

always be some room for human error. In view of the large transactions in which Citi engages, such errors could result in significant loss. Operational incidents can also 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 cyber attacks.

Incidents that impact information security and/or technology operations 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 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 proceedings, fines and other costs (see the legal and regulatory proceedings risk factor below).

For information on Citi's management of operational risk, see "Managing Global Risk—Operational Risk" below.

Citi's and Third Parties' Computer Systems and Networks Have Been, and Will Continue to Be, Susceptible to an Increasing Risk of Continually Evolving, Sophisticated Cybersecurity Activities That Could Result in the Theft, Loss, 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 cyber incidents such as unauthorized access, loss or destruction of data (including confidential client information), account takeovers, unavailability of service, computer viruses or other malicious code, cyber attacks and other similar events. These threats can arise from external parties, including cyber criminals, cyber terrorists, hacktivists and nation state actors, as well as insiders who knowingly or unknowingly engage in or enable malicious cyber activities.

Third parties with which Citi does business, as well as retailers and other third parties with which Citi's customers do business, may also be sources of 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, which could lead to compromise or the potential to introduce vulnerable or malicious code, resulting in security

breaches impacting Citi customers. Furthermore, because financial institutions are becoming increasingly interconnected with central agents, exchanges and clearing houses, including as a result of derivatives reforms over the last few years, Citi has increased exposure to cyber attacks through third parties. While many of Citi's agreements with third parties include indemnification provisions, Citi may not be able to recover sufficiently, or at all, under the provisions to adequately offset any losses Citi may incur from third-party cyber incidents.

Citi has been subject to attempted and sometimes successful cyber attacks from external sources 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, (iii) data breaches due to unauthorized access to customer account data and (iv) malicious software attacks on client systems, in an attempt to gain unauthorized access to Citi systems or client data under the guise of normal client transactions. While Citi's monitoring and protection services were able to detect and respond to the incidents targeting its systems before they became significant, they still resulted in limited losses in some instances 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 and on a more significant scale.

Further, although Citi devotes significant resources to implement, maintain, monitor and regularly upgrade its systems and networks with measures such as intrusion detection and prevention and firewalls to safeguard critical business applications, there is no guarantee that these measures or any other measures can provide absolute security. Because the methods used to cause cyber attacks change frequently or, in some cases, are not recognized until launched or even later, Citi may be unable to implement effective preventive measures or proactively address these methods until they are discovered. In addition, given the evolving nature of cyber threat actors and the frequency and sophistication of the cyber activities they carry out, the determination of the severity and potential impact of a cyber incident may not become apparent for a substantial period of time following discovery of the incident. Also, while Citi engages in certain actions to reduce the exposure resulting from outsourcing, 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 actions cannot prevent all third-party-related cyber attacks or data breaches.

Cyber incidents can result in the disclosure of personal, confidential or proprietary customer or client information, damage to Citi's reputation with its clients and the market, customer dissatisfaction and additional costs to Citi, including expenses such as repairing systems, replacing customer payment cards, credit monitoring or adding new personnel or protection technologies. Regulatory penalties, loss of revenues, 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 could also result from cyber incidents (for additional information on

the potential impact of operational disruptions, see the operational processes and systems risk factor above). Moreover, the increasing risk of cyber incidents has resulted in increased legislative and regulatory scrutiny of firms' cybersecurity protection services and calls for additional laws and regulations to further enhance protection of consumers' personal data.

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 cost of which could be immeasurable.

For additional information about Citi's management of cybersecurity risk, see "Managing Global Risk—Operational Risk—Cybersecurity Risk" below.

Changes to or the Application of Incorrect Assumptions, Judgments or Estimates in Citi's Financial Statements Could Cause Significant Unexpected Losses or Impacts in the Future.

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 exposures; valuation of DTAs; and the fair values of certain assets and liabilities, such as goodwill or any other asset for impairment. 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.

For example, the CECL methodology, adopted as of January 1, 2020, 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 the U.S. Real GDP, and the credit indicators, composition and other characteristics of Citi's loan and other applicable portfolios. These model assumptions and forecasted macroeconomic conditions will change over time, whether due to the pandemic or otherwise, resulting in greater variability in Citi's ACL compared to its provision for loan losses under the previous GAAP methodology, and, thus, impact its results of operations, as well as regulatory capital, including as the CECL phase-in begins as of January 1, 2022.

Moreover, Citi has incurred losses related to its foreign operations that are reported in the foreign currency translation adjustment (CTA) components of *Accumulated other comprehensive income (loss) (AOCI)*. In accordance with U.S. GAAP, a sale or substantial liquidation of any foreign operations, such as those related to Citi's 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 additional information on Citi's accounting policy for foreign currency

translation and its foreign CTA components of *AOCI*, see Notes 1 and 19 to the Consolidated Financial Statements. For additional information on the key areas for which assumptions and estimates are used in preparing Citi's financial statements, including those related to Citi's ACL, see "Significant Accounting Policies and Significant Estimates" below and Notes 1 and 27 to the Consolidated Financial Statements.

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 or other regulators, 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. For additional information on Citi's accounting policies, including the expected impacts on Citi's results of operations and financial condition, see Note 1 to the Consolidated Financial Statements.

If Citi's Risk Management 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 mitigation processes and strategies, including the use of risk 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 is made even more challenging within a global financial institution such as Citi, particularly given the complex, diverse and rapidly changing financial markets and conditions in which Citi operates as well as that losses can occur from untimely, inaccurate or incomplete processes caused by unintentional human error.

In addition, in October 2020, Citigroup and Citibank entered into consent orders with the FRB and OCC that require Citigroup and Citibank to submit acceptable plans relating principally to making improvements in various aspects of enterprise-wide risk management, compliance, data quality management and governance and internal controls (see "Citi's Consent Order Compliance" above and the legal and regulatory proceedings risk factor below).

Citi's risk management 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, nor can they anticipate the specifics and timing of such outcomes. Citi could incur significant losses, and its regulatory capital and capital ratios could be negatively impacted, if Citi's risk management processes, including its ability to manage and aggregate data in a timely and accurate manner, strategies or models are deficient or ineffective. 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. Modifications or requirements resulting from these ongoing reviews, as well as any future changes or guidance provided by the U.S. banking agencies regarding the regulatory capital framework applicable to Citi, 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 achieve its regulatory capital requirements.

CREDIT RISKS

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

Credit risk primarily arises from Citi's lending and other businesses in both *GCB* and *ICG*. 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 \$289 billion and end-of-period corporate loans of \$387 billion at year-end 2020.

A default by 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 pandemic-related, macroeconomic, geopolitical and other factors, among other things, can increase Citi's credit risk and credit costs (for additional information, see the pandemic-related, co-branding and private label credit card, macroeconomic challenges and uncertainties and emerging markets risk factors above).

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, rather than incurred losses, which has resulted in and could lead to additional volatility in the allowance and the provision for credit losses as forecasts of economic conditions change. In addition, Citi's future allowance may be affected by seasonality of its cards portfolios based on historical evidence showing that (i) credit card balances typically decrease during the first and second quarters, as borrowers use tax refunds to pay down balances; and (ii) balances increase during the third and fourth quarters each year as payments are no longer impacted by tax refunds and the holiday season approaches. However these seasonal trends could be affected in 2021 due to the impacts of the pandemic, government stimulus and expiration of

consumer and small business relief programs. For additional information, see the incorrect assumptions or estimates and changes to financial accounting and reporting standards risk factors above. For additional information on Citi's ACL, see "Significant Accounting Policies and Significant Estimates" below and Notes 1 and 15 to the Consolidated Financial Statements. For additional information on Citi's credit and country risk, see each respective business's results of operations above and "Managing Global Risk—Credit Risk" and "Managing Global Risk—Strategic Risk—Country Risk" below and Notes 14 and 15 to the Consolidated Financial Statements.

Concentrations of risk, particularly credit and market risks, can also increase Citi's risk of significant losses. As of year-end 2020, Citi's most significant concentration of credit risk was with the U.S. government and its agencies, which primarily results from trading assets and investments issued by the U.S. government and its agencies (for additional information, including concentrations of credit risk to other public sector entities, see Note 23 to the Consolidated Financial Statements). In addition, 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 (for additional information about these exposures, see Note 26 to the Consolidated Financial Statements). A rapid deterioration of a large borrower or other counterparty or within a sector or country where Citi has large exposures or guarantees or unexpected market dislocations could cause Citi to incur significant losses.

LIQUIDITY RISKS

The Maintenance of Adequate Liquidity and Funding Depends on Numerous Factors, Including Those Outside of Citi's Control, Such as Market Disruptions and Increases in Citi's Credit Spreads.

As a large, global financial institution, adequate liquidity and sources of funding are essential to Citi's businesses. Citi's liquidity and sources of funding can be significantly and negatively impacted by factors it cannot control, such as general disruptions in the financial markets, governmental fiscal and monetary policies, regulatory changes or negative investor perceptions of Citi's creditworthiness, unexpected increases in cash or collateral requirements and the inability to monetize available liquidity resources, whether due to the pandemic or otherwise. Citi competes with other banks and financial institutions for deposits, which represent Citi's most stable and lowest cost source of long-term funding. The competition for retail banking deposits has increased in recent years as a result of online banks and digital banking, among others. Furthermore, although Citi's has had robust deposit growth since the onset of the pandemic, it remains unclear how "sticky" (likely to remain at Citi) those deposits may be, particularly in a less accommodating environment.

Moreover, Citi's costs to obtain and access secured funding and long-term unsecured funding are directly related to its credit spreads. Changes in credit spreads are driven by both external market factors and factors specific to Citi, and can be highly volatile. For additional information on Citi's primary sources of funding, see "Managing Global Risk—Liquidity Risk" below.

Citi's ability to obtain funding may be impaired if other market participants are seeking to access the markets at the same time, or if market appetite declines, as is likely to occur in a liquidity stress event or other market crisis. A sudden drop in market liquidity could also cause a temporary or lengthier dislocation of underwriting and 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 based on their perceptions or the market conditions, which could further impair Citi's access to and cost of funding.

Additionally, as a holding company, Citi 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 regulatory or contractual restrictions on their ability to provide such payments, including any local regulatory stress test requirements. Limitations on the payments that Citi receives from its subsidiaries could also impact its liquidity.

The Credit Rating Agencies Continuously Review the Credit Ratings of Citi and Certain of Its Subsidiaries, and a Ratings Downgrade Could Have a Negative Impact on Citi's Funding and Liquidity Due to Reduced Funding Capacity and Increased Funding Costs, Including Derivatives Triggers That Could Require Cash Obligations or Collateral Requirements.

The credit rating agencies, such as Fitch, Moody's and S&P, continuously evaluate Citi and certain of its subsidiaries. Their ratings of Citi and its more significant subsidiaries' long-term/senior debt and short-term/commercial paper are based on a number of factors, including standalone financial strength, 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, and conditions affecting the financial services industry and markets generally.

Citi and its subsidiaries may not be able to maintain their current respective ratings. A ratings downgrade could negatively impact Citi's ability to access the capital markets and other sources of funds as well as the costs of those funds, and its ability to maintain certain deposits. A ratings downgrade could also have a negative impact on Citi's funding and liquidity due to reduced funding capacity and the impact from derivative triggers, which could require Citi to meet cash obligations and collateral requirements. 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, and on contractual provisions and other credit requirements of Citi's counterparties and clients that may contain minimum ratings thresholds in order for Citi to hold third-party funds. Some entities could have ratings limitations on their

permissible counterparties, of which Citi may or may not be aware.

Furthermore, a credit ratings downgrade could have impacts that may not be currently known to Citi or are not possible to quantify. 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 contracts or market instruments 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. For additional information on the potential impact of a reduction in Citi's or Citibank's credit ratings, see "Managing Global Risk—Liquidity Risk" below.

COMPLIANCE RISKS

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

Citi is continually required to interpret and implement extensive and frequently changing regulatory and legislative requirements in the U.S. and other jurisdictions where it does business, resulting in substantial compliance, regulatory and other risks and costs. In addition, there are heightened regulatory scrutiny and expectations in the U.S. and globally for large financial institutions, as well as their employees and agents, with respect to, among other things, governance, infrastructure, data and risk management practices and controls. A failure to comply with these requirements and expectations or resolve any identified deficiencies could result in increased regulatory oversight and restrictions, enforcement proceedings, penalties and fines (for additional information, see the legal and regulatory proceedings risk factor below).

Over the past several years, Citi has been required to implement a significant number of regulatory and legislative changes across all of its businesses and functions, and these changes continue. The changes themselves may be complex and subject to interpretation, and will require continued investments in Citi's global operations and technology solutions. In some cases, Citi's implementation of a regulatory or legislative requirement is occurring simultaneously with changing or conflicting regulatory guidance, legal challenges or legislative action to modify or repeal existing rules or enact new rules. Moreover, in some cases, there have been entirely new regulatory or legislative requirements or regimes, resulting in large volumes of regulation and potential uncertainty regarding regulatory expectations as to what is required in order to be in compliance.

Examples of regulatory or legislative changes that have resulted in increased compliance risks and costs include (i) a proliferation of 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 (ii) the FRB's "total loss absorbing capacity" (TLAC) requirements. Additionally, the banking industry generally is being called upon to do more on the issues of social, economic and racial justice. This could

result in additional regulatory requirements regarding banking services for underserved communities and individuals.

Increased and ongoing compliance requirements and uncertainties have resulted in higher compliance costs for Citi, in part due to an increase in risk, regulatory and compliance staff over the last several years despite a reduction in the overall employee population. Extensive and changing compliance requirements can also result in increased reputational and legal risks for Citi, as failure to comply with regulations and requirements, or failure to comply with regulatory expectations, can result in enforcement and/or regulatory proceedings, penalties and fines.

Citi Is Subject to Extensive Legal and Regulatory Proceedings, Examinations, Investigations, Consent Orders and Related Compliance Efforts and Other Inquiries That Could Result in Significant 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, investigations, consent orders and related compliance efforts, and other inquiries. Citi can also be subject to enforcement proceedings 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.

The recent FRB and OCC consent orders require Citigroup and Citibank to submit acceptable plans to the FRB and OCC, on various timelines, relating principally to making improvements in various aspects of enterprise-wide risk management, compliance, data quality management and governance and internal controls. The consent orders require preparation of acceptable gap analyses that identify the required improvements and related root causes, as well as targeted action plans and quarterly progress reports detailing the results and status of the improvements. These improvements will result in significant investments by Citi during 2021 and afterwards, as an essential part of Citi's broader transformation efforts to enhance its infrastructure, governance, processes and risk and controls. Although there are no restrictions on Citi's ability to serve its clients, the Citibank consent order requires prior approval of any significant new acquisition, including any portfolio or business acquisition, excluding ordinary course transactions. Moreover, the Citibank consent order provides that the OCC has the right to assess future civil monetary penalties or take other supervisory and/or enforcement actions, including where the OCC determines Citibank has not made sufficient and sustainable progress to address the required improvements. 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 Federal Reserve 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.

For additional information regarding the consent orders, see "Citi's Consent Order Compliance" above.

The global judicial, regulatory and political environment has generally been challenging for large financial institutions. 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 different jurisdictions, as well as multiple civil litigation claims in multiple jurisdictions.

U.S. and non-U.S. regulators have been increasingly focused on "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, more regulatory or other enforcement proceedings, civil litigation and higher compliance and other risks and costs.

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. Banking regulators have also focused on the overall culture of financial services firms, including Citi.

In addition to regulatory restrictions or structural changes that could result from perceived deficiencies in Citi's culture, such focus could also lead to additional regulatory proceedings. Furthermore, the severity of the remedies sought in legal and regulatory proceedings to which Citi is subject has remained elevated. U.S. and certain international governmental entities have increasingly brought criminal actions against, or have sought criminal convictions from, financial institutions and individual employees, and criminal prosecutors in the U.S. have increasingly sought and obtained criminal guilty pleas or deferred prosecution agreements against corporate entities and individuals and other criminal sanctions for those institutions and individuals. These types of actions by U.S. and international governmental entities may, in the future, have significant collateral consequences for a financial institution, including loss of customers and business, 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 reputational harm.

Further, 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. In addition, certain settlements are subject to court approval and may not be approved.

For additional information relating to Citi's legal and regulatory proceedings and matters, including Citi's policies on establishing legal accruals, see Note 27 to the Consolidated Financial Statements.

HUMAN CAPITAL RESOURCES AND MANAGEMENT

Attracting and retaining a highly qualified and motivated workforce is a strategic priority for Citi. Citi seeks to enhance the competitive strength of its workforce through the following efforts:

- Continuous innovation in recruiting, training, compensation, promotion and engagement of colleagues
- Actively seeking and listening to diverse perspectives at all levels of the organization
- Optimizing transparency concerning workforce goals, in order to promote accountability, credibility and effectiveness in achieving those goals

Workforce Size and Distribution

As of December 31, 2020, Citi employed 210,153 colleagues in nearly 100 countries. The following table shows the geographic distribution of those colleagues by segment, region and gender:

Business segment	North America	EMEA	Latin America	Asia	Total ⁽¹⁾	Female	Male
<i>Global Consumer Banking</i>	32,936	4,087	30,276	31,849	99,148	58 %	42 %
<i>Institutional Clients Group</i>	16,905	16,457	7,166	22,349	62,877	44	56
<i>Corporate/Other</i>	17,130	9,510	7,000	14,488	48,128	42	58
Total	66,971	30,054	44,442	68,686	210,153	51 %	49 %

(1) Part-time colleagues represented less than 1.5% of Citi's global workforce.

Workforce Management

Citi devotes substantial resources to managing its workforce. Citigroup's Board of Directors provides strategic oversight and direction to management regarding workforce policies and practices, and includes many members with experience in overseeing workforce issues. The chair of the Personnel and Compensation Committee of the Board was formerly the global head of human resources for PIMCO, a leading global asset management firm, and later served as its president, with oversight responsibility for human resources. In addition, the Personnel and Compensation Committee regularly reviews management's achievements against human capital management goals, such as addressing representation of women and U.S. minorities in senior roles at Citi, as well as talent recruitment and development initiatives.

Diversity

Citigroup's Board is committed to ensuring that it and Citi's Executive Management Team are composed of individuals whose backgrounds reflect the diversity represented by Citi's employees, customers and stakeholders.

Additionally, over the past several years, Citi has increased its efforts to diversify its workforce. In furtherance of that goal, Citi has focused on measuring and addressing pay equity within the organization:

- In 2018, Citi was the first major U.S. financial institution to publicly release the results of a pay equity review comparing compensation of women to men and U.S.

minorities to U.S. non-minorities. Since then, Citi has continued to be transparent about pay equity, also disclosing its unadjusted or "raw" pay gap for both women and U.S. minorities since 2019.

- Citi's 2020 results found that, on an adjusted basis, women globally are paid on average more than 99% of what men are paid at Citi, and there was no statistically significant difference in adjusted compensation for U.S. minorities and non-minorities. Following the review, appropriate pay adjustments were made as part of Citi's 2020 compensation cycle.
- Citi's 2020 raw gap analysis showed that the median pay for women globally is better than 74% of the median for men, up from 73% in 2019 and 71% in 2018, and that the median pay for U.S. minorities is just under 94% of the median for non-minorities, which is similar to 2019 and up from 93% in 2018.
- To continue closing the pay gap, Citi has set goals to increase representation at the assistant vice president through managing director levels to at least 40% for women globally and 8% for Black colleagues in the U.S. by the end of 2021.

Citi also has a goal to:

- expand the use of diverse slates across the firm in 2021 to include not one, but at least two women or racial/ethnic minorities in Citi's interviews for U.S. hires and at least two women in interviews for global hires; and

- increase the analyst and associate programs to 50% female colleagues globally and 30% Black and Hispanic/Latino colleagues in the U.S.

In 2020, Citi also:

- expanded the standard for a diverse slate to include at least one woman globally and one woman and/or U.S. minority for U.S. hires at the assistant vice president, vice president and senior vice president levels, in addition to managing director and director level hires;
- included a diverse slate of candidates, with at least one woman and/or U.S. minority, for 86% of roles that were posted globally with a qualified slate;
- increased representation of underrepresented minorities in its full-time U.S. campus recruitment program from 18% in 2019 to 26% in 2020;
- increased female representation in its full-time U.S. campus recruitment program from 45% in 2019 to 46% in 2020; and
- increased female representation in its summer internship program from 47% in 2019 to 52% in 2020 in the U.S. and from 48% in 2019 to 50% in 2020 globally, while Black and Hispanic/Latino representation in its summer class increased from 26% to 27% over the same timeframe. This was Citi's most diverse intern class to date.

Workforce Development

Citi highly values a workplace environment where its colleagues can bring their whole selves to work and where diverse perspectives and ideas are embraced. Citi encourages career growth and development by offering broad and diverse opportunities to colleagues. Highlights of these opportunities include the following:

- Citi provides a range of internal development and rotational programs to colleagues at all levels, including various training programs and events to assist high-performing colleagues in building the skills needed to transition to manager and supervisory roles.
- Citi has a focus on internal talent development and aims to provide colleagues with career growth opportunities, with 33% of open positions filled internally. This emphasis is particularly important as Citi focuses on providing career paths for its diverse talent base as part of its efforts to increase diverse representation at more senior levels of the organization.
- In order to assist colleagues in a rapidly changing world, Citi offers an online platform that delivers information on various topics of interest to colleagues, such as leadership, data analytics, artificial intelligence and cybersecurity, among others.

For information about Citi's reliance on a highly qualified and motivated workforce, see "Risk Factors" above. For additional information about Citi's human capital management initiatives and goals, see Citi's 2021 Annual Meeting Proxy Statement to be filed with the SEC in March 2021 as well as its 2019 Environmental, Social and Governance Report available at www.citigroup.com.

For information about Citi's proactive measures to preserve the health and safety of its workforce during the pandemic, see "COVID-19 Pandemic Overview" above.

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(1) For additional information regarding certain credit risk, market risk and other quantitative and qualitative information, refer to Citi’s Pillar 3 Basel III Advanced Approaches Disclosures, as required by the rules of the Federal Reserve Board, on Citi’s Investor Relations website.

MANAGING GLOBAL RISK

Overview

For Citi, effective risk management is of primary importance to its overall operations. Accordingly, Citi's risk management process has been designed to monitor, evaluate and manage the principal risks it assumes in conducting its activities. Specifically, the activities that Citi engages in, and the risks those activities generate, must be consistent with Citi's mission and value proposition, the key principles that guide it and Citi's risk appetite. As discussed above, Citi is continuing its efforts to comply with the Federal Reserve Board and OCC consent orders, relating principally to various aspects of risk management, compliance, data quality management and governance, and internal controls, see "Citi's Consent Order Compliance" and "Risk Factors—Compliance Risks" above.

Risk management must be built on a foundation of ethical culture. 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' interests, create economic value and are always systemically responsible. In addition, Citi evaluates colleagues' performance against behavioral expectations set out in Citi's leadership standards, which were designed in part to effectuate Citi's mission and value proposition. Other culture-related efforts in connection with conduct risk, ethics and leadership, escalation and treating customers fairly help Citi to execute its mission and value proposition.

Citi's Company-wide risk governance framework consists of the risk management practices that include a risk governance structure and the firm's key policies, processes, personnel and control systems through which Citi identifies, measures, monitors, and controls risks such that the Company's risk taking is consistent with its strategy and risk appetite. It also emphasizes Citi's risk culture and lays out standards, procedures and programs that are designed to set, reinforce and enhance the Company's risk culture, integrate its values and conduct expectations into the organization, providing colleagues with tools to assist them with making prudent and ethical risk decisions and to escalate issues appropriately.

Citi selectively takes risks in support of its underlying customer-centric strategy. Citi's objective is to ensure that those risks are consistent with its mission and value proposition, including its commitment to responsible finance. Citi's risk mission is taking intelligent risk with shared responsibility, without forsaking individual accountability.

Citi's risk appetite framework sets boundaries for risk taking and consists of a set of risk appetite statements that articulate the aggregate level and types of risk that Citi is willing to accept in order to achieve its strategic objectives and business plan and includes governance processes through which the risk appetite is established, communicated and monitored, and its breaches are escalated and resolved. It is built on quantitative boundaries, which include goals, risk

limits and thresholds, and on qualitative principles that guide behavior. Citi's risk appetite framework is enterprise-wide and applicable across products, functions and geographies and comprehensively covers the major categories of risk facing the firm.

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 the firm 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 the firm. This risk may be exacerbated by the inability of the firm to access funding sources or monetize assets and the composition of liability funding and liquid assets.
- *Market risk (including price risk and interest rate risk)* is the risk of loss arising from changes in the value of Citi's assets and liabilities or reduced net interest revenues resulting from changes in market variables, such as interest rates, exchange rates, equity and commodity prices or credit spreads. Losses can be exacerbated by the negative convexity of positions, as well as the presence of basis or correlation risks.
- *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 the failure of the firm to comply with laws, regulations, prudent ethical standards and contractual obligations in any aspect of the firm's business, but excludes strategic and reputation risks (see below).
- *Compliance risk* is the risk to current or projected financial conditions and resilience arising from violations of laws, rules or regulations, or from non-conformance with prescribed practices, internal policies and procedures or ethical standards. It also includes the exposure to litigation (known as legal risk) from all aspects of banking, traditional and non-traditional.
- *Reputation risk* is the risk to current or projected financial conditions and resilience arising from negative public opinion. 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 to current or anticipated earnings, capital, or franchise or enterprise value arising from poor, but authorized, business decisions (in compliance with regulations, policies and procedures), an inability to adapt to changes in the operating environment, or other external factors that may impair the ability to carry out a business strategy. Strategic risk also includes:
 - *Country risk*, which is the risk that conditions in a country (which may be precipitated by developments within or external to a country) will impair the value of Citi's franchise or will adversely affect the ability of obligors within that country to honor their

obligations to Citi. Country risk includes sovereign defaults, banking crises, currency crises, currency convertibility and/or transferability restrictions or political developments.

Citi uses a lines of defense construct to manage its risks. The construct comprises units that create risks (first line of defense), those that independently assess risk (second line of defense), units that provide independent assurance (third line of defense) and units tasked with maintaining a strong control environment (control and support functions). The lines of defense, which include control and support functions, coordinate with each other in the risk management system in support of the common goal of identifying, measuring, monitoring and controlling risk-taking activities so they remain consistent with the firm's strategy and risk appetite.

First Line of Defense: Front Line Units and Front Line Unit Activities

Citi's first line of defense owns the risks inherent in or arising from their business and is responsible for identifying, assessing and controlling those risks so that they are within Citi's risk appetite.

Front line units are responsible and held accountable for managing the risks associated with their activities within the boundaries set by independent risk management. They are also responsible for designing and implementing effective internal controls and maintaining processes for managing their risk profile, including through risk mitigation, so that it remains consistent with Citi's established risk appetite.

Front line unit activities are considered part of the first line of defense and are subject to the oversight and challenge of independent risk management, whether they are conducted by a front line unit or another line of defense designation. Note that front line units may also conduct control and support activities which are subject to the relevant firm-wide independent oversight processes specific to the risk category that they generate (e.g., operational risk, compliance risk, reputation risk).

The first line of defense is composed of Citi's Business Management (*Global Consumer Bank (GCB)* and *Institutional Clients Group (ICG)*), Regional and Country Management, certain Corporate Functions (Enterprise Infrastructure, Operations and Technology (EIO&T) and Finance), as well as other front line unit activities.

Second Line of Defense: Independent risk management

Independent risk management units are independent of front line units. They are responsible for overseeing the risk-taking activities of the first line of defense and challenging the first line of defense in the execution of their risk management responsibilities. They are also responsible for independently identifying, measuring, monitoring and controlling aggregate risks and for setting standards for the management and oversight of risk. At Citi, the second line of defense is defined to include Independent Risk Management and Independent Compliance Risk Management (ICRM). Independent Risk Management and ICRM report to Citi's Chief Risk Officer and Chief Compliance Officer (CCO), respectively, both of whom report directly to the Citigroup CEO and have

unrestricted access to the Citigroup Board of Directors or its committees.

Independent Risk Management

The Independent Risk Management organization sets risk and control standards for the first line of defense and actively manages and oversees aggregate credit, market (price and interest rate), liquidity, strategic, operational, compliance and reputation risks across the firm, including risks that span categories, such as concentration risk.

Independent Risk Management is organized to align to businesses, regions, types of risk and to firm-wide, cross-risk functions or processes. There are teams that report to an independent Chief Risk Officer (CRO) for Citi's businesses (Business CROs, including Finance Chief Risk Officers) and regions / legal entities (Regional / Legal Entity CROs). In addition, there are risk-category-aligned teams that report to a Risk Category Head (e.g., Market Risk, Operational Risk, Model Risk) and foundational teams that report to a Foundational Risk Management Head (e.g., Risk Governance, Enterprise Concentration Risk Management, Global Risk Review). All of the above Risk Heads, together with the Business and Regional / Legal Entity CROs, report to the Citigroup CRO.

Independent Compliance Risk Management

The Independent Compliance Risk Management organization is designed to oversee and challenge products, functions, jurisdictional activities and legal entities in managing compliance risk, as well as promoting business conduct and activity that is consistent with Citi's mission and value proposition and the compliance risk appetite. Citi's objective is to embed an enterprise-wide compliance risk management framework and culture that identifies, measures, monitors, controls and escalates compliance risk across the firm.

Product Line, Function and Country ICRM provide compliance risk management advice and credible challenge on day-to-day matters and strategic decision-making for key initiatives. Additionally, Country ICRM provides advisory and challenge on regulatory and enterprise wide matters such as regulatory changes in a country. ICRM has program-level Enterprise Compliance units whose Heads are responsible for coordinating and managing their respective horizontal, enterprise-wide compliance programs, setting standards and establishing priorities for program-related compliance efforts.

Third Line of Defense: Internal Audit

Internal audit is independent of front line units and independent risk management units. Internal audit provides independent assurance to the Citigroup Board of Directors on the effectiveness of governance, risk management and internal controls. Internal audit reports to a chief audit executive (i.e., Citi's Chief Auditor) who has unrestricted access to the Board or its audit committee to facilitate the ability to execute specific responsibilities pertaining to escalation of risks and issues.

The Internal Audit function has designated Chief Auditors responsible for assessing the design and effectiveness of controls within the various business units, functions, geographies and legal entities in which Citi operates.

The Citigroup Chief Auditor manages Internal Audit and maintains its independence from the front line units, Independent Risk Management, ICRM and control and support functions by reporting functionally to the Chairman of the Citigroup Audit Committee and administratively to the Citigroup CEO.

Control and Support Functions

Control and support functions do not meet the definition of front line unit, independent risk management or internal audit. While they do not report into the CRO or CCO, they are expected to design, implement and maintain an effective control environment with respect to the risks they generate, and also support safety and soundness.

At Citi, the control and support functions are defined to include the following organizational units: Chief Administrative Office, Global Public Affairs, Human Resources, International Franchise Management, Legal (including Citi Security & Investigative Services) and the Office of the CBNA CEO.

Board and Executive Management

The Citigroup Board of Directors, both directly or through its committees, actively oversees Citi's risk taking activities and holds management accountable for adhering to the risk governance framework. The primary responsibility of the Citigroup Board is to provide effective governance over Citi's affairs for the benefit of its stakeholders. Directors have full and free access to management.

The standing committees of the Citigroup Board are the Risk Management Committee, Audit Committee, Personnel and Compensation Committee, Ethics, Conduct and Culture Committee and Nomination, Governance and Public Affairs Committee.

The Board delegates authority to the Executive Management Team, which consists of the Citigroup CEO and certain direct reports of the CEO, for directing and overseeing day-to-day management of the firm. The Executive Management Team is responsible for developing and implementing policies, procedures and processes that translate the Board's goals, strategic objectives and risk appetite and limits into prudent standards for the safe and sound operation of the firm.

The Executive Management Team reports to the Board on the firm's overall risk profile, including aggregate and emerging risks, and provides the Board with information about current and potential risk exposures and their potential impact on earnings, capital and strategic objectives.

Executive Management committees have been designed to cover all primary risks to which Citi is exposed. These Executive Management committees escalate to standing committees of the Board. The standing Executive Management committees are the Group Risk Management Committee, Group Strategic Risk Committee, Citigroup Asset & Liability Committee, Group Business, Risk and Control Committee and Group Reputation Risk Committee.

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 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.

Credit risk is one of the most significant risks Citi faces as an institution. For additional information, see "Risk Factors—Credit Risk" above. As a result, Citi has a well-established framework in place for managing credit risk across all businesses. This includes a defined risk appetite, credit limits and credit policies, both at the business level as well as at the Company-wide level. Citi's credit risk management also includes processes and policies with respect to problem recognition, including "watch lists," portfolio reviews, stress tests, updated risk ratings and classification triggers.

With respect to Citi's clearing and settlement activities, intraday client usage of clearing lines is monitored against limits, as well as against usage patterns with settlement activity monitored daily and intraday for select products. To the extent that a problem develops, Citi typically moves the client to a secured (collateralized) operating model. Generally, Citi's intraday clearing and settlement lines are uncommitted and cancelable at any time.

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

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 these 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 ACL process (see "Significant Accounting Policies and Significant Estimates—Allowance for Credit Losses" below and Notes 1 and 15 to the

Consolidated Financial Statements), 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.

For additional information on Citi's credit risk management, see Note 14 to the Consolidated Financial Statements.

CONSUMER CREDIT

Citi provides traditional retail banking, including small business banking, and credit card products in 19 countries and jurisdictions through *North America GCB*, *Latin America GCB* and *Asia GCB*. The retail banking products include consumer mortgages, home equity, personal and small business loans and lines of credit and similar related products with a focus on lending to prime customers. Citi uses its risk appetite framework to define its lending parameters. In addition, Citi uses proprietary and/or industry scoring models for new customer approvals.

As stated in “*Global Consumer Banking*” above, *GCB*'s strategy is to leverage its global footprint and digital capabilities to develop multiproduct relationships with customers, both in and out of Citi's branch footprint.

Consumer Credit Portfolio

The following table shows Citi's quarterly end-of-period consumer loans:⁽¹⁾

<i>In billions of dollars</i>	4Q'19	1Q'20	2Q'20	3Q'20	4Q'20
Retail banking:					
Mortgages	\$ 85.5	\$ 83.6	\$ 86.0	\$ 87.5	\$ 88.9
Personal, small business and other	39.3	36.6	37.6	38.3	40.1
Total retail banking	\$ 124.8	\$ 120.2	\$ 123.6	\$ 125.8	\$ 129.0
Cards:					
Citi-branded cards	\$ 122.2	\$ 110.2	\$ 103.6	\$ 102.2	\$ 106.7
Citi retail services	52.9	48.9	45.4	44.4	46.4
Total cards	\$ 175.1	\$ 159.1	\$ 149.0	\$ 146.6	\$ 153.1
Total GCB	\$ 299.9	\$ 279.3	\$ 272.6	\$ 272.4	\$ 282.1
GCB regional distribution:					
<i>North America</i>	66 %	67 %	66 %	66 %	65 %
<i>Latin America</i>	6	5	5	5	5
<i>Asia</i> ⁽²⁾	28	28	29	29	30
Total GCB	100 %	100 %	100 %	100 %	100 %
Corporate/Other ⁽³⁾	\$ 9.6	\$ 9.1	\$ 8.5	\$ 7.6	\$ 6.7
Total consumer loans	\$ 309.5	\$ 288.4	\$ 281.1	\$ 280.0	\$ 288.8

(1) End-of-period loans include interest and fees on credit cards.

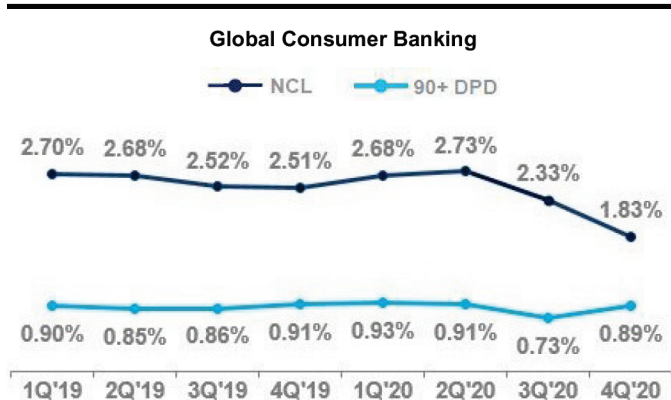
(2) *Asia* includes loans and leases in certain *EMEA* countries for all periods presented.

