7.5%	2027-2039	23,625	23,625
Total			$ 184,083	$ 172,068

(1) The weighted-average coupon excludes structured notes accounted for at fair value and the effect of hedges.

Long-term debt with affiliates totaled $91.3 billion and $83.2 billion at December 31, 2023 and 2022, respectively. The debt with affiliates matures on various dates from 2024 to 2039.

The Company issues both fixed- and variable-rate debt in a range of currencies. It uses interest rate swaps to effectively convert a portion of its fixed-rate debt to variable-rate debt. At December 31, 2023, the Company's overall weighted-average interest rate for long-term debt, excluding structured notes accounted for at fair value, was 7.0% on a contractual basis.

Aggregate annual maturities of long-term debt obligations (based on final maturity dates) are as follows:

In millions of dollars	
2024	$ 32,983
2025	22,186
2026	20,497
2027	21,008
2028	30,494
Thereafter	56,915
Total	$ 184,083

7. CAPITAL REQUIREMENTS

Certain U.S. and non-U.S. broker-dealer subsidiaries of CGMHI are subject to various securities and commodities regulations and capital adequacy requirements promulgated by the regulatory and exchange authorities of the countries in which they operate. These regulatory restrictions may impose regulatory capital requirements and limit the amounts that these subsidiaries can pay in dividends or advance to the Company.

At December 31, 2023, Citigroup Global Markets Inc., a U.S. broker-dealer registered with the SEC that is an indirect wholly owned subsidiary of CGMHI, had net capital, computed in accordance with the SEC's net capital rule, of $18 billion, which exceeded the minimum requirement by $13 billion.

Moreover, Citigroup Global Markets Limited, a broker-dealer registered with the United Kingdom's Prudential Regulation Authority (PRA) that is also an indirect wholly owned subsidiary of CGMHI, had total regulatory capital of $27 billion at December 31, 2023, which exceeded the PRA's minimum regulatory capital requirements.

In addition, certain of CGMHI's other broker-dealer subsidiaries are subject to regulation in the countries in which they do business, including requirements to maintain specified levels of net capital or its equivalent. CGMHI's other principal broker-dealer subsidiaries were in compliance with their regulatory capital requirements at December 31, 2023.

8. SECURITIZATIONS AND VARIABLE INTEREST ENTITIES

Uses of Special Purpose Entities

A special purpose entity (SPE) is an entity designed to fulfill a specific limited need of the company that organized it. The principal uses of SPEs by the Company are to assist clients in securitizing their financial assets and create investment products for clients and to obtain liquidity and optimize capital efficiency by securitizing certain of the Company's financial assets. SPEs may be organized in various legal forms, including trusts, partnerships or corporations. In a securitization, through the SPE's issuance of debt and equity instruments, certificates, commercial paper or other notes of indebtedness, the company transferring assets to the SPE converts all (or a portion) of those assets into cash before they would have been realized in the normal course of business. These issuances are recorded on the balance sheet of the SPE, which may or may not be consolidated onto the balance sheet of the company that organized the SPE.

Investors usually have recourse only to the assets in the SPE, but may also benefit from other credit enhancements, such as a collateral account, a line of credit or a liquidity facility, such as a liquidity put option or asset purchase agreement. Because of these enhancements, the SPE issuances typically obtain a more favorable credit rating than the transferor could obtain for its own debt issuances. This results in less expensive financing costs than unsecured debt. The SPE may also enter into derivative contracts in order to convert the yield or currency of the underlying assets to match the needs of the SPE investors or to limit or change the credit risk of the SPE. The Company may be the provider of certain credit enhancements as well as the counterparty to any related derivative contracts.

Most of the Company's SPEs are variable interest entities (VIEs).

Variable Interest Entities

VIEs are described in Note 1. Investors that finance the VIE through debt or equity interests or other counterparties providing other forms of support, such as guarantees, certain fee arrangements or certain types of derivative contracts, are variable interest holders in the entity.

The variable interest holder, if any, that has a controlling financial interest in a VIE is deemed to be the primary beneficiary and must consolidate the VIE.

The Company must evaluate each VIE to understand the purpose and design of the entity, the role the Company had in the entity's design and its involvement in the VIE's ongoing activities. The Company then must evaluate which activities most significantly impact the economic performance of the VIE and who has the power to direct such activities.

For those VIEs where the Company determines that it has the power to direct the activities that most significantly impact the VIE's economic performance, the Company must then evaluate its economic interests, if any, and determine whether it could absorb losses or receive benefits that could potentially be significant to the VIE. When evaluating whether the Company has an obligation to absorb losses that could potentially be significant, it considers the maximum exposure to such loss without consideration of probability. Such obligations could be in various forms, including, but not limited to, debt and equity investments, guarantees, liquidity agreements and certain derivative contracts.

In various other transactions, the Company may (i) act as a derivative counterparty (e.g., interest rate swap, cross-currency swap or purchaser of credit protection under a credit default swap or total return swap where the Company pays the total return on certain assets to the SPE), (ii) act as underwriter or placement agent, (iii) provide administrative, trustee or other services or (iv) make a market in debt securities or other instruments issued by VIEs. The Company generally considers such involvement, by itself, not to be variable interests and thus not an indicator of power or potentially significant benefits or losses.

The Company's involvement with consolidated and unconsolidated VIEs with which the Company holds significant variable interests is presented below:

	As of December 31, 2023					
	Total			Maximum exposure to loss in significant unconsolidated VIEs (1)		
In millions of dollars	involvement with SPE assets	Consolidated VIE / SPE assets	Significant unconsolidated VIE assets (2)	Debt investments (3)	Derivatives	Total
Mortgage securitizations (4)						
U.S. agency-sponsored	$ 84,124	$ —	$ 84,124	$ 1,662	$ —	$ 1,662
Non-agency-sponsored	34,883	—	34,883	603	—	603
Collateralized loan obligations	12	—	12	4	—	4
Asset-based financing	3,832	2,875	957	47	—	47
Other	137	—	137	11	—	11
Total	$ 122,988	$ 2,875	$ 120,113	$ 2,327	$ —	$ 2,327

	As of December 31, 2022					
	Total			Maximum exposure to loss in significant unconsolidated VIEs (1)		
In millions of dollars	involvement with SPE assets	Consolidated VIE / SPE assets	Significant unconsolidated VIE assets (2)	Debt investments (3)	Derivatives	Total
Mortgage securitizations (4)						
U.S. agency-sponsored	$ 79,443	$ —	$ 79,443	$ 1,413	$ —	$ 1,413
Non-agency-sponsored	36,075	—	36,075	614	—	614
Collateralized loan obligations	1,593	—	1,593	45	—	45
Asset-based financing	2,789	2,310	479	22	—	22
Other	447	—	447	2	13	15
Total	$ 120,347	$ 2,310	$ 118,037	$ 2,096	$ 13	$ 2,109

(1) The definition of maximum exposure to loss is included in the text that follows this table.

(2) A significant unconsolidated VIE is an entity in which the Company has any variable interest or continuing involvement considered to be significant, regardless of the likelihood of loss.

(3) Funded exposures that are included on the Company's December 31, 2023 and 2022 Consolidated Statement of Financial Condition in *Trading account assets*.

(4) CGMHI mortgage securitizations also include agency and non-agency (private-label) re-securitization activities. These SPEs are not consolidated. See "Re-securitizations" below for further discussion.

The previous tables do not include:

- certain VIEs structured by third parties in which the Company holds securities in inventory, as these investments are made on arm's-length terms;
- certain positions in mortgage- and asset-backed securities held by the Company, which are classified as *Trading account assets,* in which the Company has no other involvement with the related securitization entity deemed to be significant (see Note 11 for more information on these positions); and
- certain representations and warranties exposures in CGMHI residential mortgage securitizations, in which the original mortgage loan balances are no longer outstanding.

The asset balances for consolidated VIEs represent the carrying amounts of the assets consolidated by the Company. The asset balances for unconsolidated VIEs in which the Company has significant involvement represent the most current information available to the Company. In most cases, the asset balances represent an amortized cost basis without regard to impairments, unless fair value information is readily available to the Company.

The maximum loss exposure represents the balance sheet carrying amount of the Company's investment in the VIE. It reflects the initial amount of cash invested in the VIE, adjusted for any accrued interest and cash principal payments received. The carrying amount may also be adjusted for increases or declines in fair value or any impairment in value recognized in earnings. The maximum exposure of unfunded positions represents the notional amount of a derivative instrument considered to be a variable interest. In certain transactions, the Company has entered into derivative instruments or other arrangements that are not considered variable interests in the VIE (e.g., interest rate swaps, cross-currency swaps or where the Company is the purchaser of credit protection under a credit default swap or total return swap where the Company pays the total return on certain assets to the SPE). Receivables under such arrangements are not included in the maximum exposure amounts.

Mortgage Securitizations

CGMHI's mortgage securitizations represent government-sponsored agency and private label (non-agency-sponsored mortgages) re-securitization activities. These SPEs are not consolidated. See "Re-securitizations" below for further discussion. CGMHI's mortgage securitizations are primarily non-recourse, thereby effectively transferring the risk of future credit losses to the purchasers of the securities issued by the SPE.

The following table includes information about loan delinquencies and liquidation losses for assets held in non-consolidated, non-agency-sponsored securitization entities at December 31:

	Securitized assets		90 days past due		Liquidation losses	
In millions of dollars	2023	2022	2023	2022	2023	2022
Residential mortgages	$ 326	$ 1,479	$ —	$ 9	$ —	$ —
Commercial and other	1,428	—	—	—	—	—
Total	$ 1,754	$ 1,479	$ —	$ 9	$ —	$ —

Re-securitizations

The Company engages in re-securitization transactions in which debt securities are transferred to a VIE in exchange for new beneficial interests. CGMHI did not transfer non-agency (private label) securities to re-securitization entities during the years ended December 31, 2023 and 2022. These securities are backed by either residential or commercial mortgages and are often structured on behalf of clients. As of December 31, 2023 and 2022, CGMHI held no retained interests in private label re-securitization transactions structured by CGMHI.

The Company also re-securitizes U.S. government-agency-guaranteed mortgage-backed (agency) securities. During the years ended December 31, 2023 and 2022, CGMHI transferred agency securities with a fair value of approximately $17.1 billion and $24.1 billion, respectively, to re-securitization entities.

As of December 31, 2023, the fair value of CGMHI-retained interests in agency re-securitization transactions structured by CGMHI totaled approximately $1.7 billion (including $930 million related to re-securitization transactions executed in 2023), compared to $1.4 billion as of December 31, 2022 (including $801 million related to re-securitization transactions executed in 2022), which is recorded in *Trading account assets*. The original fair values of agency re-securitization transactions in which CGMHI holds a retained interest as of December 31, 2023 and 2022 were approximately $84.1 billion and $79.4 billion, respectively.

As of December 31, 2023 and 2022, the Company did not consolidate any private label or agency re-securitization entities.

Collateralized Loan Obligations (CLOs)
A collateralized loan obligation (CLO) is a VIE that purchases a portfolio of assets consisting primarily of non-investment grade corporate loans. CLOs issue multiple tranches of debt and equity to investors to fund the asset purchases and pay upfront expenses associated with forming the CLO. A third-party asset manager is contracted by the CLO to purchase the underlying assets from the open market and monitor the credit risk associated with those assets. Over the term of a CLO, the asset manager directs purchases and sales of assets in a manner consistent with the CLO's asset management agreement and indenture. In general, the CLO asset manager will have the power to direct the activities of the entity that most significantly impact the economic performance of the CLO. Investors in a CLO, through their ownership of debt and/or equity in it, can also direct certain activities of the CLO, including removing its asset manager under limited circumstances, optionally redeeming the notes, voting on amendments to the CLO's operating documents and other activities. A CLO has a finite life, typically 12 years.

The Company serves as a structuring and placement agent with respect to the CLOs. Typically, the debt and equity of the CLOs are sold to third-party investors. On occasion, certain CGMHI entities may purchase some portion of a CLO's liabilities for investment purposes. In addition, CGMHI may purchase, typically in the secondary market, certain securities issued by the CLOs to support its market-making activities.

The Company generally does not have the power to direct the activities that most significantly impact the economic performance of the CLOs, as this power is generally held by a third-party asset manager of the CLO. As such, those CLOs are not consolidated.

Asset-Based Financing
The Company provides financing to VIEs that primarily hold non-marketable equity securities and derivative transactions. These instruments are reported in *Trading account assets* and are accounted for at fair value through earnings. The Company consolidates VIEs when it has the power to direct the activities that most significantly impact a VIE's economic performance. For CGMHI to realize the maximum loss in these VIEs, the issuer of the equity securities held by the VIE and the derivative counterparties would have to default with no recovery.

9. DERIVATIVES

In the ordinary course of business, the Company enters into various types of derivative transactions, which include:

- *Futures and forward contracts*, which are commitments to buy or sell at a future date a financial instrument, commodity or currency at a contracted price that may be settled in cash or through delivery of an item readily convertible to cash.
- *Swap contracts*, which are commitments to settle in cash at a future date or dates that may range from a few days to a number of years, based on differentials between specified indices or financial instruments, as applied to a notional principal amount.
- *Option contracts*, which give the purchaser, for a premium, the right, but not the obligation, to buy or sell within a specified time a financial instrument, commodity or currency at a contracted price that may also be settled in cash, based on differentials between specified indices or prices.

Swaps, forwards and some option contracts are over-the-counter (OTC) derivatives that are bilaterally negotiated with counterparties and settled with those counterparties, except for swap contracts that are novated and "cleared" through central counterparties (CCPs). Futures contracts and other option contracts are standardized contracts that are traded on an exchange with a CCP as the counterparty from the inception of the transaction. CGMHI enters into derivative contracts relating to interest rate, foreign currency, commodity and other market/credit risks for the following reasons:

- *Trading Purposes*: The Company trades derivatives as an active market maker. The Company offers its customers derivatives in connection with their risk management actions to transfer, modify or reduce their interest rate, foreign exchange and other market/credit risks or for their own trading purposes. The Company also manages its derivative risk positions through offsetting trade activities.

- *Hedging*: The Company uses derivatives in connection with its own risk management activities to hedge certain risks. Hedging may be accomplished by applying hedge accounting in accordance with ASC 815, *Derivatives and Hedging*. For example, CGMHI issues fixed-rate long-term debt and then enters into a receive-fixed, pay-variable-rate interest rate swap with the same tenor and notional amount to synthetically convert the interest payments to a net variable-rate basis. This strategy is the most common form of an interest rate hedge, as it minimizes net interest cost in certain yield curve environments. Derivatives are also used to manage market risks inherent in specific groups of on-balance sheet assets. For example, commodity futures contracts are used to hedge changes in the spot price of certain physical commodities inventories, such as precious metals and exchange-traded renewable energy credits.

Derivatives may expose the Company to market, credit or liquidity risks in excess of the amounts recorded on the Consolidated Statement of Financial Condition. Market risk on a derivative product is the exposure created by potential fluctuations in interest rates, market prices, foreign exchange rates and other factors and is a function of the type of product, the volume of transactions, the tenor and terms of the agreement and the underlying volatility. Credit risk is the exposure to loss in the event of nonperformance by the other party to satisfy a derivative liability where the value of any collateral held by CGMHI is not adequate to cover such losses. The recognition in earnings of unrealized gains on derivative transactions is subject to management's assessment of the probability of counterparty default. Liquidity risk is the potential exposure that arises when the size of a derivative position may affect the ability to monetize the position in a reasonable period of time and at a reasonable cost in periods of high volatility and financial stress.

Derivative transactions are customarily documented under industry standard master netting agreements, which provide that following an event of default, the non-defaulting party may promptly terminate all transactions between the parties and determine the net amount due to be paid to, or by, the defaulting party. Events of default include (i) failure to make a payment on a derivative transaction that remains uncured following applicable notice and grace periods, (ii) breach of agreement that remains uncured after applicable notice and grace periods, (iii) breach of a representation, (iv) cross default, either to third-party debt or to other derivative transactions entered into between the parties, or, in some cases, their affiliates, (v) the occurrence of a merger or consolidation that results in the creditworthiness of a party becoming materially weaker, and (vi) the cessation or repudiation of any applicable guarantee or other credit support document. Obligations under master netting agreements are often secured by collateral posted under an industry standard credit support annex to the master netting agreement. An event of default may also occur under a credit support annex if a party fails to make a collateral delivery that remains uncured following applicable notice and grace periods.

The netting and collateral rights incorporated in the master netting agreements are considered to be legally enforceable if a supportive legal opinion has been obtained from counsel of recognized standing that provides (i) the requisite level of certainty regarding enforceability and (ii) that the exercise of rights by the non-defaulting party to terminate and close-out transactions on a net basis under these agreements will not be stayed or avoided under applicable law upon an event of default, including bankruptcy, insolvency or similar proceeding.

A legal opinion may not be sought for certain jurisdictions where local law is silent or unclear as to the enforceability of such rights or where adverse case law or conflicting regulation may cast doubt on the enforceability of such rights. In some jurisdictions and for some counterparty types, the insolvency law may not provide the requisite level of certainty. For example, this may be the case for certain sovereigns, municipalities, central banks and U.S. pension plans.

Exposure to credit risk on derivatives is affected by market volatility, which may impair the ability of counterparties to satisfy their obligations to the Company. Credit limits are established and closely monitored for customers engaged in derivatives transactions. CGMHI considers the level of legal certainty regarding enforceability of its offsetting rights under master netting agreements and credit support annexes to be an important factor in its risk management process. Specifically, CGMHI generally transacts much lower volumes of derivatives under master netting agreements where CGMHI does not have the requisite level of legal certainty regarding enforceability, because such derivatives consume greater amounts of single counterparty credit limits than those executed under enforceable master netting agreements.