(3) Primarily consists of legacy assets, principally *North America* consumer mortgages.

For information on changes to Citi's consumer loans, see “Liquidity Risk—Loans” below.

Overall Consumer Credit Trends

The following charts show the quarterly trends in delinquency rates (90+ days past due (90+ DPD) ratio) and the net credit loss (NCL) rates across both retail banking and cards for total GCB and by region.

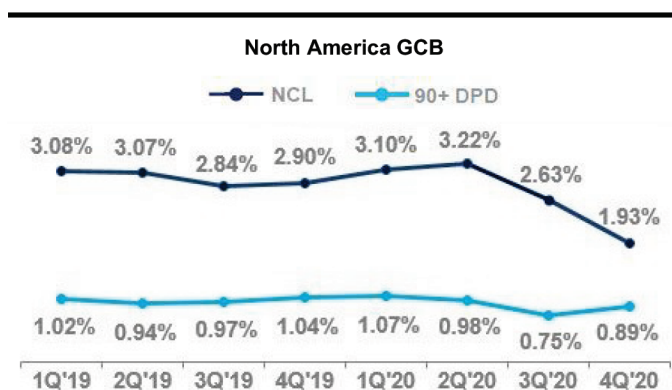


As shown in the chart above, GCB's net credit loss rates decreased significantly year-over-year and quarter-over-quarter as of the fourth quarter of 2020, primarily due to the impacts of the consumer relief programs Citi implemented since the beginning of the pandemic, combined with the benefit of reduced customer spending and significant government stimulus and assistance, as well as other banks' consumer relief programs.

The 90+ days past due delinquency rate increased quarter-over-quarter, largely due to the expiration of the pandemic relief programs in certain countries. The 90+ days past due delinquency rate was largely unchanged year-over-year.

As discussed above, loans modified under Citi's consumer relief programs continue to be reported in the same delinquency bucket they were in at the time of modification and, thus, would not be reported as 90+ days past due or written off for the duration of the programs (which have various durations, and certain of which may be renewed by the customer). As a result of the significant and steady decline in program enrollment, Citi ended its consumer relief programs as of December 31, 2020 for the majority of countries and products.

Citi expects to experience higher consumer net credit loss and 90+ days past due delinquency rates across regions, with sharper losses in *Latin America GCB* and *Asia GCB* starting in the near term. The losses will likely vary by business and region and be dependent on evolving macroeconomic and market conditions. These conditions include the severity and duration of the impact from the pandemic and the impacts of government stimulus programs, as well as the timing of expiration of consumer relief programs and when loans move into later delinquency buckets. Citi believes that these losses are adequately reserved for under the CECL standard at December 31, 2020. For additional information, see "COVID-19 Pandemic Overview—Pandemic and Other Impacts" above.



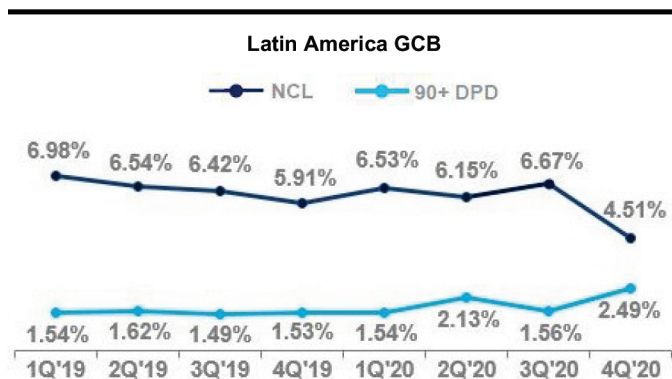
North America GCB provides mortgage, home equity, small business and personal loans through Citi's retail banking network and card products through Citi-branded cards and Citi retail services businesses. The retail bank is concentrated in six major metropolitan cities in the U.S. (for additional information on the U.S. retail bank, see "*North America GCB*" above).

As of December 31, 2020, approximately 71% of *North America GCB* consumer loans consisted of Citi-branded and Citi retail services cards, which generally drives the overall credit performance of *North America GCB* (for additional information on *North America GCB*'s cards portfolios, including delinquency and net credit loss rates, see "Credit Card Trends" below).

As shown in the chart above, the net credit loss rate in *North America GCB* decreased significantly quarter-over-quarter and year-over-year as of the fourth quarter of 2020, driven by the impacts of the consumer relief programs described above, unemployment benefits and government stimulus.

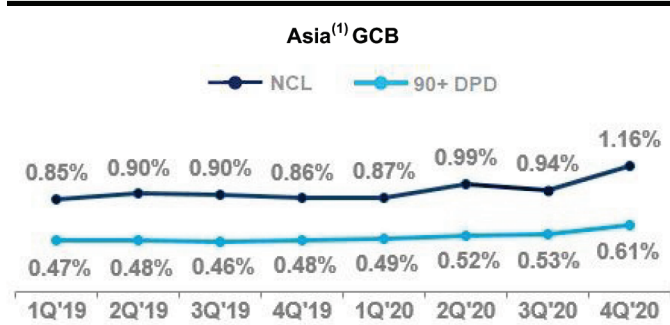
The 90+ days past due delinquency rate increased quarter-over-quarter, primarily due to seasonality in cards and the impact of customers rolling off the consumer relief programs.

The 90+ days past due delinquency rate modestly decreased year-over-year, primarily driven by the impacts of the consumer relief programs described above, unemployment benefits and government stimulus.



Latin America GCB operates in Mexico through Citibanamex, one of Mexico's largest banks, and provides credit cards, consumer mortgages and small business and personal loans. *Latin America GCB* serves a more mass-market segment in Mexico and focuses on developing multiproduct relationships with customers.

As shown in the chart above, the net credit loss rate in *Latin America GCB* decreased significantly quarter-over-quarter and year-over-year as of the fourth quarter of 2020, largely driven by the impact of the consumer relief programs described above. The 90+ days past due delinquency rate increased significantly quarter-over-quarter and year-over-year, due to the adverse pandemic-related macroeconomic impacts, as well as the expiration of most consumer relief programs in Mexico by September 2020.



(1) *Asia* includes *GCB* activities in certain *EMEA* countries for all periods presented.

Asia GCB operates in 17 countries and jurisdictions in *Asia* and *EMEA* and provides credit cards, consumer mortgages and small business and personal loans.

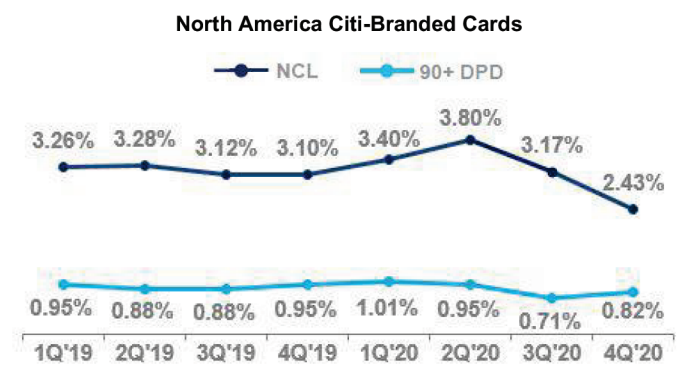
As shown in the chart above, the net credit loss and 90+ days past due delinquency rates in *Asia GCB* increased quarter-over-quarter and year-over-year as of the fourth quarter of 2020, driven by the adverse pandemic-related macroeconomic impacts in the region as well as the expiration of consumer relief programs, which generally have ended earlier than in Mexico and *North America*.

The performance of *Asia GCB*'s portfolios, with a 1.16% net credit loss rate, continues to reflect the strong credit profiles in the region's target customer segments. Regulatory changes in many markets in *Asia* over the past few years have also resulted in improved credit quality.

For additional information on cost of credit, loan delinquency and other information for Citi's consumer loan portfolios, see each respective business's results of operations above and Notes 14 and 15 to the Consolidated Financial Statements.

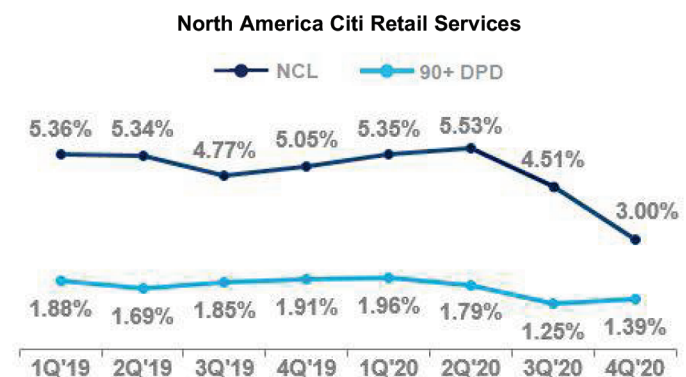
Credit Card Trends

The following charts show the quarterly trends in delinquencies and net credit losses for total *GCB* cards, *North America* Citi-branded cards and Citi retail services portfolios, as well as for Citi's *Latin America* and *Asia* Citi-branded cards portfolios.



North America GCB's Citi-branded cards portfolio issues proprietary and co-branded cards.

As shown in the chart above, the net credit loss rate in Citi-branded cards decreased quarter-over-quarter and year-over-year as of the fourth quarter of 2020, driven by the impact of the consumer relief programs described above, unemployment benefits and government stimulus. The 90+ days past due delinquency rate decreased year-over-year for the same reasons, while it increased quarter-over-quarter as a result of seasonality and the impact of customers rolling off the consumer relief programs described above.



Citi retail services partners directly with more than 20 retailers and dealers to offer private label and co-branded cards. Citi retail services' target market focuses on select industry segments such as home improvement, specialty retail, consumer electronics and fuel.

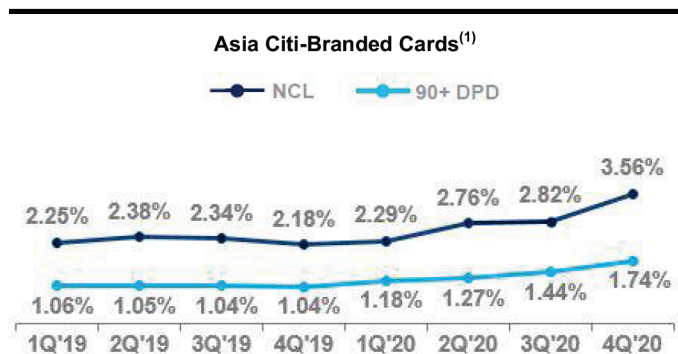
Citi retail services continually evaluates opportunities to add partners within target industries that have strong loyalty, lending or payment programs and growth potential.

As shown in the chart above, the net credit loss rate in Citi retail services decreased quarter-over-quarter and year-over-year as of the fourth quarter of 2020, driven by the impact of the consumer relief programs described above, unemployment benefits and government stimulus. The 90+ days past due delinquency rate decreased year-over-year for the same reasons, while it increased quarter-over-quarter as a result of seasonality and the impact of customers rolling off the consumer relief programs.



Latin America GCB issues proprietary and co-branded cards.

As shown in the chart above, the net credit loss rate in *Latin America* Citi-branded cards decreased significantly quarter-over-quarter and year-over-year as of the fourth quarter of 2020, largely driven by the impact of the consumer relief programs described above, while the 90+ days past due delinquency rate increased due to the adverse pandemic-related macroeconomic impact, as well as the expiration of the cards consumer relief program.



(1) *Asia* includes loans and leases in certain *EMEA* countries for all periods presented.

Asia GCB issues proprietary and co-branded cards.

As shown in the chart above, the net credit loss and 90+ days past due delinquency rates in *Asia* Citi-branded cards increased quarter-over-quarter and year-over-year as of the fourth quarter of 2020, driven by the adverse pandemic-related macroeconomic impacts as well as the expiration of the consumer relief programs described above.

For additional information on cost of credit, delinquency and other information for Citi's cards portfolios, see each respective business's results of operations above and Note 14 to the Consolidated Financial Statements.

North America Cards FICO Distribution

The following tables show the current FICO score distributions for Citi's *North America* cards portfolios based on end-of-period receivables. FICO scores are updated monthly for substantially all of the portfolio and on a quarterly basis for the remaining portfolio.

Citi-Branded Cards

FICO distribution ⁽¹⁾	Dec. 31, 2020	Sept. 30, 2020	Dec. 31, 2019
> 760	46 %	43 %	42 %
680–760	39	41	40
< 680	15	16	18
Total	100 %	100 %	100 %

Citi Retail Services

FICO distribution ⁽¹⁾	Dec. 31, 2020	Sept. 30, 2020	Dec. 31, 2019
> 760	27 %	26 %	25 %
680–760	44	44	42
< 680	29	30	33
Total	100 %	100 %	100 %

(1) The FICO bands in the tables are consistent with general industry peer presentations.

In 2020, FICO distributions improved in both Citi-branded cards and Citi retail services, primarily due to the impacts of the consumer relief programs and significant government stimulus and assistance, as well as lower credit utilization due to reduced customer spending. For additional information on FICO scores, see Note 14 to the Consolidated Financial Statements.

Additional Consumer Credit Details

Consumer Loan Delinquencies Amounts and Ratios⁽¹⁾

	EOP loans ⁽²⁾	90+ days past due ⁽³⁾			30–89 days past due ⁽³⁾		
	December 31,	December 31,			December 31,		
	2020	2020	2019	2018	2020	2019	2018
<i>In millions of dollars, except EOP loan amounts in billions</i>							
Global Consumer Banking⁽⁴⁾⁽⁵⁾							
Total	\$ 282.1	\$ 2,507	\$ 2,737	\$ 2,550	\$ 2,517	\$ 3,001	\$ 2,864
Ratio		0.89 %	0.91 %	0.89 %	0.89 %	1.00 %	1.00 %
Retail banking							
Total	\$ 129.0	\$ 632	\$ 438	\$ 416	\$ 860	\$ 816	\$ 752
Ratio		0.49 %	0.35 %	0.36 %	0.67 %	0.66 %	0.64 %
<i>North America</i>	52.7	299	146	135	328	334	265
Ratio		0.58 %	0.29 %	0.29 %	0.63 %	0.67 %	0.56 %
<i>Latin America</i>	9.8	130	106	108	220	180	185
Ratio		1.33 %	0.91 %	0.95 %	2.24 %	1.54 %	1.62 %
<i>Asia⁽⁶⁾</i>	66.5	203	186	173	312	302	302
Ratio		0.31 %	0.30 %	0.30 %	0.47 %	0.48 %	0.52 %
Cards							
Total	\$ 153.1	\$ 1,875	\$ 2,299	\$ 2,134	\$ 1,657	\$ 2,185	\$ 2,112
Ratio		1.22 %	1.31 %	1.26 %	1.08 %	1.25 %	1.25 %
<i>North America—Citi-branded</i>	84.0	686	915	812	589	814	755
Ratio		0.82 %	0.95 %	0.88 %	0.70 %	0.85 %	0.82 %
<i>North America—Citi retail services</i>	46.4	644	1,012	952	639	945	932
Ratio		1.39 %	1.91 %	1.81 %	1.38 %	1.79 %	1.77 %
<i>Latin America</i>	4.8	233	165	171	170	159	170
Ratio		4.85 %	2.75 %	3.00 %	3.54 %	2.65 %	2.98 %
<i>Asia⁽⁶⁾</i>	17.9	312	207	199	259	267	255
Ratio		1.74 %	1.04 %	1.03 %	1.45 %	1.34 %	1.32 %
Corporate/Other—Consumer⁽⁷⁾							
Total	\$ 6.7	\$ 313	\$ 278	\$ 382	\$ 179	\$ 295	\$ 362
Ratio		5.13 %	3.02 %	2.63 %	2.93 %	3.21 %	2.50 %
Total Citigroup	288.8	\$ 2,820	\$ 3,015	\$ 2,932	\$ 2,696	\$ 3,296	\$ 3,226
Ratio		0.98 %	0.98 %	0.97 %	0.94 %	1.07 %	1.07 %

- (1) As discussed above, loans modified under Citi's consumer relief programs continue to be reported in the same delinquency bucket they were in at the time of modification (which have various durations, and certain of which may be renewed by the customer).
- (2) End-of-period (EOP) loans include interest and fees on credit cards.
- (3) The ratios of 90+ days past due and 30–89 days past due are calculated based on EOP loans, net of unearned income.
- (4) The 90+ days past due balances for *North America—Citi-branded* and *North America—Citi retail services* are generally still accruing interest. Citigroup's policy is generally to accrue interest on credit card loans until 180 days past due, unless notification of bankruptcy filing has been received earlier.
- (5) The 90+ days past due and 30–89 days past due and related ratios for *North America GCB* exclude U.S. mortgage loans that are guaranteed by U.S. government-sponsored agencies, since the potential loss predominantly resides within the agencies. The amounts excluded for loans 90+ days past due and (EOP loans) were \$171 million (\$0.7 billion), \$135 million (\$0.5 billion) and \$211 million (\$0.7 billion) at December 31, 2020, 2019 and 2018, respectively. The amounts excluded for loans 30–89 days past due (the 30–89 days past due EOP loans have the same adjustments as the 90+ days past due EOP loans) were \$98 million, \$72 million and \$86 million at December 31, 2020, 2019 and 2018, respectively.
- (6) *Asia* includes delinquencies and loans in certain *EMEA* countries for all periods presented.
- (7) The 90+ days past due and 30–89 days past due and related ratios exclude U.S. mortgage loans that are guaranteed by U.S. government-sponsored agencies, since the potential loss predominantly resides within the agencies. The amounts excluded for loans 90+ days past due and (EOP loans) were \$183 million (\$0.5 billion), \$172 million (\$0.4 billion) and \$367 million (\$0.8 billion) at December 31, 2020, 2019 and 2018, respectively. The amounts excluded for loans 30–89 days past due (the 30–89 days past due EOP loans have the same adjustments as the 90+ days past due EOP loans) were \$73 million, \$55 million and \$122 million at December 31, 2020, 2019 and 2018, respectively.

Consumer Loan Net Credit Losses and Ratios

	Average loans ⁽¹⁾		Net credit losses ⁽²⁾	
	2020	2020	2019	2018
<i>In millions of dollars, except average loan amounts in billions</i>				
Global Consumer Banking				
Total	\$ 277.6	\$ 6,646	\$ 7,382	\$ 6,884
Ratio		2.39 %	2.60 %	2.48 %
Retail banking				
Total	\$ 124.5	\$ 805	\$ 910	\$ 913
Ratio		0.65 %	0.76 %	0.78 %
<i>North America</i>	52.2	132	161	126
Ratio		0.25 %	0.33 %	0.27 %
<i>Latin America</i>	9.8	377	494	545
Ratio		3.85 %	4.30 %	4.58 %
<i>Asia</i> ⁽³⁾	62.5	296	255	242
Ratio		0.47 %	0.43 %	0.41 %
Cards				
Total	\$ 153.1	\$ 5,841	\$ 6,472	\$ 5,971
Ratio		3.82 %	3.94 %	3.72 %
<i>North America—Citi-branded</i>	84.5	2,708	2,864	2,602
Ratio		3.20 %	3.19 %	2.97 %
<i>North America—Citi retail services</i>	46.5	2,150	2,558	2,357
Ratio		4.62 %	5.13 %	4.88 %
<i>Latin America</i>	4.7	489	615	586
Ratio		10.40 %	10.79 %	10.65 %
<i>Asia</i> ⁽³⁾	17.4	494	435	426
Ratio		2.84 %	2.29 %	2.25 %
Corporate/Other—Consumer				
Total	\$ 8.5	\$ (21)	\$ (6)	\$ 24
Ratio		(0.25)%	(0.05)%	0.14 %
Total Citigroup	\$ 286.1	\$ 6,625	\$ 7,376	\$ 6,908
Ratio		2.32 %	2.49 %	2.33 %

(1) Average loans include interest and fees on credit cards.

(2) The ratios of net credit losses are calculated based on average loans, net of unearned income.

(3) *Asia* includes NCLs and average loans in certain *EMEA* countries for all periods presented.

*Loan Maturities and Fixed/Variable Pricing of
U.S. Consumer Mortgages*

<i>In millions of dollars at December 31, 2020</i>	Due within 1 year	Greater than 1 year but within 5 years	Greater than 5 years	Total
U.S. consumer mortgage loan portfolio				
Residential first mortgages	\$ 3	\$ 109	\$ 47,666	\$ 47,778
Home equity loans	116	103	6,909	7,128
Total	\$ 119	\$ 212	\$ 54,575	\$ 54,906
Fixed/variable pricing of U.S. consumer mortgage loans with maturities due after one year				
Loans at fixed interest rates		\$ 194	\$ 33,456	
Loans at floating or adjustable interest rates		18	21,119	
Total		\$ 212	\$ 54,575	

CORPORATE CREDIT

Consistent with its overall strategy, Citi's corporate clients are typically large, multinational corporations that value the depth and breadth of Citi's global network. Citi aims to establish relationships with these clients that, consistent with client needs, encompass multiple products, including cash management and trade services, foreign exchange, lending, capital markets and M&A advisory. Citi's corporate credit exposures also include exposures in the private bank, excluding certain loans managed on a delinquency basis.

Corporate Credit Portfolio

The following table details Citi's corporate credit portfolio within *ICG* (excluding certain loans in the private bank, which are managed on a delinquency basis), and before consideration of collateral or hedges, by remaining tenor for the periods indicated:

<i>In billions of dollars</i>	December 31, 2020				September 30, 2020				December 31, 2019			
	Due within 1 year	Greater than 1 year but within 5 years	Greater than 5 years	Total exposure	Due within 1 year	Greater than 1 year but within 5 years	Greater than 5 years	Total exposure	Due within 1 year	Greater than 1 year but within 5 years	Greater than 5 years	Total exposure
Direct outstandings (on-balance sheet) ⁽¹⁾	\$ 177	\$ 142	\$ 25	\$ 344	\$ 175	\$ 145	\$ 24	\$ 344	\$ 184	\$ 142	\$ 25	\$ 351
Unfunded lending commitments (off-balance sheet) ⁽²⁾	158	272	11	441	154	264	12	430	161	266	17	444
Total exposure	\$ 335	\$ 414	\$ 36	\$ 785	\$ 329	\$ 409	\$ 36	\$ 774	\$ 345	\$ 408	\$ 42	\$ 795

(1) Includes drawn loans, overdrafts, bankers' acceptances and leases.

(2) Includes unused commitments to lend, letters of credit and financial guarantees.

Portfolio Mix—Geography and Counterparty

Citi's corporate credit portfolio is diverse across geography and counterparty. The following table shows the percentage of this portfolio by region (excluding the delinquency-managed private bank portfolio) based on Citi's internal management geography:

	December 31, 2020	September 30, 2020	December 31, 2019
North America	56 %	57 %	57 %
EMEA	25	25	24
Asia	13	12	12
Latin America	6	6	7
Total	100 %	100 %	100 %

The maintenance of accurate and consistent risk ratings across the corporate credit portfolio facilitates the comparison of credit exposure across all lines of business, geographic regions and products. Counterparty risk ratings reflect an estimated probability of default for a counterparty and are derived by leveraging validated statistical models, scorecard models and external agency ratings (under defined circumstances), in combination with consideration of factors specific to the obligor or market, such as management experience, competitive position, regulatory environment and

commodity prices. Facility risk ratings are assigned that reflect the probability of default of the obligor and factors that affect the loss given default of the facility, such as support or collateral. Internal obligor ratings that generally correspond to BBB and above are considered investment grade, while those below are considered non-investment grade.

The following table presents the corporate credit portfolio (excluding the delinquency-managed private bank portfolio) by facility risk rating as a percentage of the total corporate credit portfolio:

	Total exposure		
	December 31, 2020	September 30, 2020	December 31, 2019
AAA/AA/A	49 %	48 %	50 %
BBB	31	31	33
BB/B	17	17	15
CCC or below	3	4	2
Total	100 %	100 %	100 %

Note: Total exposure includes direct outstandings and unfunded lending commitments.

In addition to the obligor and facility risk ratings assigned to all exposures, Citi may classify exposures in the corporate credit portfolio. These classifications are consistent with Citi's interpretation of the U.S. banking regulators' definition of criticized exposures, which may categorize exposures as special mention, substandard, doubtful, or loss.

Risk ratings and classifications are reviewed regularly, and adjusted as appropriate. The credit review process incorporates quantitative and qualitative factors, including financial and non-financial disclosures or metrics, idiosyncratic events or changes to the competitive, regulatory or macroeconomic environment. This includes but is not limited to exposures in those sectors significantly impacted by the pandemic (including energy and energy-related, consumer retail, commercial real estate and transportation).

Citigroup believes the corporate credit portfolio to be appropriately rated and classified as of December 31, 2020. During the year and since the onset of the COVID-19 pandemic, Citigroup has taken action to adjust internal ratings and classifications of exposures as both the macroeconomic environment and obligor-specific factors have changed, particularly where additional stress has been seen.

As obligor risk ratings are downgraded, the probability of default increases. Downgrades of obligor risk ratings tend to result in a higher provision for credit losses. In addition, downgrades may result in the purchase of additional credit derivatives or other risk mitigants to hedge the incremental credit risk, or may result in Citi seeking to reduce exposure to an obligor or an industry sector. Citi will continue to review exposures to ensure the appropriate probability of default is incorporated into all risk assessments.

For additional information on Citi's corporate credit portfolio, see Note 14 to the Consolidated Financial Statements.

Portfolio Mix—Industry

Citi's corporate credit portfolio is diversified by industry. The following table details the allocation of Citi's total corporate credit portfolio by industry (excluding the delinquency-managed private bank portfolio):

	Total exposure		
	December 31, 2020	September 30, 2020	December 31, 2019
Transportation and industrials	19 %	19 %	19 %
Private bank	14	14	13
Consumer retail	10	11	10
Technology, media and telecom	11	10	11
Real estate	8	8	7
Power, chemicals, metals and mining	8	8	9
Banks and finance companies	7	7	7
Energy and commodities	6	7	7
Health	5	4	4
Public sector	3	3	3
Insurance	3	3	3
Asset managers and funds	3	3	3
Financial markets infrastructure	2	2	2
Securities firms	—	—	—
Other industries	1	1	2
Total	100 %	100 %	100 %

The following table details Citi's corporate credit portfolio by industry as of December 31, 2020:

<i>In millions of dollars</i>	Total credit exposure	Non-investment grade						Selected metrics		
		Funded ⁽¹⁾	Unfunded ⁽¹⁾	Investment grade	Non-criticized	Criticized performing	Criticized non-performing ⁽²⁾	30 days or more past due and accruing ⁽³⁾	Net charge-offs (recoveries) ⁽⁴⁾	Credit derivative hedges ⁽⁵⁾
Transportation and industrials	\$ 147,218	\$ 60,122	\$ 87,096	\$ 106,041	\$ 17,452	\$ 21,927	\$ 1,798	\$ 136	\$ 239	\$ (8,110)
Autos ⁽⁶⁾	53,874	25,310	28,564	43,059	4,374	6,167	274	8	45	(3,220)
Transportation	27,693	14,107	13,586	16,410	2,993	6,872	1,418	17	144	(1,166)
Industrials	65,651	20,705	44,946	46,572	10,085	8,888	106	111	50	(3,724)
Private bank	109,397	75,693	33,704	104,244	2,395	2,510	248	963	78	(1,080)
Consumer retail	82,129	34,809	47,320	60,741	11,653	9,418	317	146	64	(5,493)
Technology, media and telecom	82,657	30,880	51,777	61,296	15,924	5,214	223	107	74	(7,237)
Real estate	65,392	43,285	22,107	54,413	5,342	5,453	184	334	18	(642)
Power, chemicals, metals and mining	63,926	20,810	43,116	47,923	11,554	4,257	192	59	70	(5,341)
Power	26,916	6,379	20,537	22,665	3,336	761	154	14	57	(2,637)
Chemicals	22,356	7,969	14,387	16,665	3,804	1,882	5	32	8	(2,102)
Metals and mining	14,654	6,462	8,192	8,593	4,414	1,614	33	13	5	(602)
Banks and finance companies	52,925	29,856	23,069	43,831	4,648	4,387	59	27	79	(765)
Energy and commodities⁽⁷⁾	49,524	15,086	34,438	34,636	7,345	6,546	997	70	285	(4,199)
Health	35,504	8,658	26,846	29,164	4,354	1,749	237	17	17	(1,964)
Public sector	26,887	13,599	13,288	22,276	1,887	2,708	16	45	9	(1,089)
Insurance	26,576	1,925	24,651	25,864	575	136	1	27	1	(2,682)
Asset managers and funds	19,745	4,491	15,254	18,528	1,013	191	13	41	(1)	(84)
Financial markets infrastructure	12,610	229	12,381	12,590	20	—	—	—	—	(9)
Securities firms	976	430	546	573	298	97	8	—	—	(6)
Other industries	9,307	4,545	4,762	4,980	2,702	1,442	183	10	43	(138)
Total	\$ 784,773	\$ 344,418	\$ 440,355	\$ 627,100	\$ 87,162	\$ 66,035	\$ 4,476	\$ 1,982	\$ 976	\$ (38,839)

(1) Excludes \$42.6 billion and \$4.4 billion of funded and unfunded exposure at December 31, 2020, respectively, primarily related to the delinquency-managed credit portfolio of the private bank.

(2) Includes non-accrual loan exposures and criticized unfunded exposures.

(3) Excludes \$162 million of past due loans primarily related to the delinquency-managed credit portfolio of the private bank.

(4) Net charge-offs (recoveries) are for the year ended December 31, 2020 and exclude delinquency-managed private bank charge-offs of \$10 million.

(5) Represents the amount of purchased credit protection in the form of derivatives to economically hedge funded and unfunded exposures. Of the \$38.8 billion of purchased credit protection, \$36.8 billion represents the total notional of purchased credit derivatives on individual reference entities. The remaining \$2.0 billion represents the first loss tranche of portfolios of purchased credit derivatives with a total notional of \$16.1 billion, where the protection seller absorbs the first loss on the referenced loan portfolios.

(6) Autos total credit exposure includes securitization financing facilities secured by auto loans and leases, extended mainly to the finance company subsidiaries of global auto manufacturers, bank subsidiaries and independent auto finance companies, of approximately \$20.2 billion (\$10.3 billion in funded, with more than 99% rated investment grade) as of December 31, 2020.

(7) In addition to this exposure, Citi has energy-related exposure within the public sector (e.g., energy-related state-owned entities) and the transportation and industrials sector (e.g., off-shore drilling entities) included in the table above. As of December 31, 2020, Citi's total exposure to these energy-related entities was approximately \$7.0 billion, of which approximately \$3.8 billion consisted of direct outstanding funded loans.

Exposure to Commercial Real Estate

As of December 31, 2020, *ICG*'s total corporate credit exposure to commercial real estate (CRE) was \$58 billion, with \$41 billion consisting of direct outstanding funded loans (mainly included in the real estate and private bank categories in the above table), or 6% of Citi's total outstanding loans. In addition, as of December 31, 2020, more than 70% of *ICG*'s total corporate CRE exposure was to borrowers in the United States. Also as of December 31, 2020, approximately 77% of *ICG*'s total corporate CRE exposure was rated investment grade.

As of December 31, 2020, the ACLL was 1.8% of funded CRE exposure, including 5.1% of funded non-investment grade exposure.

Of the total CRE exposure:

- \$20 billion of the exposure (\$13 billion of direct outstanding funded loans) relates to Community Reinvestment Act-related lending provided pursuant to Citi's regulatory requirements to meet the credit needs of borrowers in low and moderate income neighborhoods.
- \$13 billion of the exposure (\$12 billion of direct outstanding funded loans) relates to exposure secured by mortgages on underlying properties or in well-rated securitization exposures.
- \$13 billion of the exposure (\$5 billion of direct outstanding funded loans) relates to unsecured loans to large REITs, with nearly 75% of the exposure rated investment grade.
- \$12 billion of the exposure (\$11 billion of direct outstanding funded loans) relates to CRE exposure in the private bank, of which 100% is secured by mortgages. In addition, 45% of the exposure is also full recourse to the client. As of December 31, 2020, 77% of the exposure was rated investment grade.

The following table details Citi's corporate credit portfolio by industry as of December 31, 2019:

<i>In millions of dollars</i>	Total credit exposure	Non-investment grade						Selected metrics		
		Funded ⁽¹⁾	Unfunded ⁽¹⁾	Investment grade	Non-criticized	Criticized performing	Criticized non-performing ⁽²⁾	30 days or more past due and accruing ⁽³⁾	Net charge-offs (recoveries) ⁽⁴⁾	Credit derivative hedges ⁽⁵⁾
Transportation and industrials	\$ 146,643	\$ 59,726	\$ 86,917	\$ 120,777	\$ 19,433	\$ 5,725	\$ 706	\$ 161	\$ 67	\$ (7,134)
Autos ⁽⁶⁾	48,604	21,564	27,040	43,570	3,582	1,311	140	8	5	(2,982)
Transportation	29,984	14,550	15,434	23,021	4,886	1,652	425	21	21	(725)
Industrials	68,055	23,612	44,443	54,186	10,965	2,762	141	132	41	(3,427)
Private bank ⁽¹⁾	102,463	68,798	33,665	100,017	2,244	171	31	1,094	36	(1,080)
Consumer retail	81,338	36,117	45,221	62,993	15,131	2,773	441	209	38	(4,105)
Technology, media and telecom	83,199	31,333	51,866	63,845	15,846	3,305	203	81	14	(6,181)
Real estate	55,518	38,058	17,460	49,461	5,495	525	37	97	(3)	(573)
Power, chemicals, metals and mining	73,961	24,377	49,584	58,670	11,997	2,963	331	50	24	(4,763)
Power	34,349	7,683	26,666	29,317	4,051	679	302	37	19	(2,111)
Chemicals	23,721	9,152	14,569	18,790	3,905	1,014	12	12	1	(2,079)
Metals and mining	15,891	7,542	8,349	10,563	4,041	1,270	17	1	4	(573)
Banks and finance companies	52,036	32,571	19,465	43,663	4,661	3,345	39	15	12	(755)
Energy and commodities ⁽⁷⁾	53,317	17,428	35,889	42,996	5,780	3,627	914	51	99	(2,808)
Health	35,008	8,790	26,218	27,791	5,932	1,180	105	25	14	(1,588)
Public sector	27,194	14,226	12,968	23,294	1,637	2,558	33	107	1	(944)
Insurance	24,305	1,658	22,647	23,370	866	69	—	7	1	(2,218)
Asset managers and funds	24,763	6,942	17,821	22,357	2,276	130	—	1	31	(32)
Financial markets infrastructure	16,838	22	16,816	16,838	—	—	—	—	—	(2)
Securities firms	1,151	423	728	801	304	38	8	—	13	—
Other industries	16,842	9,718	7,214	8,299	7,383	1,080	80	48	42	65
Total	\$ 794,576	\$ 350,187	\$ 444,479	\$ 665,172	\$ 98,985	\$ 27,489	\$ 2,928	\$ 1,946	\$ 389	\$ (32,118)

(1) Excludes \$39.7 billion and \$3.4 billion of funded and unfunded exposure at December 31, 2019, respectively, primarily related to the delinquency-managed credit portfolio of the private bank.

(2) Includes non-accrual loan exposures and criticized unfunded exposures.

(3) Excludes \$434 million of past due loans primarily related to the delinquency-managed credit portfolio of the private bank.

(4) Net charge-offs (recoveries) are for the year ended December 31, 2019 and exclude delinquency-managed private bank charge-offs of \$6 million.

(5) Represents the amount of purchased credit protection in the form of derivatives to economically hedge funded and unfunded exposures. Of the \$32.1 billion of purchased credit protection, \$30.5 billion represents the total notional of purchased credit derivatives on individual reference entities. The remaining \$1.6 billion represents the first loss tranche of portfolios of purchased credit derivatives with a total notional of \$13.8 billion, where the protection seller absorbs the first loss on the referenced loan portfolios.

(6) Autos total credit exposure includes securitization financing facilities secured by auto loans and leases, extended mainly to the finance company subsidiaries of global auto manufacturers, bank subsidiaries and independent auto finance companies, of approximately \$17.9 billion (\$7.7 billion in funded, with more than 99% rated investment grade) at December 31, 2019.

(7) In addition to this exposure, Citi has energy-related exposure within the public sector (e.g., energy-related state-owned entities) and the transportation and industrials sector (e.g., off-shore drilling entities) included in the table above. As of December 31, 2019, Citi's total exposure to these energy-related entities was approximately \$5.5 billion, of which approximately \$3.2 billion consisted of direct outstanding funded loans.