Cash collateral and security collateral in the form of G10 government debt securities are often posted by a party to a master netting agreement to secure the net open exposure of the other party; the receiving party is free to commingle/rehypothecate such collateral in the ordinary course of its business. Nonstandard collateral such as corporate bonds, municipal bonds, U.S. agency securities and/or MBS may also be pledged as collateral for derivative transactions. Security collateral posted to open and maintain a master netting agreement with a counterparty, in the form of cash and/or securities, may from time to time be segregated in an account at a third-party custodian pursuant to a tri-party account control agreement.

Information pertaining to the Company's derivatives activities, based on notional amounts, is presented in the following table. Derivative notional amounts are reference amounts from which contractual payments are derived and do not represent a complete measure of CGMHI's exposure to derivative transactions. CGMHI's derivative exposure arises primarily from market fluctuations (i.e., market risk), counterparty failure (i.e., credit risk) and/or periods of high volatility or financial stress (i.e., liquidity risk), as well as any market valuation adjustments that may be required on the transactions. Moreover, notional amounts do not reflect the netting of offsetting trades. For example, if CGMHI enters into a receive-fixed interest rate swap with $100 million notional, and offsets this risk with an identical but opposite pay-fixed position with a different counterparty, $200 million in derivative notionals is reported, although these offsetting positions may result in de minimis overall market risk.

In addition, aggregate derivative notional amounts can fluctuate from period to period in the normal course of business based on CGMHI's market share, levels of client activity and other factors. All derivatives are recorded in *Trading account assets/Trading account liabilities* on the Consolidated Statement of Financial Condition.

Derivative Notionals

	Hedging instruments under ASC 815		Trading derivative instruments	
In millions of dollars	December 31, 2023	December 31, 2022	December 31, 2023	December 31, 2022
Interest rate contracts				
Swaps	$ 213	$ 221	$ 7,778,621	$ 6,277,113
Futures and forwards	—	—	1,262,050	1,534,090
Written options	—	—	517,059	374,727
Purchased options	—	—	492,475	352,454
Total interest rate contracts	213	221	10,050,205	8,538,384
Foreign exchange contracts				
Swaps	—	—	967,647	831,581
Futures, forwards and spot	—	—	238,492	205,335
Written options	—	—	90,124	83,869
Purchased options	—	—	90,589	85,845
Total foreign exchange contracts	—	—	1,386,852	1,206,630
Equity contracts				
Swaps	—	—	264,876	201,074
Futures and forwards	—	—	63,654	66,517
Written options	—	—	520,526	685,359
Purchased options	—	—	429,788	591,319
Total equity contracts	—	—	1,278,844	1,544,269
Commodity and other contracts				
Swaps	—	—	77,619	82,557
Futures and forwards	1,750	1,365	62,526	75,408
Written options	—	—	11,295	9,239
Purchased options	—	—	11,125	8,869
Total commodity and other contracts	1,750	1,365	162,565	176,073
Credit derivatives (1)				
Protection sold	—	—	706,723	923,371
Protection purchased	—	—	716,850	927,779
Total credit derivatives	—	—	1,423,573	1,851,150
Total derivative notionals	$ 1,963	$ 1,586	$ 14,302,039	$ 13,316,506

(1) Credit derivatives are arrangements designed to allow one party (protection purchaser) to transfer the credit risk of a "reference asset" to another party (protection seller). These arrangements allow a protection seller to assume the credit risk associated with the reference asset without directly purchasing that asset. The Company enters into credit derivative positions for purposes such as risk management, yield enhancement, reduction of credit concentrations and diversification of overall risk.

The following table presents the gross and net fair values of the Company's derivative transactions and the related offsetting amounts as of December 31, 2023 and 2022. Gross positive fair values are offset against gross negative fair values by counterparty, pursuant to enforceable master netting agreements. Under ASC 815-10-45, payables and receivables in respect of cash collateral received from or paid to a given counterparty pursuant to a credit support annex are included in the offsetting amount if a legal opinion supporting the enforceability of netting and collateral rights has been obtained. GAAP does not permit similar offsetting for security collateral.

In addition, the following table reflects rule changes adopted by clearing organizations that require or allow entities to treat certain derivative assets, liabilities and the related variation margin as settlement of the related derivative fair values for legal and accounting purposes, as opposed to presenting gross derivative assets and liabilities that are subject to collateral, whereby the counterparties would also record a related collateral payable or receivable. The table also presents amounts that are not permitted to be offset, such as security collateral or cash collateral posted at third-party custodians, but which would be eligible for offsetting to the extent that an event of default has occurred and a legal opinion supporting enforceability of the netting and collateral rights has been obtained.

Derivative Mark-to-Market (MTM) Receivables/Payables

	Derivatives classified in Trading account assets / liabilities (1) (2)			
	December 31, 2023		December 31, 2022	
In millions of dollars	Assets	Liabilities	Assets	Liabilities
Interest rate derivatives instruments designated as ASC 815 hedges	$ 6	$ —	$ 9	$ —
Derivatives instruments not designated as ASC 815 hedges				
Over-the-counter	142,131	137,468	148,156	144,592
Cleared	2,808	6,287	2,922	4,545
Exchange traded	20	29	13	14
Interest rate contracts	144,959	143,784	151,091	149,151
Over-the-counter	23,204	25,447	26,953	30,137
Foreign exchange contracts	23,204	25,447	26,953	30,137
Over-the-counter	21,268	24,489	20,174	24,576
Cleared	—	—	1	4
Exchange traded	19,887	18,911	22,068	21,383
Equity contracts	41,155	43,400	42,243	45,963
Over-the-counter	14,576	16,165	22,038	23,200
Exchange traded	55	67	119	179
Commodity and other contracts	14,631	16,232	22,157	23,379
Over-the-counter	15,733	15,394	12,848	12,430
Cleared	2,209	1,758	1,417	1,565
Credit derivatives	17,942	17,152	14,265	13,995
Total derivatives instruments not designated as ASC 815 hedges	241,891	246,015	256,709	262,625
Total derivatives	241,897	246,015	256,718	262,625
Less: Netting agreements (3)	(211,170)	(211,170)	(220,397)	(220,397)
Less: Netting cash collateral received/paid (4)	(9,907)	(13,246)	(6,495)	(17,413)
Net receivables / payables included on the Consolidated Statement of Financial Condition	$ 20,820	$ 21,599	$ 29,826	$ 24,815
Additional amounts subject to an enforceable master netting agreement, but not offset on the Consolidated Statement of Financial Condition				
Less: Cash collateral received/paid	(16)	(58)	(89)	(3)
Less: Non-cash collateral received/paid	(1,252)	(968)	(1,332)	(1,000)
Total net receivables/payables	$ 19,552	$ 20,573	$ 28,405	$ 23,812

(1) The derivatives fair values are also presented in Note 11.

(2) Over-the-counter (OTC) derivatives are derivatives executed and settled bilaterally with counterparties without the use of an organized exchange or central clearing house. Cleared derivatives include derivatives executed bilaterally with a counterparty in the OTC market, but then novated to a central clearing house, whereby the central clearing house becomes the counterparty to both of the original counterparties. Exchange-traded derivatives include derivatives executed directly on an organized exchange that provides pre-trade price transparency.

(3) Represents the netting of derivative receivable and payable balances with the same counterparty under enforceable netting agreements.

(4) Represents the netting of cash collateral paid and received by counterparties under enforceable credit support agreements. Substantially all netting of cash collateral received and paid is against OTC derivative assets and liabilities, respectively.

For the years ended December 31, 2023, 2022 and 2021, amounts recognized in *Principal transactions* in the Consolidated Statement of Operations include certain derivatives not designated in a qualifying hedging relationship. The Company presents this disclosure by business classification, showing derivative gains and losses related to its trading activities together with gains and losses related to non-derivative instruments within the same trading portfolios, as this represents how these portfolios are risk managed. See Note 2 for further information.

Accounting for Derivative Hedging

The Company accounts for its hedging activities in accordance with ASC 815, *Derivatives and Hedging*. As a general rule, hedge accounting is permitted where the Company is exposed to a particular risk, such as interest rate or price risk, that causes changes in the fair value of an asset or liability that may affect earnings. Derivative contracts hedging the risks associated with changes in fair value are referred to as fair value hedges.

To qualify as an accounting hedge under the hedge accounting rules, a hedging relationship must be highly effective in offsetting the risk designated as being hedged. The hedging relationship must be formally documented at inception, detailing the particular risk management objective and strategy for the hedge. This includes the item and risk(s) being hedged, the hedging instrument being used and how effectiveness will be assessed. The effectiveness of these hedging relationships is evaluated at hedge inception and on an ongoing basis both on a retrospective and prospective basis, typically using quantitative measures of correlation, with hedge ineffectiveness measured and recorded in current earnings. Hedge effectiveness assessment methodologies are performed in a similar manner for similar hedges, and are used consistently throughout the hedging relationships.

Fair Value Hedges

Hedging of Benchmark Interest Rate Risk

CGMHI hedges exposure to changes in the fair value of fixed-rate long-term debt. For qualifying fair value hedges of interest rate risk, the changes in the fair value of the derivative and the change in the fair value of the long-term debt are presented within *Interest expense*.

Hedging of Commodity Price Risk

The Company hedges the change in fair value attributable to spot price movements in physical commodities inventories. The hedging instrument is a futures contract to sell the underlying commodity. In this hedge, the change in the carrying value of the hedged inventory is reflected in earnings, which offsets the change in the fair value of the futures contract that is also reflected in earnings. Although the entire change in the fair value of the hedging instrument is recorded in earnings, under certain hedge programs, CGMHI excludes changes in the fair value of the forward points (i.e., spot-forward difference) of the futures contract from the assessment of hedge effectiveness, and they are generally reflected directly in earnings over the life of the hedge. Under other hedge programs, CGMHI excludes changes in the fair value of forward points from the assessment of hedge effectiveness and records them in *Other comprehensive income (loss)*.

The following table summarizes the gains (losses) on the Company's fair value hedges:

	Gains / (losses) on fair value hedges Year ended December 31,					
	2023		2022		2021	
In millions of dollars	Other revenue	Interest expense	Other revenue	Interest expense	Other revenue	Interest expense
Gain (loss) on the hedging derivatives included in assessment of the effectiveness of fair value hedges:						
Interest rate hedges	$ —	$ (3)	$ —	$ (8)	$ —	$ (9)
Commodity hedges(1)	(298)	—	662	—	(2,462)	—
Total gain (loss) on the hedging derivatives included in assessment of the effectiveness of fair value hedges	(298)	(3)	662	(8)	(2,462)	(9)
Gain (loss) on the hedged item in designated and qualifying fair value hedges:						
Interest rate hedges	—	3	—	8	—	9
Commodity hedges(1)	298	—	(662)	—	2,412	—
Total gain (loss) on the hedged item in designated and qualifying fair value hedges	298	3	(662)	8	2,412	9
Net gain on the hedging derivatives excluded from assessment of the effectiveness of fair value hedges:						
Interest rate hedges	—	—	—	—	—	—
Commodity hedges(1)(2)	88	—	27	—	5	—
Total net gain on the hedging derivatives excluded from assessment of the effectiveness of fair value hedges	$ 88	$ —	$ 27	$ —	$ 5	$ —

(1) The gain (loss) amounts for commodity hedges are included in *Principal transactions* for periods beginning 2023.
(2) Amounts related to the forward points (i.e., the spot-forward difference) that are excluded from the assessment of hedge effectiveness reflected directly in earnings under the mark-to-market approach or recorded in *AOCI* under the amortization approach. The year ended December 31, 2023 includes gains of approximately $72 million and $16 million under the mark-to-market approach and amortization approach, respectively. The year ended December 31, 2022 includes gains of approximately $24 million and $3 million under the mark-to-market approach and amortization approach, respectively.

Cumulative Basis Adjustment

Upon electing to apply ASC 815 fair value hedge accounting, the carrying value of the hedged item is adjusted to reflect the cumulative changes in the hedged risk. This cumulative hedge basis adjustment becomes part of the carrying amount of the hedged item until the hedged item is derecognized from the balance sheet. The table below presents the carrying amount of CGMHI's hedged assets and liabilities under qualifying fair value hedges at December 31, 2023 and 2022, along with the cumulative basis adjustments included in the carrying value of those hedged assets and liabilities that would reverse through earnings in future periods.

In millions of dollars

Balance sheet line item in which hedged item is recorded	Carrying amount of hedged asset/ liability	Cumulative fair value hedging adjustment increasing (decreasing) the carrying amount	
		Active	De-designated
As of December 31, 2023			
Trading account assets	$ 976	$ 58	$ —
Long-term debt	218	6	—
As of December 31, 2022			
Trading account assets	$ 361	$ 44	$ —
Long-term debt	236	9	—

Credit Derivatives

The Company is a market maker and trades a range of credit derivatives. Through these contracts, CGMHI either purchases or writes protection on either a single name or a portfolio of reference credits. CGMHI also uses credit derivatives to help mitigate credit risk in its trading account portfolios and other cash positions and to facilitate client transactions.

CGMHI monitors its counterparty credit risk in credit derivative contracts. As of December 31, 2023 and 2022, over 99% of the gross receivables are from counterparties with which CGMHI maintains master netting agreements, collateral agreements or settles daily. A majority of CGMHI's top 15 counterparties (by receivable balance owed to CGMHI) are central clearing houses, banks, financial institutions or other dealers. Contracts with these counterparties do not include ratings-based termination events. However, counterparty ratings downgrades may have an incremental effect by lowering the threshold at which CGMHI may call for additional collateral.

The range of credit derivatives entered into includes credit default swaps, total return swaps, credit options and credit-linked notes.

A credit default swap is a contract in which, for a fee, a protection seller agrees to reimburse a protection buyer for any losses that occur due to a predefined credit event on a reference entity. These credit events are defined by the terms of the derivative contract and the reference entity and are generally limited to the market standard of failure to pay on indebtedness and bankruptcy of the reference entity and, in a more limited range of transactions, debt restructuring. Credit derivative transactions that reference emerging market entities also typically include additional credit events to cover the acceleration of indebtedness and the risk of repudiation or a payment moratorium. In certain transactions, protection may be provided on a portfolio of reference entities or asset-backed securities. If there is no credit event, as defined by the specific derivative contract, then the protection seller makes no payments to the protection buyer and receives only the contractually specified fee. However, if a credit event occurs as defined in the specific derivative contract sold, the protection seller will be required to make a payment to the protection buyer. Under certain contracts, the seller of protection may not be required to make a payment until a specified amount of losses has occurred with respect to the portfolio and/or may only be required to pay for losses up to a specified amount.

A total return swap typically transfers the total economic performance of a reference asset, which includes all associated cash flows, as well as capital appreciation or depreciation. The protection buyer receives a floating rate of interest and any depreciation on the reference asset from the protection seller and, in return, the protection seller receives the cash flows associated with the reference asset plus any appreciation. Thus, according to the total return swap agreement, the protection seller will be obligated to make a payment any time the floating interest rate payment plus any depreciation of the reference asset exceeds the cash flows associated with the underlying asset. A total return swap may terminate upon a default of the reference asset or a credit event with respect to the reference entity, subject to the provisions of the related total return swap agreement between the protection seller and the protection buyer.

A credit option is a credit derivative that allows investors to trade or hedge changes in the credit quality of a reference entity. For example, in a credit spread option, the option writer assumes the obligation to purchase or sell credit protection on the reference entity at a specified "strike" spread level. The option purchaser buys the right to sell credit default protection on the reference entity to, or purchase it from, the option writer at the strike spread level. The payments on credit spread options depend either on a particular credit spread or the price of the underlying credit-sensitive asset or other reference entity. The options usually terminate if a credit event occurs with respect to the underlying reference entity.

A credit-linked note is a form of credit derivative structured as a debt security with an embedded credit default swap. The purchaser of the note effectively provides credit protection to the issuer by agreeing to receive a return that could be negatively affected by credit events on the underlying reference entity. If the reference entity defaults, the note may be cash settled or physically settled by delivery of a debt security of the reference entity. Thus, the maximum amount of the note purchaser's exposure is the amount paid for the credit-linked note.

The following tables summarize the key characteristics of the Company's credit derivatives portfolio by counterparty and derivative form:

	Fair values		Notionals	
In millions of dollars at December 31, 2023	**Receivable**	**Payable**	**Protection purchased**	**Protection sold**
By instrument:				
Credit default swaps and options	17,304	16,528	703,560	698,567
Total return swaps and other	638	624	13,290	8,156
Total by instrument	17,942	17,152	716,850	706,723
By rating of reference entity:				
Investment grade	6,928	6,729	469,153	454,628
Non-investment grade	11,014	10,423	247,697	252,095
Total by rating of reference entity	17,942	17,152	716,850	706,723
By maturity:				
Within 1 year	1,345	1,512	124,705	119,272
From 1 to 5 years	15,043	14,179	548,827	553,290
After 5 years	1,554	1,461	43,318	34,161
Total by maturity	$ 17,942	$ 17,152	$ 716,850	$ 706,723

	Fair values		Notionals	
In millions of dollars at December 31, 2022	**Receivable**	**Payable**	**Protection purchased**	**Protection sold**
By instrument:				
Credit default swaps and options	13,274	13,493	918,778	917,245
Total return swaps and other	991	502	9,001	6,126
Total by instrument	14,265	13,995	927,779	923,371
By rating of reference entity:				
Investment grade	5,117	4,833	549,824	534,918
Non-investment grade	9,148	9,162	377,955	388,453
Total by rating of reference entity	14,265	13,995	927,779	923,371
By maturity:				
Within 1 year	1,577	1,619	121,691	123,940
From 1 to 5 years	10,558	10,362	746,819	750,009
After 5 years	2,130	2,014	59,269	49,422
Total by maturity	$ 14,265	$ 13,995	$ 927,779	$ 923,371

Fair values included in the above tables are prior to application of any netting agreements and cash collateral. For notional amounts, CGMHI generally has a mismatch between the total notional amounts of protection purchased and sold, and it may hold the reference assets directly rather than entering into offsetting credit derivative contracts as and when desired. The open risk exposures from credit derivative contracts are largely matched after certain cash positions in reference assets are considered and after notional amounts are adjusted, either to a duration-based equivalent basis or to reflect the level of subordination in tranched structures. The ratings of the credit derivatives portfolio presented in the tables and used to evaluate payment/performance risk are based on the assigned internal or external ratings of the reference asset or entity. Where external ratings are used, investment-grade ratings are considered to be "Baa/BBB" and above, while anything below is considered non-investment grade. CGMHI's internal ratings are in line with the related external rating system.