Credit Risk Mitigation

As part of its overall risk management activities, Citigroup uses credit derivatives and other risk mitigants to hedge portions of the credit risk in its corporate credit portfolio, in addition to outright asset sales. Citi may enter into partial-term hedges as well as full-term hedges. In advance of the expiration of partial-term hedges, Citi will determine, among other factors, the economic feasibility of hedging the remaining life of the instrument. The results of the mark-to-market and any realized gains or losses on credit derivatives are reflected primarily in *Principal transactions* in the Consolidated Statement of Income.

At December 31, 2020, September 30, 2020 and December 31, 2019, *ICG* (excluding the delinquency-managed private bank portfolio) had economic hedges on the corporate credit portfolio of \$38.8 billion, \$38.4 billion and \$32.1 billion, respectively. Citigroup's expected credit loss model used in the calculation of its ACL does not include the favorable impact of credit derivatives and other mitigants that are marked to market. In addition, the reported amounts of direct outstandings and unfunded lending commitments in the tables above do not reflect the impact of these hedging transactions. The credit protection was economically hedging underlying *ICG* (excluding the delinquency-managed private bank portfolio) corporate credit portfolio exposures with the following risk rating distribution:

Rating of Hedged Exposure

	December 31, 2020	September 30, 2020	December 31, 2019
AAA/AA/A	30 %	29 %	36 %
BBB	48	52	51
BB/B	19	16	12
CCC or below	3	3	1
Total	100 %	100 %	100 %

Loan Maturities and Fixed/Variable Pricing of Corporate Loans

<i>In millions of dollars at December 31, 2020</i>	Due within 1 year	Over 1 year but within 5 years	Over 5 years	Total
Corporate loans				
In U.S. offices				
Commercial and industrial loans	\$ 27,175	\$ 16,073	\$ 14,483	\$ 57,731
Financial institutions	26,270	15,538	14,001	55,809
Mortgage and real estate	28,560	16,893	15,222	60,675
Installment, revolving credit and other	12,589	7,446	6,709	26,744
Lease financing	317	187	169	673
In offices outside the U.S.	126,273	49,708	9,431	185,412
Total corporate loans	\$ 221,184	\$ 105,845	\$ 60,015	\$ 387,044
Fixed/variable pricing of corporate loans with maturities due after one year⁽¹⁾				
Loans at fixed interest rates		\$ 16,514	\$ 21,346	
Loans at floating or adjustable interest rates		89,331	38,669	
Total		\$ 105,845	\$ 60,015	

(1) Based on contractual terms. Repricing characteristics may effectively be modified from time to time using derivative contracts. See Note 22 to the Consolidated Financial Statements.

ADDITIONAL CONSUMER AND CORPORATE CREDIT DETAILS

Loans Outstanding

<i>In millions of dollars</i>	December 31,				
	2020	2019	2018	2017	2016
Consumer loans					
In North America offices ⁽¹⁾					
Residential first mortgages ⁽²⁾	\$ 47,778	\$ 47,008	\$ 47,412	\$ 49,375	\$ 53,131
Home equity loans ⁽²⁾	7,128	9,223	11,543	14,827	19,454
Credit cards	130,385	149,163	144,542	139,718	133,297
Personal, small business and other	4,509	3,699	4,046	4,140	5,290
Total	\$ 189,800	\$ 209,093	\$ 207,543	\$ 208,060	\$ 211,172
In offices outside North America ⁽¹⁾					
Residential first mortgages ⁽²⁾	\$ 39,969	\$ 38,024	\$ 36,388	\$ 37,870	\$ 35,523
Credit cards	22,692	25,909	24,951	25,727	23,055
Personal, small business and other	36,378	36,522	33,478	34,157	30,966
Total	\$ 99,039	\$ 100,455	\$ 94,817	\$ 97,754	\$ 89,544
Consumer loans, net of unearned income⁽³⁾	\$ 288,839	\$ 309,548	\$ 302,360	\$ 305,814	\$ 300,716
Corporate loans					
In North America offices ⁽¹⁾					
Commercial and industrial	\$ 57,731	\$ 55,929	\$ 60,861	\$ 60,219	\$ 57,886
Financial institutions	55,809	53,922	48,447	39,128	35,517
Mortgage and real estate ⁽²⁾	60,675	53,371	50,124	44,683	38,691
Installment and other	26,744	31,238	32,425	31,932	31,194
Lease financing	673	1,290	1,429	1,470	1,518
Total	\$ 201,632	\$ 195,750	\$ 193,286	\$ 177,432	\$ 164,806
In offices outside North America ⁽¹⁾					
Commercial and industrial	\$ 104,072	\$ 112,668	\$ 114,029	\$ 113,178	\$ 100,532
Financial institutions	32,334	40,211	36,837	35,273	26,886
Mortgage and real estate ⁽²⁾	11,371	9,780	7,376	7,309	5,363
Installment and other	33,759	27,303	25,685	22,638	19,965
Lease financing	65	95	103	190	251
Governments and official institutions	3,811	4,128	4,520	5,200	5,850
Total	\$ 185,412	\$ 194,185	\$ 188,550	\$ 183,788	\$ 158,847
Corporate loans, net of unearned income⁽⁴⁾	\$ 387,044	\$ 389,935	\$ 381,836	\$ 361,220	\$ 323,653
Total loans—net of unearned income	\$ 675,883	\$ 699,483	\$ 684,196	\$ 667,034	\$ 624,369
Allowance for credit losses on loans (ACLL)	(24,956)	(12,783)	(12,315)	(12,355)	(12,060)
Total loans—net of unearned income and ACLL	\$ 650,927	\$ 686,700	\$ 671,881	\$ 654,679	\$ 612,309
ACLL as a percentage of total loans—net of unearned income⁽⁵⁾	3.73 %	1.84 %	1.81 %	1.86 %	1.94 %
ACLL for consumer loan losses as a percentage of total consumer loans—net of unearned income⁽⁵⁾	6.77 %	3.20 %	3.14 %	3.08 %	2.94 %
ACLL for corporate loan losses as a percentage of total corporate loans—net of unearned income⁽⁵⁾	1.42 %	0.75 %	0.74 %	0.82 %	1.01 %

(1) *North America* includes the U.S., Canada and Puerto Rico. Mexico is included in offices outside *North America*. The classification of corporate loans between offices in *North America* and outside *North America* is based on the domicile of the booking unit. The difference between the domicile of the booking unit and the domicile of the managing unit is not material.

(2) Loans secured primarily by real estate.

(3) Consumer loans are net of unearned income of \$749 million, \$783 million, \$742 million, \$768 million and \$803 million at December 31, 2020, 2019, 2018, 2017 and 2016, respectively. Unearned income on consumer loans primarily represents unamortized origination fees and costs, premiums and discounts.

(4) Corporate loans include private bank loans and are net of unearned income of \$(844) million, \$(814) million, \$(855) million, \$(794) million and \$(730) million at December 31, 2020, 2019, 2018, 2017 and 2016, respectively. Unearned income on corporate loans primarily represents interest received in advance, but not yet earned, on loans originated on a discounted basis.

(5) Because loans carried at fair value do not have an ACLL, they are excluded from the ACLL ratio calculation.

Details of Credit Loss Experience

<i>In millions of dollars</i>	2020	2019	2018	2017	2016
Allowance for credit losses on loans (ACLL) at beginning of year	\$ 12,783	\$ 12,315	\$ 12,355	\$ 12,060	\$ 12,626
Adjustments to opening balance:					
Financial instruments—credit losses (CECL) ⁽¹⁾	4,201	—	—	—	—
Variable post-charge-off third-party collection costs ⁽²⁾	(443)	—	—	—	—
Adjusted ACLL at beginning of year	\$ 16,541	\$ 12,315	\$ 12,355	\$ 12,060	\$ 12,626
Provision for credit losses on loans (PCLL)					
Consumer ⁽²⁾	\$ 11,765	\$ 7,751	\$ 7,258	\$ 7,329	\$ 6,207
Corporate	4,157	467	96	174	542
Total	\$ 15,922	\$ 8,218	\$ 7,354	\$ 7,503	\$ 6,749
Gross credit losses on loans					
Consumer					
In U.S. offices	\$ 6,047	\$ 6,538	\$ 5,971	\$ 5,664	\$ 4,874
In offices outside the U.S.	2,144	2,316	2,351	2,377	2,594
Corporate					
Commercial and industrial, and other					
In U.S. offices	562	265	121	223	370
In offices outside the U.S.	409	196	208	401	334
Loans to financial institutions					
In U.S. offices	14	—	3	3	5
In offices outside the U.S.	12	3	7	1	5
Mortgage and real estate					
In U.S. offices	71	23	2	2	34
In offices outside the U.S.	4	—	2	2	6
Total	\$ 9,263	\$ 9,341	\$ 8,665	\$ 8,673	\$ 8,222
Credit recoveries on loans⁽²⁾					
Consumer					
In U.S. offices	\$ 1,106	\$ 975	\$ 912	\$ 892	\$ 972
In offices outside the U.S.	460	503	502	552	576
Corporate					
Commercial and industrial, and other					
In U.S. offices	43	28	47	31	31
In offices outside the U.S.	28	59	78	117	79
Loans to financial institutions					
In U.S. offices	—	—	—	1	1
In offices outside the U.S.	14	—	3	1	1
Mortgage and real estate					
In U.S. offices	—	8	6	2	1
In offices outside the U.S.	1	—	4	1	—
Total	\$ 1,652	\$ 1,573	\$ 1,552	\$ 1,597	\$ 1,661
Net credit losses on loans (NCLs)					
In U.S. offices	\$ 5,545	\$ 5,815	\$ 5,132	\$ 4,966	\$ 4,278
In offices outside the U.S.	2,066	1,953	1,981	2,110	2,283
Total	\$ 7,611	\$ 7,768	\$ 7,113	\$ 7,076	\$ 6,561
Other—net ⁽³⁾⁽⁴⁾⁽⁵⁾⁽⁶⁾⁽⁷⁾⁽⁸⁾	\$ 104	\$ 18	\$ (281)	\$ (132)	\$ (754)
Allowance for credit losses on loans (ACLL) at end of year	\$ 24,956	\$ 12,783	\$ 12,315	\$ 12,355	\$ 12,060
ACLL as a percentage of EOP loans ⁽⁹⁾	3.73 %	1.84 %	1.81 %	1.86 %	1.94 %
Allowance for credit losses on unfunded lending commitments (ACLUC) ⁽¹⁰⁾⁽¹¹⁾	\$ 2,655	\$ 1,456	\$ 1,367	\$ 1,258	\$ 1,418

Total ACLL and ACLUC	\$ 27,611	\$ 14,239	\$ 13,682	\$ 13,613	\$ 13,478
Net consumer credit losses on loans	\$ 6,625	\$ 7,376	\$ 6,908	\$ 6,597	\$ 5,920
As a percentage of average consumer loans	2.32 %	2.49 %	2.33 %	2.22 %	2.00 %
Net corporate credit losses on loans	\$ 986	\$ 392	\$ 205	\$ 479	\$ 641
As a percentage of average corporate loans	0.25 %	0.10 %	0.05 %	0.14 %	0.20 %
ACLL by type at end of year⁽¹²⁾					
Consumer	\$ 19,554	\$ 9,897	\$ 9,504	\$ 9,412	\$ 8,842
Corporate	5,402	2,886	2,811	2,943	3,218
Total	\$ 24,956	\$ 12,783	\$ 12,315	\$ 12,355	\$ 12,060

- (1) On January 1, 2020, Citi adopted Accounting Standards Codification (ASC) 326, *Financial Instruments—Credit Losses (CECL)*. The ASC introduces a new credit loss methodology requiring earlier recognition of credit losses while also providing additional disclosure about credit risk. On January 1, 2020, Citi recorded a \$4.1 billion, or an approximate 29%, pretax increase in the Allowance for credit losses, along with a \$3.1 billion after-tax decrease in Retained earnings and a deferred tax asset increase of \$1.0 billion. This transition impact reflects (i) a \$4.9 billion build to the Consumer ACL due to longer estimated tenors than under the incurred loss methodology under prior U.S. GAAP, net of recoveries; and (ii) a \$0.8 billion decrease to the Corporate ACL due to shorter remaining tenors, incorporation of recoveries and use of more specific historical loss data based on an increase in portfolio segmentation across industries and geographies. See Note 1 to the Consolidated Financial Statements for further discussion on the impact of Citi's adoption of CECL.
- (2) Citi had a change in accounting related to its variable post-charge-off third-party collection costs which was recorded as an adjustment to its January 1, 2020 opening allowance for credit losses on loans of \$443 million. See Note 1 to the Consolidated Financial Statements.
- (3) Includes all adjustments to the ACL, such as changes in the allowance from acquisitions, dispositions, securitizations, FX translation, purchase accounting adjustments, etc.
- (4) 2020 includes reductions of approximately \$4 million related to the transfer to HFS of various real estate loan portfolios. In addition, 2020 includes an increase of approximately \$97 million related to FX translation.
- (5) 2019 includes reductions of approximately \$42 million related to the transfer to HFS of various real estate loan portfolios. In addition, 2019 includes an increase of approximately \$60 million related to FX translation.
- (6) 2018 includes reductions of approximately \$201 million related to the sale or transfer to HFS of various loan portfolios, which include approximately \$91 million related to the transfer of various real estate loan portfolios to HFS. In addition, 2018 includes a reduction of approximately \$60 million related to FX translation.
- (7) 2017 includes reductions of approximately \$261 million related to the sale or transfer to HFS of various loan portfolios, which include approximately \$106 million related to the transfer of various real estate loan portfolios to HFS. In addition, 2017 includes an increase of approximately \$115 million related to FX translation.
- (8) 2016 includes reductions of approximately \$574 million related to the sale or transfer to HFS of various loan portfolios, which include approximately \$106 million related to the transfer of various real estate loan portfolios to HFS. In addition, 2016 includes a reduction of approximately \$199 million related to FX translation.
- (9) December 31, 2020, 2019, 2018, 2017 and 2016 exclude \$6.9 billion, \$4.1 billion, \$3.2 billion, \$4.4 billion and \$3.5 billion, respectively, of loans which are carried at fair value.
- (10) 2020 corporate ACLUC includes a non-provision transfer of \$68 million, representing reserves on performance guarantees. The reserves on these contracts were reclassified out of the ACL on unfunded lending commitments and into other liabilities.
- (11) Represents additional credit reserves recorded as *Other liabilities* on the Consolidated Balance Sheet.
- (12) Beginning in 2020, under CECL, the ACLL represents management's estimate of expected credit losses in the portfolio and troubled debt restructurings. See "Significant Accounting Policies and Significant Estimates" and Note 1 to the Consolidated Financial Statements below. Attribution of the ACLL is made for analytical purposes only and the entire ACLL is available to absorb credit losses in the overall portfolio. Prior to 2020, the ACLL represented management's estimate of probable losses inherent in the portfolio, as well as probable losses related to large individually evaluated impaired loans and TDRs. See "Superseded Accounting Principles" in Note 1 to the Consolidated Financial Statements.

Allowance for Credit Losses on Loans (ACLL)

The following tables detail information on Citi's ACLL, loans and coverage ratios. The December 31, 2020 table reflects the impact from the January 1, 2020 CECL adoption and the impact from the pandemic. The December 31, 2019 table is presented under the previous accounting standard (see "Superseded Accounting Principles" in Note 1 to the Consolidated Financial Statements).

<i>In billions of dollars</i>	December 31, 2020		
	ACLL	EOP loans, net of unearned income	ACLL as a percentage of EOP loans ⁽¹⁾
<i>North America cards</i> ⁽²⁾	\$ 14.7	\$ 130.4	11.3 %
<i>North America mortgages</i> ⁽³⁾	0.7	54.9	1.3
<i>North America other</i>	0.3	4.5	6.7
International cards	2.1	22.7	9.3
International other ⁽⁴⁾	1.8	76.3	2.4
Total consumer	\$ 19.6	\$ 288.8	6.8 %
Total corporate	5.4	387.1	1.4
Total Citigroup	\$ 25.0	\$ 675.9	3.7 %

- (1) Loans carried at fair value do not have an ACLL and are excluded from the ACLL ratio calculation.
- (2) Includes both Citi-branded cards and Citi retail services. The \$14.7 billion of loan loss reserves represented approximately 53 months of coincident net credit loss coverage. As of December 31, 2020, the *North America* Citi-branded cards ACLL as a percentage of EOP loans was 10.0% and the *North America* Citi retail services ACLL as a percentage of EOP loans was 13.6%.
- (3) Of the \$0.7 billion, approximately \$0.3 billion was allocated to *North America* mortgages in *Corporate/Other*, including \$0.5 billion and \$0.2 billion determined in accordance with ASC 450-20 and ASC 310-10-35 (troubled debt restructurings), respectively. Of the \$54.9 billion in loans, approximately \$53.0 billion and \$1.9 billion of the loans were evaluated in accordance with ASC 450-20 and ASC 310-10-35 (troubled debt restructurings), respectively. For additional information, see Note 15 to the Consolidated Financial Statements.
- (4) Includes mortgages and other retail loans.

<i>In billions of dollars</i>	December 31, 2019		
	ACLL	EOP loans, net of unearned income	ACLL as a percentage of EOP loans ⁽¹⁾
<i>North America cards</i> ⁽²⁾	\$ 7.0	\$ 149.2	4.7 %
<i>North America mortgages</i> ⁽³⁾	0.3	56.2	0.5
<i>North America other</i>	0.1	3.7	2.7
International cards	1.4	25.9	5.4
International other ⁽⁴⁾	1.1	74.6	1.5
Total consumer	\$ 9.9	\$ 309.6	3.2 %
Total corporate	2.9	389.9	0.7
Total Citigroup	\$ 12.8	\$ 699.5	1.8 %

- (1) Loans carried at fair value do not have an ACLL and are excluded from the ACLL ratio calculation.
- (2) Includes both Citi-branded cards and Citi retail services. The \$7.0 billion of loan loss reserves represented approximately 15 months of coincident net credit loss coverage.
- (3) Of the \$0.3 billion, nearly all was allocated to *North America* mortgages in *Corporate/Other*, including \$0.1 billion and \$0.2 billion determined in accordance with ASC 450-20 and ASC 310-10-35 (troubled debt restructurings), respectively. Of the \$56.2 billion in loans, approximately \$54.2 billion and \$2.0 billion of the loans were evaluated in accordance with ASC 450-20 and ASC 310-10-35 (troubled debt restructurings), respectively. For additional information, see Note 15 to the Consolidated Financial Statements.
- (4) Includes mortgages and other retail loans.

The following table details Citi's corporate credit allowance for credit losses on loans (ACLL) by industry exposure:

<i>In millions of dollars, except percentages</i>	December 31, 2020		
	Funded exposure ⁽¹⁾	ACLL ⁽²⁾⁽³⁾	ACLL as a % of funded exposure
Transportation and industrials	\$ 58,352	\$ 1,558	2.67 %
Private bank	75,693	224	0.30
Consumer retail	34,621	563	1.63
Technology, media and telecom	29,821	407	1.36
Real estate	42,711	718	1.68
Power, chemicals, metals and mining	20,156	312	1.55
Banks and finance companies	29,570	219	0.74
Energy and commodities	14,009	523	3.73
Health	8,575	144	1.68
Public sector	13,416	172	1.28
Insurance	1,925	7	0.36
Asset managers and funds	4,491	22	0.49
Financial markets infrastructure	229	—	—
Securities firms	430	10	2.33
Other industries	3,579	122	3.41
Total	\$ 337,578	\$ 5,001	1.48 %

(1) Funded exposure excludes \$6,840 million of loans at fair value that are not subject to ACLL under the CECL standard.

(2) As of December 31, 2020, the ACLL shown above reflects coverage of 0.5% of funded investment grade exposure and 4.4% of funded non-investment grade exposure.

(3) Excludes \$401 million of ACLL associated with approximately \$43 billion of funded delinquency-managed private bank exposures at December 31, 2020. Including those reserves and exposures, the total ACLL is 1.42% of total funded exposure, including 0.5% of funded investment grade exposure and 4.4% of funded non-investment grade exposure.

Non-Accrual Loans and Assets and Renegotiated Loans

There is a certain amount of overlap among non-accrual loans and assets and renegotiated loans. The following summary provides a general description of each category.

Non-Accrual Loans and Assets:

- Corporate and consumer (including commercial banking) non-accrual status is based on the determination that payment of interest or principal is doubtful.
- A corporate loan may be classified as non-accrual and still be performing under the terms of the loan structure. Non-accrual loans may still be current on interest payments. Approximately 59%, 58% and 44% of Citi's corporate non-accrual loans were performing at December 31, 2020, September 30, 2020 and December 31, 2019, respectively.
- Consumer non-accrual status is generally based on aging, i.e., the borrower has fallen behind on payments.
- Consumer mortgage loans, other than Federal Housing Administration (FHA) insured loans, are classified as non-accrual within 60 days of notification that the borrower has filed for bankruptcy. In addition, home equity loans are classified as non-accrual if the related residential first mortgage loan is 90 days or more past due.
- *North America* Citi-branded cards and Citi retail services are not included because, under industry standards, credit card loans accrue interest until such loans are charged off, which typically occurs at 180 days of contractual delinquency.

Renegotiated Loans:

- Includes both corporate and consumer loans whose terms have been modified in a troubled debt restructuring (TDR).
- Includes both accrual and non-accrual TDRs.

Non-Accrual Loans

The table below summarizes Citigroup's non-accrual loans as of the periods indicated. Non-accrual loans may still be current on interest payments. In situations where Citi reasonably expects that only a portion of the principal owed will ultimately be collected, all payments received are reflected as a reduction of principal and not as interest income. For all other non-accrual loans, cash interest receipts are generally recorded as revenue.

In millions of dollars	December 31,				
	2020	2019	2018	2017	2016
Corporate non-accrual loans⁽¹⁾					
North America	\$ 1,928	\$ 1,214	\$ 586	\$ 966	\$ 1,291
EMEA	661	430	375	849	904
Latin America	719	473	307	348	441
Asia	219	71	243	70	220
Total corporate non-accrual loans	\$ 3,527	\$ 2,188	\$ 1,511	\$ 2,233	\$ 2,856
Consumer non-accrual loans⁽¹⁾					
North America	\$ 1,059	\$ 905	\$ 1,138	\$ 1,468	\$ 1,854
Latin America	774	632	638	688	648
Asia ⁽²⁾	308	279	250	243	221
Total consumer non-accrual loans	\$ 2,141	\$ 1,816	\$ 2,026	\$ 2,399	\$ 2,723
Total non-accrual loans	\$ 5,668	\$ 4,004	\$ 3,537	\$ 4,632	\$ 5,579

(1) For years prior to 2020, excludes purchased credit-deteriorated loans, as they are generally accruing interest. The carrying value of these loans was \$128 million at December 31, 2019, \$128 million at December 31, 2018, \$167 million at December 31, 2017 and \$187 million at December 31, 2016.

(2) Asia includes balances in certain EMEA countries for all periods presented.

The changes in Citigroup's non-accrual loans were as follows:

In millions of dollars	Year ended December 31, 2020			Year ended December 31, 2019		
	Corporate	Consumer	Total	Corporate	Consumer	Total
Non-accrual loans at beginning of year	\$ 2,188	\$ 1,816	\$ 4,004	\$ 1,511	\$ 2,026	\$ 3,537
Additions	5,103	2,829	7,932	3,407	2,954	6,361
Sales and transfers to HFS	(2)	(95)	(97)	(23)	(171)	(194)
Returned to performing	(157)	(389)	(546)	(68)	(431)	(499)
Paydowns/settlements	(3,117)	(677)	(3,794)	(2,496)	(902)	(3,398)
Charge-offs	(446)	(1,132)	(1,578)	(268)	(1,444)	(1,712)
Other	(42)	(211)	(253)	125	(216)	(91)
Ending balance	\$ 3,527	\$ 2,141	\$ 5,668	\$ 2,188	\$ 1,816	\$ 4,004

Non-Accrual Assets

The table below summarizes Citigroup's other real estate owned (OREO) assets. OREO is recorded on the Consolidated Balance Sheet within *Other assets*. This represents the carrying value of all real estate property acquired by foreclosure or other legal proceedings when Citi has taken possession of the collateral:

<i>In millions of dollars</i>	December 31,				
	2020	2019	2018	2017	2016
OREO					
<i>North America</i>	\$ 19	\$ 39	\$ 64	\$ 89	\$ 161
<i>EMEA</i>	—	1	1	2	—
<i>Latin America</i>	7	14	12	35	18
<i>Asia</i>	17	7	22	18	7
Total OREO	\$ 43	\$ 61	\$ 99	\$ 144	\$ 186
Non-accrual assets					
Corporate non-accrual loans	\$ 3,527	\$ 2,188	\$ 1,511	\$ 2,233	\$ 2,856
Consumer non-accrual loans	2,141	1,816	2,026	2,399	2,723
Non-accrual loans (NAL)	\$ 5,668	\$ 4,004	\$ 3,537	\$ 4,632	\$ 5,579
OREO	\$ 43	\$ 61	\$ 99	\$ 144	\$ 186
Non-accrual assets (NAA)	\$ 5,711	\$ 4,065	\$ 3,636	\$ 4,776	\$ 5,765
NAL as a percentage of total loans	0.84 %	0.57 %	0.52 %	0.69 %	0.89 %
NAA as a percentage of total assets	0.25	0.21	0.19	0.26	0.32
ACLL as a percentage of NAL ⁽¹⁾	440	319	348	267	216

(1) The ACLL includes the allowance for Citi's credit card portfolios and purchased distressed loans, while the non-accrual loans exclude credit card balances (with the exception of certain international portfolios) and, prior to 2020, include purchased credit-deteriorated loans as these continue to accrue interest until charge-off.

Renegotiated Loans

The following table presents Citi's loans modified in TDRs:

<i>In millions of dollars</i>	Dec. 31, 2020	Dec. 31, 2019
Corporate renegotiated loans⁽¹⁾		
In U.S. offices		
Commercial and industrial ⁽²⁾	\$ 193	\$ 226
Mortgage and real estate	60	57
Financial institutions	—	—
Other	30	4
Total	\$ 283	\$ 287
In offices outside the U.S.		
Commercial and industrial ⁽²⁾	\$ 132	\$ 200
Mortgage and real estate	32	22
Financial institutions	—	—
Other	3	40
Total	\$ 167	\$ 262
Total corporate renegotiated loans	\$ 450	\$ 549
Consumer renegotiated loans⁽³⁾		
In U.S. offices		
Mortgage and real estate	\$ 1,904	\$ 1,956
Cards	1,449	1,464
Installment and other	33	17
Total	\$ 3,386	\$ 3,437
In offices outside the U.S.		
Mortgage and real estate	\$ 361	\$ 305
Cards	533	466
Installment and other	519	400
Total	\$ 1,413	\$ 1,171
Total consumer renegotiated loans	\$ 4,799	\$ 4,608

- (1) Includes \$415 million and \$472 million of non-accrual loans included in the non-accrual loans table above at December 31, 2020 and 2019, respectively. The remaining loans are accruing interest.
- (2) In addition to modifications reflected as TDRs at December 31, 2020 and 2019, Citi also modified \$47 million and \$26 million, respectively, of commercial loans risk rated "Substandard Non-Performing" or worse (asset category defined by banking regulators) in offices outside the U.S. These modifications were not considered TDRs because they did not involve a concession or because they qualified for exemptions from TDR accounting provided by the CARES Act or Interagency Guidance.
- (3) Includes \$873 million and \$814 million of non-accrual loans included in the non-accrual loans table above at December 31, 2020 and 2019, respectively. The remaining loans are accruing interest.

Forgone Interest Revenue on Loans⁽¹⁾

<i>In millions of dollars</i>	In U.S. offices	In non- U.S. offices	2020 total
Interest revenue that would have been accrued at original contractual rates ⁽²⁾	\$ 428	\$ 365	\$ 793
Amount recognized as interest revenue ⁽²⁾	177	134	311
Forgone interest revenue	\$ 251	\$ 231	\$ 482

- (1) Relates to corporate non-accrual loans, renegotiated loans and consumer loans on which accrual of interest has been suspended.
- (2) Interest revenue in offices outside the U.S. may reflect prevailing local interest rates, including the effects of inflation and monetary correction in certain countries.

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 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, among other things, those related to resolution planning (for additional information, see "Resolution Plan" and "Total Loss-Absorbing Capacity (TLAC)" below). 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 Ltd. 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 sources of funding include (i) deposits via Citi's bank subsidiaries, which are Citi's most stable and lowest cost source of long-term funding, (ii) long-term debt (primarily senior and subordinated debt) primarily issued at the parent and certain bank subsidiaries, and (iii) stockholders' equity. These sources may be supplemented by short-term borrowings, primarily in the form of secured funding transactions.

As referenced above, Citi's funding and liquidity framework ensures that the tenor of these funding sources is of sufficient term in relation to the tenor of its asset base. The goal of Citi's asset/liability management is to ensure that there is sufficient liquidity and tenor in the liability structure relative to the liquidity profile of the assets. This reduces the risk that liabilities will become due before assets mature or are monetized. This excess liquidity is held primarily in the form of high-quality liquid assets (HQLA), as set forth in the table below.

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

The Chief Risk Officer and Citi's CFO co-chair Citigroup's ALCO, which includes Citi's Treasurer and other senior executives. ALCOs, among other things, set the strategy of the liquidity portfolio and monitor its performance. Significant changes to portfolio asset allocations need to be approved by the ALCOs.

Liquidity Monitoring and Measurement

Stress Testing

Liquidity stress testing is performed for each of Citi's major entities, operating subsidiaries and/or countries. Stress testing and scenario analyses are intended to quantify the potential impact of an adverse liquidity event on the balance sheet and liquidity position, and to identify viable funding alternatives that can be utilized. These scenarios include assumptions about significant changes in key funding sources, market triggers (such as credit ratings), potential uses of funding and macroeconomic, geopolitical and other conditions. These conditions include expected and stressed market conditions as well as Company-specific events.

Liquidity stress tests are performed to ascertain potential mismatches between liquidity sources and uses over a variety of time horizons and over different stressed conditions. To monitor the liquidity of an entity, these stress tests and potential mismatches are calculated with varying frequencies, with several tests performed daily.

Given the range of potential stresses, Citi maintains contingency funding plans on a consolidated basis and for individual entities. These plans specify a wide range of readily available actions for a variety of adverse market conditions or idiosyncratic stresses.

High-Quality Liquid Assets (HQLA)

<i>In billions of dollars</i>	Citibank			Citi non-bank and other entities			Total		
	Dec. 31, 2020	Sept. 30, 2020	Dec. 31, 2019	Dec. 31, 2020	Sept. 30, 2020	Dec. 31, 2019	Dec. 31, 2020	Sept. 30, 2020	Dec. 31, 2019
Available cash	\$ 304.3	\$ 279.3	\$ 158.7	\$ 2.1	\$ 2.0	\$ 2.1	\$ 306.4	\$ 281.3	\$ 160.8
U.S. sovereign	77.8	80.6	100.2	64.8	56.0	29.6	142.6	136.6	129.8
U.S. agency/agency MBS	31.8	34.6	56.9	6.5	5.8	4.4	38.3	40.4	61.3
Foreign government debt ⁽¹⁾	39.6	44.5	66.4	16.2	17.0	16.5	55.8	61.5	82.9
Other investment grade	1.2	1.5	2.4	0.5	0.7	0.5	1.7	2.2	2.8
Total HQLA (AVG)	\$ 454.7	\$ 440.5	\$ 384.6	\$ 90.1	\$ 81.5	\$ 53.1	\$ 544.8	\$ 522.0	\$ 437.6

Note: The amounts set forth in the table above are presented on an average basis. For securities, the amounts represent the liquidity value that potentially could be realized and, therefore, exclude any securities that are encumbered and incorporate any haircuts applicable under the U.S. LCR rule. The table above incorporates various restrictions that could limit the transferability of liquidity between legal entities, including Section 23A of the Federal Reserve Act.

(1) Foreign government debt includes securities issued or guaranteed by foreign sovereigns, agencies and multilateral development banks. Foreign government debt securities are held largely to support local liquidity requirements and Citi's local franchises and principally include government bonds from Japan, Mexico, Singapore, South Korea and Hong Kong.

The table above includes average amounts of HQLA held at Citigroup's operating entities that are eligible for inclusion in the calculation of Citigroup's consolidated Liquidity Coverage ratio (LCR), pursuant to the U.S. LCR rules. These amounts include the HQLA needed to meet the minimum requirements at these entities and any amounts in excess of these minimums that are assumed to be transferable to other entities within Citigroup.

Citigroup's HQLA increased quarter-over-quarter as of the fourth quarter of 2020, primarily reflecting an increase in average long-term non-bank debt. While deposit growth and a decline in loans increased liquidity at Citibank, a significant amount of this liquidity was assumed not to be transferable to other entities within Citigroup and therefore not included in Citi's consolidated HQLA.

As of December 31, 2020, Citigroup had \$972 billion of available liquidity resources to support client and business needs, including end-of-period HQLA assets; additional unencumbered securities, including excess liquidity held at bank entities that is non-transferable to other entities within Citigroup; and available assets not already accounted for within Citi's HQLA to support Federal Home Loan Bank (FHLB) and Federal Reserve Bank discount window borrowing capacity.

Short-Term Liquidity Measurement: Liquidity Coverage Ratio (LCR)

In addition to internal 30-day liquidity stress testing performed for Citi's major entities, operating subsidiaries and countries, Citi also monitors its liquidity by reference to the LCR.

Generally, the LCR is designed to ensure that banks maintain an adequate level of HQLA to meet liquidity needs under an acute 30-day stress scenario. The LCR is calculated by dividing HQLA by estimated net outflows over a stressed 30-day period, with the net outflows determined by applying prescribed outflow factors to various categories of liabilities, such as deposits, unsecured and secured wholesale borrowings, unused lending commitments and derivatives-related exposures, partially offset by inflows from assets maturing within 30 days. Banks are required to calculate an add-on to address potential maturity mismatches between contractual cash outflows and inflows within the 30-day period in determining the total amount of net outflows. The minimum LCR requirement is 100%.

The table below details the components of Citi's LCR calculation and HQLA in excess of net outflows for the periods indicated:

<i>In billions of dollars</i>	Dec. 31, 2020	Sept. 30, 2020	Dec. 31, 2019
HQLA	\$ 544.8	\$ 522.0	\$ 437.6
Net outflows	460.7	442.6	382.0
LCR	118 %	118 %	115 %
HQLA in excess of net outflows	\$ 84.1	\$ 79.4	\$ 55.6

Note: The amounts are presented on an average basis.

As of December 31, 2020, Citi's average LCR was unchanged sequentially, as Citi's average HQLA and net outflows increased proportionately.

Long-Term Liquidity Measurement: Net Stable Funding Ratio (NSFR)

On October 20, 2020, the U.S. banking agencies adopted a final rule to assess the availability of a bank's stable funding against a required level. The intended purpose of the final rule is to support the ability of financial institutions to provide financial intermediation to businesses and households across a range of market conditions and reduce the possibility of funding shocks compromising a financial institution's liquidity position.

In general, a bank's available stable funding will include portions of equity, deposits and long-term debt, while its required stable funding will be based on the liquidity characteristics of its assets, derivatives and commitments. Standardized weightings will be required to be applied to the various asset and liabilities classes. The ratio of available stable funding to required stable funding will be required to be greater than 100%.

The final rule becomes effective beginning July 1, 2021 while public disclosure requirements to report the ratio will occur on a semi-annual basis beginning June 30, 2023. Citi expects to be in compliance with the final rule when the rule is effective.

Loans

As part of its funding and liquidity objectives, Citi seeks to fund its existing asset base appropriately as well as maintain sufficient liquidity to grow its *GCB* and *ICG* businesses, including its loan portfolio. Citi maintains a diversified portfolio of loans to its consumer and institutional clients. The table below details the average loans, by business and/or segment, and the total end-of-period loans for each of the periods indicated:

<i>In billions of dollars</i>	Dec. 31, 2020	Sept. 30, 2020	Dec. 31, 2019
Global Consumer Banking			
<i>North America</i>	\$ 179.4	\$ 179.1	\$ 192.7
<i>Latin America</i>	14.3	13.6	17.4
<i>Asia</i> ⁽¹⁾	82.4	79.7	80.9
Total	\$ 276.1	\$ 272.4	\$ 291.0
Institutional Clients Group			
Corporate lending	\$ 146.2	\$ 166.1	\$ 154.2
Treasury and trade solutions (TTS)	67.1	67.1	74.5
Private bank	113.3	110.3	106.6
<i>Markets and securities services and other</i>	56.1	53.1	56.0
Total	\$ 382.7	\$ 396.6	\$ 391.3
Total <i>Corporate/Other</i>	\$ 7.4	\$ 8.2	\$ 10.3
Total Citigroup loans (AVG)	\$ 666.2	\$ 677.2	\$ 692.6
Total Citigroup loans (EOP)	\$ 676.1	\$ 666.9	\$ 699.5

(1) Includes loans in certain *EMEA* countries for all periods presented.

As of the fourth quarter of 2020, end-of period loans declined 3% year-over-year and increased 1% quarter-over-quarter.

On an average basis, loans declined 4% year-over-year and 2% quarter-over-quarter. Excluding the impact of FX translation, average loans also declined 4% year-over-year and 2% sequentially. On this basis, average *GCB* loans declined 6% year-over-year, primarily reflecting the impact of lower consumer spending in Citi's cards businesses and higher payments by customers given high levels of liquidity due to fiscal stimulus.

Excluding the impact of FX translation, average *ICG* loans declined 3% year-over-year. Treasury and trade solutions (TTS) loans declined 10% year-over-year, reflecting softness in underlying trade flows and the continued low level of spend in commercial cards driven by the impact of the pandemic. Average corporate lending loans declined 6%, reflecting net repayments as Citi continued to assist its clients in accessing the capital markets, as well as lower loan demand given more muted economic activity. Average private bank loans increased 6%, largely driven by secured lending to high-net-worth clients, including residential real estate lending.

Average *Corporate/Other* loans continued to decline (down 29%), driven by the wind-down of legacy assets.

Deposits

The table below details the average deposits, by business and/or segment, and the total end-of-period deposits for each of the periods indicated:

<i>In billions of dollars</i>	Dec. 31, 2020	Sept. 30, 2020	Dec. 31, 2019
Global Consumer Banking ⁽¹⁾			
<i>North America</i>	\$ 188.9	\$ 182.1	\$ 156.2
<i>Latin America</i>	24.3	22.5	23.0
<i>Asia</i> ⁽²⁾	120.0	115.2	103.4
Total	\$ 333.2	\$ 319.8	\$ 282.6
Institutional Clients Group			
Treasury and trade solutions (TTS)	\$ 686.5	\$ 678.6	\$ 558.7
<i>Banking ex-TTS</i>	163.2	150.1	140.7
<i>Markets and securities services</i>	109.3	107.9	95.0
Total	\$ 959.0	\$ 936.6	\$ 794.4
<i>Corporate/Other</i>	\$ 13.1	\$ 11.4	\$ 12.5
Total Citigroup deposits (AVG)	\$ 1,305.3	\$ 1,267.8	\$ 1,089.5
Total Citigroup deposits (EOP)	\$ 1,280.7	\$ 1,262.6	\$ 1,070.6

(1) Reflects deposits within retail banking.

(2) Includes deposits in certain *EMEA* countries for all periods presented.

End-of-period deposits increased 20% year-over-year and 1% sequentially.

As of the fourth quarter of 2020, on an average basis, deposits increased 20% year-over-year and 3% sequentially. Excluding the impact of FX translation, average deposits grew 19% from the prior-year period and 2% sequentially, reflecting continued client engagement as well as the elevated level of liquidity in the financial system. On this basis, average deposits in *GCB* increased 18%, with strong growth across all regions.

Excluding the impact of FX translation, average deposits in *ICG* grew 20% year-over-year, primarily driven by 22%

growth in TTS, as well as continued growth in the private bank and securities services.

Long-Term Debt

Long-term debt (generally defined as debt with original maturities of one year or more) represents the most significant component of Citi's funding for the Citigroup parent company and Citi's non-bank subsidiaries and is a supplementary source of funding for the bank entities.

Long-term debt is an important funding source due in part to its multiyear contractual maturity structure. The weighted-average maturity of unsecured long-term debt issued by Citigroup and its affiliates (including Citibank) with a remaining life greater than one year was approximately 8.6 years as of December 31, 2020, unchanged from September 30, 2020 and an increase from the prior year. The weighted-average maturity is calculated based on the contractual maturity of each security. For securities that are redeemable prior to maturity at the option of the holder, the weighted-average maturity is calculated based on the earliest date an option becomes exercisable.

Citi's long-term debt outstanding at the Citigroup parent company includes benchmark senior and subordinated debt and what Citi refers to as customer-related debt, consisting of structured notes, such as equity- and credit-linked notes, as well as non-structured notes. Citi's issuance of customer-related debt is generally driven by customer demand and complements benchmark debt issuance as a source of funding for Citi's non-bank entities. Citi's long-term debt at the bank includes bank notes, FHLB advances and securitizations.

Long-Term Debt Outstanding

The following table sets forth Citi's end-of-period total long-term debt outstanding for each of the dates indicated:

<i>In billions of dollars</i>	Dec. 31, 2020	Sept. 30, 2020	Dec. 31, 2019
Non-bank⁽¹⁾			
Benchmark debt:			
Senior debt	\$ 126.2	\$ 126.3	\$ 106.6
Subordinated debt	27.1	27.4	25.5
Trust preferred	1.7	1.7	1.7
Customer-related debt	65.2	61.0	53.8
Local country and other ⁽²⁾	6.7	8.1	7.9
Total non-bank	\$ 226.9	\$ 224.5	\$ 195.5
Bank			
FHLB borrowings	\$ 10.9	\$ 14.7	\$ 5.5
Securitizations ⁽³⁾	16.6	16.4	20.7
Citibank benchmark senior debt	13.6	14.2	23.1
Local country and other ⁽²⁾	3.7	3.5	4.0
Total bank	\$ 44.8	\$ 48.8	\$ 53.3
Total long-term debt	\$ 271.7	\$ 273.3	\$ 248.8

Note: Amounts represent the current value of long-term debt on Citi's Consolidated Balance Sheet that, for certain debt instruments, includes consideration of fair value, hedging impacts and unamortized discounts and premiums.

- (1) Non-bank includes long-term debt issued to third parties by the parent holding company (Citigroup) and Citi's non-bank subsidiaries (including broker-dealer subsidiaries) that are consolidated into Citigroup. As of December 31, 2020, non-bank included \$56.4 billion of long-term debt issued by Citi's broker-dealer and other subsidiaries, as well as certain Citigroup consolidated hedging activities.
- (2) Local country and other includes debt issued by Citi's affiliates in support of their local operations. Within non-bank, certain secured financing is also included. Within bank, borrowings under certain U.S. government-sponsored liquidity programs are also included.
- (3) Predominantly credit card securitizations, primarily backed by Citi-branded credit card receivables.

As of the fourth quarter of 2020, Citi's total long-term debt outstanding increased year-over-year, primarily driven by the issuance of unsecured benchmark senior debt and customer-related debt at the non-bank entities, as well as an increase in FHLB borrowings at the bank, partially offset by declines in unsecured benchmark senior debt and securitizations at the bank. Sequentially, long-term debt outstanding decreased, driven primarily by a decline in FHLB borrowings at the bank and local country and other debt at the non-bank, partially offset by higher customer-related debt at the non-bank.

As part of its liability management, Citi has considered, and may continue to consider, opportunities to redeem or repurchase its long-term debt pursuant to open market purchases, tender offers or other means. Such redemptions and repurchases help reduce Citi's overall funding costs. During 2020, Citi redeemed or repurchased \$28.9 billion of its outstanding long-term debt.

Long-Term Debt Issuances and Maturities

The table below details Citi's long-term debt issuances and maturities (including repurchases and redemptions) during the periods presented:

<i>In billions of dollars</i>	2020		2019		2018	
	Maturities	Issuances	Maturities	Issuances	Maturities	Issuances
Non-bank						
Benchmark debt:						
Senior debt	\$ 6.5	\$ 20.4	\$ 16.5	\$ 16.2	\$ 18.5	\$ 14.8
Subordinated debt	—	—	—	—	2.9	0.6
Trust preferred	—	—	—	—	—	—
Customer-related debt	27.7	36.8	12.7	25.1	6.6	16.9
Local country and other	2.4	1.4	1.1	5.4	1.2	2.3
Total non-bank	\$ 36.6	\$ 58.6	\$ 30.3	\$ 46.7	\$ 29.2	\$ 34.6
Bank						
FHLB borrowings	\$ 7.5	\$ 12.9	\$ 7.1	\$ 2.1	\$ 15.8	\$ 7.9
Securitizations	4.6	0.3	7.9	0.1	8.6	6.8
Citibank benchmark senior debt	9.8	—	4.8	8.8	2.3	8.5
Local country and other	4.9	4.6	0.9	1.4	2.2	2.9
Total bank	\$ 26.8	\$ 17.8	\$ 20.7	\$ 12.4	\$ 28.9	\$ 26.1
Total	\$ 63.4	\$ 76.4	\$ 51.0	\$ 59.1	\$ 58.1	\$ 60.7

The table below shows Citi's aggregate long-term debt maturities (including repurchases and redemptions) in 2020, as well as its aggregate expected remaining long-term debt maturities by year as of December 31, 2020:

<i>In billions of dollars</i>	Maturities							Total
	2020	2021	2022	2023	2024	2025	Thereafter	
Non-bank								
Benchmark debt:								
Senior debt	\$ 6.5	\$ 14.7	\$ 11.5	\$ 13.0	\$ 11.3	\$ 7.7	\$ 67.9	\$ 126.2
Subordinated debt	—	—	0.8	1.3	1.1	5.3	18.6	27.1
Trust preferred	—	—	—	—	—	—	1.7	1.7
Customer-related debt	27.7	8.4	8.5	6.8	4.0	5.4	32.1	65.2
Local country and other	2.4	1.6	1.3	2.2	—	—	1.6	6.7
Total non-bank	\$ 36.6	\$ 24.7	\$ 22.1	\$ 23.3	\$ 16.4	\$ 18.4	\$ 121.9	\$ 226.9
Bank								
FHLB borrowings	\$ 7.5	\$ 5.7	\$ 5.3	\$ —	\$ —	\$ —	\$ —	\$ 10.9
Securitizations	4.6	7.2	2.1	2.4	1.1	0.4	3.3	16.6
Citibank benchmark senior debt	9.8	5.1	5.7	—	2.8	—	—	13.6
Local country and other	4.9	0.6	1.5	0.3	0.7	0.1	0.5	3.7
Total bank	\$ 26.8	\$ 18.6	\$ 14.6	\$ 2.7	\$ 4.6	\$ 0.5	\$ 3.8	\$ 44.8
Total long-term debt	\$ 63.4	\$ 43.3	\$ 36.7	\$ 26.0	\$ 21.0	\$ 18.9	\$ 125.7	\$ 271.7

Resolution Plan

Citi is required under Title I of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (Dodd-Frank Act) and the rules promulgated by the FDIC and FRB to periodically submit a plan for Citi's rapid and orderly resolution under the U.S. Bankruptcy Code in the event of material financial distress or failure. For additional information on Citi's resolution plan submissions, see "Risk Factors—Strategic Risks" above. Citigroup's preferred resolution strategy is "single point of entry" under the U.S. Bankruptcy Code.

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 2019 resolution plan, which can be found on the FRB's and FDIC's websites) would remain operational outside of any resolution or insolvency proceedings. Citigroup's resolution plan has been designed to minimize the risk of systemic impact to the U.S. and global financial systems, while maximizing the value of the bankruptcy estate for the benefit of Citigroup's creditors, including its unsecured long-term debt holders.

In addition, in line with the Federal Reserve's final total loss-absorbing capacity (TLAC) rule, Citigroup believes it has developed the resolution plan so that Citigroup's shareholders and unsecured creditors—including its unsecured long-term debt holders—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.

The FDIC has also indicated that it was developing a single point of entry strategy to implement the Orderly Liquidation Authority under Title II of the Dodd-Frank Act, which provides the FDIC with the ability to resolve a firm when it is determined that bankruptcy would have serious adverse effects on financial stability in the U.S.

As previously disclosed, in response to feedback received from the Federal Reserve and FDIC, Citigroup took the following actions:

- (i) Citicorp LLC (Citicorp), an existing wholly owned subsidiary of Citigroup, was established as an intermediate holding company (an IHC) for certain of Citigroup's operating material legal entities;
 - (ii) Citigroup executed an inter-affiliate agreement with Citicorp, Citigroup's operating material legal entities and certain other affiliated entities pursuant to which Citicorp is required to provide liquidity and capital support to Citigroup's operating material legal entities in the event Citigroup were to enter bankruptcy proceedings (Citi Support Agreement);
 - (iii) pursuant to the Citi Support Agreement:
 - Citigroup made an initial contribution of assets, including certain high-quality liquid assets and inter-affiliate loans (Contributable Assets), to Citicorp, and Citicorp became the business-as-usual funding vehicle for Citigroup's operating material legal entities;
 - Citigroup will be obligated to continue to transfer Contributable Assets to Citicorp over time, subject to certain amounts retained by Citigroup to, among other things, meet Citigroup's near-term cash needs;
 - in the event of a Citigroup bankruptcy, Citigroup will be required to contribute most of its remaining assets to Citicorp; and
- (iv) the obligations of both Citigroup and Citicorp under the Citi Support Agreement, as well as the Contributable Assets, are secured pursuant to a security agreement.

The Citi Support Agreement provides two mechanisms, besides Citicorp's issuing of dividends to Citigroup, pursuant to which Citicorp will be required to transfer cash to Citigroup during business as usual so that Citigroup can fund its debt service as well as other operating needs: (i) one or more funding notes issued by Citicorp to Citigroup and (ii) a committed line of credit under which Citicorp may make loans to Citigroup.

On December 17, 2019, the FRB and FDIC issued feedback on the resolution plans filed on July 1, 2019 by the eight U.S. GSIBs, including Citi. The FRB and FDIC identified one shortcoming, but no deficiencies, in Citi's resolution plan relating to governance mechanisms. On July 1, 2020, the FRB and FDIC provided information to the eight largest domestic banking organizations, including Citi, required to be included in the targeted resolution plans due on July 1, 2021.

Total Loss-Absorbing Capacity (TLAC)

U.S. GSIBs are required to maintain minimum levels of TLAC and eligible LTD, each set by reference to the GSIB's consolidated risk-weighted assets (RWA) and total leverage exposure. The intended purpose of the requirements is to facilitate the orderly resolution of U.S. GSIBs under the U.S. Bankruptcy Code and Title II of the Dodd-Frank Act. For additional information, including Citi's TLAC and LTD amounts and ratios, see "Capital Resources—Current Regulatory Capital Standards" and "Risk Factors—Compliance Risks" above.

SECURED FUNDING TRANSACTIONS AND SHORT-TERM BORROWINGS

Citi supplements its primary sources of funding with short-term financings that generally include (i) secured funding transactions consisting of securities loaned or sold under agreements to repurchase, i.e., repos, and (ii) to a lesser extent, short-term borrowings consisting of commercial paper and borrowings from the FHLB and other market participants.

Secured Funding Transactions

Secured funding is primarily accessed through Citi's broker-dealer subsidiaries to fund efficiently both (i) secured lending activity and (ii) a portion of the securities inventory held in the context of market making and customer activities. Citi also executes a smaller portion of its secured funding transactions through its bank entities, which are typically collateralized by government debt securities. Generally, daily changes in the level of Citi's secured funding are primarily due to fluctuations in secured lending activity in the matched book (as described below) and securities inventory.

Secured funding of \$200 billion as of December 31, 2020 increased 20% from the prior year and declined 4% from the prior quarter. Excluding the impact of FX translation, secured funding decreased 16% from the prior year and declined 7% sequentially, both driven by normal business activity. Average balances for secured funding were \$227 billion for the quarter ended December 31, 2020.

The portion of secured funding in the broker-dealer subsidiaries that funds secured lending is commonly referred to as "matched book" activity. The majority of this activity is secured by high-quality liquid securities such as U.S. Treasury

securities, U.S. agency securities and foreign government debt securities. Other secured funding is secured by less liquid securities, including equity securities, corporate bonds and asset-backed securities, the tenor of which is generally equal to or longer than the tenor of the corresponding matched book assets.

The remainder of the secured funding activity in the broker-dealer subsidiaries serves to fund securities inventory held in the context of market making and customer activities. To maintain reliable funding under a wide range of market conditions, including under periods of stress, Citi manages these activities by taking into consideration the quality of the underlying collateral and establishing minimum required funding tenors. The weighted average maturity of Citi's secured funding of less liquid securities inventory was greater than 110 days as of December 31, 2020.

Citi manages the risks in its secured funding by conducting daily stress tests to account for changes in capacity, tenor, haircut, collateral profile and client actions. In addition, Citi maintains counterparty diversification by establishing concentration triggers and assessing counterparty reliability and stability under stress. Citi generally sources secured funding from more than 150 counterparties.

Short-Term Borrowings

Citi's short-term borrowings of \$30 billion as of the fourth quarter of 2020 decreased 34% year-over-year and 21% sequentially, primarily driven by a decline in FHLB advances (see Note 17 to the Consolidated Financial Statements for further information on Citigroup's and its affiliates' outstanding short-term borrowings).

Overall Short-Term Borrowings

The following table contains the year-end, average and maximum month-end amounts for the following respective short-term borrowings categories at the end of each of the three prior years:

<i>In billions of dollars</i>	Securities sold under agreements to repurchase			Other borrowings ⁽¹⁾⁽²⁾		
	2020	2019	2018	2020	2019	2018
Amounts outstanding at year end	\$ 199.5	\$ 166.3	\$ 177.8	\$ 80.0	\$ 93.7	\$ 96.9
Average outstanding during the year ⁽³⁾⁽⁴⁾⁽⁵⁾	216.8	190.2	172.1	102.4	98.8	108.4
Maximum month-end outstanding	225.3	196.8	191.2	129.3	112.3	113.5
Weighted average interest rate during the year ⁽³⁾⁽⁴⁾⁽⁵⁾⁽⁶⁾	0.96 %	3.29 %	2.84 %	0.62 %	2.49 %	2.04 %

(1) Original maturities of less than one year.

(2) Other borrowings include commercial paper, brokerage payables and borrowings from the FHLB and other market participants. See "Average Balances and Interest Rates" below.

(3) Interest rates and amounts include the effects of risk management activities associated with the respective liability categories.

(4) Average volumes of securities sold under agreements to repurchase are reported net pursuant to ASC 210-20-45; average rates exclude the impact of ASC 210-20-45.

(5) Monthly or quarterly averages have been used by certain subsidiaries where daily averages are unavailable.

(6) Average rates reflect prevailing local interest rates, including inflationary effects and monetary correction in certain countries.

CREDIT RATINGS

Citigroup's funding and liquidity, funding capacity, ability to access capital markets and other sources of funds, the cost of these funds and its ability to maintain certain deposits are partially dependent on its credit ratings.

The table below shows the ratings for Citigroup and Citibank as of December 31, 2020. While not included in the table below, the long-term and short-term ratings of Citigroup Global Markets Holding Inc. (CGMHI) were BBB+/A-2 at Standard & Poor's and A/F1 at Fitch as of December 31, 2020.

Ratings as of December 31, 2020

	Citigroup Inc.			Citibank, N.A.		
	Senior debt	Commercial paper	Outlook	Long-term	Short-term	Outlook
Fitch Ratings (Fitch)	A	F1	Negative	A+	F1	Negative
Moody's Investors Service (Moody's)	A3	P-2	Stable	Aa3	P-1	Stable
Standard & Poor's (S&P)	BBB+	A-2	Stable	A+	A-1	Stable

Potential Impacts of Ratings Downgrades

Ratings downgrades by Moody's, Fitch or S&P could negatively impact Citigroup's and/or Citibank's funding and liquidity due to reduced funding capacity, including derivative triggers, which could take the form of cash obligations and collateral requirements.

The following information is provided for the purpose of analyzing the potential funding and liquidity impact to Citigroup and Citibank of a hypothetical simultaneous ratings downgrade across all three major rating agencies. This analysis is subject to certain estimates, estimation methodologies, judgments and uncertainties. Uncertainties include potential ratings limitations that certain entities may have with respect to permissible counterparties, as well as general subjective counterparty behavior. For example, certain corporate customers and markets counterparties could re-evaluate their business relationships with Citi and limit transactions in certain contracts or market instruments with Citi. Changes in counterparty behavior could impact Citi's funding and liquidity, as well as the results of operations of certain of its businesses. The actual impact to Citigroup or Citibank is unpredictable and may differ materially from the potential funding and liquidity impacts described below. For additional information on the impact of credit rating changes on Citi and its applicable subsidiaries, see "Risk Factors—Liquidity Risks" above.

Citigroup Inc. and Citibank—Potential Derivative Triggers

As of December 31, 2020, Citi estimates that a hypothetical one-notch downgrade of the senior debt/long-term rating of Citigroup Inc. across all three major rating agencies could impact Citigroup's funding and liquidity due to derivative triggers by approximately \$0.6 billion, unchanged from September 30, 2020. Other funding sources, such as secured financing transactions and other margin requirements, for which there are no explicit triggers, could also be adversely affected.

As of December 31, 2020, Citi estimates that a hypothetical one-notch downgrade of the senior debt/long-term rating of Citibank across all three major rating agencies could impact Citibank's funding and liquidity due to derivative triggers by approximately \$0.4 billion, unchanged from September 30, 2020. Other funding sources, such as secured financing transactions and other margin requirements, for which there are no explicit triggers, could also be adversely affected.

In total, as of December 31, 2020, Citi estimates that a one-notch downgrade of Citigroup and Citibank across all three major rating agencies could result in increased aggregate cash obligations and collateral requirements of approximately \$1.0 billion, unchanged from September 30, 2020 (see also Note 22 to the Consolidated Financial Statements). As detailed under "High-Quality Liquid Assets" above, Citigroup has various liquidity resources available to its bank and non-bank entities in part as a contingency for the potential events described above.

In addition, a broad range of mitigating actions are currently included in Citigroup's and Citibank's contingency funding plans. For Citigroup, these mitigating factors include, but are not limited to, accessing surplus funding capacity from existing clients, tailoring levels of secured lending and adjusting the size of select trading books and collateralized borrowings at certain Citibank subsidiaries. Mitigating actions available to Citibank include, but are not limited to, selling or financing highly liquid government securities, tailoring levels of secured lending, adjusting the size of select trading assets, reducing loan originations and renewals, raising additional deposits or borrowing from the FHLB or central banks. Citi believes these mitigating actions could substantially reduce the funding and liquidity risk, if any, of the potential downgrades described above.

Citibank—Additional Potential Impacts

In addition to the above derivative triggers, Citi believes that a potential downgrade of Citibank's senior debt/long-term rating across any of the three major rating agencies could also have an adverse impact on the commercial paper/short-term rating of Citibank. Citibank has provided liquidity commitments to consolidated asset-backed commercial paper conduits, primarily in the form of asset purchase agreements. As of December 31, 2020, Citibank had liquidity commitments of approximately \$10.0 billion to consolidated asset-backed commercial paper conduits, compared to \$11.4 billion as of September 30, 2020 (for additional information, see Note 21 to the Consolidated Financial Statements).

In addition to the above-referenced liquidity resources of certain Citibank entities, Citibank could reduce the funding and liquidity risk, if any, of the potential downgrades described above through mitigating actions, including repricing or reducing certain commitments to commercial paper conduits. In the event of the potential downgrades described above, Citi believes that certain corporate customers could re-evaluate their deposit relationships with Citibank. This re-evaluation could result in clients adjusting their discretionary deposit levels or changing their depository institution, which could potentially reduce certain deposit levels at Citibank. However, Citi could choose to adjust pricing, offer alternative deposit products to its existing customers or seek to attract deposits from new customers, in addition to the mitigating actions referenced above.

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 emanates from both Citi's trading and non-trading portfolios. For additional information on market risk and market risk management, 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 NON-TRADING PORTFOLIOS

Market risk from non-trading portfolios stems from the potential impact of changes in interest rates and foreign exchange rates on Citi's net interest revenues, the changes in *Accumulated other comprehensive income (loss) (AOCI)* from its debt securities portfolios and capital invested in foreign currencies.

Net Interest Revenue at Risk

Net interest revenue, for interest rate exposure purposes, is the difference between the yield earned on the non-trading portfolio assets (including customer loans) and the rate paid on the liabilities (including customer deposits or company borrowings). Net interest revenue is affected by changes in the level of interest rates, as well as the amounts and mix of assets and liabilities, and the timing of contractual and assumed repricing of assets and liabilities to reflect market rates.

Citi's principal measure of risk to net interest revenue is interest rate exposure (IRE). IRE measures the change in expected net interest revenue in each currency resulting solely from unanticipated changes in forward interest rates.

Citi's estimated IRE incorporates various assumptions including prepayment rates on loans, customer behavior and the impact of pricing decisions. For example, in rising interest rate scenarios, portions of the deposit portfolio may be assumed to experience rate increases that are less than the change in market interest rates. In declining interest rate scenarios, it is assumed that mortgage portfolios experience higher prepayment rates. Citi's estimated IRE below assumes that its businesses and/or Citi Treasury make no additional changes in balances or positioning in response to the unanticipated rate changes.

In order to manage changes in interest rates effectively, Citi may modify pricing on new customer loans and deposits, purchase fixed-rate securities, issue debt that is either fixed or floating or enter into derivative transactions that have the opposite risk exposures. Citi regularly assesses the viability of

these and other strategies to reduce its interest rate risks and implements such strategies when it believes those actions are prudent.

Citi manages interest rate risk as a consolidated Company-wide position. Citi's client-facing businesses create interest rate-sensitive positions, including loans and deposits, as part of their ongoing activities. Citi Treasury aggregates these risk positions and manages them centrally. Operating within established limits, Citi Treasury makes positioning decisions and uses tools, such as Citi's investment securities portfolio, company-issued debt and interest rate derivatives, to target the desired risk profile. Changes in Citi's interest rate risk position reflect the accumulated changes in all non-trading assets and liabilities, with potentially large and offsetting impacts, as well as in Citi Treasury's positioning decisions.

Citigroup employs additional measurements, including stress testing the impact of non-linear interest rate movements on the value of the balance sheet, and the analysis of portfolio duration and volatility, particularly as they relate to mortgage loans and mortgage-backed securities and the potential impact of the change in the spread between different market indices.

Interest Rate Risk of Investment Portfolios—Impact on AOCI

Citi also measures the potential impacts of changes in interest rates on the value of its *AOCI*, which can in turn impact Citi's common equity and tangible common equity. This will impact Citi's Common Equity Tier 1 and other regulatory capital ratios. Citi's goal is to benefit from an increase in the market level of interest rates, while limiting the impact of changes in *AOCI* on its regulatory capital position.

AOCI at risk is managed as part of the Company-wide interest rate risk position. *AOCI* at risk considers potential changes in *AOCI* (and the corresponding impact on the Common Equity Tier 1 Capital ratio) relative to Citi's capital generation capacity.

The following table sets forth the estimated impact to Citi's net interest revenue, *AOCI* and the Common Equity Tier 1 Capital ratio (on a fully implemented basis), each assuming an unanticipated parallel instantaneous 100 basis point (bps) increase in interest rates:

<i>In millions of dollars, except as otherwise noted</i>	Dec. 31, 2020	Sept. 30, 2020	Dec. 31, 2019
Estimated annualized impact to net interest revenue			
U.S. dollar ⁽¹⁾	\$ 373	\$ 65	\$ 20
All other currencies	683	702	606
Total	\$ 1,056	\$ 767	\$ 626
As a percentage of average interest-earning assets	0.05 %	0.04 %	0.03 %
Estimated initial negative impact to <i>AOCI</i> (after-tax) ⁽²⁾	\$ (5,645)	\$ (5,757)	\$ (5,002)
Estimated initial impact on Common Equity Tier 1 Capital ratio (bps)	(34)	(36)	(31)

(1) Certain trading-oriented businesses within Citi have accrual-accounted positions that are excluded from the estimated impact to net interest revenue in the table, since these exposures are managed economically in combination with mark-to-market positions. The U.S. dollar interest rate exposure associated with these businesses was \$(89) million for a 100 bps instantaneous increase in interest rates as of December 31, 2020.

(2) Includes the effect of changes in interest rates on *AOCI* related to investment securities, cash flow hedges and pension liability adjustments.

The year-over-year increase in the estimated impact to net interest revenue primarily reflected changes in Citi's balance sheet composition and Citi Treasury positioning. The year-over-year changes in the estimated impact to *AOCI* and the Common Equity Tier 1 Capital ratio primarily reflected the impact of the composition of Citi Treasury's investment and derivatives portfolio.

In the event of a parallel instantaneous 100 bps increase in interest rates, Citi expects that the negative impact to *AOCI* would be offset in shareholders' equity through the expected recovery of the impact on *AOCI* through accretion of Citi's investment portfolio over a period of time. As of December 31, 2020, Citi expects that the negative \$5.6 billion impact to *AOCI* in such a scenario could potentially be offset over approximately 31 months.

The following table sets forth the estimated impact to Citi's net interest revenue, *AOCI* and the Common Equity

Tier 1 Capital ratio (on a fully implemented basis) under five different changes in interest rate scenarios for the U.S. dollar and Citi's other currencies. The 100 bps downward rate scenarios are impacted by the low level of interest rates in several countries and the assumption that market interest rates, as well as rates paid to depositors and charged to borrowers, do not fall below zero (i.e., the "flooring assumption"). The rate scenarios are also impacted by convexity related to mortgage products.

In addition, in the table below, the magnitude of the impact to Citi's net interest revenue and *AOCI* is greater under Scenario 2 as compared to Scenario 3. This is because the combination of changes to Citi's investment portfolio, partially offset by changes related to Citi's pension liabilities, results in a net position that is more sensitive to rates at shorter- and intermediate-term maturities.

<i>In millions of dollars, except as otherwise noted</i>	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Overnight rate change (bps)	100	100	—	—	(100)
10-year rate change (bps)	100	—	100	(100)	(100)
Estimated annualized impact to net interest revenue					
U.S. dollar	\$ 373	\$ 348	\$ 141	\$ (113)	\$ (217)
All other currencies	683	489	42	(42)	(342)
Total	\$ 1,056	\$ 837	\$ 183	\$ (155)	\$ (559)
Estimated initial impact to <i>AOCI</i> (after-tax) ⁽¹⁾	\$ (5,645)	\$ (3,837)	\$ (1,987)	\$ 1,391	\$ 2,472
Estimated initial impact to Common Equity Tier 1 Capital ratio (bps)	(34)	(24)	(12)	7	9

Note: Each scenario assumes that the rate change will occur instantaneously. Changes in interest rates for maturities between the overnight rate and the 10-year rate are interpolated.

(1) Includes the effect of changes in interest rates on *AOCI* related to investment securities, cash flow hedges and pension liability adjustments.

Changes in Foreign Exchange Rates—Impacts on *AOCI* and Capital

As of December 31, 2020, Citi estimates that an unanticipated parallel instantaneous 5% appreciation of the U.S. dollar against all of the other currencies in which Citi has invested capital could reduce Citi's tangible common equity (TCE) by approximately \$1.7 billion, or 1.0%, as a result of changes to Citi's foreign currency translation adjustment in *AOCI*, net of hedges. This impact would be primarily due to changes in the value of the Mexican peso, Euro, Australian dollar and Singapore dollar.

This impact is also before any mitigating actions Citi may take, including ongoing management of its foreign currency translation exposure. Specifically, as currency movements change the value of Citi's net investments in foreign currency-denominated capital, these movements also change the value of Citi's risk-weighted assets denominated in those currencies. This, coupled with Citi's foreign currency hedging strategies, such as foreign currency borrowings, foreign currency forwards and other currency hedging instruments, lessens the impact of foreign currency movements on Citi's Common Equity Tier 1 Capital ratio. Changes in these hedging strategies, as well as hedging costs, divestitures and tax impacts, can further affect the actual impact of changes in foreign exchange rates on Citi's capital as compared to an unanticipated parallel shock, as described above.

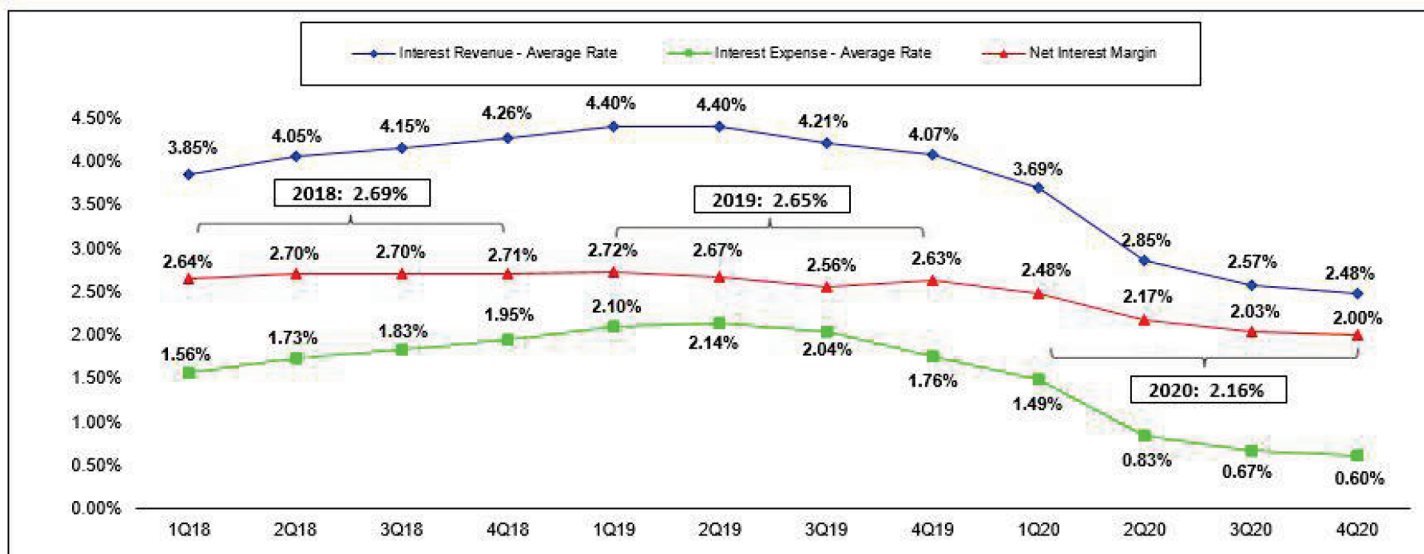
The effect of Citi's ongoing management strategies with respect to changes in foreign exchange rates, and the impact of these changes on Citi's TCE and Common Equity Tier 1 Capital ratio, are shown in the table below. For additional information on the changes in *AOCI*, see Note 19 to the Consolidated Financial Statements.

<i>In millions of dollars, except as otherwise noted</i>	For the quarter ended		
	Dec. 31, 2020	Sept. 30, 2020	Dec. 31, 2019
Change in FX spot rate ⁽¹⁾	5.5 %	2.6 %	2.8 %
Change in TCE due to FX translation, net of hedges	\$ 1,829	\$ 655	\$ 659
As a percentage of TCE	1.2 %	0.4 %	0.4 %
Estimated impact to Common Equity Tier 1 Capital ratio (on a fully implemented basis) due to changes in FX translation, net of hedges (bps)	2	(1)	(3)

(1) FX spot rate change is a weighted average based on Citi's quarterly average GAAP capital exposure to foreign countries.

Interest Revenue/Expense and Net Interest Margin (NIM)

Average Rates - Interest Revenue, Interest Expense, and Net Interest Margin



<i>In millions of dollars, except as otherwise noted</i>	2020	2019	2018	Change 2020 vs. 2019	Change 2019 vs. 2018
Interest revenue ⁽¹⁾	\$ 58,285	\$ 76,718	\$ 71,082	(24)%	8 %
Interest expense ⁽²⁾	14,541	29,163	24,266	(50)	20
Net interest revenue, taxable equivalent basis	\$ 43,744	\$ 47,555	\$ 46,816	(8)%	2 %
Interest revenue—average rate ⁽³⁾	2.88 %	4.27 %	4.08 %	(139) bps	19 bps
Interest expense—average rate	0.88	2.01	1.77	(113) bps	24 bps
Net interest margin ⁽³⁾⁽⁴⁾	2.16	2.65	2.69	(49) bps	(4) bps
Interest rate benchmarks					
Two-year U.S. Treasury note—average rate	0.39 %	1.97 %	2.53 %	(158) bps	(56) bps
10-year U.S. Treasury note—average rate	0.89	2.14	2.91	(125) bps	(77) bps
10-year vs. two-year spread	50 bps	17 bps	38 bps		

Note: All interest expense amounts include FDIC, as well as other similar deposit insurance assessments outside of the U.S.