The Company evaluates the payment/performance risk of the credit derivatives for which it stands as a protection seller based on the credit rating assigned to the underlying reference credit. Credit derivatives written on an underlying non-investment-grade reference entity represent greater payment risk to the Company. The non-investment-grade category in the table above also includes credit derivatives where the underlying reference entity has been downgraded subsequent to the inception of the derivative.

The maximum potential amount of future payments under credit derivative contracts presented in the table above is based on the notional value of the derivatives. The Company believes that the notional amount for credit protection sold is not representative of the actual loss exposure based on historical experience. This amount has not been reduced by the value of the reference assets and the related cash flows. In accordance with most credit derivative contracts, should a credit event occur, the Company usually is liable for the difference between the protection sold and the value of the reference assets. Furthermore, the notional amount for credit protection sold has not been reduced for any cash collateral paid to a given counterparty, as such payments would be calculated after netting all derivative exposures, including any credit derivatives with that counterparty in accordance with a related master netting agreement. Due to such netting processes, determining the amount of collateral that corresponds to credit derivative exposures alone is not possible. The Company actively monitors open credit-risk exposures and manages this exposure by using a variety of strategies, including purchased credit derivatives, cash collateral or direct holdings of the referenced assets. This risk mitigation activity is not captured in the table above.

Credit Risk-Related Contingent Features in Derivatives
Certain derivative instruments contain provisions that require the Company to either post additional collateral or immediately settle any outstanding liability balances upon the occurrence of a specified event related to the credit risk of the Company. These events, which are defined by the existing derivative contracts, are primarily downgrades in the credit ratings of the Company and its affiliates.

The fair value (excluding CVA) of all derivative instruments with credit risk-related contingent features that were in a net liability position at December 31, 2023 and 2022 was $3.9 billion and $4.6 billion, respectively. The Company posted $2.9 billion and $3.9 billion as collateral for this exposure in the normal course of business as of December 31, 2023 and 2022, respectively.

A downgrade could trigger additional collateral or cash settlement requirements for the Company and certain affiliates. In the event that CGMHI was downgraded a single notch by all three major rating agencies as of December 31, 2023, the Company could be required to post an additional $185 million as either collateral or settlement of the derivative transactions. In addition, the Company could be required to segregate with third-party custodians collateral previously received from existing derivative counterparties in the amount of $33 million upon the single notch downgrade, resulting in aggregate cash obligations and collateral requirements of approximately $218 million.

Derivatives Accompanied by Financial Asset Transfers
The Company executes total return swaps that provide it with synthetic exposure to substantially all of the economic return of the securities or other financial assets referenced in the contract. In certain cases, the derivative transaction is accompanied by the Company’s transfer of the referenced financial asset to the derivative counterparty, most typically in response to the derivative counterparty’s desire to hedge, in whole or in part, its synthetic exposure under the derivative contract by holding the referenced asset in funded form. In certain jurisdictions these transactions qualify as sales, resulting in derecognition of the securities transferred (see Note 1 for further discussion of the related sale conditions for transfers of financial assets). For a significant portion of the transactions, the Company has also executed another total return swap where the Company passes on substantially all of the economic return of the referenced securities to a different third party seeking the exposure. In those cases, the Company is not exposed, on a net basis, to changes in the economic return of the referenced securities.

These transactions generally involve the transfer of the Company’s liquid government bonds, convertible bonds or publicly traded corporate equity securities from the trading portfolio and are executed with third-party financial institutions. The accompanying derivatives are typically total return swaps. The derivatives are cash settled and subject to ongoing margin requirements.

When the conditions for sale accounting are met, the Company reports the transfer of the referenced financial asset as a sale and separately reports the accompanying derivative transaction. These transactions generally do not result in a gain or loss on the sale of the security, because the transferred security was held at fair value in the Company’s trading portfolio. For transfers of financial assets accounted for as a sale by the Company, and for which the Company has retained substantially all of the economic exposure to the transferred asset through a total return swap executed with the same counterparty in contemplation of the initial sale (and still outstanding), the asset amounts derecognized and the gross cash proceeds received as of the date of derecognition were $3.9 billion and $1.2 billion as of December 31, 2023 and 2022, respectively.

At December 31, 2023, the fair value of these previously derecognized assets was $4.0 billion. The fair value of the total return swaps as of December 31, 2023 was $110 million recorded as gross derivative assets and $26 million recorded as gross derivative liabilities. At December 31, 2022, the fair value of these previously derecognized assets was $1.2 billion, and the fair value of the total return swaps was $25 million recorded as gross derivative assets and $31 million recorded as gross derivative liabilities.

The balances for the total return swaps are on a gross basis, before the application of counterparty and cash collateral netting, and are included primarily as equity derivatives in the tabular disclosures in this Note.

10. CONCENTRATIONS OF CREDIT RISK

Concentrations of credit risk exist when changes in economic, industry or geographic factors similarly affect groups of counterparties whose aggregate credit exposure is material in relation to the Company's total credit exposure. Although the Company's portfolio of financial instruments is broadly diversified along product and geographic lines, material transactions are completed with other financial institutions, particularly in the securities trading, derivatives and foreign exchange businesses.

In connection with the Company's efforts to maintain a diversified portfolio, the Company limits its exposure to any one geographic region, country or individual creditor and monitors this exposure on a continuous basis. At December 31, 2023, the Company's most significant concentration of credit risk was with the U.S. government and its agencies. The Company's exposure, which primarily results from trading assets issued by the U.S. government and its agencies, amounted to $168.5 billion and $84.7 billion at December 31, 2023 and 2022, respectively. The Company's foreign government exposures are composed of trading assets issued by foreign governments and their agencies, which amounted to $24.9 billion and $26.9 billion at December 31, 2023 and 2022, respectively. These consist predominantly of securities issued by the governments of major industrialized nations.

11. FAIR VALUE MEASUREMENT

ASC 820-10, *Fair Value Measurement*, defines fair value, establishes a consistent framework for measuring fair value and requires disclosures about fair value measurements. Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date, and therefore represents an exit price. Among other things, the standard requires the Company to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value.

Under ASC 820-10, the probability of counterparty default is factored into the valuation of derivatives and other positions, and the impact of the Company's own credit risk is factored into the valuation of derivatives and other liabilities that are measured at fair value.

Fair Value Hierarchy

ASC 820-10 specifies a hierarchy of inputs based on whether the inputs are observable or unobservable. Observable inputs are developed using market data and reflect market participant assumptions, while unobservable inputs reflect the Company's market assumptions. These two types of inputs have created the following fair value hierarchy:

- Level 1: Quoted prices for *identical* instruments in active markets.
- Level 2: Quoted prices for *similar* instruments in active markets, quoted prices for identical or similar instruments in markets that are not active and model-derived valuations in which all significant inputs and value drivers are *observable* in the market.
- Level 3: Valuations derived from valuation techniques in which one or more significant inputs or significant value drivers are *unobservable*.

As required under the fair value hierarchy, the Company considers relevant and observable market inputs in its valuations where possible. The fair value hierarchy classification approach typically utilizes rules-based and data-driven criteria to determine whether an instrument is classified as Level 1, Level 2 or Level 3:

- The determination of whether an instrument is quoted in an active market and therefore considered a Level 1 instrument is based upon the frequency of observed transactions and the quality of independent market data available on the measurement date.
- A Level 2 classification is assigned where there is observability of prices/market inputs to models, or where any unobservable inputs are not significant to the valuation. The determination of whether an input is considered observable is based on the availability of independent market data and its corroboration, for example through observed transactions in the market.
- Otherwise, an instrument is classified as Level 3.

Determination of Fair Value
For assets and liabilities carried at fair value, the Company measures fair value using the procedures set out below, irrespective of whether the assets and liabilities are measured at fair value as a result of an election, a non-recurring lower-of-cost-or-market adjustment, or because they are required to be measured at fair value.

When available, the Company uses quoted market prices from active markets to determine fair value and classifies such items as Level 1. In some specific cases where a market price is available, the Company will apply practical expedients (such as matrix pricing) to calculate fair value, in which case the items may be classified as Level 2.

The Company may also apply a price-based methodology that utilizes, where available, quoted prices or other market information obtained from recent trading activity in positions with the same or similar characteristics to the position being valued. If relevant and observable prices are available, those valuations may be classified as Level 2. However, when there are one or more significant unobservable "price" inputs, those valuations will be classified as Level 3. Furthermore, when a quoted price is considered stale, a significant adjustment to the price of a similar security is necessary to reflect differences in the terms of the actual security being valued, or alternatively, when prices from independent sources are insufficient to corroborate a valuation, the "price" inputs are considered unobservable and the fair value measurements are classified as Level 3.

If quoted market prices are not available, fair value is based upon internally developed valuation techniques that use, where possible, current market-based parameters, such as interest rates, currency rates and option volatilities. Items valued using such internally generated valuation techniques are classified according to the lowest level input or value driver that is significant to the valuation. Thus, an item may be classified as Level 3 even though there may be some significant inputs that are readily observable.

Fair value estimates from internal valuation techniques are verified, where possible, to prices obtained from independent vendors or brokers. Vendor and broker valuations may be based on a variety of inputs ranging from observed prices to proprietary valuation models, and the Company assesses the quality and relevance of this information in determining the estimate of fair value. The following section describes the valuation methodologies used by the Company to measure various financial instruments at fair value. Where appropriate, the description includes details of the valuation models, the key inputs to those models and any significant assumptions.

Market Valuation Adjustments
Generally, the unit of account for a financial instrument is the individual financial instrument. The Company applies market valuation adjustments that are consistent with the unit of account, which do not include adjustments due to the size of the Company's position, except as follows. ASC 820-10 permits an exception, through an accounting policy election, to measure the fair value of a portfolio of financial assets and financial liabilities on the basis of the net open risk position when certain criteria are met. CGMHI has elected to measure certain portfolios of financial instruments that meet those criteria, such as derivatives, on the basis of the net open risk position. The Company applies market valuation adjustments, including adjustments to account for the size of the net open risk position, consistent with market participant assumptions.

Valuation adjustments are applied to items classified as Level 2 or Level 3 in the fair value hierarchy to ensure that the fair value reflects the price at which the net open risk position could be exited. These valuation adjustments are based on the bid/offer spread for an instrument in the market. When CGMHI has elected to measure certain portfolios of financial investments, such as derivatives, on the basis of the net open risk position, the valuation adjustment may take into account the size of the position.

Credit valuation adjustments (CVA) and funding valuation adjustments (FVA) are applied to certain over-the-counter (OTC) derivative instruments where adjustments to reflect counterparty credit risk, own credit risk and term funding risk are required to estimate fair value. This principally includes derivatives with a base valuation (e.g., discounted using overnight indexed swap (OIS)) requiring adjustment for these effects, such as uncollateralized interest rate swaps. The CVA represents a portfolio-level adjustment to reflect the risk premium associated with the counterparty's (assets) or CGMHI's (liabilities) non-performance risk.

The FVA represents a market funding risk premium inherent in the uncollateralized portion of a derivative portfolio and in certain collateralized derivative portfolios that do not include standard credit support annexes (CSAs), such as where the CSA does not permit the reuse of collateral received. CGMHI's FVA methodology leverages the existing CVA methodology to estimate a funding exposure profile. The calculation of this exposure profile considers collateral agreements in which the terms do not permit the Company to reuse the collateral received, including where counterparties post collateral to third-party custodians. CGMHI's CVA and FVA methodologies consist of two steps:

- First, the exposure profile for each counterparty is determined using the terms of all individual derivative positions and a Monte Carlo simulation or other quantitative analysis to generate a series of expected cash flows at future points in time. The calculation of this exposure profile considers the effect of credit risk mitigants and sources of funding, including pledged cash or other collateral and any legal right of offset that exists with a counterparty through arrangements such as netting agreements. Individual derivative contracts that are subject to an enforceable master netting agreement with a counterparty are aggregated as a netting set for this purpose, since it is those net cash flows that are subject to nonperformance risk. This process identifies specific, point-in-time future cash flows that are subject to nonperformance and term funding risk, rather than using the current recognized net asset or liability as a basis to measure the CVA and FVA.
- Second, for CVA, market-based views of default probabilities derived from observed credit spreads in the credit default swap (CDS) market are applied to the expected future cash flows determined in step one. CGMHI's own credit CVA is determined using Citi-specific CDS spreads for the relevant tenor. Generally, counterparty CVA is determined using CDS spread indices for each credit rating and tenor. For certain identified netting sets where individual analysis is practicable (e.g., exposures to counterparties with liquid CDSs), counterparty-specific CDS spreads are used. For FVA, a term structure of spreads is applied to the expected funding exposures (e.g., the market liquidity spread used to represent the term funding premium associated with certain OTC derivatives).

The CVA and FVA are designed to incorporate a market view of the credit and funding risk, respectively, inherent in the derivative portfolio. However, most unsecured derivative instruments are negotiated bilateral contracts and are not commonly transferred to third parties. Derivative instruments are normally settled contractually or, if terminated early, are terminated at a value negotiated bilaterally between the parties. Thus, the CVA and FVA may not be realized upon a settlement or termination in the normal course of business. In addition, all or a portion of these adjustments may be reversed or otherwise adjusted in future periods in the event of changes in the credit or funding risk associated with the derivative instruments.

The table below summarizes the CVA and FVA applied to the fair value of derivative instruments at December 31, 2023 and 2022:

	Credit and funding valuation adjustments contra-liability (contra-asset)	
In millions of dollars	December 31, 2023	December 31, 2022
Counterparty CVA	$ (180)	$ (286)
Asset FVA	(105)	(123)
CGMHI (own credit) CVA (1)	174	262
Liability FVA	78	76
Total CVA and FVA — derivative instruments	$ (33)	$ (71)

(1) Determined using Citi-specific CDS spreads.

The table below summarizes pretax gains (losses) related to changes in CVA on derivative instruments, net of hedges, FVA on derivatives and debt valuation adjustments (DVA) on the Company's own fair value option (FVO) liabilities for the years indicated:

	Credit/funding/debt valuation adjustments gain (loss)		
In millions of dollars	2023	2022	2021
Counterparty CVA	$ 29	$ 37	$ 1
Asset FVA	17	(60)	(3)
Own credit CVA (1)	(107)	59	26
Liability FVA	3	37	(39)
Total CVA and FVA — derivative instruments	(58)	73	(15)
DVA related to own FVO liabilities	(817)	1,462	171
Total CVA, DVA and FVA	$ (875)	$ 1,535	$ 156

(1) Determined using Citi-specific CDS spreads.

Securities Borrowed and Purchased Under Agreements to Resell and Securities Loaned and Sold Under Agreements to Repurchase

No quoted prices exist for these instruments, since fair value is determined using a discounted cash flow technique. Cash flows are estimated based on the terms of the contract, taking into account any embedded derivative or other features. These cash flows are discounted using interest rates appropriate to the maturity of the instrument as well as the nature of the underlying collateral. Generally, when such instruments are recorded at fair value, they are classified within Level 2 of the fair value hierarchy, as the inputs used in the valuation are readily observable. However, certain long-dated positions are classified within Level 3 of the fair value hierarchy.

Trading Account Assets and Liabilities—Trading Securities and Trading Loans

When available, the Company uses quoted market prices in active markets to determine the fair value of trading securities; such items are classified within Level 1 of the fair value hierarchy. Examples include government securities and exchange-traded equity securities.

For bonds and secondary market loans traded over the counter, the Company generally determines fair value utilizing various valuation techniques, including discounted cash flows, price-based and internal models. Fair value estimates from these internal valuation techniques are verified, where possible, to prices obtained from independent sources, including third-party vendors. A price-based methodology utilizes, where available, quoted prices or other market information obtained from recent trading activity of instruments with similar characteristics to the bond or loan being valued. The yields used in discounted cash flow models are derived from the same price information. Trading securities and loans priced using such methods are generally classified as Level 2. However, when the primary inputs to the valuation are unobservable, or prices from independent sources are insufficient to corroborate valuation, a loan or security is generally classified as Level 3. Fair value estimates from these internal valuation techniques are verified, where possible, to prices obtained from independent sources, including third-party vendors.

When the Company's principal exit market for a portfolio of loans is through securitization, the Company uses the securitization price as a key input into the fair value of the loan portfolio. The securitization price is determined from the assumed proceeds of a hypothetical securitization within the current market environment. Where such a price verification is possible, loan portfolios are typically classified as Level 2 of the fair value hierarchy.

For most of the subprime mortgage backed security (MBS) exposures, fair value is determined utilizing observable transactions where available, or other valuation techniques such as discounted cash flow analysis utilizing valuation assumptions derived from similar, more observable securities as market proxies. The valuation of certain asset-backed security (ABS) CDO positions is inferred through the net asset value of the underlying assets of the ABS CDO.

Trading Account Assets and Liabilities—Derivatives

Exchange-traded derivatives, measured at fair value using quoted (i.e., exchange) prices in active markets, where available, are classified as Level 1 within the fair value hierarchy.

Derivatives without a quoted price in an active market and derivatives executed over the counter are valued using internal valuation techniques. These derivative instruments are classified as either Level 2 or Level 3 depending on the observability of the significant inputs to the valuation.

The valuation techniques depend on the type of derivative and the nature of the underlying instrument. The principal techniques used to value these instruments are discounted cash flows and internal models, such as derivative pricing models (e.g., Black-Scholes and Monte Carlo simulations).

The key inputs depend upon the type of derivative and the nature of the underlying instrument and include interest rate yield curves, foreign exchange rates, volatilities and correlation.

Investments

The investments category includes nonpublic investments in private equity and real estate entities. Determining the fair value of nonpublic securities involves a significant degree of management judgment, as no quoted prices exist and such securities are not generally traded. In addition, there may be transfer restrictions on private equity securities. The Company's process for determining the fair value of such securities utilizes commonly accepted valuation techniques, including guideline public company analysis and comparable transactions. In determining the fair value of nonpublic securities, the Company also considers events such as a proposed sale of the investee company, initial public offerings, equity issuances or other observable transactions. Private equity securities are generally classified within Level 3 of the fair value hierarchy.

Short-Term Borrowings and Long-Term Debt

Where fair value accounting has been elected, the fair value of non-structured liabilities is determined by utilizing internal models using the appropriate discount rate for the applicable maturity. Such instruments are classified within Level 2 of the fair value hierarchy when all significant inputs are readily observable.

The Company determines the fair value of hybrid financial instruments, including structured liabilities, using the appropriate derivative valuation methodology (described above in "Trading Account Assets and Liabilities—Derivatives") given the nature of the embedded risk profile. Such instruments are classified within Level 2 or Level 3 depending on the observability of significant inputs to the valuation.

Items Measured at Fair Value on a Recurring Basis

The following tables present for each of the fair value hierarchy levels the Company's assets and liabilities that are measured at fair value on a recurring basis at December 31, 2023 and 2022. The Company may hedge positions that have been classified in the Level 3 category with other financial instruments (hedging instruments) that may be classified as Level 3, but also with financial instruments classified as Level 1 or Level 2. The effects of these hedges are presented gross in the following tables:

Fair Value Levels

In millions of dollars at December 31, 2023	Level 1	Level 2	Level 3	Gross inventory	Netting [1]	Net balance
Assets						
Securities borrowed and purchased under agreements to resell	$ —	$ 427,863	$ 48	$ 427,911	$ (240,192)	$ 187,719
Trading non-derivative assets						
Trading mortgage-backed securities						
U.S. government-sponsored agency guaranteed	—	79,797	580	80,377	—	80,377
Residential	—	597	115	712	—	712
Commercial	—	464	202	666	—	666
Total trading mortgage-backed securities	—	80,858	897	81,755	—	81,755
U.S. Treasury and federal agency securities	85,991	2,101	8	88,100	—	88,100
State and municipal securities	—	442	3	445	—	445
Foreign government securities	19,613	5,272	41	24,926	—	24,926
Corporate	533	16,036	603	17,172	—	17,172
Equity securities	29,145	4,184	250	33,579	—	33,579
Asset-backed securities	—	1,190	531	1,721	—	1,721
Other trading assets [2]	83	4,559	219	4,861	—	4,861
Total trading non-derivative assets	135,365	114,642	2,552	252,559	—	252,559
Trading derivatives						
Interest rate contracts	47	144,250	668	144,965		
Foreign exchange contracts	—	23,013	191	23,204		
Equity contracts	5	39,553	1,597	41,155		
Commodity contracts	1	13,667	963	14,631		
Credit derivatives	—	17,378	564	17,942		
Total trading derivatives—before netting and collateral	53	237,861	3,983	241,897		
Netting agreements					(211,170)	
Netting of cash collateral received					(9,907)	
Total trading derivatives—after netting and collateral	53	237,861	3,983	241,897	(221,077)	20,820
Investments - Non-marketable equity securities	—	—	250	250	—	250
Other financial assets measured on a recurring basis	3,643	2,331	64	6,038	—	6,038
Total assets	$ 139,061	$ 782,697	$ 6,897	$ 928,655	$ (461,269)	$ 467,386
Total as a percentage of gross assets [3]	15.0%	84.3%	0.7%			

Table continues on the next page.

Fair Value Levels

In millions of dollars at December 31, 2023	Level 1	Level 2	Level 3	Gross inventory	Netting [1]	Net balance
Liabilities						
Securities loaned and sold under						
agreements to repurchase	$ —	$ 220,394	$ 390	$ 220,784	$ (158,349)	$ 62,435
Trading non-derivative liabilities						
Securities sold, not yet purchased	79,761	9,845	28	89,634	—	89,634
Trading derivatives						
Interest rate contracts	48	142,163	1,573	143,784		
Foreign exchange contracts	—	24,473	974	25,447		
Equity contracts	13	40,460	2,927	43,400		
Commodity contracts	—	15,657	575	16,232		
Credit derivatives	—	16,605	547	17,152		
Total trading derivatives—before netting and collateral	61	239,358	6,596	246,015		
Netting agreements					(211,170)	
Netting of cash collateral paid					(13,246)	
Total trading derivatives—after netting and collateral	61	239,358	6,596	246,015	(224,416)	21,599
Brokerage payables	4,298	23	—	4,321	—	4,321
Short-term borrowings	—	4,692	483	5,175	—	5,175
Long-term debt	—	69,109	22,842	91,951	—	91,951
Total liabilities	$ 84,120	$ 543,421	$ 30,339	$ 657,880	$ (382,765)	$ 275,115
Total as a percentage of gross liabilities [3]	12.8%	82.6%	4.6%			

(1) Represents netting of (i) the amounts due under securities purchased under agreements to resell and the amounts owed under securities sold under agreements to repurchase and (ii) derivative exposures covered by a qualifying master netting agreement and cash collateral offsetting.
(2) Includes physical commodities accounted for at the lower of cost or fair value.
(3) Because the amount of the cash collateral paid/received has not been allocated to the Level 1, 2 and 3 subtotals, these percentages are calculated based on total assets and liabilities measured at fair value on a recurring basis, excluding the cash collateral paid/received on derivatives.

Fair Value Levels

In millions of dollars at December 31, 2022	Level 1	Level 2	Level 3	Gross inventory	Netting [1]	Net balance
Assets						
Securities borrowed and purchased under agreements to resell	$ —	$ 328,608	$ 51	$ 328,659	$ (106,525)	$ 222,134
Trading non-derivative assets						
Trading mortgage-backed securities						
U.S. government-sponsored agency guaranteed	—	34,878	599	35,477	—	35,477
Residential	—	1,821	166	1,987	—	1,987
Commercial	—	798	145	943	—	943
Total trading mortgage-backed securities	—	37,497	910	38,407	—	38,407
U.S. Treasury and federal agency securities	46,896	2,312	1	49,209	—	49,209
State and municipal securities	—	2,103	7	2,110	—	2,110
Foreign government securities	21,624	5,193	47	26,864	—	26,864
Corporate	989	14,940	625	16,554	—	16,554
Equity securities	38,102	3,710	156	41,968	—	41,968
Asset-backed securities	—	1,597	668	2,265	—	2,265
Other trading assets [2]	24	2,505	224	2,753	—	2,753
Total trading non-derivative assets	107,635	69,857	2,638	180,130	—	180,130
Trading derivatives						
Interest rate contracts	63	149,976	1,061	151,100		
Foreign exchange contracts	—	26,756	197	26,953		
Equity contracts	15	40,558	1,670	42,243		
Commodity contracts	—	20,831	1,326	22,157		
Credit derivatives	—	13,610	655	14,265		
Total trading derivatives—before netting and collateral	78	251,731	4,909	256,718		
Netting agreements					(220,397)	
Netting of cash collateral received					(6,495)	
Total trading derivatives—after netting and collateral	78	251,731	4,909	256,718	(226,892)	29,826
Investments - Non-marketable equity securities	—	7	227	234	—	234
Other financial assets measured on a recurring basis	3,536	1,344	715	5,595	—	5,595
Total assets	$ 111,249	$ 651,547	$ 8,540	$ 771,336	$ (333,417)	$ 437,919
Total as a percentage of gross assets [3]	14.4%	84.5%	1.1%			

Table continues on the next page.

Fair Value Levels

In millions of dollars at December 31, 2022	Level 1	Level 2	Level 3	Gross inventory	Netting (1)	Net balance
Liabilities						
Securities loaned and sold under agreements to repurchase	$ —	$ 147,082	$ 1,031	$ 148,113	$ (81,724)	$ 66,389
Trading non-derivative liabilities						
Securities sold, not yet purchased	81,860	9,225	29	91,114	—	91,114
Trading derivatives						
Interest rate contracts	93	146,682	2,376	149,151		
Foreign exchange contracts	—	28,958	1,179	30,137		
Equity contracts	14	42,893	3,056	45,963		
Commodity contracts	1	22,623	755	23,379		
Credit derivatives	—	13,332	663	13,995		
Total trading derivatives—before netting and collateral	108	254,488	8,029	262,625		
Netting agreements					(220,397)	
Netting of cash collateral paid					(17,413)	
Total trading derivatives—after netting and collateral	108	254,488	8,029	262,625	(237,810)	24,815
Brokerage payables	4,197	240	2	4,439	—	4,439
Short-term borrowings	—	5,298	38	5,336	—	5,336
Long-term debt	—	65,776	22,089	87,865	—	87,865
Total liabilities	$ 86,165	$ 482,109	$ 31,218	$ 599,492	$ (319,534)	$ 279,958
Total as a percentage of gross liabilities (3)	14.4%	80.4%	5.2%			

(1) Represents netting of (i) the amounts due under securities purchased under agreements to resell and the amounts owed under securities sold under agreements to repurchase and (ii) derivative exposures covered by a qualifying master netting agreement and cash collateral offsetting.
(2) Includes physical commodities accounted for at the lower of cost or fair value.
(3) Because the amount of the cash collateral paid/received has not been allocated to the Level 1, 2 and 3 subtotals, these percentages are calculated based on total assets and liabilities measured at fair value on a recurring basis, excluding the cash collateral paid/received on derivatives.

Changes in Level 3 Fair Value Category

The following tables present the changes in the Level 3 fair value category for the years ended December 31, 2023 and 2022. The gains and losses presented below include changes in the fair value related to both observable and unobservable inputs.

The Company often hedges positions with offsetting positions that are classified in a different level. For example, the gains and losses for assets and liabilities in the Level 3 category presented in the tables below do not reflect the effect of offsetting losses and gains on hedging instruments that may be classified in the Level 1 and Level 2 categories. In addition, the Company hedges items classified in the Level 3 category with instruments also classified in Level 3 of the fair value hierarchy. The hedged items and related hedges are presented gross in the following tables:

Level 3 Fair Value Rollforward

		Net realized/unrealized gains (losses) incl. in (1)		Transfers							Unrealized gains
In millions of dollars	Dec. 31, 2022	Principal transactions	Other	into Level 3	out of Level 3	Purchases	Issuances	Sales	Settlements	Dec. 31, 2023	(losses) still held (2)
Assets											
Securities borrowed and purchased under agreements to resell	$ 51	$ 6	$ —	$ —	$ (2)	$ 139	$ —	$ —	$ (146)	$ 48	$ 2
Trading non-derivative assets											
Trading mortgage-backed securities											
U.S. government-sponsored agency guaranteed	599	7	—	396	(543)	616	—	(495)	—	580	14
Residential	166	(5)	—	106	(109)	189	—	(232)	—	115	(6)
Commercial	145	(26)	—	203	(88)	118	—	(150)	—	202	(15)
Total trading mortgage-backed securities	910	(24)	—	705	(740)	923	—	(877)	—	897	(7)
U.S. Treasury and federal agency securities	1	(3)	—	10	—	—	—	—	—	8	—
State and municipal	7	(3)	—	21	(2)	1	—	(21)	—	3	—
Foreign government	47	1	—	8	(41)	106	—	(80)	—	41	(1)
Corporate	625	55	—	265	(531)	1,206	—	(1,017)	—	603	(5)
Equity securities	156	64	—	96	(35)	142	—	(173)	—	250	55
Asset-backed securities	668	24	—	106	(137)	800	—	(930)	—	531	11
Other trading assets	224	7	—	361	(155)	216	—	(434)	—	219	7
Total trading non-derivative assets	2,638	121	—	1,572	(1,641)	3,394	—	(3,532)	—	2,552	60
Investments in non-marketable equity securities	227	—	25	5	—	5	—	(12)	—	250	82
Other financial assets measured on a recurring basis	715	—	(305)	37	(219)	—	—	(163)	(1)	64	(20)
Liabilities											
Securities loaned and sold under agreements to repurchase	$ 1,031	$ (5)	$ —	$ —	$ (3)	$1,303	$ 24	$ —	$(1,970)	$ 390	$ —
Trading account liabilities											
Securities sold, not yet purchased	29	(26)	—	19	(1)	47	—	—	(92)	28	(9)
Derivatives, net (3)											
Interest rate contracts	1,315	153	—	(35)	(86)	(24)	—	(64)	(48)	905	(55)
Foreign exchange contracts	982	87	—	(45)	13	4	—	6	(90)	783	(224)
Equity contracts	1,386	65	—	164	82	(358)	—	110	11	1,330	(132)
Commodity contracts	(571)	620	—	(273)	499	218	—	15	344	(388)	(164)
Credit derivatives	8	(21)	—	(23)	(25)	19	—	—	(17)	(17)	(28)
Total derivatives, net (3)	3,120	904	—	(212)	483	(141)	—	67	200	2,613	(603)
Brokerage payables	2	—	—	36	(38)	—	—	—	—	—	—
Short-term borrowings	38	52	—	62	(31)	—	474	—	(8)	483	(32)
Long-term debt	22,089	549	—	3,685	(6,866)	—	8,311	—	(3,828)	22,842	(1,767)

(1) Net realized/unrealized gains (losses) are presented as increase (decrease) to Level 3 assets, and as (increase) decrease to Level 3 liabilities.
(2) Represents the amount of total gains or losses for the period, included in earnings (and *AOCI* for changes in DVA on fair value option liabilities), attributable to the change in fair value relating to assets and liabilities classified as Level 3 that are still held at December 31, 2023.
(3) Total Level 3 trading derivative assets and liabilities have been netted in these tables for presentation purposes only.

Level 3 Fair Value Rollforward

		Net realized/unrealized gains (losses) incl. in [1]		Transfers							Unrealized gains (losses)
In millions of dollars	Dec. 31, 2021	Principal transactions	Other	into Level 3	out of Level 3	Purchases	Issuances	Sales	Settlements	Dec. 31, 2022	still held [2]
Assets											
Securities borrowed and purchased under agreements to resell	$ 92	$ (2)	$ —	$ 3	$ —	$ 169	$ —	$ —	$ (211)	$ 51	$ 3
Trading non-derivative assets											
Trading mortgage-backed securities											
U.S. government-sponsored agency guaranteed	496	(83)	—	243	(475)	970	—	(552)	—	599	(59)
Residential	103	(4)	—	111	(87)	187	—	(144)	—	166	(2)
Commercial	81	(14)	—	167	(77)	38	—	(50)	—	145	(3)
Total trading mortgage-backed securities	680	(101)	—	521	(639)	1,195	—	(746)	—	910	(64)
U.S. Treasury and federal agency securities	5	(5)	—	2	(1)	—	—	—	—	1	(1)
State and municipal	35	4	—	31	(35)	16	—	(44)	—	7	—
Foreign government	23	(32)	—	49	(61)	145	—	(77)	—	47	(21)
Corporate	838	(73)	—	465	(463)	1,898	—	(2,040)	—	625	(56)
Equity securities	120	48	—	136	(66)	152	—	(234)	—	156	(43)
Asset-backed securities	563	(44)	—	243	(199)	835	—	(730)	—	668	(33)
Other trading assets	238	199	—	194	(389)	215	—	(233)	—	224	(20)
Total trading non-derivative assets	2,502	(4)	—	1,641	(1,853)	4,456	—	(4,104)	—	2,638	(238)
Investments in non-marketable equity securities	191	—	(10)	—	—	57	—	(11)	—	227	—
Other financial assets measured on a recurring basis	257	—	(45)	197	(46)	—	452	—	(100)	715	62
Liabilities											
Securities loaned and sold under agreements to repurchase	$ 643	$ 85	$ —	$ 3	$ (3)	$ 452	$ 196	$ —	$ (175)	$ 1,031	$ 7
Trading account liabilities											
Securities sold, not yet purchased	64	(11)	—	35	(28)	101	—	(4)	(150)	29	(45)
Derivatives, net [3]											
Interest rate contracts	242	(1,416)	—	(53)	(245)	(10)	—	(3)	(32)	1,315	(1,263)
Foreign exchange contracts	458	(640)	—	36	(21)	131	—	—	(262)	982	(719)
Equity contracts	895	(2,013)	—	139	(1,942)	(442)	—	521	202	1,386	(1,096)
Commodity contracts	(465)	1,019	—	(158)	878	30	—	32	131	(571)	569
Credit derivatives	(109)	(108)	—	(9)	(28)	47	—	1	(2)	8	(41)
Total derivatives, net [3]	1,021	(3,158)	—	(45)	(1,358)	(244)	—	551	37	3,120	(2,550)
Brokerage payables	—	—	—	15	(13)	—	—	—	—	2	—
Short-term borrowings	105	110	—	47	(69)	—	97	—	(32)	38	(11)
Long-term debt	12,279	3,598	—	6,381	(5,690)	—	13,857	—	(1,140)	22,089	3,362

(1) Net realized/unrealized gains (losses) are presented as increase (decrease) to Level 3 assets, and as (increase) decrease to Level 3 liabilities.

(2) Represents the amount of total gains or losses for the period, included in earnings (and *AOCI* for changes in DVA on fair value option liabilities), attributable to the change in fair value relating to assets and liabilities classified as Level 3 that are still held at December 31, 2022.

(3) Total Level 3 trading derivative assets and liabilities have been netted in these tables for presentation purposes only.

Level 3 Fair Value Transfers

The following were the significant Level 3 transfers for the period December 31, 2022 to December 31, 2023:

- During the 12 months ended December 31, 2023, transfers of *Long-term debt* were $3.7 billion from Level 2 to Level 3. Of the $3.7 billion transfer, approximately $3.0 billion related to interest rate option volatility inputs becoming unobservable and/or significant relative to their overall valuation, and $0.6 billion related to equity and credit derivative inputs (in addition to other volatility inputs, e.g., interest rate volatility inputs) becoming unobservable and/or significant to their overall valuation. In other instances, market changes have resulted in some inputs becoming more observable, and some unobservable inputs becoming less significant to the overall valuation of the instruments (e.g., when an option becomes deep-in or deep-out of the money). This has primarily resulted in $6.9 billion of certain structured long-term debt products being transferred from Level 3 to Level 2 during the 12 months ended December 31, 2023.