- (1) *Net interest revenue* includes the taxable equivalent adjustments related to the tax-exempt bond portfolio (based on the U.S. federal statutory tax rate of 21%) of \$196 million, \$208 million and \$254 for 2020, 2019 and 2018, respectively.
- (2) Interest expense associated with certain hybrid financial instruments, which are classified as *Long-term debt* and accounted for at fair value, is reported together with any changes in fair value as part of *Principal transactions* in the Consolidated Statement of Income and is therefore not reflected in *Interest expense* in the table above.
- (3) The average rate on interest revenue and net interest margin reflects the taxable equivalent gross-up adjustment. See footnote 1 above.
- (4) Citi's net interest margin (NIM) is calculated by dividing net interest revenue by average interest-earning assets.

Non-ICG Markets Net Interest Revenue

<i>In millions of dollars</i>	2020	2019	2018
Net interest revenue (NIR)—taxable equivalent basis ⁽¹⁾ per above	\$ 43,744	\$ 47,555	\$ 46,816
<i>ICG Markets</i> NIR—taxable equivalent basis ⁽¹⁾	5,454	4,372	4,506
Non-ICG Markets NIR—taxable equivalent basis ⁽¹⁾	\$ 38,290	\$ 43,183	\$ 42,310

(1) *Net interest revenue* includes the taxable equivalent adjustments related to the tax-exempt bond portfolio (based on the U.S. federal statutory tax rate of 21%) of \$196 million, \$208 million and \$254 million for 2020, 2019 and 2018, respectively.

Citi's net interest revenue (NIR) in the fourth quarter of 2020 decreased 13% to \$10.5 billion (also \$10.5 billion on a taxable equivalent basis) versus the prior-year period. Excluding the impact of FX translation, NIR decreased year-over-year by approximately \$1.3 billion. The decrease was primarily related to a decline of approximately \$1.5 billion in non-*ICG Markets* NIR, partially offset by an approximate \$130 million increase in *ICG Markets* (fixed income markets and equity markets) NIR. The decrease in non-*ICG Markets* NIR primarily reflected lower interest rates and lower loan balances across institutional and consumer businesses (for additional information, see "Liquidity Risk—Loans" above). Citi's NIM was 2.00% on a taxable equivalent basis in the fourth quarter of 2020, a decrease of three basis points from the prior quarter, reflecting lower NIR and balance sheet expansion due to strong deposit growth.

Citi's NIR for the full year 2020 decreased 8% to \$43.5 billion (\$43.7 billion on a taxable equivalent basis) versus the prior year. Excluding the impact of FX translation, NIR decreased 6%, or approximately \$3.0 billion. The decrease was primarily related to a decline of \$4.1 billion in non-*ICG Markets* NIR, partially offset by an increase of \$1.1 billion in *ICG Markets* NIR. The decrease in non-*ICG Markets* NIR was primarily driven by lower interest rates, as well as lower loan balances. On a full-year basis, Citi's NIM was 2.16% on a taxable equivalent basis, compared to 2.65% in 2019.

Citi's *ICG Markets* NIR and non-*ICG Markets* NIR are non-GAAP financial measures. Citi believes presentation of these measures provides a meaningful depiction of the underlying fundamentals of its lending, investing and deposit-raising businesses.

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Additional Interest Rate Details

Average Balances and Interest Rates—Assets⁽¹⁾⁽²⁾⁽³⁾

Taxable Equivalent Basis

In millions of dollars, except rates	Average volume			Interest revenue			% Average rate		
	2020	2019	2018	2020	2019	2018	2020	2019	2018
Assets									
Deposits with banks⁽⁴⁾	\$ 288,629	\$ 188,523	\$ 177,294	\$ 928	\$ 2,682	\$ 2,203	0.32 %	1.42 %	1.24 %
Securities borrowed and purchased under agreements to resell⁽⁵⁾									
In U.S. offices	\$ 149,076	\$ 146,030	\$ 149,879	\$ 1,202	\$ 4,752	\$ 3,818	0.81 %	3.25 %	2.55 %
In offices outside the U.S. ⁽⁴⁾	138,074	119,550	117,695	1,081	2,133	1,674	0.78	1.78	1.42
Total	\$ 287,150	\$ 265,580	\$ 267,574	\$ 2,283	\$ 6,885	\$ 5,492	0.80 %	2.59 %	2.05 %
Trading account assets⁽⁶⁾⁽⁷⁾									
In U.S. offices	\$ 144,130	\$ 109,064	\$ 94,065	\$ 3,624	\$ 4,099	\$ 3,706	2.51 %	3.76 %	3.94 %
In offices outside the U.S. ⁽⁴⁾	134,078	131,217	115,601	2,509	3,589	2,615	1.87	2.74	2.26
Total	\$ 278,208	\$ 240,281	\$ 209,666	\$ 6,133	\$ 7,688	\$ 6,321	2.20 %	3.20 %	3.01 %
Investments									
In U.S. offices									
Taxable	\$ 265,833	\$ 221,895	\$ 228,686	\$ 3,860	\$ 5,162	\$ 5,331	1.45 %	2.33 %	2.33 %
Exempt from U.S. income tax	14,084	15,227	17,199	452	577	706	3.21	3.79	4.10
In offices outside the U.S. ⁽⁴⁾	139,400	117,529	104,033	3,781	4,222	3,600	2.71	3.59	3.46
Total	\$ 419,317	\$ 354,651	\$ 349,918	\$ 8,093	\$ 9,961	\$ 9,637	1.93 %	2.81 %	2.75 %
Loans (net of unearned income)⁽⁸⁾									
In U.S. offices	\$ 396,846	\$ 395,792	\$ 385,350	\$ 26,700	\$ 30,563	\$ 28,627	6.73 %	7.72 %	7.43 %
In offices outside the U.S. ⁽⁴⁾	288,379	288,319	285,505	13,569	17,266	17,129	4.71	5.99	6.00
Total	\$ 685,225	\$ 684,111	\$ 670,855	\$ 40,269	\$ 47,829	\$ 45,756	5.88 %	6.99 %	6.82 %
Other interest-earning assets⁽⁹⁾	\$ 67,531	\$ 64,322	\$ 67,269	\$ 579	\$ 1,673	\$ 1,673	0.86 %	2.60 %	2.49 %
Total interest-earning assets	\$ 2,026,060	\$ 1,797,468	\$ 1,742,576	\$ 58,285	\$ 76,718	\$ 71,082	2.88 %	4.27 %	4.08 %
Non-interest-earning assets ⁽⁶⁾	\$ 200,196	\$ 181,341	\$ 177,654						
Total assets	\$ 2,226,256	\$ 1,978,809	\$ 1,920,230						

(1) Net interest revenue includes the taxable equivalent adjustments related to the tax-exempt bond portfolio (based on the U.S. federal statutory tax rate of 21%) of \$196 million, \$208 million and \$254 million for 2020, 2019 and 2018, respectively.

(2) Interest rates and amounts include the effects of risk management activities associated with the respective asset categories.

(3) Monthly or quarterly averages have been used by certain subsidiaries where daily averages are unavailable.

(4) Average rates reflect prevailing local interest rates, including inflationary effects and monetary corrections in certain countries.

(5) Average volumes of securities borrowed or purchased under agreements to resell are reported net pursuant to ASC 210-20-45. However, Interest revenue excludes the impact of ASC 210-20-45.

(6) The fair value carrying amounts of derivative contracts are reported net, pursuant to ASC 815-10-45, in Non-interest-earning assets and Other non-interest-bearing liabilities.

(7) Interest expense on Trading account liabilities of ICG is reported as a reduction of Interest revenue. Interest revenue and Interest expense on cash collateral positions are reported in interest on Trading account assets and Trading account liabilities, respectively.

(8) Includes cash-basis loans.

(9) Includes Brokerage receivables.

Average Balances and Interest Rates—Liabilities and Equity, and Net Interest Revenue⁽¹⁾⁽²⁾⁽³⁾

Taxable Equivalent Basis

<i>In millions of dollars, except rates</i>	Average volume			Interest expense			% Average rate		
	2020	2019	2018	2020	2019	2018	2020	2019	2018
Liabilities									
Deposits									
In U.S. offices ⁽⁴⁾	\$ 485,848	\$ 388,948	\$ 338,060	\$ 3,384	\$ 6,304	\$ 4,500	0.70 %	1.62 %	1.33 %
In offices outside the U.S. ⁽⁵⁾	541,301	487,318	453,793	3,153	6,329	5,116	0.58	1.30	1.13
Total	\$ 1,027,149	\$ 876,266	\$ 791,853	\$ 6,537	\$ 12,633	\$ 9,616	0.64 %	1.44 %	1.21 %
Securities loaned and sold under agreements to repurchase⁽⁶⁾									
In U.S. offices	\$ 137,348	\$ 112,876	\$ 102,843	\$ 1,292	\$ 4,194	\$ 3,320	0.94 %	3.72 %	3.23 %
In offices outside the U.S. ⁽⁵⁾	79,426	77,283	69,264	785	2,069	1,569	0.99	2.68	2.27
Total	\$ 216,774	\$ 190,159	\$ 172,107	\$ 2,077	\$ 6,263	\$ 4,889	0.96 %	3.29 %	2.84 %
Trading account liabilities⁽⁷⁾⁽⁸⁾									
In U.S. offices	\$ 38,308	\$ 37,099	\$ 37,305	\$ 283	\$ 818	\$ 612	0.74 %	2.20 %	1.64 %
In offices outside the U.S. ⁽⁵⁾	52,051	51,817	58,919	345	490	389	0.66	0.95	0.66
Total	\$ 90,359	\$ 88,916	\$ 96,224	\$ 628	\$ 1,308	\$ 1,001	0.70 %	1.47 %	1.04 %
Short-term borrowings and other interest-bearing liabilities⁽⁹⁾									
In U.S. offices	\$ 82,363	\$ 78,230	\$ 85,009	\$ 493	\$ 2,138	\$ 1,885	0.60 %	2.73 %	2.22 %
In offices outside the U.S. ⁽⁵⁾	20,053	20,575	23,402	137	327	324	0.68	1.59	1.38
Total	\$ 102,416	\$ 98,805	\$ 108,411	\$ 630	\$ 2,465	\$ 2,209	0.62 %	2.49 %	2.04 %
Long-term debt⁽¹⁰⁾									
In U.S. offices	\$ 213,809	\$ 193,972	\$ 197,933	\$ 4,656	\$ 6,398	\$ 6,386	2.18 %	3.30 %	3.23 %
In offices outside the U.S. ⁽⁵⁾	3,918	4,803	4,895	13	96	165	0.33	2.00	3.37
Total	\$ 217,727	\$ 198,775	\$ 202,828	\$ 4,669	\$ 6,494	\$ 6,551	2.14 %	3.27 %	3.23 %
Total interest-bearing liabilities	\$ 1,654,425	\$ 1,452,921	\$ 1,371,423	\$ 14,541	\$ 29,163	\$ 24,266	0.88 %	2.01 %	1.77 %
Demand deposits in U.S. offices	\$ 30,876	\$ 27,737	\$ 33,398						
Other non-interest-bearing liabilities ⁽⁷⁾	346,538	301,813	315,862						
Total liabilities	\$ 2,031,839	\$ 1,782,471	\$ 1,720,683						
Citigroup stockholders' equity	\$ 193,769	\$ 195,632	\$ 198,681						
Noncontrolling interests	648	706	866						
Total equity	\$ 194,417	\$ 196,338	\$ 199,547						
Total liabilities and stockholders' equity	\$ 2,226,256	\$ 1,978,809	\$ 1,920,230						
Net interest revenue as a percentage of average interest-earning assets⁽¹¹⁾									
In U.S. offices	\$ 1,187,061	\$ 1,017,021	\$ 992,543	\$ 26,661	\$ 28,466	\$ 28,157	2.25 %	2.80 %	2.84 %
In offices outside the U.S. ⁽⁶⁾	838,999	780,447	750,033	17,083	19,089	18,659	2.04	2.45	2.49
Total	\$ 2,026,060	\$ 1,797,468	\$ 1,742,576	\$ 43,744	\$ 47,555	\$ 46,816	2.16 %	2.65 %	2.69 %

- (1) *Net interest revenue* includes the taxable equivalent adjustments related to the tax-exempt bond portfolio (based on the U.S. federal statutory tax rate of 21%) of \$196 million, \$208 million and \$254 million for 2020, 2019 and 2018, respectively.
- (2) Interest rates and amounts include the effects of risk management activities associated with the respective liability categories.
- (3) Monthly or quarterly averages have been used by certain subsidiaries where daily averages are unavailable.
- (4) Consists of other time deposits and savings deposits. Savings deposits are composed of insured money market accounts, NOW accounts and other savings deposits. The interest expense on savings deposits includes FDIC deposit insurance assessments.
- (5) Average rates reflect prevailing local interest rates, including inflationary effects and monetary corrections in certain countries.
- (6) Average volumes of securities sold under agreements to repurchase are reported net pursuant to ASC 210-20-45. However, *Interest expense* excludes the impact of ASC 210-20-45.
- (7) The fair value carrying amounts of derivative contracts are reported net, pursuant to ASC 815-10-45, in *Non-interest-earning assets* and *Other non-interest-bearing liabilities*.

- (8) *Interest expense* on *Trading account liabilities* of ICG is reported as a reduction of *Interest revenue*. *Interest revenue* and *Interest expense* on cash collateral positions are reported in interest on *Trading account assets* and *Trading account liabilities*, respectively.
- (9) Includes *Brokerage payables*.
- (10) Excludes hybrid financial instruments and beneficial interests in consolidated VIEs that are classified as *Long-term debt*, as the changes in fair value for these obligations are recorded in *Principal transactions*.
- (11) Includes allocations for capital and funding costs based on the location of the asset.

Analysis of Changes in Interest Revenue⁽¹⁾⁽²⁾⁽³⁾

<i>In millions of dollars</i>	2020 vs. 2019			2019 vs. 2018		
	Increase (decrease) due to change in:			Increase (decrease) due to change in:		
	Average volume	Average rate	Net change	Average volume	Average rate	Net change
Deposits with banks⁽³⁾	\$ 976	\$ (2,730)	\$ (1,754)	\$ 146	\$ 333	\$ 479
Securities borrowed and purchased under agreements to resell						
In U.S. offices	\$ 96	\$ (3,647)	\$ (3,551)	\$ (100)	\$ 1,034	\$ 934
In offices outside the U.S. ⁽³⁾	290	(1,342)	(1,052)	27	432	459
Total	\$ 386	\$ (4,989)	\$ (4,603)	\$ (73)	\$ 1,466	\$ 1,393
Trading account assets⁽⁴⁾						
In U.S. offices	\$ 1,102	\$ (1,577)	\$ (475)	\$ 570	\$ (177)	\$ 393
In offices outside the U.S. ⁽³⁾	77	(1,157)	(1,080)	382	592	974
Total	\$ 1,179	\$ (2,734)	\$ (1,555)	\$ 952	\$ 415	\$ 1,367
Investments⁽¹⁾						
In U.S. offices	\$ 910	\$ (2,337)	\$ (1,427)	\$ (213)	\$ (85)	\$ (298)
In offices outside the U.S. ⁽³⁾	703	(1,144)	(441)	481	141	622
Total	\$ 1,613	\$ (3,481)	\$ (1,868)	\$ 268	\$ 56	\$ 324
Loans (net of unearned income)⁽⁵⁾						
In U.S. offices	\$ 81	\$ (3,944)	\$ (3,863)	\$ 789	\$ 1,149	\$ 1,938
In offices outside the U.S. ⁽³⁾	4	(3,701)	(3,697)	169	(34)	135
Total	\$ 85	\$ (7,645)	\$ (7,560)	\$ 958	\$ 1,115	\$ 2,073
Other interest-earning assets⁽⁶⁾	\$ 80	\$ (1,173)	\$ (1,093)	\$ (75)	\$ 75	\$ —
Total interest revenue	\$ 4,319	\$ (22,752)	\$ (18,433)	\$ 2,176	\$ 3,460	\$ 5,636

- (1) The taxable equivalent adjustments related to the tax-exempt bond portfolio, based on the U.S. federal statutory tax rate of 21%, are included in this presentation.
- (2) Rate/volume variance is allocated based on the percentage relationship of changes in volume and changes in rate to the total net change.
- (3) Changes in average rates reflect changes in prevailing local interest rates, including inflationary effects and monetary corrections in certain countries.
- (4) *Interest expense* on *Trading account liabilities* of ICG is reported as a reduction of *Interest revenue*. *Interest revenue* and *Interest expense* on cash collateral positions are reported in interest on *Trading account assets* and *Trading account liabilities*, respectively.
- (5) Includes cash-basis loans.
- (6) Includes *Brokerage receivables*.

Analysis of Changes in Interest Expense and Net Interest Revenue⁽¹⁾⁽²⁾⁽³⁾

	2020 vs. 2019			2019 vs. 2018		
	Increase (decrease) due to change in:			Increase (decrease) due to change in:		
	Average volume	Average rate	Net change	Average volume	Average rate	Net change
<i>In millions of dollars</i>						
Deposits						
In U.S. offices	\$ 1,298	\$ (4,218)	\$ (2,920)	\$ 738	\$ 1,066	\$ 1,804
In offices outside the U.S. ⁽³⁾	637	(3,813)	(3,176)	397	816	1,213
Total	\$ 1,935	\$ (8,031)	\$ (6,096)	\$ 1,135	\$ 1,882	\$ 3,017
Securities loaned and sold under agreements to repurchase						
In U.S. offices	\$ 756	\$ (3,658)	\$ (2,902)	\$ 343	\$ 531	\$ 874
In offices outside the U.S. ⁽³⁾	56	(1,340)	(1,284)	194	306	500
Total	\$ 812	\$ (4,998)	\$ (4,186)	\$ 537	\$ 837	\$ 1,374
Trading account liabilities⁽⁴⁾						
In U.S. offices	\$ 27	\$ (562)	\$ (535)	\$ (3)	\$ 209	\$ 206
In offices outside the U.S. ⁽³⁾	2	(147)	(145)	(51)	152	101
Total	\$ 29	\$ (709)	\$ (680)	\$ (54)	\$ 361	\$ 307
Short-term borrowings and other interest-bearing liabilities⁽⁵⁾						
In U.S. offices	\$ 107	\$ (1,752)	\$ (1,645)	\$ (159)	\$ 412	\$ 253
In offices outside the U.S. ⁽³⁾	(8)	(182)	(190)	(42)	45	3
Total	\$ 99	\$ (1,934)	\$ (1,835)	\$ (201)	\$ 457	\$ 256
Long-term debt						
In U.S. offices	\$ 602	\$ (2,344)	\$ (1,742)	\$ (129)	\$ 141	\$ 12
In offices outside the U.S. ⁽³⁾	(15)	(68)	(83)	(3)	(66)	(69)
Total	\$ 587	\$ (2,412)	\$ (1,825)	\$ (132)	\$ 75	\$ (57)
Total interest expense	\$ 3,462	\$ (18,084)	\$ (14,622)	\$ 1,285	\$ 3,612	\$ 4,897
Net interest revenue	\$ 857	\$ (4,668)	\$ (3,811)	\$ 891	\$ (152)	\$ 739

- (1) The taxable equivalent adjustments related to the tax-exempt bond portfolio, based on the U.S. federal statutory tax rate of 21%, are included in this presentation.
- (2) Rate/volume variance is allocated based on the percentage relationship of changes in volume and changes in rate to the total net change.
- (3) Changes in average rates reflect changes in prevailing local interest rates, including inflationary effects and monetary corrections in certain countries.
- (4) *Interest expense* on *Trading account liabilities* of ICG is reported as a reduction of *Interest revenue*. *Interest revenue* and *Interest expense* on cash collateral positions are reported in interest on *Trading account assets* and *Trading account liabilities*, respectively.
- (5) Includes *Brokerage payables*.

Market Risk of Trading Portfolios

Trading portfolios include positions resulting from market-making activities, hedges of certain available-for-sale (AFS) debt securities, the CVA relating to derivative counterparties and all associated hedges, fair value option loans and hedges of the loan portfolio within capital markets origination within ICG.

The market risk of Citi's trading portfolios is monitored using a combination of quantitative and qualitative measures, including, but not limited to:

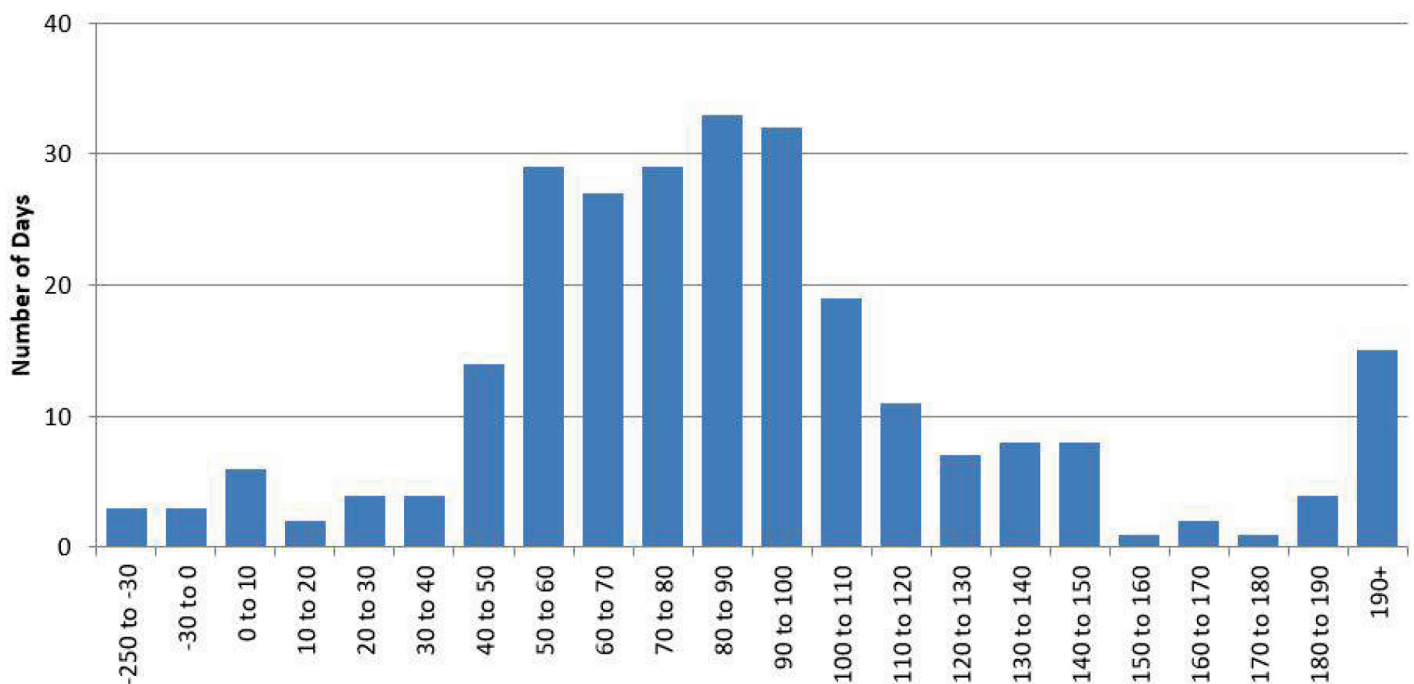
- factor sensitivities;
- value at risk (VAR); and
- stress testing.

Each trading portfolio across Citi'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.

The following chart of total daily trading-related revenue (loss) captures trading volatility and shows the number of days in which revenues for Citi's trading businesses fell within particular ranges. Trading-related revenue includes trading, net interest and other revenue associated with Citi's trading businesses. It excludes DVA, FVA and CVA adjustments incurred due to changes in the credit quality of counterparties, as well as any associated hedges of that CVA. In addition, it excludes fees and other revenue associated with capital markets origination activities. Trading-related revenues are driven by both customer flows and the changes in valuation of the trading inventory. As shown in the chart below, positive trading-related revenue was achieved for 97.7% of the trading days in 2020.

Daily Trading-Related Revenue (Loss)⁽¹⁾—Twelve Months Ended December 31, 2020

In millions of dollars



(1) Reflects the effects of asymmetrical accounting for economic hedges of certain AFS debt securities. Specifically, the change in the fair value of hedging derivatives is included in trading-related revenue, while the offsetting change in the fair value of hedged AFS debt securities is included in AOCI and not reflected above.

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 bill for a one-basis-point change in interest rates. Citi's market risk management, within the Risk 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, differences in VAR methodologies and differences in 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 (see "VAR Model Review and Validation" below), 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; it does not include investment securities classified as AFS or HTM. For information on these securities, see Note 13 to the Consolidated Financial Statements.

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 (three years) market volatility. The Monte Carlo simulation involves approximately 450,000 market factors, making use of approximately 350,000 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 32% add-on to what would be a VAR estimated under the assumption of stable and perfectly, normally distributed markets.

As set forth in the table below, Citi's average trading VAR increased from 2019 to 2020, mainly due to significant market volatility during the first half of 2020 across all asset classes, driven by macroeconomic challenges and uncertainties related to the COVID-19 pandemic. Citi's average trading and credit portfolio VAR also increased in 2020, primarily due to the higher market volatility, increased hedging activity and changes in portfolio composition.

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

<i>In millions of dollars</i>	December 31, 2020	2020 Average	December 31, 2019	2019 Average
Interest rate	\$ 72	\$ 66	\$ 32	\$ 35
Credit spread	70	86	44	44
Covariance adjustment ⁽¹⁾	(51)	(48)	(27)	(23)
Fully diversified interest rate and credit spread ⁽²⁾	\$ 91	\$ 104	\$ 49	\$ 56
Foreign exchange	40	26	22	23
Equity	31	36	21	16
Commodity	17	22	13	24
Covariance adjustment ⁽¹⁾	(85)	(82)	(52)	(62)
Total trading VAR—all market risk factors, including general and specific risk (excluding credit portfolios)⁽²⁾	\$ 94	\$ 106	\$ 53	\$ 57
Specific risk-only component ⁽³⁾	\$ (1)	\$ (2)	\$ 3	\$ 2
Total trading VAR—general market risk factors only (excluding credit portfolios)	\$ 95	\$ 108	\$ 50	\$ 55
Incremental impact of the credit portfolio ⁽⁴⁾	\$ 29	\$ 49	\$ 30	\$ 14
Total trading and credit portfolio VAR	\$ 123	\$ 155	\$ 83	\$ 71

- (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 *ICG*, with the exception of hedges to the loan portfolio, fair value option loans and all CVA exposures. Available-for-sale and accrual exposures are not included.
- (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 non-trading business units including Citi Treasury, the CVA relating to derivative counterparties and all associated CVA hedges. FVA and DVA are not included. The credit portfolio also includes hedges to the loan portfolio, fair value option loans and hedges to the leveraged finance pipeline within capital markets origination in *ICG*.

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

<i>In millions of dollars</i>	2020		2019	
	Low	High	Low	High
Interest rate	\$ 28	\$ 137	\$ 25	\$ 58
Credit spread	36	171	36	55
Fully diversified interest rate and credit spread	\$ 44	\$ 223	\$ 43	\$ 89
Foreign exchange	14	40	12	34
Equity	13	141	7	29
Commodity	12	64	12	75
Total trading	\$ 47	\$ 245	\$ 38	\$ 87
Total trading and credit portfolio	58	424	54	103

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.

The following table provides the VAR for ICG, excluding the CVA relating to derivative counterparties, hedges of CVA, fair value option loans and hedges to the loan portfolio:

<i>In millions of dollars</i>	Dec. 31, 2020
Total—all market risk factors, including general and specific risk	\$ 97
Average—during year	\$ 104
High—during year	236
Low—during year	44

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. Furthermore, Regulatory VAR back-testing (as described below) is performed against buy-and-hold profit and loss on a monthly basis for multiple sub-portfolios across the organization (trading desk level, ICG business segment and Citigroup) and the results are shared with U.S. banking regulators.

Material VAR model and assumption changes must be independently validated within Citi's 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.

Citi uses the same independently validated VAR model for both Regulatory VAR and Risk Management VAR (i.e., total trading and total trading and credit portfolios VARs) and, as such, the model review and validation process for both purposes is as described above.

Regulatory VAR, which is calculated in accordance with Basel III, differs from Risk Management VAR due to the fact that certain positions included in Risk Management VAR are not eligible for market risk treatment in Regulatory VAR. The composition of Risk Management VAR is discussed under

"Value at Risk" above. The applicability of the VAR model for positions eligible for market risk treatment under U.S. regulatory capital rules is periodically reviewed and approved by Citi's U.S. banking regulators.

In accordance with Basel III, Regulatory VAR includes all trading book-covered positions and all foreign exchange and commodity exposures. Pursuant to Basel III, Regulatory VAR excludes positions that fail to meet the intent and ability to trade requirements and are therefore classified as non-trading book and categories of exposures that are specifically excluded as covered positions. Regulatory VAR excludes CVA on derivative instruments and DVA on Citi's own fair value option liabilities. CVA hedges are excluded from Regulatory VAR and included in credit risk-weighted assets as computed under the Advanced Approaches for determining risk-weighted assets.

Regulatory VAR Back-Testing

In accordance with Basel III, Citi is required to perform back-testing to evaluate the effectiveness of its Regulatory VAR model. Regulatory VAR back-testing is the process in which the daily one-day VAR, at a 99% confidence interval, is compared to the buy-and-hold profit and loss (i.e., the profit and loss impact if the portfolio is held constant at the end of the day and re-priced the following day). Buy-and-hold profit and loss represents the daily mark-to-market profit and loss attributable to price movements in covered positions from the close of the previous business day. Buy-and-hold profit and loss excludes realized trading revenue, net interest, fees and commissions, intra-day trading profit and loss and changes in reserves.

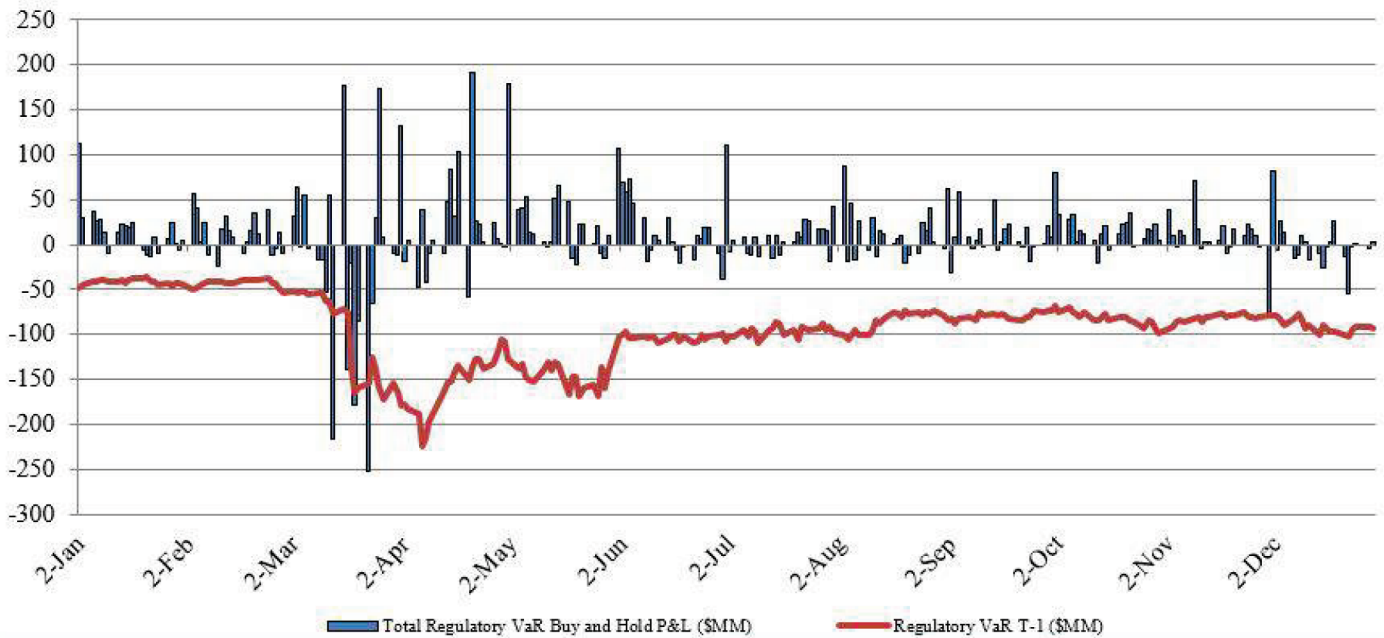
Based on a 99% confidence level, Citi would expect two to three days in any one year when buy-and-hold losses exceed the Regulatory VAR. Given the conservative calibration of Citi's VAR model (as a result of taking the greater of short- and long-term volatilities and fat-tail scaling of volatilities), Citi would expect fewer exceptions under normal and stable market conditions. Periods of unstable market conditions could increase the number of back-testing exceptions.

The following graph shows the daily buy-and-hold profit and loss associated with Citi's covered positions compared to Citi's one-day Regulatory VAR during 2020. As of December 31, 2020, four back-testing exceptions were observed at the Citigroup level. These exceptions occurred in March and were due to losses across multiple businesses during the onset of the pandemic-related volatility.

The difference between the 65.26% of days with buy-and-hold gains for Regulatory VAR back-testing and the 97.7% of days with trading, net interest and other revenue associated with Citi's trading businesses, shown in the histogram of daily trading-related revenue below, reflects, among other things, that a significant portion of Citi's trading-related revenue is not generated from daily price movements on these positions and exposures, as well as differences in the portfolio composition of Regulatory VAR and Risk Management VAR.

Regulatory Trading VAR and Associated Buy-and-Hold Profit and Loss⁽¹⁾—12 Months ended December 31, 2020
In millions of dollars

One-Day 99% Regulatory VAR and Associated Buy-and-Hold Profit and Loss (\$MM)



(1) Buy-and-hold profit and loss, as defined by the banking regulators under Basel III, represents the daily mark-to-market revenue movement attributable to the trading position from the close of the previous business day. Buy-and-hold profit and loss excludes realized trading revenue and net interest intra-day trading profit and loss on new and terminated trades, as well as changes in reserves. Therefore, it is not comparable to the trading-related revenue presented in the chart of daily trading-related revenue above.

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.

The systemic stress scenarios and business-specific stress scenarios at Citi are used in several reports reviewed by senior management and also to calculate internal risk capital for trading market risk. 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, people and systems 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 firm-wide risk taxonomy to classify operational risks that it faces using standardized definitions across the firm'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 capital requirements, CCAR process and heightened standards under U.S. banking requirements.

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.

To anticipate, mitigate and control operational risk, Citi's Independent Operational Risk Management group has established a global-Operational Risk Management Framework with policies and practices for identification, measurement, monitoring, mitigating, 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 major business 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 estimate and aggregate 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 include a Citigroup BRCC as well as business, functions, regional and country BRCCs. BRCCs are chaired by the individuals in the first line of defense and provide escalation channels for senior management to review operational risk exposures including breaches of operational risk appetite, key indicators, operational risk events, and control issues. Membership includes senior business and functions leadership as well as members of the second line of defense.

Citi also has an Operational Risk Management Committee that provides senior management of the second line of defense risk organizations with a platform to assess Citi's operational risk profile and to review that actions are taken to bring Citi's operational risk exposures within operational risk appetite. Members include Citi's Chief Risk Officer and Citi's Head of Operational Risk Management and senior members of their organizations. These members cover multiple dimensions of risk management and include business and regional Chief Risk Officers and senior operational risk managers.

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 Federal Reserve Board's CCAR process.

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

Erroneous Revlon-Related Payment

In August 2020, Citi, as administrative agent for a Revlon credit facility, in addition to making an interest payment, erroneously paid the lenders under the facility an aggregate of approximately \$894 million, which is an amount equal to the principal balance of the loan at that time. Human error at Citi and at a third-party vendor, and limitations in Citi's loan

processing systems, were the main contributing factors. After a careful assessment of the incident, Citi immediately put in additional controls to prevent similar loan disbursement errors in the future, while also embarking on a major upgrade of the loan infrastructure and controls.