The following were the significant Level 3 transfers for the period December 31, 2021 to December 31, 2022:

- During the 12 months ended December 31, 2022, transfers of *Long-term debt* were $6.4 billion from Level 2 to Level 3. Of the $6.4 billion transfer in, approximately $4.6 billion related to interest rate option volatility inputs becoming unobservable and/or significant relative to their overall valuation, and $1.8 billion related to equity and credit derivative inputs (in addition to other volatility inputs, e.g., interest rate volatility inputs) becoming unobservable and/or significant to their overall valuation. In other instances, market changes have resulted in some inputs becoming more observable, and some unobservable inputs becoming less significant to the overall valuation of the instruments (e.g., when an option becomes deep-in or deep-out of the money). This has resulted in $5.7 billion of certain structured long-term debt products being transferred from Level 3 to Level 2 during the 12 months ended December 31, 2022.

Valuation Techniques and Inputs for Level 3 Fair Value Measurements

The Company's Level 3 inventory consists of both cash instruments and derivatives of varying complexity. The following tables present the valuation techniques covering the majority of Level 3 inventory and the most significant unobservable inputs used in Level 3 fair value measurements. Methodologies are applied consistently. Changes in listed inputs period versus period represent variables that become more, or less, significant, hence their addition or removal from the table below. Differences between this table and amounts presented in the Level 3 Fair Value Rollforward table represent individually immaterial items that have been measured using a variety of valuation techniques other than those listed.

As of December 31, 2023	**Fair Value** [1] *(in millions)*	**Methodology**	**Input**	**Low** [2] [3]	**High** [2] [3]	**Weighted Average** [4]
Assets						
Securities borrowed and purchased under agreements to resell	$ 48	Model-based	Interest rate	4.00 %	4.00 %	4.00 %
Mortgage-backed securities	$ 496	Price-based	Price	$ 1.14	$ 133.60	$ 39.92
	401	Yield analysis	Yield	4.63 %	19.08 %	8.93 %
State and municipal, foreign government, corporate and other debt securities	$ 637	Price-based	Price	$ 0.01	$ 748.91	$ 104.12
	237	Model-based	Forward price	31.70 %	425.51 %	139.16 %
			Commodity volatility	6.14 %	106.80 %	35.40 %
			Commodity correlation	(45.33) %	93.02 %	57.68 %
Equity securities [5]	$ 236	Price-based	Price	$ —	$ 12,189.17	$ 135.73
			Appraised value	$ 4,380,000	$ 19,920,921	$ 17,212,339
Asset-backed securities	$ 474	Price-based	Price	$ 3.50	$ 129.00	$ 65.81
	57	Yield analysis	Yield	5.93 %	18.86 %	8.57 %
Non-marketable equity	$ 241	Comparables analysis	PE ratio	9.30x	16.50x	11.37x
			Illiquidity discount	10.00 %	10.00 %	10.00 %
			EBITDA multiples	15.80x	15.80x	15.80x
Derivatives – Gross [6]						
Interest rate contracts (gross)	$ 2,126	Model-based	IR normal volatility	0.32 %	15.00 %	1.03 %
			Inflation volatility	0.42 %	8.22 %	1.19 %

As of December 31, 2023	Fair Value [1] *(in millions)*	Methodology	Input	Low [2] [3]	High [2] [3]	Weighted Average [4]
Foreign exchange contracts (gross)	$ 1,165	Model-based	IR normal volatility	0.04 %	20.00 %	1.21 %
Equity contracts (gross) [7]	$ 4,327	Model-based	Equity volatility	0.10 %	334.35 %	37.57 %
			Equity forward	54.14 %	273.54 %	101.04 %
			Equity-FX correlation	(79.00) %	70.00 %	(7.68) %
			Equity-IR correlation	(30.00) %	44.00 %	23.20 %
			Equity-Equity correlation	(6.49) %	97.44 %	80.42 %
			FX volatility	0.05 %	113.13 %	9.74 %
Commodity contracts (gross)	$ 1,537	Model-based	Forward price	31.70 %	425.51 %	139.59 %
			Commodity volatility	14.72 %	149.99 %	37.32 %
			Commodity correlation	(45.33) %	93.02 %	51.42 %
Credit derivatives (gross)	$ 731	Model-based	Credit spread	8 bps	668 bps	74 bps
	283	Price-based	Recovery rate	20.00 %	40.00 %	35.63 %
			Credit spread volatility	23.94 %	115.66 %	50.23 %
			Price	$ 7.50	$ 100.76	$ 72.47
			Upfront points	1.90 %	117.31 %	54.52 %
Structured financing transactions	$ 63	Model-based	Forward price	33.48 %	348.43 %	115.47 %
			Commodity volatility	26.51 %	66.80 %	31.79 %
			Commodity correlation	(45.33) %	93.02 %	(7.28) %
Liabilities						
Securities loaned and sold under agreements to repurchase	$ 390	Model-based	Interest rate	3.92 %	5.27 %	3.96 %
Trading account liabilities						
Securities sold, not yet purchased	$ 21	Price-based	Price	$ —	$ 12,189.17	$ 22.43
	7	Yield analysis	Yield	7.46 %	7.46 %	7.46 %
Short-term borrowings and long-term debt	$23,073	Model-based	IR normal volatility	0.32 %	20.00 %	1.34 %
			Equity volatility	0.10 %	334.35 %	38.86 %

As of December 31, 2022	Fair Value [1] *(in millions)*	Methodology	Input	Low [2] [3]	High [2] [3]	Weighted Average [4]
Assets						
Securities borrowed and purchased under agreements to resell	$ 48	Model-based	Interest rate	2.61 %	2.61 %	2.61 %
Mortgage-backed securities	$ 732	Yield analysis	Yield	4.41 %	20.30 %	9.74 %
	178	Price-based	Price	$ 0.78	$ 96.75	$ 34.26
State and municipal, foreign government, corporate and other debt securities	$ 740	Price-based	Price	$ —	$ 900.72	$ 114.56
	159	Model-based	Equity forward	68.34 %	271.61 %	103.49 %
			Equity volatility	0.05 %	300.72 %	31.47 %
Equity securities [5]	$ 141	Price-based	Price	$ —	$ 9,087.76	$ 117.93
Asset-backed securities	$ 345	Price-based	Price	$ 4.76	$ 145.00	$ 59.24
	308	Yield analysis	Yield	5.76 %	18.58 %	9.34 %
Non-marketable equity	$ 188	Comparables analysis	PE ratio	15.20x	15.70x	15.34x
	32	Model-based	Illiquidity discount	9.00 %	17.00 %	10.25 %
			EBITDA multiples	16.10x	17.10x	16.96x
			Discount to price	33.00 %	50.00 %	33.62 %
			Cost of capital	17.50 %	20.00 %	17.59 %

As of December 31, 2022	**Fair Value** [1] *(in millions)*	**Methodology**	**Input**	**Low** [2] [3]	**High** [2] [3]	**Weighted Average** [4]
Derivatives – Gross [6]						
Interest rate contracts (gross)	$ 3,392	Model-based	IR normal volatility	0.33 %	1.47 %	0.77 %
			Inflation volatility	0.39 %	2.77 %	1.33 %
Foreign exchange contracts (gross)	$ 1,369	Model-based	IR normal volatility	0.33 %	1.47 %	0.76 %
			Credit spread	116 bps	626 bps	602 bps
Equity contracts (gross) [7]	$ 4,645	Model-based	Equity volatility	0.05 %	300.72 %	32.16 %
			Equity forward	68.34 %	271.61 %	103.79 %
			Equity-FX correlation	(95.00) %	50.00 %	(16.38) %
			Equity-IR correlation	(18.83) %	60.00 %	32.37 %
			Equity-Equity correlation	(3.98) %	98.68 %	85.58 %
Commodity contracts (gross)	$ 2,081	Model-based	Forward price	14.27 %	385.50 %	110.07 %
			Commodity volatility	10.43 %	151.50 %	33.55 %
			Commodity correlation	(32.00) %	91.94 %	36.70 %
Credit derivatives (gross)	$ 945	Model-based	Credit spread	2.50 bps	955.10 bps	117.42 bps
	371	Price-based	Price	$ —	$ 98.73	$ 73.59
			Credit correlation	25.00 %	80.00 %	44.21 %
			Recovery rate	25.00 %	55.00 %	39.60 %
Structured financing transactions	$ 713	Model-based	Forward price	14.27 %	324.85 %	105.11 %
			Equity volatility	0.05 %	300.72 %	31.66 %
			Equity forward	68.34 %	271.61 %	103.49 %
Liabilities						
Securities loaned and sold under agreements to repurchase	$ 970	Model-based	Interest rate	4.01 %	4.97 %	4.07 %
Trading account liabilities						
Securities sold, not yet purchased	$ 29	Price-based	Price	$ —	$9,087.76	$ 38.27
Short-term borrowings and long-term debt	$20,897	Model-based	IR normal volatility	0.33 %	1.82 %	0.91 %
			Equity forward	68.34 %	271.61 %	103.49 %
			Equity volatility	0.05 %	300.72 %	32.00 %
			Equity-IR correlation	(18.83) %	60.00 %	32.37 %
			Equity-FX correlation	(95.00) %	50.00 %	(16.44) %

(1) The tables above include the fair values for the items listed and may not foot to the total population for each category.
(2) Some inputs are shown as zero due to rounding.
(3) When the low and high inputs are the same, there is either a constant input applied to all positions, or the methodology involving the input applies to only one large position.
(4) Weighted averages are calculated based on the fair values of the instruments.
(5) For equity securities, the price inputs are expressed on an absolute basis, not as a percentage of the notional amount.
(6) Trading account derivatives—assets and liabilities—are presented on a gross absolute value basis.
(7) Includes hybrid products.

Uncertainty of Fair Value Measurements Relating to Unobservable Inputs

Valuation uncertainty arises when there is insufficient or dispersed market data to allow a precise determination of the exit value of a fair-valued position or portfolio in today's market. This is especially prevalent in Level 3 fair value instruments, where uncertainty exists in valuation inputs that may be both unobservable and significant to the instrument's (or portfolio's) overall fair value measurement. The uncertainties associated with key unobservable inputs on the Level 3 fair value measurements may not be independent of one another. In addition, the amount and direction of the uncertainty on a fair value measurement for a given change in an unobservable input depends on the nature of the instrument as well as whether the Company holds the instrument as an asset or a liability. For certain instruments, the pricing, hedging and risk management are sensitive to the correlation between various inputs rather than on the analysis and aggregation of the individual inputs.

The following section describes some of the most significant unobservable inputs used by the Company in Level 3 fair value measurements.

Correlation

Correlation is a measure of the extent to which two or more variables change in relation to each other. A variety of correlation-related assumptions are required for a wide range of instruments, including equity and credit baskets, foreign exchange options, Credit Index Tranches and many other instruments. For almost all of these instruments, correlations are not directly observable in the market and must be calculated using alternative sources, including historical information. Estimating correlation can be especially difficult where it may vary over time, and calculating correlation information from market data requires significant assumptions regarding the informational efficiency of the market (e.g., swaption markets). Uncertainty therefore exists when an estimate of the appropriate level of correlation as an input into some fair value measurements is required.

Changes in correlation levels can have a substantial impact, favorable or unfavorable, on the value of an instrument, depending on its nature. A change in the default correlation of the fair value of the underlying bonds comprising a CDO structure would affect the fair value of the senior tranche. For example, an increase in the default correlation of the underlying bonds would reduce the fair value of the senior tranche, because highly correlated instruments produce greater losses in the event of default and a portion of these losses would become attributable to the senior tranche. That same change in default correlation would have a different impact on junior tranches of the same structure.

Volatility

Volatility represents the speed and severity of market price changes and is a key factor in pricing options. Volatility generally depends on the tenor of the underlying instrument and the strike price or level defined in the contract. Volatilities for certain combinations of tenor and strike are not observable and need to be estimated using alternative methods, such as comparable instruments, historical analysis or other sources of market information. This leads to uncertainty around the final fair value measurement of instruments with unobservable volatilities.

The general relationship between changes in the value of an instrument (or a portfolio) to changes in volatility also depends on changes in interest rates and the level of the underlying index. Generally, long option positions (assets) benefit from increases in volatility, whereas short option positions (liabilities) will suffer losses. Some instruments are more sensitive to changes in volatility than others. For example, an at-the-money option would experience a greater percentage change in its fair value than a deep-in-the-money option. In addition, the fair value of an option with more than one underlying security (e.g., an option on a basket of equities) depends on the volatility of the individual underlying securities as well as their correlations.

Yield

In some circumstances, the yield of an instrument is not observable in the market and must be estimated from historical data or from yields of similar securities. This estimated yield may need to be adjusted to capture the characteristics of the security being valued. Whenever the amount of the adjustment is significant to the value of the security, the fair value measurement is classified as Level 3.

Adjusted yield is generally used to discount the projected future principal and interest cash flows on instruments, such as asset-backed securities. Adjusted yield is impacted by changes in the interest rate environment and relevant credit spreads.

Prepayment

Voluntary unscheduled payments (prepayments) change the future cash flows for the investor and thereby change the fair value of the security. The effect of prepayments is more pronounced for residential mortgage-backed securities. Prepayment is generally negatively correlated with delinquency and interest rate. A combination of low prepayments and high delinquencies amplifies each input’s negative impact on a mortgage security’s valuation. As prepayment speeds change, the weighted-average life of the security changes, which impacts the valuation either positively or negatively, depending upon the nature of the security and the direction of the change in the weighted-average life.

Recovery

Recovery is the proportion of the total outstanding balance of a bond or loan that is expected to be collected in a liquidation scenario. For many credit securities (e.g., commercial mortgage-backed securities), the expected recovery amount of a defaulted property is typically unknown until a liquidation of the property is imminent. The assumed recovery of a security may differ from its actual recovery that will be observable in the future. Generally, an increase in the recovery rate assumption increases the fair value of the security. An increase in loss severity, the inverse of the recovery rate, reduces the amount of principal available for distribution and, as a result, decreases the fair value of the security.

Credit Spread

Credit spread is a component of the security representing its credit quality. Credit spread reflects the market perception of changes in prepayment, delinquency and recovery rates, therefore capturing the impact of other variables on the fair value. Changes in credit spread affect the fair value of securities differently depending on the characteristics and maturity profile of the security. For example, credit spread is a more significant driver of the fair value measurement of a high-yield bond as compared to an investment-grade bond. Generally, the credit spread for an investment-grade bond is also more observable and less volatile than its high-yield counterpart.

Estimated Fair Value of Financial Instruments Not Carried at Fair Value

The following tables present the carrying value and fair value of the Company's financial instruments that are not carried at fair value. The tables below therefore exclude items measured at fair value on a recurring basis presented in the tables above.

The disclosure also excludes leases, affiliate investments and tax-related items. Also, as required, the disclosure excludes the effect of taxes, any premium or discount that could result from offering for sale at one time the entire holdings of a particular instrument and other expenses that would be incurred in a market transaction. In addition, the tables exclude the values of non-financial assets and liabilities, as well as intangible values, which are integral to a full assessment of the Company's financial position and the value of its net assets.

Fair values vary from period to period based on changes in a wide range of factors, including interest rates, credit quality and market perceptions of value, and as existing assets and liabilities run off and new transactions are entered into.

	December 31, 2023		Estimated fair value		
In billions of dollars	Carrying value	Estimated fair value	Level 1	Level 2	Level 3
Assets					
Securities borrowed and purchased under agreements to resell	$ 95.5	$ 95.5	$ —	$ 95.5	$ —
Brokerage receivables	50.6	50.6	—	20.5	30.1
Loans to affiliates	92.1	92.1	—	92.1	—
Other financial assets (1)	33.5	33.5	15.1	8.7	9.7
Liabilities					
Securities loaned and sold under agreements to repurchase	$ 247.4	$ 247.4	$ —	$ 247.4	$ —
Brokerage payables	70.3	70.3	—	—	70.3
Long-term debt	92.1	92.1	—	88.4	3.7
Other financial liabilities (2)	18.9	18.9	—	15.3	3.6

	December 31, 2022		Estimated fair value		
In billions of dollars	Carrying value	Estimated fair value	Level 1	Level 2	Level 3
Assets					
Securities borrowed and purchased under agreements to resell	$ 84.1	$ 84.1	$ —	$ 84.1	$ —
Brokerage receivables	46.6	46.6	—	20.0	26.6
Loans to affiliates	93.7	93.7	—	93.7	—
Other financial assets (1)	35.4	35.4	18.7	8.4	8.3
Liabilities					
Securities loaned and sold under agreements to repurchase	$ 179.5	$ 179.5	$ —	$ 179.5	$ —
Brokerage payables	72.5	72.5	—	—	72.5
Long-term debt	84.2	84.2	—	81.2	3.0
Other financial liabilities (2)	41.4	41.4	—	38.5	2.9

(1) Includes cash and cash equivalents, cash segregated under federal and other regulations and other financial instruments included in *Other assets* on the Consolidated Statement of Financial Condition, for all of which the carrying value is a reasonable estimate of fair value.

(2) Includes short-term borrowings (carried at cost) and other financial instruments included in *Other liabilities* on the Consolidated Statement of Financial Condition, for all of which the carrying value is a reasonable estimate of fair value.

12. FAIR VALUE ELECTIONS

The Company may elect to report most financial instruments at fair value on an instrument-by-instrument basis with changes in fair value reported in earnings, other than DVA (see below). The election is made upon the initial recognition of an eligible financial asset, financial liability or when certain specified reconsideration events occur. The fair value election may not otherwise be revoked once an election is made. The changes in fair value are recorded in current earnings. Movements in DVA are reported as a component of *AOCI*. Additional discussion regarding the applicable areas in which fair value elections were made is presented in Note 11.

The following table presents the changes in fair value of those items for which the fair value option has been elected:

	Changes in fair value—gains (losses) for the years ended December 31,	
In millions of dollars	**2023**	**2022**
Assets		
Securities borrowed and purchased under agreements to resell	$ 277	$ (96)
Trading account assets	—	4
Other financial assets	(297)	(943)
Total assets	$ (20)	$ (1,035)
Liabilities		
Securities loaned and sold under agreements to repurchase	$ (216)	$ 111
Trading account liabilities	303	92
Short-term borrowings [(1)]	52	1,878
Long-term debt [(1)]	(10,738)	10,356
Total liabilities	$ (10,599)	$ 12,437

(1) Includes DVA that is included in *AOCI*. See Note 11.

Own Debt Valuation Adjustments (DVA)

Own debt valuation adjustments are recognized on the Company's liabilities for which the fair value option has been elected using Citigroup's credit spreads observed in the bond market. Changes in fair value of fair value option liabilities related to changes in Citigroup's own credit spreads (DVA) are reflected as a component of *AOCI*.

Among other variables, the fair value of liabilities for which the fair value option has been elected (other than non-recourse debt and similar liabilities) is impacted by the narrowing or widening of Citigroup's credit spreads.

The estimated changes in the fair value of these non-derivative liabilities due to such changes in Citigroup's own credit spread (or instrument-specific credit risk) were a loss of $817 million and gain of $1,462 million for the years ended December 31, 2023 and 2022, respectively. Changes in fair value resulting from changes in instrument-specific credit risk were estimated by incorporating Citigroup's current credit spreads observable in the bond market into the relevant valuation technique used to value each liability as described above.

The Fair Value Option for Financial Assets and Financial Liabilities

Selected Portfolios of Securities Purchased Under Agreements to Resell, Securities Borrowed, Securities Sold Under Agreements to Repurchase, Securities Loaned and Certain Uncollateralized Short-Term Borrowings

The Company elected the fair value option for certain portfolios of fixed income securities purchased under agreements to resell and fixed income securities sold under agreements to repurchase, securities borrowed, securities loaned and certain uncollateralized short-term borrowings held primarily by broker-dealer entities in the United States and the United Kingdom. In each case, the election was made because the related interest rate risk is managed on a portfolio basis, primarily with offsetting derivative instruments that are accounted for at fair value through earnings.

Changes in fair value for transactions in these portfolios are recorded in *Principal transactions*. The related interest income and interest expense are measured based on the contractual rates specified in the transactions and are reported as *Interest income* and *Interest expense* in the Consolidated Statement of Operations.

Other Financial Assets

The Company elected the fair value option for structured commodity inventory financing transactions related to metals, crude and refined oil products. These transactions are carried at fair value to offset the derivatives executed to economically hedge these transactions. The Company also elected the fair value option for other loans related to derivative transactions. Changes in fair value for these transactions are recorded in *Principal transactions*.

Certain Debt Liabilities

The Company has elected the fair value option for certain debt liabilities, because these exposures are considered to be trading-related positions and, therefore, are managed on a fair value basis. These positions are classified as *Long-term debt* or *Short-term borrowings* on the Company's Consolidated Statement of Financial Condition.

The following table provides information about the carrying value of notes carried at fair value, disaggregated by type of risk:

In millions of dollars	December 31, 2023	December 31, 2022
Equity linked	$ 47,021	$ 45,827
Interest rate linked	39,167	35,013
Credit linked	3,348	3,681
Commodity linked	2,367	3,253
Foreign exchange linked	48	91
Total	$ 91,951	$ 87,865

The portion of the changes in fair value attributable to changes in Citigroup's own credit spreads (DVA) is reflected as a component of *AOCI* while all other changes in fair value are reported in *Principal transactions*. Changes in the fair value of these liabilities include accrued interest, which is also included in the change in fair value reported in *Principal transactions*.

Certain Non-Structured Liabilities

The Company has elected the fair value option for certain non-structured liabilities with fixed and floating interest rates. The Company has elected the fair value option where the interest rate risk of such liabilities may be economically hedged with derivative contracts or the proceeds are used to purchase financial assets that will also be accounted for at fair value through earnings. The elections have been made to mitigate accounting mismatches and to achieve operational simplifications. These positions are reported in *Short-term borrowings* and *Long-term debt* on the Company's Consolidated Statement of Financial Condition. The portion of the changes in fair value attributable to changes in Citigroup's own credit spreads (DVA) is reflected as a component of *AOCI* while all other changes in fair value are reported in *Principal transactions*.

Interest expense on non-structured liabilities is measured based on the contractual interest rates and reported as *Interest expense* in the Consolidated Statement of Operations.

The following table provides information about long-term debt carried at fair value:

In millions of dollars	December 31, 2023	December 31, 2022
Carrying amount reported on the Consolidated Statement of Financial Condition	$ 91,951	$ 87,865
Aggregate unpaid principal balance in excess of (less than) fair value	(2,200)	(2,379)

The following table provides information about short-term borrowings carried at fair value:

In millions of dollars	December 31, 2023	December 31, 2022
Carrying amount reported on the Consolidated Statement of Financial Condition	$ 5,175	$ 5,336
Aggregate unpaid principal balance in excess of (less than) fair value	(61)	2

13. COLLATERAL, GUARANTEES AND COMMITMENTS

Collateral

At December 31, 2023 and 2022, the approximate fair value of securities collateral received by the Company that may be resold or repledged, excluding the impact of allowable netting, was $805 billion and $582 billion, respectively. This collateral was received in connection with resale agreements, securities borrowings and loans, securities for securities lending transactions, derivative transactions and margined broker loans.

At December 31, 2023 and 2022, a substantial portion of the collateral received by the Company had been sold or repledged in connection with repurchase agreements, securities sold, not yet purchased, securities lendings, pledges to clearing organizations, segregation requirements under securities laws and regulations, derivative transactions and bank loans.

Guarantees

CGMHI provides a variety of guarantees and indemnifications to its customers to enhance their credit standing and enable them to complete a wide range of business transactions. For certain contracts meeting the definition of a guarantee, the guarantor must recognize, at inception, a liability for the fair value of the obligation undertaken in issuing the guarantee.

In addition, the guarantor must disclose the maximum potential amount of future payments that the guarantor could be required to make under the guarantee, if there were a total default by the guaranteed parties. The determination of the maximum potential future payments is based on the notional amount of the guarantees without consideration of possible recoveries under recourse provisions or from collateral held or pledged. As such, CGMHI believes such amounts bear no relationship to the anticipated losses, if any, on these guarantees.

Derivative Instruments Considered to Be Guarantees

Derivatives are financial instruments whose cash flows are based on a notional amount and an underlying instrument, reference credit or index, where there is little or no initial investment and whose terms require or permit net settlement. See Note 9 for a discussion of CGMHI’s derivatives activities.

Derivative instruments considered to be guarantees include only those instruments that require CGMHI to make payments to the counterparty based on changes in an underlying instrument that is related to an asset, a liability or an equity security held by the guaranteed party. More specifically, derivative instruments considered to be guarantees include certain over-the-counter written put options where the counterparty is not a bank, hedge fund or broker-dealer (such counterparties are considered to be dealers in these markets and may, therefore, not hold the underlying instruments). Credit derivatives sold by CGMHI are excluded from the guarantees disclosure as they are disclosed separately in Note 9. In instances where CGMHI’s maximum potential future payment is unlimited, the notional amount of the contract is disclosed.

As of December 31, 2023, the maximum potential amount of future payments on derivative instruments considered to be guarantees was $9.9 billion, including $3.8 billion expiring within one year. As of December 31, 2022, the maximum potential amount of future payments on derivative instruments considered to be guarantees was $7.7 billion, including $2.5 billion expiring within one year. The carrying amount of the liabilities related to these derivative instruments considered to be guarantees was $79 million and $102 million at December 31, 2023 and 2022, respectively, and is recorded at fair value in *Trading account liabilities*.

Other Guarantees and Indemnifications

Other Representation and Warranty Indemnifications

In the normal course of business, the Company provides standard representations and warranties to counterparties in contracts in connection with numerous transactions and also provides indemnifications, including indemnifications that protect the counterparties to the contracts in the event that additional taxes are owed, due either to a change in the tax law or an adverse interpretation of the tax law. Counterparties to these transactions provide the Company with comparable indemnifications. While such representations, warranties and indemnifications are essential components of many contractual relationships, they do not represent the underlying business purpose for the transactions. The indemnification clauses are often standard contractual terms related to the Company’s own performance under the terms of a contract and are entered into in the normal course of business based on an assessment that the risk of loss is remote. Often these clauses are intended to ensure that terms of a contract are met at inception. No compensation is received for these standard representations and warranties, and it is not possible to determine their fair value because they rarely, if ever, result in a payment. In many cases, there are no stated or notional amounts included in the indemnification clauses, and the contingencies potentially triggering the obligation to indemnify have not occurred and are not expected to occur. As a result, there are no amounts reflected on the Consolidated Statement of Financial Condition as of December 31, 2023 and 2022 for potential obligations that could arise from these indemnifications provided by the Company.

Value-Transfer Networks (Including Exchanges and Clearing Houses) (VTNs)
The Company is a member of, or shareholder in, a number of value-transfer networks (VTNs) (payment, clearing and settlement systems as well as exchanges) around the world. As a condition of membership, many of these VTNs require that members stand ready to pay a pro rata share of the losses incurred by the organization due to another member's default on its obligations. The Company's potential obligations may be limited to its membership interests in the VTNs, contributions to the VTN's funds, or, in certain narrow cases, to the full pro rata share. CGMHI had $15.8 billion and $6.0 billion in capped contingent liquidity facilities with VTNs as of December 31, 2023 and 2022, respectively. The maximum exposure is difficult to estimate as this would require an assessment of claims that have not yet occurred; however, the Company believes the risk of loss is remote given historical experience with the VTNs. Accordingly, there are no amounts reflected on the Consolidated Statement of Financial Condition as of December 31, 2023 and 2022 for potential obligations that could arise from the Company's involvement with VTN associations.

Futures and Over-the-Counter Derivatives Clearing
CGMHI provides clearing services on central clearing parties (CCP) for clients that need to clear exchange-traded and over-the-counter (OTC) derivatives contracts with CCPs. Based on all relevant facts and circumstances, CGMHI has concluded that it acts as an agent for accounting purposes in its role as clearing member for these client transactions. As such, CGMHI does not reflect the underlying exchange-traded or OTC derivatives contracts in its Consolidated Financial Statements. See Note 9 for a discussion of CGMHI's derivatives activities that are reflected in its Consolidated Financial Statements.

As a clearing member, CGMHI collects and remits cash and securities collateral (margin) between its clients and the respective CCP. In certain circumstances, CGMHI collects a higher amount of cash (or securities) from its clients than it needs to remit to the CCPs. This excess cash is then held at customer segregated depository institutions such as banks or custodians.

There are two types of margin: initial and variation. Where CGMHI obtains benefits from or controls cash initial margin (e.g., retains an interest spread), cash initial margin collected from clients and remitted to the CCP or depository institutions is reflected within *Brokerage payables* (payables to customers) and *Brokerage receivables* (receivables from brokers, dealers and clearing organizations) or *Cash segregated under federal and other regulations*, respectively.

However, for exchange-traded and OTC-cleared derivatives contracts where CGMHI does not obtain benefits from or control the client cash balances, the client cash initial margin collected from clients and remitted to the CCP or depository institutions is not reflected on the Company's Consolidated Statement of Financial Condition. These conditions are met when CGMHI has contractually agreed with the client that (i) CGMHI will pass through to the client all interest paid by the CCP or depository institutions on the cash initial margin, (ii) CGMHI will not utilize its right as a clearing member to transform cash margin into other assets, (iii) CGMHI does not guarantee and is not liable to the client for the performance of the CCP or the depository institution and (iv) the client cash balances are legally isolated from CGMHI's bankruptcy estate. The total amount of cash initial margin collected and remitted in this manner was approximately $15.0 billion and $16.7 billion as of December 31, 2023 and 2022, respectively.

Variation margin due from clients to the respective CCP, or from the CCP to clients, reflects changes in the value of the client's derivative contracts for each trading day. As a clearing member, CGMHI is exposed to the risk of non-performance by clients (e.g., failure of a client to post variation margin to the CCP for negative changes in the value of the client's derivative contracts). In the event of non-performance by a client, CGMHI would move to close out the client's positions. The CCP would typically utilize initial margin posted by the client and held by the CCP, with any remaining shortfalls required to be paid by CGMHI as clearing member. CGMHI generally holds incremental cash or securities margin posted by the client, which would typically be expected to be sufficient to mitigate CGMHI's credit risk in the event that the client fails to perform.

As required by ASC 860-30-25-5, securities collateral posted by clients is not recognized on the Company's Consolidated Statement of Financial Condition.

FICC Sponsored Member Repo Program
The Company acts as a sponsoring member of the Government Securities Division of the Fixed Income Clearing Corporation (FICC) to clear eligible resale and repurchase agreements on behalf of its clients that become sponsored members of the FICC. The Company, as sponsoring member, is required to provide a guarantee to the FICC with respect to the prompt payment and performance of its sponsored members. The Company had $27.7 billion and $0.1 billion in guarantees to the Fixed Income Clearing Corporation under the sponsored member repo program as of December 31, 2023 and 2022, respectively. Because the Company obtains a security interest in the cash or high-quality securities collateral

that the clients place with the clearing house, CGMHI expects the risk of loss from this guarantee to be remote. See Note 5 for additional information on CGMHI's resale and repurchase agreements, including risk mitigation practices for these transactions.

Margin Loan Indemnifications
CGMHI had margin loan indemnification agreements of $740 million and $950 million as of December 31, 2023 and 2022, respectively. The commitments to potentially indemnify do not relate to a loan on CGMH's Consolidated Statement of Financial Condition, nor a commitment to extend a loan. The contingencies potentially triggering the obligation to indemnify have not occurred and are not expected to occur. As a result, there are no amounts reflected on the Consolidated Statement of Financial Condition as of December 31, 2023 and 2022 for potential obligations that could arise from these indemnifications provided by the Company.

Unsettled Reverse Repurchase and Securities Borrowing Agreements and Unsettled Repurchase and Securities Lending Agreements
In the normal course of business, the Company enters into reverse repurchase and securities borrowing agreements, as well as repurchase and securities lending agreements, which settle at a future date. At December 31, 2023 and 2022, the Company had approximately $105.2 billion and $83.0 billion of unsettled reverse repurchase and securities borrowing agreements, and approximately $84.9 billion and $29.8 billion of unsettled repurchase and securities lending agreements, respectively. See Note 5 for a further discussion of securities purchased under agreements to resell and securities borrowed, and securities sold under agreements to repurchase and securities loaned, including the Company's policy for offsetting repurchase and reverse repurchase agreements.

Other Financing Commitments
Other CGMHI financing commitments of $3.1 billion at December 31, 2023 and 2022 include commitments to enter into collateralized financing transactions.

14. LEASES

The Company's operating leases, where CGMHI is a lessee, include real estate, such as office space and branches, and various types of equipment. These leases may contain renewal and extension options and early termination features; however, these options do not impact the lease term unless the Company is reasonably certain that it will exercise options. These leases have a weighted-average remaining lease term of approximately 13 years and 14 years as of December 31, 2023 and 2022, respectively.

The following table presents information on the right-of-use (ROU) asset and lease liabilities included in *Other assets* and *Other liabilities*, respectively:

In millions of dollars	December 31, 2023	December 31, 2022
ROU asset	$ 580	$ 674
Lease liability	541	547

The Company recognizes fixed lease costs on a straight-line basis throughout the lease term in the Consolidated Statement of Operations. In addition, variable lease costs are recognized in the period in which the obligation for those payments is incurred. The following table presents the total operating lease expense (principally for offices, branches and equipment) included in the Consolidated Statement of Operations:

In millions of dollars	December 31, 2023	December 31, 2022	December 31, 2021
Operating lease expense	$ 225	$ 187	$ 200

CGMHI's cash outflows related to operating leases were $225 million and $187 million for the years ended December 31, 2023 and 2022, respectively, while the future lease payments are as follows:

In millions of dollars	
2024	$ 55
2025	53
2026	53
2027	52
2028	50
Thereafter	389
Total future lease payments	652
Less imputed interest (based on weighted-average discount rate of 2.8%)	(111)
Lease liability	$ 541

15. RELATED PARTY TRANSACTIONS

Citigroup Inc. owns 100% of the outstanding common stock of the Company. Pursuant to various intercompany agreements, a number of significant transactions are carried out between the Company and Citigroup and/or their affiliates, including the Citigroup parent company.

Detailed below is a summary of the Company's transactions with other Citigroup affiliates, which are included in the accompanying Consolidated Statement of Operations and Consolidated Statement of Financial Condition. These amounts exclude intra-CGMHI balances that eliminate in consolidation.

STATEMENT OF OPERATIONS ITEMS

	Years ended December 31,		
In millions of dollars	2023	2022	2021
Revenues			
Principal transactions gains (losses)[1]	$ 88	$ (10,532)	$ (6,721)
Investment banking	204	125	407
Other revenue (losses)	(46)	(56)	(60)
Total non-interest revenue (losses)	246	(10,463)	(6,374)
Interest revenue	6,871	2,324	531
Interest expense	9,695	4,358	1,320
Net interest income (expense)	(2,824)	(2,034)	(789)
Total revenues (losses), net of interest expense	$ (2,578)	$ (12,497)	$ (7,163)
Operating expenses [2]			
Technology, communications and equipment	$ 1,162	$ 1,097	$ 1,082
Occupancy	211	188	216
Other operating	1,858	1,420	1,528
Total operating expenses	$ 3,231	$ 2,705	$ 2,826

(1) Principal transactions revenue consists of realized and unrealized gains and losses from trading activities with non-consolidated CGMHI affiliates. Includes gains and losses on derivatives with non-consolidated CGMHI affiliates, but does not include the gains and losses related to any offsetting derivatives executed with third parties external to CGMHI, which are an integral part of trading activities profitability.