As of February 26, 2021, \$389.8 million has been repaid to Citi. In August 2020, Citi commenced litigation against certain fund managers of lenders that have not returned the remaining \$504.2 million of erroneously transferred funds, and obtained a temporary restraining order against the fund managers and those acting with them, freezing the funds from transfer or disbursement. On February 16, 2021, the court issued a judgment in favor of the defendants, which Citi intends to appeal. As a result of the court's decision, Citi now has rights as a creditor related to the Revlon loan. For additional information, see Notes 27, 29 and 30 to the Consolidated Financial Statements.

Cybersecurity Risk

Cybersecurity risk is the business risk associated with the threat posed by a cyber attack, cyber breach or the failure to protect Citi's most vital business information assets or operations, resulting in a financial or reputational loss (for additional information, see the operational systems and cybersecurity risk factors in "Risk Factors—Operational Risks" above). With an evolving threat landscape, ever-increasing sophistication of cybersecurity attacks and use of new technologies to conduct financial transactions, Citi and its clients, customers and third parties are and will continue to be at risk for cyber attacks and information security incidents. Citi recognizes the significance of these risks and, therefore, employs an intelligence-led strategy to protect against, detect, respond to and recover from cyber attacks. Further, Citi actively participates in financial industry, government and cross-sector knowledge-sharing groups to enhance individual and collective cyber resilience.

Citi's technology and cybersecurity risk management program is built on three lines of defense. Citi's first line of defense under the Office of the Chief Information Security Officer provides frontline business, operational and technical controls and capabilities to protect against cybersecurity risks, and to respond to cyber incidents and data breaches. Citi manages these threats through state-of-the-art Fusion Centers, which serve as central command for monitoring and coordinating responses to cyber threats. The enterprise information security team is responsible for infrastructure defense and security controls, performing vulnerability assessments and third-party information security assessments, employee awareness and training programs and security incident management, in each case working in coordination with a network of information security officers who are embedded within the businesses and functions on a global basis.

Citi's Operational Risk Management-Technology and Cyber (ORM-T/C) and Independent Compliance Risk Management-Technology and Information Security (ICRM-T) groups serve as the second line of defense, and actively evaluate, anticipate and challenge Citi's risk mitigation practices and capabilities. Internal audit serves as the third line of defense and independently provides assurance on how

effectively the organization as a whole manages cybersecurity risk. Citi also has multiple senior committees such as the Information Security Risk Committee (ISRC), which governs enterprise-level risk tolerance inclusive of cybersecurity risk.

Citi seeks to proactively identify and remediate technology and cybersecurity risks before they materialize as incidents that negatively affect business operations. Accordingly, the ORM-T/C team independently challenges and monitors capabilities in accordance with Citi's defined Technology and Cyber Risk Appetite statements. To address evolving cybersecurity risks and corresponding regulations, ORM-T/C and ICRM-T team collectively also monitor cyber legal and regulatory requirements, identify and define emerging risks, execute strategic cyber threat assessments, perform new products and initiative reviews, perform data management risk oversight and conduct cyber risk assurance reviews (inclusive of third-party assessments). In addition, ORM-T/C employs tools and oversees and challenges metrics that are both tailored to cybersecurity and technology and aligned with Citi's overall operational risk management framework to effectively track, identify and manage risk.

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 the firm'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) 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 Policy and Compliance Risk 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.

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.

Citi carries out its objectives and fulfills its responsibilities through the Compliance Risk 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 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.
- Monitoring and testing of compliance risks and controls in assessing conformance with laws, rules, regulations and internal policies.
- 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.

As discussed above, Citi is working to address the FRB and OCC consent orders, which include improvements to Citi's Compliance Risk Framework and its Enterprise-wide application (for additional information regarding the consent orders, see "Citi's Consent Order Compliance" above).

REPUTATION RISK

Citi's reputation is a vital asset in building trust with its stakeholders and Citi is diligent in communicating its corporate values to its colleagues, customers, investors and regulators. To support this, Citi has defined a reputation risk appetite approach. Under this approach, each major business segment has implemented a risk appetite statement and related key indicators to monitor and address weaknesses that may result in significant reputation risks. The approach requires that each business segment or region escalates significant reputation risks that require review or mitigation through its Reputation Risk Committee or equivalent.

The Reputation Risk Committees are part of the governance infrastructure that Citi has in place to review the reputation risk posed by business activities, sales practices, product design, or perceived conflicts of interest. These committees may also raise potential reputation risks for due

consideration by the Reputation Risk Committee at the corporate level. The Citigroup 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. The Reputation Risk Committees, which are composed of Citi's most senior executives, govern the process by which material reputation risks are identified, monitored, reported, managed and escalated, and appropriate actions are taken in line with Company-wide strategic objectives, risk appetite thresholds and regulatory expectations, while promoting the culture of risk awareness and high standards of integrity and ethical behavior across the Company, consistent with Citi's mission and value proposition.

Further, the responsibility for maintaining Citi's reputation is shared by all colleagues, who are 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 and appropriately escalate all issues that present potential reputation risk.

STRATEGIC RISK

Overview

Citi's Executive Management Team, led by Citi's CEO, is responsible for the development and execution of Citi's strategy. This strategy is translated into forward-looking plans that are then cascaded across the organization. Strategic risk is monitored through a range of practices: regular Citigroup Board of Director meetings provide strategic checkpoints where management's progress is assessed and where decisions to refine the strategic direction of the Company are evaluated; Citi's Executive Management Team assesses progress against executing the defined plans; CEO reviews, which include a risk assessment of the plans, occur across products, regions and functions to focus on progress against executing the plans; products, regions and functions have internal reviews to assess performance at lower levels across the organization; and specific forums exist to focus on key areas that drive strategic risk such as balance sheet management, the introduction of new or modified products and services and country management, among others. In addition to these day-to-day practices, significant strategic actions, such as mergers, acquisitions or capital expenditures, are reviewed and approved by, or notified to, the Citigroup Board of Directors.

U.K.'s Future Relationship with the EU

As previously disclosed, the U.K. formally left the European Union (EU) on January 31, 2020. Subsequently, the U.K. and the EU entered into a Trade and Cooperation Agreement (TCA) that set out preferential arrangements in areas such as trade in goods and in services that became effective on January 1, 2021. While entering into the TCA avoided a "no deal" exit scenario, many questions remain as to the future relationship between the U.K. and the EU. For example, the TCA minimally covers financial services. The U.K. and the EU have committed under the TCA to negotiate further details regarding financial services, but there can be no assurance as to the successful completion or ultimate outcome of those negotiations. Citi planned extensively for the U.K. exit from

the EU and successfully implemented its transition plans to date. However, future legislative and regulatory developments in the U.K. and the EU as a result of the exit may negatively impact Citi. For additional information, see “Risk Factors—Strategic Risks” above.

LIBOR Transition Risk

The ICE Benchmark Administration concluded the consultation on its intent to cease publication of one week and two month USD LIBOR on December 31, 2021 and to extend the publication of all remaining USD LIBORs until June 30, 2023 for legacy contracts. In addition, it is expected that all non USD LIBOR tenors will cease after December 31, 2021. Citi recognizes that a transition away from and discontinuance of LIBOR presents various risks and challenges that could significantly impact financial markets and market participants, including Citi (for information about Citi’s risks from a transition away from and discontinuation of LIBOR or any other interest rate benchmark, see “Risk Factors—Strategic Risks” above). Accordingly, Citi has continued its efforts to identify and manage its LIBOR transition risks. Citi is also closely monitoring legislative, regulatory and other developments related to LIBOR transition matters and relief.

Citi has established a LIBOR governance and implementation program focused on identifying and addressing the LIBOR transition impacts to Citi’s clients, operational capabilities and legal and financial contracts, among others. The program operates globally across Citi’s businesses and functions and includes active involvement of senior management, oversight by Citi’s Asset & Liability Committee and reporting to the Risk Management Committee of Citigroup’s Board of Directors. As part of the program, Citi has continued to implement its LIBOR transition action plans and associated roadmaps under the following key workstreams: program management; transition strategy and risk management; customer management, including internal communications and training, legal/contract management and product management; financial exposures and risk management; regulatory and industry engagement; operations and technology; and finance, risk, tax and treasury.

During 2020, Citi continued to participate in a number of working groups formed by global regulators, including the Alternative Reference Rates Committee (ARRC) convened by the Federal Reserve Board. These working groups promote and advance development of alternative reference rates and seek to identify and address potential challenges from any transition to such rates. Citi also continued to engage with regulators, financial accounting bodies and others on LIBOR transition matters.

Moreover, Citi has continued to identify its LIBOR transition exposures, including financial instruments that do not contain contract provisions that adequately contemplate the discontinuance of reference rates and that would require additional negotiation with counterparties. Citi’s LIBOR transition efforts include, among other things, using alternative reference rates in certain newly issued financial instruments and products. Since 2019, Citi has issued preferred stock and benchmark debt referencing the Secured Overnight Financing Rate (SOFR) as well as updated the LIBOR determination method in its debt documentation with the ARRC

recommended fallback language. In addition, in 2020, Citi transitioned the discounting of centrally cleared EUR and USD interest rate derivatives to the Euro Short-Term Rate (ESTR) and SOFR, respectively; announced the adoption of the newly published Interbank Offered Rate (IBOR) Fallbacks Protocol of the International Swaps and Derivatives Association (ISDA) for existing IBOR derivatives transactions; and increased Citi’s virtual client communication efforts, including outreach regarding these new industry-led protocols and solutions. Further, Citi has also been investing in its systems and infrastructure, as client activity moves away from LIBOR to alternative reference rates.

Climate Risk

Climate change presents immediate and long-term risks to Citi and to 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 is divided into physical risk and transition risk. Physical risk considers how chronic and acute climate change (e.g., increased storms, drought, fires, floods) can directly damage physical assets (e.g., real estate, crops) or otherwise impact their value or productivity. Transition risk considers how changes in policy, technology and market preference to address climate change (e.g., carbon price policies, power generation shifts from fossil fuels to renewable energy) can lead to changes in the value of assets, commodities and companies.

Climate risk is an overarching risk that can act as a driver of other types of risk in the Citi risk taxonomy, such as credit risk from obligors exposed to high climate risk, reputational risk from increased stakeholder concerns about financing high carbon industries and operational risk from physical climate risks to Citi’s facilities.

Citi currently identifies climate risk as an “emerging risk” within its risk governance framework. Emerging risks are risks or thematic issues that are either new to the landscape, or in the case of climate risk, existing risks that are rapidly changing or evolving in an escalating fashion, which are difficult to assess due to limited data or other uncertainties. For additional information on climate risk, see “Risk Factors—Strategic Risk” above.

With the increased importance and focus on climate risk, Citi has continued to expand its governance of climate risk and integrate climate considerations into the priorities of Citigroup’s Board of Directors and senior management. In particular, Citi has:

- appointed a Chief Sustainability Officer;
- appointed a Head of Climate Risk to partner with the Head of Environmental and Social Risk Management to deliver a Company-wide strategy concerning climate risk;
- formed a global, cross-functional senior-executive level Climate Risk Advisory Council to provide oversight of and guidance to Citi’s climate risk integration efforts; and
- increased the frequency and depth of Board and senior-level review of climate-related matters.

Citi manages and mitigates the credit and reputational risks from climate change through a number of internal initiatives, including Citi’s Environmental and Social Risk

Management (ESRM) Policy. First established in 2003, the ESRM Policy is part of Citi's broader credit risk management policy and is applicable to all Citi entities globally. The ESRM Policy provides the framework for how Citi identifies, mitigates and manages the potential environmental and social risks (including climate risks) associated with clients' activities that could lead to credit or reputation risks to the Company. It guides how Citi evaluates lending, underwriting and advisory in environmentally sensitive and/or high-carbon sectors, and presents opportunities for Citi to engage clients on solutions to thematic risks.

In project-related lending, Citi's ESRM Policy incorporates the updates from the fourth iteration of the Equator Principles, which Citi helped shape, that expands climate risk requirements to include physical risk as well as transition risk. Citi's ESRM Policy covers lending and underwriting with identified use of proceeds directed to physical assets and activities, as well as sector standards for corporate relationships in higher-risk sectors, including carbon-intensive sectors. In 2020, Citi updated its sector standards for thermal and coal mining, coal-fired power and Arctic oil and gas.

Citi has also made climate risk one of the three key pillars of its 2025 Sustainable Progress Strategy. Under this pillar, Citi intends to measure, manage and reduce the climate risk and impact of its client portfolios and enhance its Taskforce on Climate-Related Financial Disclosures (TCFD) implementation and disclosure through policy development, portfolio analysis and client engagement. In December 2020, Citi released its second report detailing its implementation of the TCFD recommendations: Finance for a Climate-Resilient Future II. In this report, Citi discusses its implementation of the TCFD recommendations, and Citi's recent pilot testing of climate scenario analyses to assess climate-related impacts and risks in specific sectors, spanning both transition and physical climate risks. Climate data is still improving in terms of its accessibility and reliability, and the industry and Citi continue to develop better methodological approaches toward assessing climate change impacts. Nonetheless, Citi expects to integrate more quantitative analysis of climate risks into credit assessments in the future and to quantify the carbon emissions associated with its client portfolios. Citi will continue to disclose its progress in this area in its annual Environmental, Social, and Governance (ESG) Report and TCFD reporting.

In addition, Citi continues to participate in financial industry collaborations to develop and pilot new methodologies and approaches for measuring and assessing the potential financial risks of climate change. Citi is also closely monitoring regulatory developments on climate risk and sustainable finance, and actively engaging with regulators on these topics.

For information on Citi's environmental and social policies and priorities, see Citi's website at www.citigroup.com. Click on "About Us" and then "Environmental, Social, and Governance." For information on Citi's ESG and Sustainability (including climate change) governance, see Citi's 2020 Annual Meeting Proxy Statement available at www.citigroup.com. Click on "Investors" and then "Annual Reports & Proxy Statements."

Country Risk

Top 25 Country Exposures

The following table presents Citi's top 25 exposures by country, excluding the U.S., as of December 31, 2020. (Including the U.S., the total exposure as of December 31, 2020 would represent approximately 96% of Citi's exposure to all countries.)

For purposes of the table, loan amounts are reflected in the country where the loan is booked, which is generally based on the domicile of the borrower. For example, a loan to a Chinese subsidiary of a Switzerland-based corporation will generally be categorized as a loan in China. In addition, Citi has developed regional booking centers in certain countries, most significantly in the United Kingdom (U.K.) and Ireland,

in order to more efficiently serve its corporate customers. As an example, with respect to the U.K., only 37% of corporate loans presented in the table below are to U.K. domiciled entities (42% for unfunded commitments), with the balance of the loans predominately to European domiciled counterparties. Approximately 80% of the total U.K. funded loans and 86% of the total U.K. unfunded commitments were investment grade as of December 31, 2020.

Trading account assets and investment securities are generally categorized based on the domicile of the issuer of the security of the underlying reference entity. For additional information on the assets included in the table, see the footnotes to the table below.

<i>In billions of dollars</i>	ICG loans ⁽¹⁾	GCB loans	Other funded ⁽²⁾	Unfunded ⁽³⁾	Net MTM on derivatives/repos ⁽⁴⁾	Total hedges (on loans and CVA)	Investment securities ⁽⁵⁾	Trading account assets ⁽⁶⁾	Total as of 4Q20	Total as of 3Q20	Total as of 4Q19	Total as a % of Citi as of 4Q20
United Kingdom	\$ 43.3	\$ —	\$ 2.0	\$ 52.0	\$ 17.0	\$ (5.4)	\$ 5.0	\$ 1.3	\$ 115.2	\$ 108.5	\$ 105.8	6.6 %
Mexico	14.2	14.6	0.3	9.6	3.1	(0.9)	19.0	4.6	64.5	60.9	65.0	3.7
Hong Kong	18.2	13.2	0.5	6.8	1.8	(0.7)	7.1	2.1	49.0	47.9	49.0	2.8
Singapore	13.9	13.8	0.2	6.4	2.1	(0.6)	8.0	2.0	45.8	44.1	43.3	2.6
Ireland	13.0	—	0.6	29.2	0.5	(0.1)	—	0.7	43.9	41.2	39.9	2.5
South Korea	3.3	18.7	0.1	2.6	1.5	(0.8)	9.7	0.7	35.8	33.2	34.7	2.1
India	6.6	4.2	0.9	6.2	3.5	(0.4)	9.9	0.5	31.4	31.6	30.0	1.8
Brazil	11.7	—	—	2.8	4.2	(0.8)	4.3	4.0	26.2	25.1	28.3	1.5
Germany	0.7	—	—	6.7	4.4	(4.0)	10.6	6.0	24.4	27.1	21.8	1.4
China	7.5	3.6	0.6	3.1	1.6	(0.5)	5.7	0.2	21.8	21.7	18.7	1.3
Japan	2.5	—	0.1	3.1	3.9	(1.9)	5.7	8.4	21.8	19.7	17.0	1.3
Australia	4.9	9.4	—	7.0	1.6	(0.6)	1.5	(2.1)	21.7	21.2	21.5	1.2
Canada	2.2	0.6	0.2	7.9	2.3	(0.9)	5.1	0.4	17.8	17.0	15.2	1.0
Taiwan	5.5	8.3	0.2	1.3	0.6	(0.1)	0.4	1.1	17.3	17.0	17.9	1.0
Poland	3.5	2.0	—	2.7	0.2	(0.1)	6.5	0.2	15.0	15.1	13.4	0.9
Jersey	6.8	—	—	6.9	—	(0.3)	—	—	13.4	13.3	12.8	0.8
United Arab Emirates	7.6	1.3	—	3.2	0.5	(0.3)	0.1	—	12.4	11.9	12.8	0.7
Malaysia	1.4	3.9	0.1	0.8	0.2	—	1.7	0.2	8.3	8.4	8.4	0.5
Thailand	0.9	2.9	—	2.2	0.1	—	1.8	0.1	8.0	7.9	7.7	0.5
Indonesia	2.2	0.7	—	1.3	0.1	(0.1)	1.7	0.1	6.0	6.0	5.9	0.3
Russia	1.8	0.8	—	0.8	0.3	(0.1)	1.5	0.1	5.2	4.6	5.0	0.3
Luxembourg	0.8	—	—	—	0.4	(0.9)	4.5	0.3	5.1	6.7	4.6	0.3
Philippines	0.8	1.4	—	0.5	0.1	—	1.7	—	4.5	4.7	4.9	0.3
Czech Republic	0.8	—	—	0.7	2.3	—	0.4	0.1	4.3	3.8	4.3	0.2
South Africa	1.3	—	—	0.4	0.3	—	1.8	(0.2)	3.6	3.5	3.5	0.2
Total as a % of Citi's total exposure												35.8 %
Total as a % of Citi's non-U.S. total exposure												91.5 %

- (1) ICG loans reflect funded corporate loans and private bank loans, net of unearned income. As of December 31, 2020, private bank loans in the table above totaled \$30.1 billion, concentrated in Hong Kong (\$8.2 billion), the United Kingdom (\$7.9 billion) and Singapore (\$7 billion).
- (2) Other funded includes other direct exposures such as accounts receivable, loans HFS, other loans in *Corporate/Other* and investments accounted for under the equity method.

- (3) Unfunded exposure includes unfunded corporate lending commitments, letters of credit and other contingencies.
- (4) Net mark-to-market counterparty risk on OTC derivatives and securities lending/borrowing transactions (repos). Exposures are shown net of collateral and inclusive of CVA. Includes margin loans.
- (5) Investment securities include debt securities available-for-sale, recorded at fair market value, and debt securities held-to-maturity, recorded at historical cost.
- (6) Trading account assets are shown on a net basis and include issuer risk on cash products and derivative exposure where the underlying reference entity/issuer is located in that country.

Argentina

As previously disclosed, Citi operates in Argentina through its *ICG* businesses. As of December 31, 2020, Citi's net investment in its Argentine operations was approximately \$1.0 billion. Citi uses the U.S. dollar as the functional currency for its operations in Argentina because the Argentine economy is considered highly inflationary under U.S. GAAP.

During August 2020, the Argentine government announced the successful restructuring of almost all of its foreign currency debt issued under foreign law, for which it had previously postponed principal and interest payments. However, during September 2020, the Argentine government tightened its existing capital and currency controls, which continue to restrict Citi's ability to access U.S. dollars in Argentina and remit earnings from its Argentine operations. Citi's net investment in its Argentine operations is likely to increase as Citi generates net income in its Argentine franchise and its earnings are unable to be remitted.

Citi economically hedges the foreign currency risk in its net Argentine peso-denominated assets to the extent possible and prudent using non-deliverable forward (NDF) derivative instruments that are primarily executed outside of Argentina. As of December 31, 2020, the international NDF market had very limited liquidity, resulting in Citi's being unable to economically hedge nearly all of its Argentine peso exposure. As a result, and to the extent that Citi does not execute NDF contracts for this unhedged exposure in the future, Citi would record devaluations on its net Argentine peso-denominated assets in earnings, without any benefit from a change in the fair value of derivative positions used to economically hedge the exposure.

Citi continually evaluates its economic exposure to its Argentine counterparties and reserves for changes in credit risk and sovereign risk associated with its Argentine assets. Citi believes it has established appropriate allowances for credit losses on its Argentine loans, and appropriate fair value adjustments on Argentine assets and liabilities measured at fair value, for such risks under U.S. GAAP as of December 31, 2020. However, U.S. regulatory agencies may require Citi to record additional reserves in the future, increasing *ICG*'s cost of credit, based on the perceived country risk associated with its Argentine exposures. For additional information on emerging markets risks, see "Risk Factors" above.

FFIEC—Cross-Border Claims on Third Parties and Local Country Assets

Citi's cross-border disclosures are based on the country exposure bank regulatory reporting guidelines of the Federal Financial Institutions Examination Council (FFIEC). The following summarizes some of the FFIEC key reporting guidelines:

- Amounts are based on the domicile of the ultimate obligor, counterparty, collateral (only including qualifying liquid collateral), issuer or guarantor, as applicable (e.g., a security recorded by a Citi U.S. entity but issued by the U.K. government is considered U.K. exposure; a loan recorded by a Citi Mexico entity to a customer domiciled in Mexico where the underlying collateral is held in Germany is considered German exposure).
- Amounts do not consider the benefit of collateral received for secured financing transactions (i.e., repurchase agreements, reverse repurchase agreements and securities loaned and borrowed) and are reported based on notional amounts.
- Netting of derivative receivables and payables, reported at fair value, is permitted, but only under a legally binding netting agreement with the same specific counterparty, and does not include the benefit of margin received or hedges.
- Credit default swaps (CDS) are included based on the gross notional amount sold and purchased and do not include any offsetting CDS on the same underlying entity.
- Loans are reported without the benefit of hedges.

Given the requirements noted above, Citi's FFIEC cross-border exposures and total outstandings tend to fluctuate, in some cases significantly, from period to period. As an example, because total outstandings under FFIEC guidelines do not include the benefit of margin or hedges, market volatility in interest rates, foreign exchange rates and credit spreads may cause significant fluctuations in the level of total outstandings, all else being equal.

The tables below show each country whose total outstandings exceeded 0.75% of total Citigroup assets:

December 31, 2020

<i>In billions of dollars</i>	Cross-border claims on third parties and local country assets										
	Banks (a)	Public (a)	NBFIs ⁽¹⁾ (a)	Other (corporate and households) (a)	Trading assets ⁽²⁾ (included in (a))	Short-term claims ⁽²⁾ (included in (a))	Total outstanding ⁽³⁾ (sum of (a))	Commitments and guarantees ⁽⁴⁾	Credit derivatives purchased ⁽⁵⁾	Credit derivatives sold ⁽⁵⁾	
United Kingdom	\$ 16.0	\$ 26.0	\$ 55.9	\$ 17.5	\$ 14.2	\$ 75.1	\$ 115.4	\$ 25.8	\$ 76.2	\$ 75.3	
Cayman Islands	—	—	85.8	12.7	8.0	70.1	98.5	11.9	0.3	0.2	
Japan	32.9	35.5	12.1	6.6	16.2	63.3	87.1	6.6	16.1	15.1	
Germany	7.1	51.8	11.1	9.6	11.3	58.6	79.6	14.1	49.7	48.1	
Mexico	3.9	31.5	9.5	28.8	6.0	44.4	73.7	21.7	7.3	6.6	
France	11.0	9.7	39.3	9.5	13.3	58.7	69.5	68.2	61.3	56.4	
Singapore	2.5	25.6	10.7	17.5	2.8	48.5	56.3	13.8	1.9	1.5	
South Korea	3.3	18.2	1.8	24.9	1.5	35.6	48.2	14.7	10.8	10.7	
Hong Kong	1.5	13.8	3.9	19.8	7.2	35.2	39.0	13.1	2.1	1.7	
Australia	5.1	16.4	4.0	13.0	9.6	31.6	38.5	13.0	5.7	5.2	
China	4.5	16.3	3.3	14.1	9.7	33.6	38.2	5.8	10.5	10.0	
India	1.9	14.0	2.5	12.9	2.3	22.1	31.3	11.3	1.8	1.6	
Taiwan	0.4	7.8	2.0	16.5	5.1	23.7	26.7	14.1	—	—	
Netherlands	7.8	10.4	3.4	4.8	5.2	18.2	26.4	10.4	28.5	27.4	
Brazil	2.8	11.3	1.6	9.9	5.2	20.0	25.6	2.7	6.0	6.0	
Italy	2.5	19.1	0.6	1.9	15.0	16.1	24.1	2.7	42.3	41.3	
Switzerland	1.8	14.3	1.4	4.9	2.6	20.1	22.4	7.3	18.0	17.4	
Canada	4.5	6.3	5.9	4.5	3.4	15.1	21.2	14.5	3.9	4.0	

December 31, 2019

<i>In billions of dollars</i>	Cross-border claims on third parties and local country assets										
	Banks (a)	Public (a)	NBFIs ⁽¹⁾ (a)	Other (corporate and households) (a)	Trading assets ⁽²⁾ (included in (a))	Short-term claims ⁽²⁾ (included in (a))	Total outstanding ⁽³⁾ (sum of (a))	Commitments and guarantees ⁽⁴⁾	Credit derivatives purchased ⁽⁵⁾	Credit derivatives sold ⁽⁵⁾	
Cayman Islands	\$ —	\$ —	\$ 95.5	\$ 10.1	\$ 5.3	\$ 75.0	\$ 105.6	\$ 9.9	\$ —	\$ —	
United Kingdom	13.3	25.2	35.7	20.0	12.9	61.9	94.2	23.3	71.6	71.6	
Japan	32.7	33.3	8.4	6.5	13.1	58.0	80.9	4.7	18.7	17.1	
Mexico	2.8	26.3	9.4	35.0	5.5	37.0	73.5	22.4	8.9	8.8	
Germany	6.8	29.8	7.7	9.7	9.3	33.6	54.0	13.1	48.0	46.4	
France	8.4	7.5	22.1	7.5	9.6	35.8	45.5	29.0	56.0	54.3	
Singapore	2.3	17.7	7.2	16.1	2.8	38.0	43.3	12.0	2.0	1.9	
South Korea	2.0	16.8	1.7	21.6	2.6	32.0	42.1	12.2	13.9	13.0	
India	1.7	12.9	3.1	16.0	2.7	23.1	33.7	10.8	2.3	2.0	
Hong Kong	0.6	10.2	3.0	19.9	4.1	29.9	33.7	13.7	2.2	2.0	
Australia	4.8	8.7	4.7	12.9	7.9	20.6	31.1	11.8	7.4	7.3	
China	3.4	11.0	3.1	12.7	3.9	25.3	30.2	5.1	12.8	11.6	
Brazil	3.3	13.3	1.8	11.0	6.1	20.7	29.4	3.2	8.1	8.2	
Canada	2.9	4.8	11.5	5.0	3.1	13.5	24.2	14.8	4.3	5.1	
Netherlands	6.8	8.7	3.9	4.2	4.6	15.5	23.6	11.0	26.9	26.5	
Taiwan	0.6	6.8	1.6	14.3	2.9	13.2	23.3	14.6	0.1	0.1	
Italy	3.3	15.9	0.7	1.7	12.8	14.9	21.6	2.5	44.5	44.0	
Switzerland	1.2	14.6	1.1	4.6	2.2	18.1	21.5	8.2	17.8	17.3	
Ireland	0.2	0.3	8.9	5.2	4.2	12.9	14.6	5.3	1.6	1.8	

(1) Non-bank financial institutions.

(2) Included in total outstanding.

(3) Total outstanding includes cross-border claims on third parties, as well as local country assets. Cross-border claims on third parties include cross-border loans, securities, deposits with banks and other monetary assets, as well as net revaluation gains on foreign exchange and derivative products.

(4) Commitments (not included in total outstanding) include legally binding cross-border letters of credit and other commitments and contingencies as defined by the FFIEC guidelines. The FFIEC definition of commitments includes commitments to local residents to be funded with local currency liabilities originated within the country.

(5) Credit default swaps (CDS) are not included in total outstanding.

SIGNIFICANT ACCOUNTING POLICIES AND SIGNIFICANT ESTIMATES

This section contains a summary of Citi's most significant accounting policies. Note 1 to the Consolidated Financial Statements contains a summary of all of Citigroup's significant accounting policies. These policies, as well as estimates made by management, are integral to the presentation of Citi's results of operations and financial condition. While all of these policies require a certain level of management judgment and estimates, this section highlights and discusses the significant accounting policies that require management to make highly difficult, complex or subjective judgments and estimates at times regarding matters that are inherently uncertain and susceptible to change (see also "Risk Factors—Operational Risks" above). Management has discussed each of these significant accounting policies, the related estimates and its judgments with the Audit Committee of the Citigroup Board of Directors.

Valuations of Financial Instruments

Citigroup holds debt and equity securities, derivatives, retained interests in securitizations, investments in private equity and other financial instruments. Substantially all of these assets and liabilities are reflected at fair value on Citi's Consolidated Balance Sheet.

Citi purchases securities under agreements to resell (reverse repos or resale agreements) and sells securities under agreements to repurchase (repos), a majority of which are carried at fair value. In addition, certain loans, short-term borrowings, long-term debt and deposits, as well as certain securities borrowed and loaned positions that are collateralized with cash, are carried at fair value. Citigroup holds its investments, trading assets and liabilities, and resale and repurchase agreements on the Consolidated Balance Sheet to meet customer needs and to manage liquidity needs, interest rate risks and private equity investing.

When available, Citi generally uses quoted market prices to determine fair value and classifies such items within Level 1 of the fair value hierarchy established under ASC 820-10, *Fair Value Measurement*. If quoted market prices are not available, fair value is based upon internally developed valuation models that use, where possible, current market-based or independently sourced market parameters, such as interest rates, currency rates and option volatilities. Such models are often based on a discounted cash flow analysis. In addition, 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 under the fair value hierarchy as Level 3 even though there may be some significant inputs that are readily observable.

Citi is required to exercise subjective judgments relating to the applicability and functionality of internal valuation models, the significance of inputs or value drivers to the valuation of an instrument and the degree of illiquidity and subsequent lack of observability in certain markets. These judgments have the potential to impact the Company's financial performance for instruments where the changes in fair value are recognized in either the Consolidated Statement of Income or in *AOCL*.

Losses on available-for-sale securities whose fair values are less than the amortized cost, where Citi intends to sell the security or could more-likely-than-not be required to sell the security, are recognized in earnings. Where Citi does not intend to sell the security nor could more-likely-than-not be required to sell the security, the portion of the loss related to credit is recognized as an allowance for credit losses with a corresponding provision for credit losses and the remainder of the loss is recognized in other comprehensive income. Such losses are capped at the difference between the fair value and amortized cost of the security.

For equity securities carried at cost or under the measurement alternative, decreases in fair value below the carrying value are recognized as impairment in the Consolidated Statement of Income. Moreover, for certain equity method investments, decreases in fair value are only recognized in earnings in the Consolidated Statement of Income if such decreases are judged to be an other-than-temporary impairment (OTTI). Adjudicating the temporary nature of fair value impairments is also inherently judgmental.

The fair value of financial instruments incorporates the effects of Citi's own credit risk and the market view of counterparty credit risk, the quantification of which is also complex and judgmental. For additional information on Citi's fair value analysis, see Notes 1, 6, 24 and 25 to the Consolidated Financial Statements.

Allowance for Credit Losses (ACL)

Citi provides reserves for an estimate of current expected credit losses in the funded loan portfolio and for unfunded lending commitments, standby letters of credit and financial guarantees (excluding those that are performance guarantees), on the Consolidated Balance Sheet in *Allowance for credit losses on loans* (ACL) and *Other liabilities*, respectively. In addition, Citi provides allowances for an estimate of current expected credit losses for other financial assets measured at amortized cost, including held-to-maturity securities, reverse repurchase agreements, securities borrowed, deposits with banks and other financial receivables carried at amortized cost (these allowances, together with the ACL, are referred to as the ACL).

The ACL is composed of quantitative and qualitative components. For the quantitative component, Citi uses a forward-looking base macroeconomic forecast that is complemented by a qualitative management adjustment component. As further discussed below, this qualitative component reflects (i) economic uncertainty related to an alternative downside scenario, (ii) loss adjustments for concentration and collateral and (iii) specific adjustments based on the associated portfolio for estimating the ACL.

Quantitative Component

Citi estimates expected credit losses for its quantitative component based on (i) its internal system of credit risk ratings, (ii) its comprehensive internal history and rating agency information regarding default rates and loss data, including internal data on the severity of losses in the event of

default, and (iii) a reasonable and supportable forecast of future macroeconomic conditions.

For its consumer and corporate portfolios, Citi's expected credit loss is determined primarily by utilizing models for the borrowers' probability of default (PD), loss given default (LGD) and exposure at default (EAD). The loss likelihood and severity models used for estimating expected credit losses are sensitive to changes in macroeconomic variables that inform the forecasts. For corporate portfolios, the loss likelihood and loss severity models cover a wide range of geographic, industry, product and business segments that contribute to the portfolios.

In addition, Citi's delinquency-managed portfolios containing smaller-balance homogeneous loans also primarily use PD, LGD and EAD models to determine expected credit losses and reserve balances based on leading credit indicators, including loan delinquencies and changes in portfolio size, as well as other current economic factors and credit trends, including housing prices, unemployment and gross domestic product (GDP). This methodology is applied separately for each product within each geographic region in which these portfolios exist, including the U.S., Mexico and *Asia*.

This evaluation process is subject to numerous estimates and judgments. The frequency of default, risk ratings, loss recovery rates, size and diversity of individual large credits and ability of borrowers with foreign currency obligations to obtain the foreign currency necessary for orderly debt servicing, among other things, are all taken into account. Changes in these estimates could have a direct impact on Citi's credit costs and the allowance in any period.

Qualitative Management Adjustment Component

The qualitative management adjustment component considers, among other things, the uncertainty of forward-looking economic scenarios based on the likelihood and severity of a downside scenario, certain portfolio characteristics and concentrations, collateral coverage, model limitations, idiosyncratic events and other relevant criteria under banking supervisory guidance for the ACL. In the current macroeconomic environment, the qualitative management adjustment also reflects the uncertainty around the estimated impact of the pandemic on credit loss estimates.

4Q20 Combined Quantitative and Qualitative Components

In the fourth quarter of 2020, Citi (i) released \$0.2 billion of the ACL for its consumer portfolios and (ii) released \$1.3 billion of the ACL for its corporate portfolios, primarily driven by an improvement in the base macroeconomic forecast.

In the fourth quarter, the qualitative management adjustment component incorporated an alternative downside scenario, reflecting more adverse economic conditions and, subsequently a slower Real GDP recovery, at a 15% likelihood. This qualitative management adjustment component contributed to an increase in the ACL of approximately \$0.7 billion resulting in a total qualitative management adjustment of \$3.8 billion and an overall ACL balance of \$27.8 billion at December 31, 2020.

The extent of the pandemic's ultimate impact on Citi's ACL will depend on, among other things, (i) how consumers respond to the government stimulus and assistance programs;

(ii) the impact on unemployment; (iii) the timing and extent of the economic recovery; (iv) the severity and duration of the resurgence of COVID-19; (v) the rate of distribution and administration of vaccines; and (vi) the extent of any market volatility. Citi believes its analysis of the ACL reflects the forward view of the economic analysis as of December 31, 2020, based on its November 5, 2020 base macroeconomic forecast.