(2) Includes expenses from Citigroup affiliates for shared services and charges, as well as fees for the early termination of debt with Citigroup affiliates.

STATEMENT OF FINANCIAL CONDITION ITEMS

In millions of dollars	December 31, 2023	December 31, 2022
Assets		
Cash and cash equivalents	$ 8,090	$ 8,466
Cash segregated under federal and other regulations	7,275	9,798
Securities borrowed and purchased under agreements to resell	21,707	19,549
Derivatives	944	7,279
Loans to affiliates	92,063	93,670
Brokerage receivables and other assets	2,539	1,382
Total assets	$ 132,618	$ 140,144
Liabilities		
Short-term borrowings	$ 5,699	$ 23,468
Securities loaned and sold under agreements to repurchase	48,029	64,151
Derivatives	2,935	6,989
Brokerage payables	13,167	10,256
Other liabilities	2,370	5,274
Long-term debt	91,344	83,224
Total liabilities	$ 163,544	$ 193,362

Stock-Based Compensation and Retirement Benefits

As discussed in Note 3, the Company participates in various Citigroup stock-based compensation programs under which Citigroup stock or stock options are granted to certain of the Company's employees. CGMHI has no stock-based compensation programs in which its own stock is granted. CGMHI pays Citigroup directly for participation in certain of its stock-based compensation programs.

As discussed in Note 3, the Company participates in several non-contributory defined-benefit pension plans and a defined-contribution plan sponsored by Citigroup covering certain eligible employees.

CGMHI Tax-Sharing Agreement

As discussed in Note 4, CGMHI is included in the Citigroup consolidated federal tax return and is a party to a tax-sharing agreement with Citigroup. Under such agreement, CGMHI is entitled to a tax benefit for its losses and credits that are recognized in Citigroup's Consolidated Financial Statements. Settlements between CGMHI and Citigroup of current taxes occur throughout the year. CGMHI also files its consolidated and combined state income tax returns with Citigroup and/or others of its subsidiaries.

Citigroup's Resolution Plan

In connection with the filing of Citigroup's 2017 Resolution Plan with the Board of Governors of the FRB and the FDIC pursuant to Title I of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (Dodd-Frank Act), Citigroup executed an inter-affiliate agreement (the "Citi Support Agreement") with Citicorp, Citigroup's operating material legal entities (as identified in the public section of Citigroup's 2023 Resolution Plan, which can be found on the FRB's and FDIC's websites), and certain other affiliated entities pursuant to which Citicorp is required to provide liquidity and capital support to Citigroup's operating material legal entities, including CGMHI, in the event Citigroup were to enter bankruptcy proceedings.

Other Intercompany Agreements

Citigroup and its subsidiaries engage in other transactions and servicing activities with CGMHI, including cash management, data processing, telecommunications, payroll processing and administration, facilities procurement, underwriting and others.

The Company recognized payroll tax and other payroll expenses related to CGMHI employees of approximately $122 million, $110 million, and $104 million for the years ended December 31, 2023, 2022 and 2021, respectively, whereby affiliates manage CGMHI's payroll processes and CGMHI reimburses the affiliates for these payroll expenses.

16. CONTINGENCIES

Accounting and Disclosure Framework
ASC 450 governs the disclosure and recognition of loss contingencies, including potential losses from litigation, regulatory, tax, and other matters. ASC 450 defines a "loss contingency" as "an existing condition, situation, or set of circumstances involving uncertainty as to possible loss to an entity that will ultimately be resolved when one or more future events occur or fail to occur." It imposes different requirements for the recognition and disclosure of loss contingencies based on the likelihood of occurrence of the contingent future event or events. It distinguishes among degrees of likelihood using the following three terms: "probable," meaning that "the future event or events are likely to occur"; "remote," meaning that "the chance of the future event or events occurring is slight"; and "reasonably possible," meaning that "the chance of the future event or events occurring is more than remote but less than likely." These three terms are used below as defined in ASC 450. In establishing appropriate disclosure and recognition for loss contingencies, management assesses each matter including the role of the relevant Citigroup legal entity. Because specific loss contingency matters may involve multiple Citigroup legal entities and are not solely related to one legal entity, this process requires management to make certain estimates and judgments that affect the Company's Consolidated Financial Statements.

Accruals. ASC 450 requires accrual for a loss contingency when it is "probable that one or more future events will occur confirming the fact of loss" *and* "the amount of the loss can be reasonably estimated." In accordance with ASC 450, Citigroup establishes accruals for contingencies, including any litigation, regulatory or tax matters disclosed herein, when Citigroup believes it is probable that a loss has been incurred and the amount of the loss can be reasonably estimated. When the reasonable estimate of the loss is within a range of amounts, the minimum amount of the range is accrued, unless some higher amount within the range is a better estimate than any other amount within the range. Once established, accruals are adjusted from time to time, as appropriate, in light of additional information. The amount of loss ultimately incurred in relation to those matters may be substantially higher or lower than the amounts accrued for those matters.

Disclosure. ASC 450 requires disclosure of a loss contingency if "there is at least a reasonable possibility that a loss or an additional loss may have been incurred" *and* there is no accrual for the loss because the conditions described above are not met or an exposure to loss exists in excess of the amount accrued. In accordance with ASC 450, if Citigroup has not accrued for a matter because Citigroup believes that a loss is reasonably possible but not probable, or that a loss is probable but not reasonably estimable, and the reasonably possible loss is material, it discloses the loss contingency. In addition, Citigroup discloses matters for which it has accrued if it believes a reasonably possible exposure to material loss exists in excess of the amount accrued. In accordance with ASC 450, Citigroup's disclosure includes an estimate of the reasonably possible loss or range of loss for those matters as to which an estimate can be made. ASC 450 does not require disclosure of an estimate of the reasonably possible loss or range of loss where an estimate cannot be made. Neither accrual nor disclosure is required for losses that are deemed remote.

Litigation, Regulatory, and Other Contingencies
Overview. In addition to the matters described below, in the ordinary course of business, CGMHI, its parent entity Citigroup, its affiliates and subsidiaries, and current and former officers, directors and employees (for purposes of this section, sometimes collectively referred to as Citigroup and Related Parties) routinely are named as defendants in, or as parties to, various legal actions and proceedings. Certain of these actions and proceedings assert claims or seek relief in connection with alleged violations of consumer protection, securities, banking, antifraud, antitrust, anti-money laundering, employment, and other statutory and common laws. Certain of these actual or threatened legal actions and proceedings include claims for substantial or indeterminate compensatory or punitive damages, or for injunctive relief, and in some instances seek recovery on a class-wide basis.

In the ordinary course of business, Citigroup and Related Parties also are subject to governmental and regulatory examinations, information-gathering requests, investigations, and proceedings (both formal and informal), certain of which may result in adverse judgments, settlements, fines, penalties, restitution, disgorgement, injunctions or other relief. In addition, Citigroup is a bank holding company, and certain affiliates and subsidiaries of CGMHI are banks, registered broker-dealers, futures commission merchants, investment advisors or other regulated entities and, in those capacities, are subject to regulation by various U.S., state, and foreign securities, banking, commodity futures, consumer protection, and other regulators. In connection with formal and informal inquiries by these regulators, Citigroup and such affiliates and subsidiaries receive numerous requests, subpoenas, and orders seeking documents, testimony, and other information in connection with various aspects of their regulated activities. From time to time Citigroup and Related Parties also receive grand jury subpoenas and other requests for information or assistance, formal or informal, from federal or state law enforcement agencies including, among others, various United States Attorneys' Offices, the Money Laundering and Asset Recovery Section and other divisions of the Department of Justice, the Financial Crimes Enforcement Network of the United States Department of the Treasury, and the Federal Bureau of Investigation relating to Citigroup and its customers.

Because of the global scope of Citigroup's operations and its presence in countries around the world, Citigroup and Related Parties are subject to litigation and governmental and regulatory examinations, information-gathering requests, investigations, and proceedings (both formal and informal) in multiple jurisdictions with legal, regulatory, and tax regimes that may differ substantially, and present substantially different risks, from those Citigroup and Related Parties are subject to in the United States. In some instances, Citigroup and Related Parties may be involved in proceedings involving the same subject matter in multiple jurisdictions, which may result in overlapping, cumulative or inconsistent outcomes.

Citigroup and CGMHI seek to resolve all litigation, regulatory, tax, and other matters in the manner management believes is in the best interests of Citigroup and its shareholders, and contests liability, allegations of wrongdoing, and, where applicable, the amount of damages or scope of any penalties or other relief sought as appropriate in each pending matter.

Inherent Uncertainty of the Matters Disclosed. Certain of the matters disclosed below involve claims for substantial or indeterminate damages. The claims asserted in these matters typically are broad, often spanning a multiyear period and sometimes a wide range of business activities, and the plaintiffs' or claimants' alleged damages frequently are not quantified or factually supported in the complaint or statement of claim. Other matters relate to regulatory investigations or proceedings, as to which there may be no objective basis for quantifying the range of potential fine, penalty or other remedy. As a result, Citigroup is often unable to estimate the loss in such matters, even if it believes that a loss is probable or reasonably possible, until developments in the case, proceeding or investigation have yielded additional information sufficient to support a quantitative assessment of the range of reasonably possible loss. Such developments may include, among other things, discovery from adverse parties or third parties, rulings by the court on key issues, analysis by retained experts, and engagement in settlement negotiations.

Depending on a range of factors, such as the complexity of the facts, the novelty of the legal theories, the pace of discovery, the court's scheduling order, the timing of court decisions, and the adverse party's, regulator's or other authority's willingness to negotiate in good faith toward a resolution, it may be months or years after the filing of a case or commencement of a proceeding or an investigation before an estimate of the range of reasonably possible loss can be made.

Matters as to Which an Estimate Can Be Made. For some of the matters disclosed below, Citigroup is currently able to estimate a reasonably possible loss or range of loss in excess of amounts accrued (if any). For some of the matters included within this estimation, an accrual has been made because a loss is believed to be both probable and reasonably estimable, but a reasonably possible exposure to loss exists in excess of the amount accrued. In these cases, the estimate reflects the reasonably possible range of loss in excess of the accrued amount. For other matters included within this estimation, no accrual has been made because a loss, although estimable, is believed to be reasonably possible, but not probable; in these cases, the estimate reflects the reasonably possible loss or range of loss.

These estimates are based on currently available information. As available information changes, the matters for which Citigroup is able to estimate will change, and the estimates themselves will change. In addition, while many estimates presented in financial statements and other financial disclosures involve significant judgment and may be subject to significant uncertainty, estimates of the range of reasonably possible loss arising from litigation, regulatory, and tax proceedings are subject to particular uncertainties. For example, at the time of making an estimate, (i) Citigroup may have only preliminary, incomplete or inaccurate information about the facts underlying the claim, (ii) its assumptions about the future rulings of the court, other tribunal or authority on significant issues, or the behavior and incentives of adverse parties, regulators or other authorities, may prove to be wrong and (iii) the outcomes it is attempting to predict are often not amenable to the use of statistical or other quantitative analytical tools. In addition, from time to time an outcome may occur that Citigroup had not accounted for in its estimate because it had deemed such an outcome to be remote. For all of these reasons, the amount of loss in excess of amounts accrued in relation to matters for which an estimate has been made could be substantially higher or lower than the range of loss included in the estimate.

Matters as to Which an Estimate Cannot Be Made. For other matters disclosed below, Citigroup is not currently able to estimate the reasonably possible loss or range of loss. Many of these matters remain in very preliminary stages (even in some cases where a substantial period of time has passed since the commencement of the matter), with few or no substantive legal decisions by the court, tribunal or other authority defining the scope of the claims, the class (if any) or the potentially available damages or other exposure, and fact discovery is still in progress or has not yet begun. In many of these matters, Citigroup has not yet answered the complaint or statement of claim or asserted its defenses, nor has it engaged in any negotiations with the adverse party (whether a regulator, taxing authority or a private party). For all these reasons, Citigroup cannot at this time estimate the reasonably possible loss or range of loss, if any, for these matters.

Opinion of Management as to Eventual Outcome. Subject to the foregoing, it is the opinion of Citigroup's management, based on current knowledge and after taking into account its current accruals, that the eventual outcome of all matters described in this Note would not likely have a material adverse effect on the consolidated financial condition of CGMHI.

Nonetheless, given the substantial or indeterminate amounts sought in certain of these matters, and the inherent unpredictability of such matters, an adverse outcome in certain of these matters could, from time to time, have a material adverse effect on CGMHI's consolidated results of operations or cash flows in particular quarterly or annual periods.

Foreign Exchange Litigation
In 2015, a putative class of consumers and businesses in the U.S. who directly purchased supracompetitive foreign currency at benchmark exchange rates filed an action against Citigroup and other defendants, captioned NYPL v. JPMORGAN CHASE & CO., ET AL., in the United States District Court for the Northern District of California (later transferred to the United States District Court for the Southern District of New York). Subsequently, plaintiffs filed an amended class action complaint against Citigroup, Citibank, and Citicorp as defendants. Plaintiffs allege that they suffered losses as a result of defendants' alleged manipulation of, and collusion with respect to, the foreign exchange market. Plaintiffs assert claims under federal and California antitrust and consumer protection laws, and seek compensatory damages, treble damages, and declaratory and injunctive relief. On March 8, 2022, the court denied plaintiffs' motion for class certification. On March 30, 2023, the court granted defendants' motion for summary judgment and dismissed all remaining claims. On April 13, 2023, plaintiffs appealed the district court's decision to the United States Court of Appeals for the Second Circuit. Additional information concerning this action is publicly available in court filings under the docket numbers 15-CV-2290 (N.D. Cal.) (Chhabria, J.), 15-CV-9300 (S.D.N.Y.) (Schofield, J.), 22-698 (2d Cir.), and 23-619 (2d Cir.).

In 2019, two applications, captioned MICHAEL O'HIGGINS FX CLASS REPRESENTATIVE LIMITED v. BARCLAYS BANK PLC AND OTHERS and PHILLIP EVANS v. BARCLAYS BANK PLC AND OTHERS, were made to the U.K.'s Competition Appeal Tribunal requesting permission to commence collective proceedings against Citigroup, Citibank, and other defendants. The applications seek compensatory damages for losses alleged to have arisen from the actions at issue in the European Commission's foreign exchange spot trading infringement decision (European Commission Decision of May 16, 2019 in Case AT.40135-FOREX (Three Way Banana Split) C(2019) 3631 final). After claimants appealed the U.K. Competition Appeal Tribunal's judgment on certification, the Court of Appeal issued a judgment on November 9, 2023, that the U.K. Competition Appeal Tribunal should not have declined to certify the proceedings. In December 2023, Citigroup, Citibank and the other defendants applied to the U.K.'s Supreme Court for permission to appeal the Court of Appeal's judgment. Additional information concerning these actions is publicly available in court filings under the case numbers 1329/7/7/19 and 1336/7/7/19 in the U.K. Competition Appeal Tribunal, CA-2022-002002 and CA-2022-002003 in the Court of Appeal, and UKSC 2023/0177 in the U.K. Supreme Court.

In 2019, a putative class action was filed against Citibank and other defendants, captioned J WISBEY & ASSOCIATES PTY LTD v. UBS AG & ORS, in the Federal Court of Australia. Plaintiffs allege that defendants manipulated the foreign exchange markets. Plaintiffs assert claims under antitrust laws, and seek compensatory damages and declaratory and injunctive relief. Additional information concerning this action is publicly available in court filings under the docket number VID567/2019.

In 2019, two motions for certification of class actions filed against Citigroup, Citibank, Citicorp, and other defendants were consolidated, under the caption GERTLER, ET AL. v. DEUTSCHE BANK AG, in the Tel Aviv Central District Court in Israel. Plaintiffs allege that defendants manipulated the foreign exchange markets. In August 2021, Citibank's motion to dismiss plaintiffs' petition for certification was denied. In April 2022, the Supreme Court of Israel denied Citibank's motion for leave to appeal the Central District Court's denial of its motion to dismiss. Additional information concerning this action is publicly available in court filings under the docket number CA 29013-09-18.

On December 13, 2021, a Dutch foundation filed a writ of summons against Citigroup, Citibank, and other defendants, captioned STICHTING FX CLAIMS v. NATWEST MARKETS N.V., ET AL., in the Amsterdam District Court in the Netherlands. Claimant seeks damages on behalf of certain institutional investors for losses alleged to have arisen from the actions at issue in the European Commission's foreign exchange spot trading infringement decision (European Commission Decision of May 16, 2019 in Case AT.40135-FOREX (Three Way Banana Split) C(2019) 3631 final). On March 29, 2023, the court dismissed claims made on behalf of parties located outside the Netherlands, and permitted the other claims to go forward. Claimant appealed that decision and on September 14, 2023, filed a new writ of summons asserting similar claims on behalf of additional institutional investors. Additional information concerning this action is publicly available in court filings under the case numbers C/13/718639 / HA ZA 22-460 and C/13/743903 / HA ZA 23-1143 in the Amsterdam District Court and under the case number 200.329.379/01 in the Amsterdam Court of Appeal.

Interbank Offered Rates-Related Litigation and Other Matters
In August 2020, individual borrowers and consumers of loans and credit cards filed an action against Citigroup, Citibank, CGMI, and other defendants, captioned MCCARTHY, ET AL. v. INTERCONTINENTAL EXCHANGE, INC., ET AL., in the United States District Court for the Northern District of California. Plaintiffs allege that defendants conspired to fix ICE LIBOR, assert claims under the Sherman Act and the Clayton Act, and seek declaratory relief, injunctive relief, and treble damages. In October 2022, plaintiffs filed an amended complaint. On October 10, 2023, the court granted defendants' motion to dismiss the amended complaint with prejudice for all claims against Citigroup, Citibank, and CGMI. Plaintiffs have appealed the decision to the United States Court of Appeals for the Ninth Circuit. Additional information concerning this action is publicly available in court filings under the docket numbers 20-CV-5832 (N.D. Cal.) (Donato, J.) and 23-3458 (9th Cir.).