Macroeconomic Variables

Citi uses a multitude of variables in its base macroeconomic forecast as part of its calculation of both the quantitative and qualitative (including the downside scenario) components of the ACL, including both domestic and international variables for its global portfolios and exposures. Citi's forecasts of the U.S. unemployment rate and U.S. Real GDP rate represent the key macroeconomic variables that most significantly affect its estimate of its consumer and corporate ACLs.

The tables below show these macroeconomic variables used in determining Citi's 1Q20, 2Q20, 3Q20 and 4Q20 consumer and corporate ACLs, comparing Citi's forecasted 1Q21, 3Q21 and 1Q22 quarterly average U.S. unemployment rate and Citi's forecasted 2020, 2021 and 2022 year-over-year U.S. Real GDP growth rate:

<i>U.S. unemployment</i>	Quarterly average			13-quarter average ⁽¹⁾
	1Q21	3Q21	1Q22	
Citi forecast at 1Q20	6.9 %	6.6 %	6.3 %	6.1 %
Citi forecast at 2Q20	8.1	6.3	5.8	7.2
Citi forecast at 3Q20	8.2	6.8	6.3	6.6
Citi forecast at 4Q20	7.3	6.5	6.2	6.1

(1) Represents the average unemployment rate for the rolling, forward-looking 13 quarters in forecast horizon.

<i>U.S. Real GDP</i>	Year-over-year growth rate ⁽¹⁾		
	Full year		
	2020	2021	2022
Citi forecast at 1Q20	(1.3)%	1.5 %	1.9 %
Citi forecast at 2Q20	(5.1)	5.5	3.3
Citi forecast at 3Q20	(5.1)	3.3	2.8
Citi forecast at 4Q20	(4.0)	3.7	2.7

(1) The year-over-year growth rate is the percentage change in the Real (inflation adjusted) GDP level.

Under the base macroeconomic forecast as of 4Q20, the U.S. unemployment rate and Real GDP growth rate are expected to continue to improve, as the U.S. moves past the peak of the pandemic-related health and economic crisis.

Consumer

As discussed above, Citi's total consumer ACL release (including *Corporate/Other*) of \$0.2 billion in the fourth quarter of 2020 reduced the ACL balance to \$19.6 billion, or 6.77% of total consumer loans at December 31, 2020, and reflected the update of the base macroeconomic forecast for the fourth quarter, as well as changes in loan volumes. Citi's consumer ACL is largely driven by the cards businesses,

where the receivables have longer estimated tenors under the CECL lifetime expected credit loss methodology, net of recoveries, than under the previous incurred loss model.

For cards, including Citi's international businesses, the level of reserves relative to EOP loans decreased to 10.98% at December 31, 2020, compared to 11.42% at September 30, 2020, primarily due to the update of the base macroeconomic forecast for the fourth quarter of 2020. For the remaining consumer exposures, the level of reserves relative to EOP loans decreased slightly to 2.0% at December 31, 2020, compared to 2.1% at September 30, 2020.

Corporate

Citi's corporate ACLL release of \$1.6 billion in the fourth quarter of 2020 reduced the ACLL reserve balance to \$5.4 billion, or 1.42% of total funded loans, and reflected the update of the macroeconomic forecast scenario for the fourth quarter, as well as fewer downgrades in the portfolio.

The ACLUC build of \$0.4 billion in the fourth quarter of 2020 increased the total corporate ACLUC reserve balance included in *Other liabilities* to \$2.7 billion at December 31, 2020.

ACLL and Non-accrual Ratios

At December 31, 2020, the ratio of the ACLL to total funded loans was 3.73% (6.77% for consumer loans and 1.42% for corporate loans), compared to 4.00% at September 30, 2020 (6.96% for consumer loans and 1.82% for corporate loans).

Citi's total non-accrual loans were \$5.7 billion at December 31, 2020, up \$394 million from September 30, 2020. Consumer non-accrual loans increased \$451 million to \$2.1 billion at December 31, 2020, from \$1.7 billion at September 30, 2020, while corporate non-accrual loans decreased \$57 million to \$3.5 billion at December 31, 2020, from \$3.6 billion at September 30, 2020. In addition, the ratio of corporate non-accrual loans to total corporate loans was 0.91%, and the ratio of consumer non-accrual loans to total consumer loans was 0.74%, at December 31, 2020.

Regulatory Capital Impact

Citi has elected to phase in the CECL impact for regulatory capital purposes. The transition provisions were recently modified to defer the phase-in. After two years with no impact on capital, the CECL transition impact will phase in over a three-year transition period with 25% of the impact (net of deferred taxes) recognized on the first day of each subsequent year, commencing January 1, 2022, and will be fully implemented on January 1, 2025. In addition, 25% of the build (pretax) made in 2020 and 2021 will be deferred and amortized over the same timeframe.

For a further description of the ACL and related accounts, see Notes 1 and 15 to the Consolidated Financial Statements.

For a discussion of the adoption of the CECL accounting pronouncement, see Note 1 to the Consolidated Financial Statements.

Goodwill

Citi tests goodwill for impairment annually on July 1 (the annual test) and through 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, such as a significant adverse change in the business climate, a decision to sell or dispose of all or a significant portion of a reporting unit or a significant decline in Citi's stock price. During 2020, the annual test was performed, which resulted in no goodwill impairment as described in Note 16 to the Consolidated Financial Statements.

As of December 31, 2020, Citigroup's activities are conducted through the *Global Consumer Banking* and *Institutional Clients Group* business segments and *Corporate/Other*. Goodwill impairment testing is performed at the level below the business segment (referred to as a reporting unit).

Citi utilizes allocated equity as a proxy for the carrying value of its reporting units for purposes of goodwill impairment testing. The allocated equity in the reporting units is determined based on the capital the business would require if it were operating as a standalone entity, incorporating sufficient capital to be in compliance with both current and expected regulatory capital requirements, including capital for specifically identified goodwill and intangible assets. The capital allocated to the businesses is incorporated into the annual budget process, which is approved by Citi's Board of Directors.

Goodwill impairment testing involves management judgment, requiring an assessment of whether the carrying value of the reporting unit can be supported by the fair value of the reporting unit using widely accepted valuation techniques, such as the market approach (earnings multiples and/or transaction multiples) and/or the income approach (discounted cash flow (DCF) method). In applying these methodologies, Citi utilizes a number of factors, including actual operating results, future business plans, economic projections and market data.

Similar to 2019, Citigroup engaged an independent valuation specialist in 2020 to assist in Citi's valuation for all the reporting units with goodwill balances, employing both the market approach and the DCF method. The resulting fair values were relatively consistent and appropriate weighting was given to outputs from both methods.

Under the market approach and in calculation of the terminal value under the income approach, the key assumptions are the selected price to earnings and price to tangible book value multiples. The selection of the multiples considers the operating performance and financial condition of the reporting units as compared with those of a group of selected publicly traded guideline companies. Among other factors, the level and expected growth in return on tangible equity relative to those of the guideline companies is considered. Since the guideline company prices used are on a minority interest basis, the selection of the multiples considers recent transactions prices, as well as data in comparable macroeconomic environments, which reflect control rights and privileges, in arriving at a multiple that reflects an appropriate control premium.

For valuation under the income approach, the key assumptions used are the cash flows for the forecasted period, the terminal growth rate and the discount rate. The cash flows for the forecasted period are estimated based on management's most recent projections available as of the testing date, given

consideration to minimum equity capital requirement. The projections incorporate macroeconomic variables developed at the same time. The terminal growth rate is selected based on management's long-term expectation for the businesses. The discount rate is based on the reporting unit's estimated cost of equity capital computed under the capital asset pricing model and reflects the risk and uncertainty in the financial markets in the internally generated cash flow projections.

Since none of the Company's reporting units are publicly traded, individual reporting unit fair value determinations cannot be directly correlated to Citigroup's common stock price. The sum of the fair values of the reporting units exceeded the overall market capitalization of Citi as of July 1, 2020. However, Citi believes that it is not meaningful to reconcile the sum of the fair values of the Company's reporting units to its market capitalization due to several factors. The market capitalization of Citigroup reflects the execution risk in a transaction involving Citigroup due to its size. However, the individual reporting units' fair values are not subject to the same level of execution risk nor a business model that is perceived to be as complex. In addition, the market capitalization of Citigroup does not include consideration of the individual reporting unit's control premium.

At July 1, 2020, the fair values of Citi's reporting units as a percentage of their carrying values ranged from approximately 115% to 136%, resulting in no impairment. While the inherent risk related to uncertainty is embedded in the key assumptions used in the valuations, the current environment continues to evolve due to the challenge and uncertainties related to the pandemic. Further deterioration in macroeconomic and market conditions, including potential adverse effects to economic forecasts due to the severity and duration of the pandemic, as well as the responses of governments, customers and clients, could negatively influence the assumptions used in the valuations, in particular, the discount rates, exit multiples and growth rates used in net income projections. If the future were to differ from management's best estimate of key assumptions (e.g., net interest revenue and loan volume), and associated cash flows were to decrease, Citi could potentially experience material goodwill impairment charges in the future.

See Notes 1 and 16 to the Consolidated Financial Statements for additional information on goodwill, including the changes in the goodwill balance year-over-year and the segments' goodwill balances as of December 31, 2020.

Income Taxes

Overview

Citi is subject to the income tax laws of the U.S., its states and local municipalities and the non-U.S. jurisdictions in which Citi operates. These tax laws are complex and are subject to differing interpretations by the taxpayer and the relevant governmental taxing authorities. 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 audit.

In establishing a provision for income tax expense, Citi must make judgments and interpretations about the application

of these inherently complex tax laws. Citi must also make estimates about when in the future certain items will affect taxable income in the various tax jurisdictions, both domestic and foreign. Deferred taxes are recorded for the future consequences of events that have been recognized in the financial statements or tax returns, based upon enacted tax laws and rates. Deferred tax assets (DTAs) are recognized subject to management's judgment that realization is more-likely-than-not. For example, if it is more-likely-than-not that a carry-forward would expire unused, Citi would set up a valuation allowance against that DTA. Citi has established valuation allowances as described below.

As a result of the Tax Cuts and Jobs Act (Tax Reform), beginning in 2018, Citi is taxed on income generated by its U.S. operations at a federal tax rate of 21%. The effect on Citi's state tax rate is dependent upon how and when the individual states that have not yet addressed the federal tax law changes choose to adopt the various new provisions of the U.S. Internal Revenue Code.

Citi's non-U.S. branches and subsidiaries are subject to tax at their local tax rates. Non-U.S. branches also continue to be subject to U.S. taxation. The impact of this on Citi's earnings depends on the level of branch pretax income, the local branch tax rate and allocations of overall domestic loss (ODL) and expenses for U.S. tax purposes to branch earnings. Citi expects no residual U.S. tax on such earnings since it currently has sufficient branch tax carry-forwards. With respect to non-U.S. subsidiaries, dividends from these subsidiaries will be excluded from U.S. taxation. While the majority of Citi's non-U.S. subsidiary earnings are classified as Global Intangible Low Taxed Income (GILTI), Citi expects no material residual U.S. tax on such earnings based on its non-U.S. subsidiaries' local tax rates, which exceed, on average, the GILTI tax rate. Finally, Citi does not expect the Base Erosion Anti-Abuse Tax (BEAT) to affect its tax provision.

Deferred Tax Assets and Valuation Allowances

At December 31, 2020, Citi had net DTAs of \$24.8 billion, unchanged from September 30, 2020. Citi's net DTAs increased \$1.7 billion from \$23.1 billion at December 31, 2019, primarily due to an increase in the ACL and adoption impact of the CECL standard, partially offset by gains in *AOCL*. Of Citi's total net DTAs of \$24.8 billion as of December 31, 2020, \$9.5 billion, primarily related to tax carry-forwards, was excluded in calculating Citi's regulatory capital. Net DTAs arising from temporary differences are deducted from regulatory capital if in excess of the 10%/15% limitations (see "Capital Resources" above). For the quarter and year ended December 31, 2020, Citi did not have any such DTAs. Accordingly, the remaining \$15.3 billion of net DTAs as of December 31, 2020 was not deducted in calculating regulatory capital pursuant to Basel III standards, and was appropriately risk weighted under those rules.

Citi's total valuation allowance (VA) at December 31, 2020 was \$5.2 billion, a decrease of \$1.3 billion from \$6.5 billion at December 31, 2019, primarily driven by usage of carry-forwards in the FTC branch basket. Citi's VA of \$5.2 billion is composed of (i) \$3.4 billion on its FTC carry-forwards, (ii) \$1.0 billion on its U.S. residual DTA related to

its non-U.S. branches, (iii) \$0.6 billion on local non-U.S. DTAs and (iv) \$0.2 billion on state net operating loss and capital loss carry-forwards.

As stated above with regard to the impact of non-U.S. branches on Citi's earnings, the level of branch pretax income, the local branch tax rate and the allocations of ODL and expenses for U.S. tax purposes to the branch basket are also the main factors in determining the branch VA. Citi computed these factors for 2020. While the COVID-19 pandemic reduced branch earnings, the allocated ODL did not decline since a large portion of the pandemic losses will not be recognizable for U.S. taxable income until a future period. In addition, lower than forecasted U.S. interest rates resulted in a lower allocation of interest expense to non-U.S. branches. The combination of these factors drove the VA release of \$0.5 billion in Citi's full-year effective tax rate. Citi also released \$0.1 billion of branch basket VA in the fourth quarter, with respect to future years based upon Citi's operating plan and estimates of future branch basket factors, as discussed above.

Citi's VA of \$1.0 billion against FTC carry-forwards in its general basket declined \$0.1 billion in 2020, primarily due to expired FTCs. In the general FTC basket, foreign source income, an important driver in the utilization of FTC carry-forwards for the current year and future years in the carry-forward period, has been reduced due to the compression in interest rate spreads. Overall U.S. taxable income, which impacts ODL usage and, correspondingly, the utilization of FTC carry-forwards is also lower because of the impacts of the pandemic. Accordingly, management has taken actions to increase future foreign source income and U.S. taxable income. These planning actions include geographic asset movements, deferral of future FTC recognition and capitalization of expenses for tax purposes, resulting in no tax provision change to Citi's general basket VA in 2020. In light of the pandemic, Citi will continue to monitor its forecasts and mix of earnings, which could affect Citi's VA against FTC carry-forwards. Citi continues to look for additional actions that are prudent and feasible, taking into account client, regulatory and operational considerations. See Note 9 to the Consolidated Financial Statements.

Recognized FTCs comprised approximately \$4.4 billion of Citi's DTAs as of December 31, 2020, compared to approximately \$6.3 billion as of December 31, 2019. The decrease was primarily due to current-year usage. The FTC carry-forward period represents the most time-sensitive component of Citi's DTAs.

Citi had an overall domestic loss (ODL) of approximately \$26 billion at December 31, 2020, which allows Citi to elect a percentage between 50% and 100% of future years' domestic source income to be reclassified as foreign source income. (See Note 9 to the Consolidated Financial Statements for a description of the ODL.)

The majority of Citi's U.S. federal net operating loss carry-forward and all of its New York State and City net operating loss carry-forwards are subject to a carry-forward period of 20 years. This provides enough time to fully utilize the net DTAs pertaining to these existing net operating loss carry-forwards. This is due to Citi's forecast of sufficient U.S. taxable income and the continued taxation of Citi's non-U.S. income by New York State and City.

Although realization is not assured, Citi believes that the realization of its recognized net DTAs of \$24.8 billion at December 31, 2020 is more-likely-than-not, based on management's expectations as to future taxable income in the jurisdictions in which the DTAs arise, as well as available tax planning strategies (as defined in ASC Topic 740, *Income Taxes*). Citi has concluded that it has the necessary positive evidence to support the realization of its net DTAs after taking its valuation allowances into consideration.

For additional information on Citi's income taxes, including its income tax provision, tax assets and liabilities and a tabular summary of Citi's net DTAs balance as of December 31, 2020 (including the FTCs and applicable expiration dates of the FTCs), see Note 9 to the Consolidated Financial Statements. For information on Citi's ability to use its DTAs, see "Risk Factors—Strategic Risks" above and Note 9 to the Consolidated Financial Statements.

Tax Cuts and Jobs Act

On December 22, 2017, Tax Reform was signed into law, reflecting changes to U.S. corporate taxation, including a lower statutory tax rate of 21%, a quasi-territorial regime and a deemed repatriation of all accumulated earnings and profits of foreign subsidiaries. The new law was generally effective January 1, 2018.

Citi recorded a one-time, non-cash charge to continuing operations of \$22.6 billion in the fourth quarter of 2017, composed of (i) a \$12.4 billion remeasurement due to the reduction of the U.S. corporate tax rate and the change to a "quasi-territorial tax system," (ii) a \$7.9 billion valuation allowance against Citi's FTC carry-forwards and its U.S. residual DTAs related to its non-U.S. branches and (iii) a \$2.3 billion reduction in Citi's FTC carry-forwards related to the deemed repatriation of undistributed earnings of non-U.S. subsidiaries. Of this one-time charge, \$16.4 billion was considered provisional pursuant to Staff Accounting Bulletin (SAB) 118.

Citi completed its accounting for Tax Reform under SAB 118 during the fourth quarter of 2018 and recorded a one-time, non-cash tax benefit of \$94 million in *Corporate/Other*, related to amounts that were considered provisional pursuant to SAB 118.

The table below details the fourth quarter of 2018 changes to Citi's provisional impact from Tax Reform:

Provisional Impact of Tax Reform

<i>In billions of dollars</i>	Provisional amounts included in the 2017 Form 10-K	SAB 118 impact to fourth quarter of 2018 tax provision
Quasi-territorial tax system	\$ 6.2	\$ 0.2
Valuation allowance	7.9	(1.2)
Deemed repatriation	2.3	0.9
Total of provisional items	\$ 16.4	\$ (0.1)

2017 Impact of Tax Reform

The table below discloses the as-reported GAAP results for 2018 and 2017, as well as the 2017 adjusted results excluding the one-time 2017 impact of Tax Reform. The table below does not reflect any adjustment to 2018 results.

<i>In millions of dollars, except per share amounts and as otherwise noted</i>	2018 as reported ⁽¹⁾	2017 as reported	2017 one-time impact of Tax Reform	2017 adjusted results ⁽²⁾	2018 increase (decrease) vs. 2017 ex-Tax Reform	
					\$ Change	% Change
Net income	\$ 18,045	\$ (6,798)	\$ (22,594)	\$ 15,796	\$ 2,249	14 %
Diluted earnings per share:						
Income from continuing operations	6.69	(2.94)	(8.31)	5.37	1.32	25
Net income	6.68	(2.98)	(8.31)	5.33	1.35	25
Effective tax rate	22.8 %	129.1 %	(9,930) bps	29.8 %		(700) bps
Performance and other metrics:						
Return on average assets	0.94 %	(0.36)%	(120) bps	0.84 %		10 bps
Return on average common stockholders' equity	9.4	(3.9)	(1,090)	7.0		240
Return on average total stockholders' equity	9.1	(3.0)	(1,000)	7.0		210
Return on average tangible common equity	11.0	(4.6)	(1,270)	8.1		290
Dividend payout ratio	23.1	(32.2)	(5,020)	18.0		510
Total payout ratio	109.1	(213.9)	(33,140)	117.5		840

(1) 2018 includes the one-time benefit of \$94 million, due to the finalization of the provisional component of the impact based on Citi's analysis as well as additional guidance received from the U.S. Treasury Department related to Tax Reform, which impacted the tax line within *Corporate/Other*.

(2) 2017 excludes the one-time impact of Tax Reform.

Litigation Accruals

See the discussion in Note 27 to the Consolidated Financial Statements for information regarding Citi's policies on establishing accruals for litigation and regulatory contingencies.

DISCLOSURE CONTROLS AND PROCEDURES

Citi's disclosure controls and procedures are designed to ensure that information required to be disclosed under the Securities Exchange Act of 1934, as amended, is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, including without limitation that information required to be disclosed by Citi in its SEC filings is accumulated and communicated to management, including the Chief Executive Officer (CEO) and Chief Financial Officer (CFO), as appropriate, to allow for timely decisions regarding required disclosure.

Citi's Disclosure Committee assists the CEO and CFO in their responsibilities to design, establish, maintain and evaluate the effectiveness of Citi's disclosure controls and procedures. The Disclosure Committee is responsible for, among other things, the oversight, maintenance and implementation of the disclosure controls and procedures, subject to the supervision and oversight of the CEO and CFO.

Citi's management, with the participation of its CEO and CFO, has evaluated the effectiveness of Citigroup's disclosure controls and procedures (as defined in Rule 13a-15(e) under the Securities Exchange Act of 1934) as of December 31, 2020. Based on that evaluation, the CEO and CFO have concluded that at that date Citigroup's disclosure controls and procedures were effective.

MANAGEMENT'S ANNUAL REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

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

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

Citi's management assessed the effectiveness of Citigroup's internal control over financial reporting as of December 31, 2020 based on the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in *Internal Control—Integrated Framework (2013)*. Based on this assessment, management believes that, as of December 31, 2020, Citi's internal control over financial reporting was effective. In addition, there were no changes in Citi's internal control over financial reporting during the fiscal quarter ended December 31, 2020 that materially affected, or are reasonably likely to materially affect, Citi's internal control over financial reporting.

The effectiveness of Citi's internal control over financial reporting as of December 31, 2020 has been audited by KPMG LLP, Citi's independent registered public accounting firm, as stated in their report below, which expressed an unqualified opinion on the effectiveness of Citi's internal control over financial reporting as of December 31, 2020.

FORWARD-LOOKING STATEMENTS

Certain statements in this Form 10-K, including but not limited to statements included within the Management's Discussion and Analysis of Financial Condition and Results of Operations, are "forward-looking statements" within the meaning of the rules and regulations of the SEC. In addition, Citigroup also may make forward-looking statements in its other documents filed or furnished with the SEC, and its management may make forward-looking statements orally to analysts, investors, representatives of the media and others.

Generally, forward-looking statements are not based on historical facts but instead represent Citigroup's and its management's beliefs regarding future events. Such statements may be identified by words such as believe, expect, anticipate, intend, estimate, may increase, may fluctuate, target and illustrative, and similar expressions or future or conditional verbs such as will, should, would and could.

Such statements are based on management's current expectations and are subject to risks, uncertainties and changes in circumstances. Actual results and capital and other financial conditions may differ materially from those included in these statements due to a variety of factors, including without limitation (i) the precautionary statements included within each individual business's discussion and analysis of its results of operations and (ii) the factors listed and described under "Risk Factors" above.

Any forward-looking statements made by or on behalf of Citigroup speak only as to the date they are made, and Citi does not undertake to update forward-looking statements to reflect the impact of circumstances or events that arise after the forward-looking statements were made.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM



To the Stockholders and Board of Directors
Citigroup Inc.:

Opinions on the Consolidated Financial Statements and Internal Control Over Financial Reporting

We have audited the accompanying consolidated balance sheets of Citigroup Inc. and subsidiaries (the Company) as of December 31, 2020 and 2019, the related consolidated statements of income, comprehensive income, changes in stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2020, and the related notes (collectively, the consolidated financial statements). We also have audited the Company's internal control over financial reporting as of December 31, 2020, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2020 and 2019, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2020, in conformity with U.S. generally accepted accounting principles. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2020 based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

Change in Accounting Principle

As discussed in Note 1 to the consolidated financial statements, the Company has changed its method of accounting for the recognition and measurement of credit losses as of January 1, 2020 due to the adoption of ASC Topic 326, Financial Instruments - Credit Losses.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying management's annual report on internal control over financial reporting. Our responsibility is to express an opinion on the Company's consolidated financial statements and an opinion on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Assessment of the fair value of Level 3 assets and liabilities measured on a recurring basis

As described in Notes 1, 24 and 25 to the consolidated financial statements, the Company's assets and liabilities recorded at fair value on a recurring basis were \$918.1 billion and \$308.8 billion, respectively at December 31, 2020. The Company estimated the fair value of Level 3 assets and liabilities measured on a recurring basis (\$16.1 billion and \$36.0 billion, respectively at December 31, 2020) utilizing various valuation techniques with one or more significant inputs or significant value drivers being unobservable including, but not limited to, complex internal valuation models, alternative pricing procedures or comparables analysis and discounted cash flows.

We identified the assessment of the measurement of fair value for Level 3 assets and liabilities recorded at fair value on a recurring basis as a critical audit matter. A high degree of audit effort, including specialized skills and knowledge, and subjective and complex auditor judgment was involved in the assessment of the Level 3 fair values due to measurement uncertainty. Specifically, the assessment encompassed the evaluation of the fair value methodology, including methods, models and significant assumptions and inputs used to estimate fair value. Significant assumptions and inputs include interest rate, price, yield, credit spread, volatilities, correlations and forward prices. The assessment also included an evaluation of the conceptual soundness and performance of the valuation models.

The following are the primary procedures we performed to address this critical audit matter. We involved valuation professionals with specialized skills and knowledge who assisted in evaluating the design and testing the operating effectiveness of certain internal controls related to the Company's Level 3 fair value measurements including controls over:

- valuation methodologies, including significant inputs and assumptions
- independent price verification
- evaluating that significant model assumptions and inputs reflected those which a market participant would use to determine an exit price in the current market environment

- the valuation models used were mathematically accurate and appropriate to value the financial instruments
- relevant information used within the Company's models that was reasonably available was considered in the fair value determination.

We evaluated the Company's methodology for compliance with U.S. generally accepted accounting principles. We involved valuation professionals with specialized skills and knowledge who assisted in developing an independent fair value estimate for a selection of certain Level 3 assets and liabilities recorded at fair value on a recurring basis based on independently developed valuation models and assumptions, as applicable, using market data sources we determined to be relevant and reliable and compared our independent expectation to the Company's fair value measurements.

Assessment of the allowance for credit losses collectively evaluated for impairment

As discussed in Note 1 to the consolidated financial statements, the Company adopted ASU No. 2016-13, Financial Instruments – Credit Losses (ASC 326) as of January 1, 2020. As discussed in Notes 1 and 15 to the consolidated financial statements, the Company's allowance for credit losses related to loans and unfunded lending commitments collectively evaluated for impairment (the collective ACLL) was \$27.6 billion as of December 31, 2020. The expected credit losses for the quantitative component of the collective ACLL is the product of multiplying the probability of default (PD), loss given default (LGD), and exposure at default (EAD) for consumer and corporate loans. For consumer credit cards, the Company uses the payment rate approach over the life of the loan, which leverages payment rate curves, to determine the payments that should be applied to liquidate the end-of-period balance in the estimation of EAD. For unconditionally cancelable accounts, reserves are based on the expected life of the balance as of the evaluation date and do not include any undrawn commitments that are unconditionally cancelable. The Company's models utilize a single forward-looking macroeconomic forecast and macroeconomic assumptions over reasonable and supportable forecast periods. Reasonable and supportable forecast periods vary by product. For consumer loan models, the Company uses a 13-quarter reasonable and supportable period and reverts to historical loss experience thereafter. For corporate loan models, the Company uses a nine-quarter reasonable and supportable period followed by a three-quarter transition to historical loss experience. Additionally, for consumer loans, these models consider leading credit indicators including loan delinquencies, as well as economic factors. For corporate loans, these models consider the credit quality as measured by risk ratings and economic factors. The qualitative component considers idiosyncratic events and the uncertainty of forward-looking economic scenarios.

We identified the assessment of the collective ACLL as a critical audit matter. The assessment involved significant measurement uncertainty requiring complex auditor judgment, and specialized skills and knowledge as well as experience in the industry. This assessment encompassed the evaluation of the various components of the collective ACLL methodology, including the methods and models used to estimate the PD, LGD, and EAD and certain key assumptions and inputs for the Company's quantitative and qualitative components. Key assumptions and inputs for consumer loans included loan delinquencies, certain credit indicators, reasonable and supportable forecast periods, expected life as well as economic factors, including unemployment rates, gross domestic product (GDP), and housing prices which are considered in the model. For corporate loans, key assumptions and inputs included risk ratings, reasonable and supportable forecasts, credit conversion factor for unfunded lending commitments, and economic factors, including GDP and unemployment rates considered in the model. Key assumptions and inputs for the qualitative component included the likelihood and severity of a downside scenario and consideration of uncertainties due to idiosyncratic events as a result of the COVID-19 pandemic. The assessment also included an evaluation of the conceptual soundness and performance of the PD, LGD, and EAD models. In addition, auditor judgment was required to evaluate the sufficiency of audit evidence obtained.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the Company's measurement of the collective ACLL estimate, including controls over the:

- approval of the collective ACLL methodologies
- determination of the key assumptions and inputs used to estimate the quantitative and qualitative components of the collective ACLL
- performance monitoring of the PD, LGD, and EAD models.

We evaluated the Company's process to develop the collective ACLL estimate by testing certain sources of data, factors and assumptions that the Company used and considered the relevance and reliability of such data, factors, and assumptions. In addition, we involved credit risk professionals with specialized skills and knowledge, who assisted in:

- reviewing the Company's collective ACLL methodologies and key assumptions for compliance with U.S. generally accepted accounting principles
- evaluating judgments made by the Company relative to the development and performance monitoring testing of the PD, LGD, and EAD models by comparing them to relevant Company-specific metrics
- assessing the conceptual soundness and performance testing of the PD, LGD, and EAD models by

- inspecting the model documentation to determine whether the models are suitable for their intended use
- assessing the economic forecast scenarios through comparison to publicly available forecasts
- evaluating the methodology used to develop certain economic forecast scenarios by comparing it to relevant industry practices
- testing corporate loan risk ratings for a selection of borrowers by evaluating the financial performance of the borrower, sources of repayment, and any relevant guarantees or underlying collateral
- evaluating the methodology used in determining the qualitative components and the effect of that component on the collective ACLL compared with relevant credit risk factors and consistency with credit trends.

We also assessed the sufficiency of the audit evidence obtained related to the collective ACLL by evaluating the:

- cumulative results of the audit procedures
- qualitative aspects of the Company's accounting practices
- potential bias in the accounting estimates.

Assessment of the realizability of deferred tax assets, specifically as it relates to general basket foreign tax credits

As discussed in Note 9 to the consolidated financial statements, the Company's net deferred tax assets (DTA) were \$31.0 billion as of December 31, 2020. This balance is net of a valuation allowance of \$5.2 billion recorded by the Company. The estimation of the DTA for general basket foreign tax credits (FTCs) and related valuation allowance was \$5.3 billion and \$1.0 billion respectively. The Company evaluated the realization of the DTA for general basket FTCs to determine whether there was more than a 50% likelihood that the DTA for general basket FTCs would be realized, based primarily on the Company's expectations of future taxable income in each relevant jurisdiction, available tax planning strategies and timing of tax credit expirations. In particular, the COVID-19 pandemic has negatively affected the economy and business activities in countries where the Company operates, which has impacted the Company's future forecasts of taxable income as of December 31, 2020.

We identified the assessment of the realizability of the DTA for general basket FTCs as a critical audit matter. Due to the significant measurement uncertainty associated with the realizability of the DTA for general basket FTCs, there was a high degree of subjectivity and judgment in evaluating global tax regulations and future taxable income. This assessment encompassed the evaluation of the Company's estimations that are subjective and complex due to its global structure, given the Company's assumptions used to determine that sufficient taxable income will be generated or tax planning strategies implemented to support the realization

of the DTA for general basket FTCs before expiration of foreign tax credits.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain controls related to the Company's DTA realizability process, including controls over the:

- realizability of the Company's deferred tax assets for general basket FTCs
- appropriateness of future taxable income and tax planning strategies.

We tested the Company's process to develop the valuation allowance estimate. This included performing an assessment of the policy and methodology used by management in the valuation allowance determination. We involved income tax professionals with specialized skills and knowledge, who assisted in assessing:

- certain assumptions used to determine the Company's future taxable income, including the interpretation of the various tax laws and regulations and the source and character of future taxable income
- the timing of tax credit expirations
- the prudence and feasibility of certain tax planning strategies.

We performed sensitivity analyses over the Company's expectations of future taxable income and timing of tax credit expirations.

Evaluation of goodwill in the North American and Asia Global Consumer Banking reporting units

As discussed in Notes 1 and 16 to the consolidated financial statements, the goodwill balance as of December 31, 2020 was \$22.2 billion, of which \$12.1 billion related to reporting units within the Global Consumer Banking segment and \$10.1 billion related to reporting units within the Institutional Clients Group segment. The Company performs goodwill impairment testing on an annual basis and whenever events or changes in circumstances indicate that the carrying value of a reporting unit likely exceeds its fair value. This involves estimating the fair value of the reporting units using both discounted cash flow analyses and a market multiples approach. The COVID-19 pandemic has negatively affected the economy and business activities in countries where the Company operates, which impacted the Company's future forecasts used in the discounted cash flow analyses.

We identified the evaluation of the goodwill impairment analysis for the North America Global Consumer Banking and Asia Global Consumer Banking reporting units, two of the three reporting units within the Global Consumer Banking segment, as a critical audit matter. The estimated fair value of the North America and Asia Global Consumer Banking reporting units marginally exceeded their carrying values, indicating a higher risk due to measurement uncertainty that the goodwill may be impaired and, therefore, involved a high degree of subjective auditor judgment. Specifically, the assessment encompassed the evaluation of the key assumptions used in estimating the fair value of the North America and Asia Global Consumer Banking reporting units, which include the long-term growth rate, discount rate, exit multiple assumptions, certain forecasted macroeconomic assumptions used to inform the forecasted income by reporting unit, and certain assumptions used to forecast income by reporting unit including the forecast period, net interest revenue, and loan volume used in the discounted cash flow analyses.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the Company's determination of the estimated fair value of the North America Global Consumer Banking and Asia Global Consumer Banking reporting units, including controls related to management's process for assessing the appropriateness of:

- certain assumptions including the long-term growth rate, discount rate and exit multiple used in the discounted cash flow analyses
- certain forecasted macroeconomic assumptions used to inform the forecasted income by reporting unit
- certain assumptions used to forecast income by reporting unit including the forecast period, net interest revenue and loan volume.

We compared the Company's historical revenue forecasts to actual results to assess the Company's ability to accurately forecast. We evaluated the reasonableness of the Company's forecasts by comparing to analyst reports. In addition, we involved a valuation professional with specialized skills and knowledge, who assisted in:

- developing an independent range of long-term growth rate assumptions by reviewing publicly available data for the United States and Asian markets and comparable industries and comparing it to the Company's assumption
- evaluating the discount rate by assessing the methodology used by management and developing an independent assumption for the discount rate
- developing an independent range of the exit assumptions using publicly available data for comparable entities and comparing it to the Company's assumption
- developing an estimate of the fair value of North America and Asia Global Consumer Banking reporting units using the income approach and comparing the results to the Company's fair value estimate
- developing an independent range of control premium assumptions by comparing data from the 2008-2009 financial crisis to the Company's assumption
- assessing the market capitalization reconciliation and the reasonableness of the implied control premium.

/s/ KPMG LLP

We have served as the Company's auditor since 1969.