Interest Rate and Credit Default Swap Litigation
Beginning in 2015, Citigroup, Citibank, CGMI, CGML, and numerous other parties were named as defendants in a number of industry-wide putative class actions related to interest rate swap (IRS) trading. These actions have been consolidated in the United States District Court for the Southern District of New York under the caption IN RE INTEREST RATE SWAPS ANTITRUST LITIGATION. The actions allege that defendants colluded to prevent the development of exchange-like trading for IRS and assert federal and state antitrust claims and claims for unjust enrichment. Also consolidated under the same caption are individual actions filed by swap execution facilities, asserting federal and state antitrust claims, as well as claims for unjust enrichment and tortious interference with business relations. Plaintiffs in these actions seek treble damages, fees, costs, and injunctive relief. Lead plaintiffs in the class action moved for class certification in 2019 and subsequently filed an amended complaint. On December 15, 2023, the court denied plaintiffs' motion for class certification. On December 28, 2023, plaintiffs filed a petition seeking interlocutory review of the decision by the United States Court of Appeals for the Second Circuit. Additional information concerning these actions is publicly available in court filings under the docket numbers 18-CV-5361 (S.D.N.Y.) (Oetken, J.) and 16-MD-2704 (S.D.N.Y.) (Oetken, J.).

In 2017, Citigroup, Citibank, CGMI, CGML, and numerous other parties were named as defendants in an action filed in the United States District Court for the Southern District of New York under the caption TERA GROUP, INC., ET AL. v. CITIGROUP, INC., ET AL. The complaint alleges that defendants colluded to prevent the development of exchange-like trading for credit default swaps and asserts federal and state antitrust claims and state law tort claims. In January 2020, plaintiffs filed an amended complaint, which defendants later moved to dismiss. On August 14, 2023, the court granted defendants' motion to dismiss with prejudice for all claims against Citigroup, Citibank, CGMI, and CGML. On January 10, 2024, plaintiffs filed a notice of appeal. Additional information concerning this action is publicly available in court filings under the docket number 17-CV-4302 (S.D.N.Y.) (Sullivan, J.).

Madoff-Related Litigation
In 2008, a Securities Investor Protection Act (SIPA) trustee was appointed for the SIPA liquidation of Bernard L. Madoff Investment Securities LLC (BLMIS) in the United States Bankruptcy Court for the Southern District of New York. Beginning in 2010, the SIPA trustee commenced actions against multiple Citi entities, including Citibank, Citicorp North America, Inc., and CGML, captioned PICARD v. CITIBANK, N.A., ET AL., seeking recovery of monies that originated at BLMIS and were allegedly received by the Citi entities as subsequent transferees.

In February 2022, the SIPA trustee filed an amended complaint against Citibank, Citicorp North America, Inc., and CGML. In April 2022, these Citi entities moved to dismiss the amended complaint, which the bankruptcy court denied. In November 2022, the remaining Citi entities moved to file an interlocutory appeal of the bankruptcy court's decision and answered the amended complaint. Additional information concerning these actions is publicly available in court filings under the docket numbers 10-5345 (Bankr. S.D.N.Y.) (Morris, J.) and 22-9597 (S.D.N.Y.) (Gardephe, J.).

Beginning in 2010, the British Virgin Islands liquidators of Fairfield Sentry Limited, whose assets were invested with BLMIS, commenced multiple actions against CGML, Citibank (Switzerland) AG, Citibank, NA London, Citivic Nominees Ltd., Cititrust Bahamas Ltd., and Citibank Korea Inc., captioned FAIRFIELD SENTRY LTD., ET AL. v. CITIGROUP GLOBAL MARKETS LTD., ET AL.; FAIRFIELD SENTRY LTD., ET AL. v. CITIBANK (SWITZERLAND) AG, ET AL.; FAIRFIELD SENTRY LTD., ET AL. v. ZURICH CAPITAL MARKETS COMPANY, ET AL.; FAIRFIELD SENTRY LTD., ET AL. v. CITIBANK NA LONDON, ET AL.; FAIRFIELD SENTRY LTD., ET AL. v. CITIVIC NOMINEES LTD., ET AL.; FAIRFIELD SENTRY LTD., ET AL. v. DON CHIMANGO SA, ET AL.; and FAIRFIELD SENTRY LTD., ET AL. v. CITIBANK KOREA INC. ET AL., in the United States Bankruptcy Court for the Southern District of New York. The actions seek recovery of monies that were allegedly received directly or indirectly from Fairfield Sentry.

In August 2022, the United States District Court for the Southern District of New York affirmed various decisions of the bankruptcy court, which dismissed claims against CGML, Citibank (Switzerland) AG, Citibank, NA London, Citivic Nominees Ltd., Cititrust Bahamas Ltd., and Citibank Korea Inc., and permitted a single claim against Citibank, NA London, CGML, Citivic Nominees Ltd., and Citibank (Switzerland) AG to proceed. In late September 2022, the liquidators appealed the district court's decision dismissing the liquidators' claims. In September 2022, CGML, Citibank (Switzerland) AG, Citibank, NA London, and Citivic Nominees Ltd. moved for leave to appeal the district court's decision permitting the single claim to proceed against them. On July 5, 2023, the United States Court of Appeals for the Second Circuit granted CGML, Citibank (Switzerland) AG, Citivic Nominees Ltd., and Citibank, NA London leave to appeal the district court's decision permitting a single claim to proceed against them and ordered those appeals to be heard in tandem with the liquidators' pending consolidated direct appeal.

On May 5, 2023, the liquidators voluntarily dismissed the pending claims against Citibank (Switzerland) AG and Citivic Nominees Ltd. without prejudice. The claims previously dismissed against Citibank (Switzerland) AG and Citivic Nominees Ltd. remain subject to the pending consolidated direct appeal in the United States Court of Appeals for the Second Circuit and are unaffected by the liquidators' voluntary dismissal. Additional information is publicly available in court filings under the docket numbers 10-13164, 10-3496, 10-3622, 10-3634, 10-4100, 10-3640, 11-2770, 12-1142, 12-1298 (Bankr. S.D.N.Y.) (Mastando, J.); 19-3911, 19-4267, 19-4396, 19-4484, 19-5106, 19-5135, 19-5109, 21-2997, 21-3243, 21-3526, 21-3529, 21-3530, 21-3998, 21-4307, 21-4498, 21-4496 (S.D.N.Y.) (Broderick, J.); and 22-2101 (consolidated lead appeal), 22-2557, 22-2122, 23-697, 22-2562, 22-2216, 22-2545, 22-2308, 22-2591, 22-2502, 22-2553, 22-2398, 22-2582, 23-965 (consolidated lead appeal), 23-549, 23-572, 23-573, 23-975, 23-982, 23-987 (2d Cir.).

Shareholder Derivative and Securities Litigation

Beginning in October 2020, four derivative actions were filed in the United States District Court for the Southern District of New York, purportedly on behalf of Citigroup (as nominal defendant) against certain of Citigroup's current and former directors. The actions were later consolidated under the case name IN RE CITIGROUP INC. SHAREHOLDER DERIVATIVE LITIGATION. The consolidated complaint asserts claims for breach of fiduciary duty, unjust enrichment, and contribution and indemnification in connection with defendants' alleged failures to implement adequate internal controls. In addition, the consolidated complaint asserts derivative claims for violations of Sections 10(b) and 14(a) of the Securities Exchange Act of 1934 in connection with statements in Citigroup's 2019 and 2020 annual meeting proxy statements. In February 2021, the court stayed the action pending resolution of defendants' motion to dismiss in IN RE CITIGROUP SECURITIES LITIGATION. In April 2023, after defendants' motion to dismiss was granted in IN RE CITIGROUP SECURITIES LITIGATION, the court maintained the stay in this action pending resolution of the securities plaintiffs' motion for leave to amend the complaint and, if leave is granted, any subsequent motion to dismiss. Additional information concerning this action is publicly available in court filings under the docket number 1:20-CV-09438 (S.D.N.Y.) (Preska, J.).

Beginning in December 2020, two derivative actions were filed in the Supreme Court of the State of New York, purportedly on behalf of Citigroup (as nominal defendant) against certain of Citigroup's current and former directors, and certain current and former officers. The actions were later consolidated under the case name IN RE CITIGROUP INC. DERIVATIVE LITIGATION, and the court stayed the action pending resolution of defendants' motion to dismiss in IN RE CITIGROUP SECURITIES LITIGATION. In April 2023, a third related derivative action also filed in the Supreme Court of the State of New York was consolidated for all purposes into this action. That same month, following the dismissal of the securities complaint in IN RE CITIGROUP SECURITIES LITIGATION, the court maintained the stay in this action pending resolution of the securities plaintiffs' motion for leave to amend the complaint and, if leave is granted, any subsequent motion to dismiss. Additional information concerning this action is publicly available in court filings under the docket number 656759/2020 (N.Y. Sup. Ct.) (Schecter, J.).

On August 2, 2022, a shareholder derivative action captioned LIPSHUTZ ET AL. v. COSTELLO ET AL. was filed in the United States District Court for the Eastern District of New York, purportedly on behalf of Citigroup (as nominal defendant) against Citigroup's current directors. The action raises substantially the same claims and allegations as IN RE CITIGROUP INC. SHAREHOLDER DERIVATIVE LITIGATION. The LIPSHUTZ action additionally asserts that plaintiffs made a litigation demand on the Citigroup Board of Directors and that the demand was wrongfully refused. In May 2023, on defendants' motion, the action was transferred to the United States District Court for the Southern District of New York so that it could be litigated along with IN RE CITIGROUP INC. SHAREHOLDER DERIVATIVE LITIGATION and IN RE CITIGROUP SECURITIES LITIGATION. Additional information concerning this action is publicly available in court filings under the docket number 1:23-CV-04058 (S.D.N.Y.) (Preska, J.).

Beginning in October 2020, three putative class action complaints were filed in the United States District Court for the Southern District of New York against Citigroup and certain of its current and former officers, asserting violations of Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 in connection with defendants' alleged misstatements concerning Citigroup's internal controls. The actions were later consolidated under the case name IN RE CITIGROUP SECURITIES LITIGATION. The consolidated complaint later added certain of Citigroup's current and former directors as defendants. On March 24, 2023, the court granted defendants' motion to dismiss without prejudice. On May 24, 2023, plaintiffs moved for leave to file a second amended complaint against Citigroup and certain of Citigroup's current or former officers for alleged violations of Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 based on alleged misstatements concerning risk management and internal controls. Additional information concerning this action is publicly available in court filings under the docket number 1:20-CV-09132 (S.D.N.Y.) (Preska, J.).

Sovereign Securities Litigation

In 2015, putative class actions filed against CGMI and other defendants were consolidated under the caption IN RE TREASURY SECURITIES AUCTION ANTITRUST LITIGATION in the United States District Court for the Southern District of New York. Plaintiffs allege that defendants colluded to fix U.S. Treasury auction bids by sharing competitively sensitive information ahead of the auctions, and that defendants colluded to boycott and prevent the emergence of an anonymous, all-to-all electronic trading platform in the U.S. Treasuries secondary market. Plaintiffs assert claims under antitrust laws, and seek damages, including treble damages where authorized by statute, and injunctive relief. In March 2021, the court granted defendants' motion to dismiss, without prejudice. In May 2021, plaintiffs filed an amended consolidated complaint. In June 2021, certain defendants, including CGMI, moved to dismiss the amended complaint. In March 2022, the court dismissed the amended complaint with prejudice, and the plaintiffs appealed. On February 1, 2024, the United States Court of Appeals for the Second Circuit affirmed the dismissal. Additional information concerning this action is publicly available in court filings under the docket numbers 15-MD-2673 (S.D.N.Y.) (Gardephe, J.) and 22-943 (2d Cir.).

In 2018, a putative class action was filed against Citigroup, CGMI, Citigroup Financial Products Inc., Citigroup Global Markets Holdings Inc., Citibanamex, Grupo Banamex, and other banks, captioned IN RE MEXICAN GOVERNMENT BONDS ANTITRUST LITIGATION, in the United States District Court for the Southern District of New York. The complaint alleges that defendants colluded in the Mexican sovereign bond market. In September 2019, the court granted defendants' motion to dismiss. In December 2019, plaintiffs filed an amended complaint against Citibanamex and other market makers in the Mexican sovereign bond market. Plaintiffs no longer assert any claims against Citigroup or any other U.S. Citi affiliates. The amended complaint alleges a conspiracy to fix prices in the Mexican sovereign bond market, asserts antitrust and unjust enrichment claims, and seeks treble damages, restitution, and injunctive relief. In February 2020, certain defendants, including Citibanamex, moved to dismiss the amended complaint. In November 2020, the court granted defendants' motion to dismiss, and the plaintiffs appealed. On February 9, 2024, the United States Court of Appeals for the Second Circuit vacated the dismissal and remanded the case to the district court for further proceedings. Additional information concerning this action is publicly available in court filings under the docket numbers 18-CV-2830 (S.D.N.Y.) (Oetken, J.) and 22-2039 (2d Cir.).

In February 2021, purchasers of Euro-denominated sovereign debt issued by European central governments added CGMI, CGML, and others as defendants to a putative class action, captioned IN RE EUROPEAN GOVERNMENT BONDS ANTITRUST LITIGATION, in the United States District Court for the Southern District of New York. Plaintiffs allege that defendants engaged in a conspiracy to inflate prices of European government bonds in primary market auctions and to fix the prices of European government bonds in secondary markets. Plaintiffs assert a claim under the Sherman Act and seek treble damages and attorneys' fees. In March 2022, the court granted defendants' motion to dismiss the fourth amended complaint as to certain defendants, but denied defendants' motion to dismiss as to other defendants, including CGMI and CGML. In November 2022, plaintiffs moved for leave to amend the complaint, which the court granted on September 25, 2023. On October 16, 2023, plaintiffs filed a fifth amended complaint. Additional information concerning this action is publicly available in court filings under the docket number 19-CV-2601 (S.D.N.Y.) (Marrero, J.).

Variable Rate Demand Obligation Litigation

In 2019, plaintiffs in the consolidated actions CITY OF PHILADELPHIA v. BANK OF AMERICA CORP, ET AL. and MAYOR AND CITY COUNCIL OF BALTIMORE v. BANK OF AMERICA CORP., ET AL. filed a consolidated complaint naming as defendants Citigroup, Citibank, CGMI, CGML, and numerous other industry participants. The consolidated complaint asserts violations of the Sherman Act, as well as claims for breach of contract, breach of fiduciary duty, and unjust enrichment, and seeks damages and injunctive relief based on allegations that defendants served as remarketing agents for municipal bonds called variable rate demand obligations (VRDOs) and colluded to set artificially high VRDO interest rates. On November 6, 2020, the court granted in part and denied in part defendants' motion to dismiss the consolidated complaint.

On June 2, 2021, the Board of Directors of the San Diego Association of Governments, acting as the San Diego County Regional Transportation Commission, filed a parallel putative class action against the same defendants named in the already pending nationwide consolidated class action. The two actions were consolidated and on August 6, 2021, plaintiffs in the nationwide putative class action filed a consolidated amended complaint, captioned THE CITY OF PHILADELPHIA, MAYOR AND CITY COUNCIL OF BALTIMORE, THE BOARD OF DIRECTORS OF THE SAN DIEGO ASSOCIATION OF GOVERNMENTS, ACTING AS THE SAN DIEGO COUNTY REGIONAL TRANSPORTATION COMMISSION v. BANK OF AMERICA CORP., ET AL. In September 2021, defendants moved to dismiss the consolidated amended complaint in part. In June 2022, the court granted in part and denied in part defendants' partial motion to dismiss the consolidated amended complaint. In October 2022, plaintiffs filed a motion to certify a class of persons and entities who, from February 2008 to November 2015, paid interest rates on VRDOs with respect to the antitrust claim. Plaintiffs also moved to certify a subclass of individuals who entered into remarketing agreements with the defendants during that same period. On September 21, 2023, the court granted plaintiffs' motion for class certification, certifying both an antitrust class and a breach-of-contract subclass. On October 5, 2023, defendants filed a Rule 23(f) petition seeking leave to appeal the certification ruling. On November 8, 2023, the court dismissed certain defendants from the case, including Citigroup, Citibank, and CGML. The United States Court of Appeals for the Second Circuit heard oral argument on defendants' Rule 23(f) petition on January 23, 2024. Additional information concerning this action is publicly available in court filings under the docket numbers 19-CV-1608 (S.D.N.Y.) (Furman, J.) and 23-7328 (2d Cir.).

Since April 2018, Citigroup and certain of its affiliates, including Citibank and CGMI, have been named in state court *qui tam* lawsuits in which Edelweiss Fund, LLC alleges that Citi and other financial institutions defrauded certain state and municipal VRDO issuers in connection with resetting VRDO interest rates. Filed under each state's respective false claims act, these actions are pending in state courts in California, Illinois, New Jersey, and New York, and are captioned STATE OF CALIFORNIA EX REL. EDELWEISS FUND, LLC v. JP MORGAN CHASE & CO., ET AL., STATE OF ILLINOIS EX REL. EDELWEISS FUND, LLC v. JP MORGAN CHASE & CO., ET AL., STATE OF NEW JERSEY EX REL. EDELWEISS FUND, LLC v. JP MORGAN CHASE & CO., ET AL., and STATE OF NEW YORK EX REL. EDELWEISS FUND, LLC v. JP MORGAN CHASE & CO., ET AL., respectively. Additional information concerning these actions is publicly available in court filings under the docket numbers CGC-14-540777 (Cal. Super. Ct.) (Schulman, J.), 2017 L 000289 (Ill. Cir. Ct.) (Donnelly, J.), L-885-15 (N.J. Super. Ct.) (Hurd, J.), and 100559/2014 (N.Y. Sup. Ct.) (Borrok, J.).

Settlement Payments

Payments required in settlement agreements described above have been made or are covered by existing litigation or other accruals.