New York, New York

February 26, 2021

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CONSOLIDATED FINANCIAL STATEMENTS
CONSOLIDATED STATEMENT OF INCOME

Citigroup Inc. and Subsidiaries

<i>In millions of dollars, except per share amounts</i>	Years ended December 31,		
	2020	2019	2018
Revenues			
Interest revenue	\$ 58,089	\$ 76,510	\$ 70,828
Interest expense	14,541	29,163	24,266
Net interest revenue	\$ 43,548	\$ 47,347	\$ 46,562
Commissions and fees	\$ 11,385	\$ 11,746	\$ 11,857
Principal transactions	13,885	8,892	8,905
Administration and other fiduciary fees	3,472	3,411	3,580
Realized gains on sales of investments, net	1,756	1,474	421
Impairment losses on investments:			
Impairment losses on investments and other assets	(165)	(32)	(132)
Provision for credit losses on AFS debt securities ⁽¹⁾	(3)	—	—
Net impairment losses recognized in earnings	\$ (168)	\$ (32)	\$ (132)
Other revenue	\$ 420	\$ 1,448	\$ 1,661
Total non-interest revenues	\$ 30,750	\$ 26,939	\$ 26,292
Total revenues, net of interest expense	\$ 74,298	\$ 74,286	\$ 72,854
Provisions for credit losses and for benefits and claims			
Provision for credit losses on loans	\$ 15,922	\$ 8,218	\$ 7,354
Provision for credit losses on held-to-maturity (HTM) debt securities	7	—	—
Provision for credit losses on other assets	7	—	—
Policyholder benefits and claims	113	73	101
Provision for credit losses on unfunded lending commitments	1,446	92	113
Total provisions for credit losses and for benefits and claims	\$ 17,495	\$ 8,383	\$ 7,568
Operating expenses			
Compensation and benefits	\$ 22,214	\$ 21,433	\$ 21,154
Premises and equipment	2,333	2,328	2,324
Technology/communication	7,383	7,077	7,193
Advertising and marketing	1,217	1,516	1,545
Other operating	10,024	9,648	9,625
Total operating expenses	\$ 43,171	\$ 42,002	\$ 41,841
Income from continuing operations before income taxes	\$ 13,632	\$ 23,901	\$ 23,445
Provision for income taxes	2,525	4,430	5,357
Income from continuing operations	\$ 11,107	\$ 19,471	\$ 18,088
Discontinued operations			
Loss from discontinued operations	\$ (20)	\$ (31)	\$ (26)
Provision (benefit) for income taxes	—	(27)	(18)
Loss from discontinued operations, net of taxes	\$ (20)	\$ (4)	\$ (8)
Net income before attribution of noncontrolling interests	\$ 11,087	\$ 19,467	\$ 18,080
Noncontrolling interests	40	66	35
Citigroup's net income	\$ 11,047	\$ 19,401	\$ 18,045
Basic earnings per share⁽²⁾			
Income from continuing operations	\$ 4.75	\$ 8.08	\$ 6.69
Loss from discontinued operations, net of taxes	(0.01)	—	—
Net income	\$ 4.74	\$ 8.08	\$ 6.69
Weighted average common shares outstanding (in millions)	2,085.8	2,249.2	2,493.3

CONSOLIDATED STATEMENT OF INCOME
(Continued)

Citigroup Inc. and Subsidiaries

<i>In millions of dollars, except per share amounts</i>	Years ended December 31,		
	2020	2019	2018
Diluted earnings per share⁽²⁾			
Income from continuing operations	\$ 4.73	\$ 8.04	\$ 6.69
Income (loss) from discontinued operations, net of taxes	(0.01)	—	—
Net income	\$ 4.72	\$ 8.04	\$ 6.68
Adjusted weighted average common shares outstanding <i>(in millions)</i>	2,099.0	2,265.3	2,494.8

(1) In accordance with ASC 326.

(2) Due to rounding, earnings per share on continuing operations and discontinued operations may not sum to earnings per share on net income.

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

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

Citigroup Inc. and Subsidiaries

<i>In millions of dollars</i>	Years ended December 31,		
	2020	2019	2018
Citigroup's net income	\$ 11,047	\$ 19,401	\$ 18,045
Add: Citigroup's other comprehensive income (loss)			
Net change in unrealized gains and losses on debt securities, net of taxes ⁽¹⁾	\$ 3,585	\$ 1,985	\$ (1,089)
Net change in debt valuation adjustment (DVA), net of taxes ⁽¹⁾	(475)	(1,136)	1,113
Net change in cash flow hedges, net of taxes	1,470	851	(30)
Benefit plans liability adjustment, net of taxes ⁽²⁾	(55)	(552)	(74)
Net change in foreign currency translation adjustment, net of taxes and hedges	(250)	(321)	(2,362)
Net change in excluded component of fair value hedges, net of taxes	(15)	25	(57)
Citigroup's total other comprehensive income (loss)	\$ 4,260	\$ 852	\$ (2,499)
Citigroup's total comprehensive income	\$ 15,307	\$ 20,253	\$ 15,546
Add: Other comprehensive income (loss) attributable to noncontrolling interests	\$ 26	\$ —	\$ (43)
Add: Net income attributable to noncontrolling interests	40	66	35
Total comprehensive income	\$ 15,373	\$ 20,319	\$ 15,538

(1) See Note 1 to the Consolidated Financial Statements.

(2) See Note 8 to the Consolidated Financial Statements.

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

CONSOLIDATED BALANCE SHEET
Citigroup Inc. and Subsidiaries

<i>In millions of dollars</i>	December 31,	
	2020	2019
Assets		
Cash and due from banks (including segregated cash and other deposits)	\$ 26,349	\$ 23,967
Deposits with banks, net of allowance	283,266	169,952
Securities borrowed and purchased under agreements to resell (including \$185,204 and \$153,193 as of December 31, 2020 and 2019, respectively, at fair value), net of allowance	294,712	251,322
Brokerage receivables, net of allowance	44,806	39,857
Trading account assets (including \$168,967 and \$120,236 pledged to creditors at December 31, 2020 and 2019, respectively)	375,079	276,140
Investments:		
Available-for-sale debt securities (including \$5,921 and \$8,721 pledged to creditors as of December 31, 2020 and 2019, respectively), net of allowance	335,084	280,265
Held-to-maturity debt securities (including \$547 and \$1,923 pledged to creditors as of December 31, 2020 and 2019, respectively), net of allowance	104,943	80,775
Equity securities (including \$1,066 and \$1,162 as of December 31, 2020 and 2019, respectively, at fair value)	7,332	7,523
Total investments	\$ 447,359	\$ 368,563
Loans:		
Consumer (including \$14 and \$18 as of December 31, 2020 and 2019, respectively, at fair value)	288,839	309,548
Corporate (including \$6,840 and \$4,067 as of December 31, 2020 and 2019, respectively, at fair value)	387,044	389,935
Loans, net of unearned income	\$ 675,883	\$ 699,483
Allowance for credit losses on loans (ACLL)	(24,956)	(12,783)
Total loans, net	\$ 650,927	\$ 686,700
Goodwill	22,162	22,126
Intangible assets (including MSRs of \$336 and \$495 as of December 31, 2020 and 2019, respectively, at fair value)	4,747	4,822
Other assets (including \$14,613 and \$12,830 as of December 31, 2020 and 2019, respectively, at fair value), net of allowance	110,683	107,709
Total assets	\$ 2,260,090	\$ 1,951,158

The following table presents certain assets of consolidated variable interest entities (VIEs), which are included on the Consolidated Balance Sheet above. The assets in the table below include those assets that can only be used to settle obligations of consolidated VIEs, presented on the following page, and are in excess of those obligations. In addition, the assets in the table below include third-party assets of consolidated VIEs only and exclude intercompany balances that eliminate in consolidation.

<i>In millions of dollars</i>	December 31,	
	2020	2019
Assets of consolidated VIEs to be used to settle obligations of consolidated VIEs		
Cash and due from banks	\$ 281	\$ 108
Trading account assets	8,104	6,719
Investments	837	1,295
Loans, net of unearned income		
Consumer	37,561	46,977
Corporate	17,027	16,175
Loans, net of unearned income	\$ 54,588	\$ 63,152
Allowance for credit losses on loans (ACLL)	(3,794)	(1,841)
Total loans, net	\$ 50,794	\$ 61,311
Other assets	43	73
Total assets of consolidated VIEs to be used to settle obligations of consolidated VIEs	\$ 60,059	\$ 69,506

Statement continues on the next page.

CONSOLIDATED BALANCE SHEET
(Continued)

Citigroup Inc. and Subsidiaries

<i>In millions of dollars, except shares and per share amounts</i>	December 31,	
	2020	2019
Liabilities		
Non-interest-bearing deposits in U.S. offices	\$ 126,942	\$ 98,811
Interest-bearing deposits in U.S. offices (including \$879 and \$1,624 as of December 31, 2020 and 2019, respectively, at fair value)	503,213	401,418
Non-interest-bearing deposits in offices outside the U.S.	100,543	85,692
Interest-bearing deposits in offices outside the U.S. (including \$1,079 and \$695 as of December 31, 2020 and 2019, respectively, at fair value)	549,973	484,669
Total deposits	\$ 1,280,671	\$ 1,070,590
Securities loaned and sold under agreements to repurchase (including \$60,206 and \$40,651 as of December 31, 2020 and 2019, respectively, at fair value)	199,525	166,339
Brokerage payables	50,484	48,601
Trading account liabilities	168,027	119,894
Short-term borrowings (including \$4,683 and \$4,946 as of December 31, 2020 and 2019, respectively, at fair value)	29,514	45,049
Long-term debt (including \$67,063 and \$55,783 as of December 31, 2020 and 2019, respectively, at fair value)	271,686	248,760
Other liabilities (including \$6,835 and \$6,343 as of December 31, 2020 and 2019, respectively, at fair value), including allowance	59,983	57,979
Total liabilities	\$ 2,059,890	\$ 1,757,212
Stockholders' equity		
Preferred stock (\$1.00 par value; authorized shares: 30 million), issued shares: 779,200 as of December 31, 2020 and 719,200 as of December 31, 2019, at aggregate liquidation value	\$ 19,480	\$ 17,980
Common stock (\$0.01 par value; authorized shares: 6 billion), issued shares: 3,099,763,661 as of December 31, 2020 and 3,099,602,856 as of December 31, 2019	31	31
Additional paid-in capital	107,846	107,840
Retained earnings	168,272	165,369
Treasury stock, at cost: 1,017,674,452 shares as of December 31, 2020 and 985,479,501 shares as of December 31, 2019	(64,129)	(61,660)
Accumulated other comprehensive income (loss) (AOCI)	(32,058)	(36,318)
Total Citigroup stockholders' equity	\$ 199,442	\$ 193,242
Noncontrolling interests	758	704
Total equity	\$ 200,200	\$ 193,946
Total liabilities and equity	\$ 2,260,090	\$ 1,951,158

The following table presents certain liabilities of consolidated VIEs, which are included on the Consolidated Balance Sheet above. The liabilities in the table below include third-party liabilities of consolidated VIEs only and exclude intercompany balances that eliminate in consolidation. The liabilities also exclude amounts where creditors or beneficial interest holders have recourse to the general credit of Citigroup.

<i>In millions of dollars</i>	December 31,	
	2020	2019
Liabilities of consolidated VIEs for which creditors or beneficial interest holders do not have recourse to the general credit of Citigroup		
Short-term borrowings	\$ 9,278	\$ 10,031
Long-term debt	20,405	25,582
Other liabilities	463	917
Total liabilities of consolidated VIEs for which creditors or beneficial interest holders do not have recourse to the general credit of Citigroup	\$ 30,146	\$ 36,530

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

CONSOLIDATED STATEMENT OF CHANGES IN STOCKHOLDERS' EQUITY

Citigroup Inc. and Subsidiaries

	Years ended December 31,					
	Amounts			Shares		
	2020	2019	2018	2020	2019	2018
<i>In millions of dollars, except shares in thousands</i>						
Preferred stock at aggregate liquidation value						
Balance, beginning of year	\$ 17,980	\$ 18,460	\$ 19,253	719	738	770
Issuance of new preferred stock	3,000	1,500	—	120	60	—
Redemption of preferred stock	(1,500)	(1,980)	(793)	(60)	(79)	(32)
Balance, end of year	\$ 19,480	\$ 17,980	\$ 18,460	779	719	738
Common stock and additional paid-in capital						
Balance, beginning of year	\$ 107,871	\$ 107,953	\$ 108,039	3,099,603	3,099,567	3,099,523
Employee benefit plans	5	(112)	(94)	161	36	44
Preferred stock issuance costs	(4)	(4)	—	—	—	—
Other	5	34	8	—	—	—
Balance, end of year	\$ 107,877	\$ 107,871	\$ 107,953	3,099,764	3,099,603	3,099,567
Retained earnings						
Balance, beginning of year	\$ 165,369	\$ 151,347	\$ 138,425			
Adjustments to opening balance, net of taxes ⁽¹⁾						
Financial instruments—credit losses (CECL adoption)	(3,076)	—	—			
Variable post-charge-off third-party collection costs	330	—	—			
Lease accounting, intra-entity transfers of assets	—	151	(84)			
Adjusted balance, beginning of year	\$ 162,623	\$ 151,498	\$ 138,341			
Citigroup's net income	11,047	19,401	18,045			
Common dividends ⁽²⁾	(4,299)	(4,403)	(3,865)			
Preferred dividends	(1,095)	(1,109)	(1,174)			
Other	(4)	(18)	—			
Balance, end of year	\$ 168,272	\$ 165,369	\$ 151,347			
Treasury stock, at cost						
Balance, beginning of year	\$ (61,660)	\$ (44,370)	\$ (30,309)	(985,480)	(731,100)	(529,615)
Employee benefit plans ⁽³⁾	456	585	484	8,546	9,872	10,557
Treasury stock acquired ⁽⁴⁾	(2,925)	(17,875)	(14,545)	(40,740)	(264,252)	(212,042)
Balance, end of year	\$ (64,129)	\$ (61,660)	\$ (44,370)	(1,017,674)	(985,480)	(731,100)
Citigroup's accumulated other comprehensive income (loss)						
Balance, beginning of year	\$ (36,318)	\$ (37,170)	\$ (34,668)			
Adjustment to opening balance, net of taxes ⁽¹⁾	—	—	(3)			
Adjusted balance, beginning of year	\$ (36,318)	\$ (37,170)	\$ (34,671)			
Citigroup's total other comprehensive income (loss) ⁽³⁾	4,260	852	(2,499)			
Balance, end of year	\$ (32,058)	\$ (36,318)	\$ (37,170)			
Total Citigroup common stockholders' equity	\$ 179,962	\$ 175,262	\$ 177,760	2,082,090	2,114,123	2,368,467
Total Citigroup stockholders' equity	\$ 199,442	\$ 193,242	\$ 196,220			
Noncontrolling interests						
Balance, beginning of year	\$ 704	\$ 854	\$ 932			
Transactions between noncontrolling-interest shareholders and the related consolidated subsidiary	—	—	—			
Transactions between Citigroup and the noncontrolling-interest shareholders	(4)	(169)	(50)			
Net income attributable to noncontrolling-interest shareholders	40	66	35			
Distributions paid to noncontrolling-interest shareholders	(2)	(40)	(38)			
Other comprehensive income (loss) attributable to noncontrolling-interest shareholders	26	—	(43)			
Other	(6)	(7)	18			
Net change in noncontrolling interests	\$ 54	\$ (150)	\$ (78)			
Balance, end of year	\$ 758	\$ 704	\$ 854			
Total equity	\$ 200,200	\$ 193,946	\$ 197,074			

- (1) See Note 1 to the Consolidated Financial Statements for additional details.
- (2) Common dividends declared were \$0.51 per share in the first, second, third and fourth quarters of 2020; \$0.45 per share in the first and second quarters of 2019 and \$0.51 per share in the third and fourth quarters of 2019; and \$0.32 in the first and second quarters of 2018 and \$0.45 per share in the third and fourth quarters of 2018.
- (3) Includes treasury stock related to (i) certain activity on employee stock option program exercises where the employee delivers existing shares to cover the option exercise, or (ii) under Citi's employee restricted or deferred stock programs where shares are withheld to satisfy tax requirements.
- (4) Primarily consists of open market purchases under Citi's Board of Directors-approved common stock repurchase programs.

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

CONSOLIDATED STATEMENT OF CASH FLOWS
Citigroup Inc. and Subsidiaries

<i>In millions of dollars</i>	Years ended December 31,		
	2020	2019	2018
Cash flows from operating activities of continuing operations			
Net income before attribution of noncontrolling interests	\$ 11,087	\$ 19,467	\$ 18,080
Net income attributable to noncontrolling interests	40	66	35
Citigroup's net income	\$ 11,047	\$ 19,401	\$ 18,045
Loss from discontinued operations, net of taxes	(20)	(4)	(8)
Income from continuing operations—excluding noncontrolling interests	\$ 11,067	\$ 19,405	\$ 18,053
Adjustments to reconcile net income to net cash provided by (used in) operating activities of continuing operations			
Net gains on significant disposals ⁽¹⁾	—	—	(247)
Depreciation and amortization	3,937	3,905	3,754
Deferred income taxes	(2,333)	(610)	(51)
Provision for credit losses on loans and unfunded lending commitments	17,368	8,310	7,467
Realized gains from sales of investments	(1,756)	(1,474)	(421)
Impairment losses on investments and other assets	165	32	132
Change in trading account assets	(98,997)	(20,124)	(3,469)
Change in trading account liabilities	48,133	(24,411)	19,135
Change in brokerage receivables net of brokerage payables	(3,066)	(20,377)	6,163
Change in loans HFS	1,202	(909)	770
Change in other assets	(1,012)	4,724	(5,791)
Change in other liabilities	558	1,737	(984)
Other, net	4,113	16,955	(7,559)
Total adjustments	\$ (31,688)	\$ (32,242)	\$ 18,899
Net cash provided by (used in) operating activities of continuing operations	\$ (20,621)	\$ (12,837)	\$ 36,952
Cash flows from investing activities of continuing operations			
Change in securities borrowed and purchased under agreements to resell	\$ (43,390)	\$ 19,362	\$ (38,206)
Change in loans	14,249	(22,466)	(29,002)
Proceeds from sales and securitizations of loans	1,495	2,878	4,549
Purchases of investments	(334,900)	(274,491)	(152,487)
Proceeds from sales of investments	146,285	137,173	61,491
Proceeds from maturities of investments	124,229	119,051	83,604
Proceeds from significant disposals ⁽¹⁾	—	—	314
Capital expenditures on premises and equipment and capitalized software	(3,446)	(5,336)	(3,774)
Proceeds from sales of premises and equipment, subsidiaries and affiliates and repossessed assets	50	259	212
Other, net	116	196	181
Net cash used in investing activities of continuing operations	\$ (95,312)	\$ (23,374)	\$ (73,118)
Cash flows from financing activities of continuing operations			
Dividends paid	\$ (5,352)	\$ (5,447)	\$ (5,020)
Issuance of preferred stock	2,995	1,496	—
Redemption of preferred stock	(1,500)	(1,980)	(793)
Treasury stock acquired	(2,925)	(17,571)	(14,433)
Stock tendered for payment of withholding taxes	(411)	(364)	(482)
Change in securities loaned and sold under agreements to repurchase	33,186	(11,429)	21,491
Issuance of long-term debt	76,458	59,134	60,655
Payments and redemptions of long-term debt	(63,402)	(51,029)	(58,132)
Change in deposits	210,081	57,420	53,348
Change in short-term borrowings	(15,535)	12,703	(12,106)

**CONSOLIDATED STATEMENT OF CASH FLOWS
(Continued)**

Citigroup Inc. and Subsidiaries

<i>In millions of dollars</i>	Years ended December 31,		
	2020	2019	2018
Net cash provided by financing activities of continuing operations	\$ 233,595	\$ 42,933	\$ 44,528
Effect of exchange rate changes on cash and due from banks	\$ (1,966)	\$ (908)	\$ (773)
Change in cash, due from banks and deposits with banks	\$ 115,696	\$ 5,814	\$ 7,589
Cash, due from banks and deposits with banks at beginning of year	193,919	188,105	180,516
Cash, due from banks and deposits with banks at end of year	\$ 309,615	\$ 193,919	\$ 188,105
Cash and due from banks (including segregated cash and other deposits)	\$ 26,349	\$ 23,967	\$ 23,645
Deposits with banks, net of allowance	283,266	169,952	164,460
Cash, due from banks and deposits with banks at end of year	\$ 309,615	\$ 193,919	\$ 188,105
Supplemental disclosure of cash flow information for continuing operations			
Cash paid during the year for income taxes	\$ 4,797	\$ 4,888	\$ 4,313
Cash paid during the year for interest	13,298	28,682	22,963
Non-cash investing activities⁽²⁾			
Transfers to loans HFS (<i>Other assets</i>) from loans	\$ 2,614	\$ 5,500	\$ 4,200

(1) See Note 2 to the Consolidated Financial Statements for further information on significant disposals.

(2) Operating and finance lease right-of-use assets and lease liabilities represent non-cash investing and financing activities, respectively, and are not included in the non-cash investing activities presented here. See Note 26 to the Consolidated Financial Statements for more information and balances as of December 31, 2020 and 2019.

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

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Throughout these Notes, “Citigroup,” “Citi” and the “Company” refer to Citigroup Inc. and its consolidated subsidiaries.

Certain reclassifications, have been made to the prior periods’ financial statements and disclosures to conform to the current period’s presentation.

For information on Citi’s recent revisions and reclassifications related to the accounting principle change for variable post-charge-off third-party collection costs, see below and Notes 15 and 30 to the Consolidated Financial Statements.

Principles of Consolidation

The Consolidated Financial Statements include the accounts of Citigroup 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 where 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 21 to the Consolidated Financial Statements, Citigroup also consolidates entities deemed to be variable interest entities when Citigroup is determined to be the primary beneficiary. Gains and losses on the disposition of branches, subsidiaries, affiliates, buildings and other investments are included in *Other revenue*.

Citibank

Citibank, N.A. (Citibank) is a commercial bank and wholly owned subsidiary of Citigroup. Citibank’s principal offerings include consumer finance, mortgage lending and retail banking (including commercial banking) products and services; investment banking, cash management and trade finance; and private banking products and services.

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, Citi 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 21 to the Consolidated Financial Statements for more detailed information.

Foreign Currency Translation

Assets and liabilities of Citi’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)*, a component of stockholders’ equity, net of any related hedge and tax effects, until realized upon sale or substantial liquidation of the foreign operation, at which point such amounts related to the foreign entity are reclassified into earnings. Revenues and expenses of Citi’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*, along with the related effects of any economic hedges. Instruments used to hedge foreign currency exposures include foreign currency forward, option and swap contracts and, in certain instances, designated issues of non-U.S. dollar debt. 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*.

Investment Securities

Investments include debt and equity securities. Debt securities include bonds, notes and redeemable preferred stocks, as well as certain loan-backed and structured securities that are subject to prepayment risk. Equity securities include common and nonredeemable preferred stock.

Debt Securities

- Debt securities classified as “held-to-maturity” are securities that the Company has both the ability and the intent to hold until maturity and are carried at amortized cost. Interest income on such securities is included in *Interest revenue*.
- Debt securities classified as “available-for-sale” are carried at fair value with changes in fair value reported in *Accumulated other comprehensive income (loss)*, a

component of stockholders' equity, net of applicable income taxes and hedges. Interest income on such securities is included in *Interest revenue*.

Equity Securities

- Marketable equity securities are measured at fair value with changes in fair value recognized in earnings.
- Non-marketable equity securities are measured at fair value with changes in fair value recognized in earnings unless (i) the measurement alternative is elected or (ii) the investment represents Federal Reserve Bank and Federal Home Loan Bank stock or certain exchange seats that continue to be carried at cost. Non-marketable equity securities under the measurement alternative are carried at cost plus or minus changes resulting from observed prices for orderly transactions for the identical or a similar investment of the same issuer.
- Certain investments that would otherwise have been accounted for using the equity method are carried at fair value with changes in fair value recognized in earnings, since the Company elected to apply fair value accounting.

For investments in debt securities classified as HTM or AFS, the accrual of interest income is suspended for investments that are in default or for which it is likely that future interest payments will not be made as scheduled.

Debt securities not measured at fair value through earnings include securities held in HTM or AFS, and equity securities accounted for under the Measurement Alternative or equity method. These securities are subject to evaluation for impairment as described in Note 15 to the Consolidated Financial Statements for HTM securities and in Note 13 for AFS, Measurement Alternative and equity method investments. Realized gains and losses on sales of investments are included in earnings, primarily on a specific identification basis.

The Company uses a number of valuation techniques for investments carried at fair value, which are described in Note 24 to the Consolidated Financial Statements.

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. In addition, as described in Note 25 to the Consolidated Financial Statements, certain assets that Citigroup has elected to carry at fair value under the fair value option, such as loans and purchased guarantees, are also included in *Trading account assets*.

Trading account liabilities include securities sold, not yet purchased (short positions) and derivatives in a net payable position, as well as certain liabilities that Citigroup has elected to carry at fair value (as described in Note 25 to the Consolidated Financial Statements).

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 revenue* reduced by interest expense on trading liabilities.

Physical commodities inventory is carried at the lower of cost or market with related losses reported in *Principal transactions*. Realized gains and losses on sales of commodities inventory are included in *Principal transactions*. Investments in unallocated precious metals accounts (gold, silver, platinum and palladium) are accounted for as hybrid instruments containing a debt host contract and an embedded non-financial derivative instrument indexed to the price of the relevant precious metal. The embedded derivative instrument is separated from the debt host contract and accounted for at fair value. The debt host contract is carried at fair value under the fair value option, as described in Note 25 to the Consolidated Financial Statements.

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 Balance Sheet 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 22 to the Consolidated Financial Statements.

The Company uses a number of techniques to determine the fair value of trading assets and liabilities, which are described in Note 24 to the Consolidated Financial Statements.

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 25 to the Consolidated Financial Statements, the Company has elected to apply fair value accounting to a number of securities borrowing and lending transactions. Fees paid or received for all securities lending and borrowing transactions are recorded in *Interest expense* or *Interest revenue* at the contractually specified rate.

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 24 to the Consolidated Financial Statements, the Company uses a discounted cash flow technique to determine the fair value of securities lending and borrowing transactions.

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 25 to the Consolidated Financial Statements, the Company has elected to apply fair value accounting to certain of such transactions, with changes in fair value reported in earnings. Any transactions for which fair value accounting has not been

elected 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 revenue* 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 Balance Sheet.

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 24 to the Consolidated Financial Statements, the Company uses a discounted cash flow technique to determine the fair value of repo and reverse repo transactions.

Loans

Loans are reported at their outstanding principal balances net of any unearned income and unamortized deferred fees and costs, except for credit card receivable balances, which include accrued interest and fees. Loan origination fees and certain direct origination costs are generally deferred and recognized as adjustments to income over the lives of the related loans.

As described in Note 25 to the Consolidated Financial Statements, Citi has elected fair value accounting for certain loans. Such loans are carried at fair value with changes in fair value reported in earnings. Interest income on such loans is recorded in *Interest revenue* at the contractually specified rate.

Loans that are held-for-investment are classified as *Loans, net of unearned income* on the Consolidated Balance Sheet, and the related cash flows are included within the cash flows from investing activities category in the Consolidated Statement of Cash Flows on the line *Change in loans*. However, when the initial intent for holding a loan has changed from held-for-investment to held-for-sale (HFS), the loan is reclassified to HFS, but the related cash flows continue to be reported in cash flows from investing activities in the Consolidated Statement of Cash Flows on the line *Proceeds from sales and securitizations of loans*.

Consumer Loans

Consumer loans represent loans and leases managed primarily by the *Global Consumer Banking (GCB)* businesses and *Corporate/Other*.

Consumer Non-accrual and Re-aging Policies

As a general rule, interest accrual ceases for installment and real estate (both open- and closed-end) loans when payments are 90 days contractually past due. For credit cards and other unsecured revolving loans, however, Citi generally accrues interest until payments are 180 days past due. As a result of OCC guidance, home equity loans in regulated bank entities are classified as non-accrual if the related residential first mortgage is 90 days or more past due. Also as a result of OCC guidance, mortgage loans in regulated bank entities are

classified as non-accrual within 60 days of notification that the borrower has filed for bankruptcy, other than Federal Housing Administration (FHA)-insured loans.

Loans that have been modified to grant a concession to a borrower in financial difficulty may not be accruing interest at the time of the modification. The policy for returning such modified loans to accrual status varies by product and/or region. In most cases, a minimum number of payments (ranging from one to six) is required, while in other cases the loan is never returned to accrual status. For regulated bank entities, such modified loans are returned to accrual status if a credit evaluation at the time of, or subsequent to, the modification indicates the borrower is able to meet the restructured terms, and the borrower is current and has demonstrated a reasonable period of sustained payment performance (minimum six months of consecutive payments).

For U.S. consumer loans, generally one of the conditions to qualify for modification (other than for loan modifications made through the CARES Act relief provisions or banking agency guidance for pandemic-related issues) is that a minimum number of payments (typically ranging from one to three) must be made. Upon modification, the loan is re-aged to current status. However, re-aging practices for certain open-ended consumer loans, such as credit cards, are governed by Federal Financial Institutions Examination Council (FFIEC) guidelines. For open-ended consumer loans subject to FFIEC guidelines, one of the conditions for the loan to be re-aged to current status is that at least three consecutive minimum monthly payments, or the equivalent amount, must be received. In addition, under FFIEC guidelines, the number of times that such a loan can be re-aged is subject to limitations (generally once in 12 months and twice in five years). Furthermore, FHA and Department of Veterans Affairs (VA) loans may only be modified under those respective agencies' guidelines, and payments are not always required in order to re-age a modified loan to current.

Consumer Charge-Off Policies

Citi's charge-off policies follow the general guidelines below:

- Unsecured installment loans are charged off at 120 days contractually past due.
- Unsecured revolving loans and credit card loans are charged off at 180 days contractually past due.
- Loans secured with non-real estate collateral are written down to the estimated value of the collateral, less costs to sell, at 120 days contractually past due.
- Real estate-secured loans are written down to the estimated value of the property, less costs to sell, at 180 days contractually past due.
- Real estate-secured loans are charged off no later than 180 days contractually past due if a decision has been made not to foreclose on the loans.
- Unsecured loans in bankruptcy are charged off within 60 days of notification of filing by the bankruptcy court or in accordance with Citi's charge-off policy, whichever occurs earlier.
- Real estate-secured loans in bankruptcy, other than FHA-insured loans, are written down to the estimated value of the property, less costs to sell, within 60 days of

notification that the borrower has filed for bankruptcy or in accordance with Citi's charge-off policy, whichever is earlier.

Corporate Loans

Corporate loans represent loans and leases managed by *Institutional Clients Group (ICG)*. Corporate loans are identified as impaired and placed on a cash (non-accrual) basis when it is determined, based on actual experience and a forward-looking assessment of the collectability of the loan in full, that the payment of interest or principal is doubtful or when interest or principal is 90 days past due, except when the loan is well collateralized and in the process of collection. Any interest accrued on impaired corporate loans and leases is reversed at 90 days past due and charged against current earnings, and interest is thereafter included in earnings only to the extent actually received in cash. When there is doubt regarding the ultimate collectability of principal, all cash receipts are thereafter applied to reduce the recorded investment in the loan.

Impaired corporate loans and leases are written down to the extent that principal is deemed to be uncollectible. Impaired collateral-dependent loans and leases, where repayment is expected to be provided solely by the sale of the underlying collateral and there are no other available and reliable sources of repayment, are written down to the lower of carrying value or collateral value. Cash-basis loans are returned to accrual status when all contractual principal and interest amounts are reasonably assured of repayment and there is a sustained period of repayment performance in accordance with the contractual terms.

Loans Held-for-Sale

Corporate and consumer loans that have been identified for sale are classified as loans HFS and included in *Other assets*. The practice of Citi's U.S. prime mortgage business has been to sell substantially all of its conforming loans. As such, U.S. prime mortgage conforming loans are classified as HFS and the fair value option is elected at origination, with changes in fair value recorded in *Other revenue*. With the exception of those loans for which the fair value option has been elected, HFS loans are accounted for at the lower of cost or market value, with any write-downs or subsequent recoveries charged to *Other revenue*. The related cash flows are classified in the Consolidated Statement of Cash Flows in the cash flows from operating activities category on the line *Change in loans held-for-sale*.

Allowances for Credit Losses (ACL)

Commencing January 1, 2020, Citi adopted Accounting Standards Update (ASC) 326, *Financial Instruments—Credit Losses*, using the methodologies described below. For information about Citi's accounting for loan losses prior to January 1, 2020, see "Superseded Accounting Principles" below.

The current expected credit losses (CECL) methodology is based on relevant information about past events, including historical experience, current conditions and reasonable and supportable (R&S) forecasts that affect the collectability of the reported financial asset balances. If the asset's life extends

beyond the R&S forecast period, then historical experience is considered over the remaining life of the assets in the ACL. The resulting ACL is adjusted in each subsequent reporting period through *Provisions for credit losses* in the Consolidated Statement of Income to reflect changes in history, current conditions and forecasts as well as changes in asset positions and portfolios. ASC 326 defines the ACL as a valuation account that is deducted from the amortized cost of a financial asset to present the net amount that management expects to collect on the financial asset over its expected life. All financial assets carried at amortized cost are in the scope of ASC 326, while assets measured at fair value are excluded. See Note 13 to the Consolidated Financial Statements for a discussion of impairment on available-for-sale (AFS) securities.

Increases and decreases to the allowances are recorded in *Provisions for credit losses*. The CECL methodology utilizes a lifetime expected credit loss (ECL) measurement objective for the recognition of credit losses for held-for-investment (HFI) loans, held-to-maturity (HTM) debt securities, receivables and other financial assets measured at amortized cost at the time the financial asset is originated or acquired. Within the life of a loan or other financial asset, the methodology generally results in the earlier recognition of the provision for credit losses and the related ACL than prior U.S. GAAP.

Estimation of ECLs requires Citi to make assumptions regarding the likelihood and severity of credit loss events and their impact on expected cash flows, which drive the probability of default (PD), loss given default (LGD) and exposure at default (EAD) models and, where Citi discounts the ECL, using discounting techniques for certain products. Where the asset's life extends beyond the R&S forecast period, Citi considers historical experience over the remaining life of the assets in estimating the ACL.

Citi uses a multitude of variables in its macroeconomic forecast as part of its calculation of both the qualitative and quantitative components of the ACL, including both domestic and international variables for its global portfolios and exposures. Citi's forecasts of the U.S. unemployment rate and U.S. Real GDP growth rate represent the key macroeconomic variables that most significantly affect its estimate of its consumer and corporate ACLs. Under the quantitative base scenario, Citi's 4Q'20 forecasts are for U.S. unemployment to continue to improve as the U.S. moves past the peak of the health and economic crisis. The downside scenario incorporates more adverse economic conditions and subsequently higher unemployment rates and slower GDP recovery.

The following are the main factors and interpretations that Citi considers when estimating the ACL under the CECL methodology:

- The most important reasons for the 2020 change in the ACL since the adoption of CECL on January 1, 2020 are the pandemic and the resulting economic recessions, which led to higher unemployment and lower GDP forecasts than were expected at the beginning of the year; the impact of government stimulus and relief programs; and portfolio changes and lower loan balances resulting from changed customer spending patterns.

- CECL reserves are estimated over the contractual term of the financial asset, which is adjusted for expected prepayments. Expected extensions are generally not considered unless the option to extend the loan cannot be canceled unilaterally by Citi. Modifications are also not considered, unless Citi has a reasonable expectation that it will execute a troubled debt restructuring (TDR).
- Credit enhancements that are not freestanding (such as those that are included in the original terms of the contract or those executed in conjunction with the lending transaction) are considered loss mitigants for purposes of CECL reserve estimation.
- For unconditionally cancelable accounts such as credit cards, reserves are based on the expected life of the balance as of the evaluation date (assuming no further charges) and do not include any undrawn commitments that are unconditionally cancelable. Reserves are included for undrawn commitments for accounts that are not unconditionally cancelable (such as letters of credit and corporate loan commitments, HELOCs, undrawn mortgage loan commitments and financial guarantees).
- CECL models are designed to be economically sensitive. They utilize the macroeconomic forecasts provided by Citi's economic forecasting team (EFT) that are approved by senior management. Analysis is performed and documented to determine the necessary qualitative management adjustment (QMA) to capture forward-looking macroeconomic expectations and model uncertainty.
- The portion of the forecast that reflects the EFT's reasonable and supportable (R&S) period indicates the maximum length of time its models can produce a R&S macroeconomic forecast, after which mean reversion reflecting historical loss experience is used for the remaining life of the loan to estimate expected credit losses. For the loss forecast, businesses consume the macroeconomic forecast as determined to be appropriate and justifiable.
- The reserves for TDRs are calculated using the discounted cash flow method and consider appropriate macroeconomic forecast data for the exposure type. For TDR loans that are collateral dependent, the ACL is based on the fair value of the collateral.
- Citi uses the most recent available information to inform its macroeconomic forecasts, allowing sufficient time for analysis of the results and corresponding approvals. Key variables are reviewed for significant changes through year end and changes to portfolio positions are reflected in the ACL.
- Reserves are calculated at an appropriately granular level and on a pooled basis where financial assets share risk characteristics. At a minimum, reserves are calculated at a portfolio level (product and country). Where a financial asset does not share risk characteristics with any of the pools, it is evaluated for credit losses individually.

Quantitative and Qualitative Components of the ACL

The loss likelihood and severity models use both internal and external information and are sensitive to forecasts of different macroeconomic conditions. For the quantitative component, Citi uses a single forward-looking macroeconomic forecast, complemented by the qualitative component that reflects economic uncertainty due to a different possible more adverse scenario for estimating the ACL. Estimates of these ECLs are based upon (i) Citigroup's internal system of credit risk ratings; (ii) historical default and loss data, including comprehensive internal history and rating agency information regarding default rates and internal data on the severity of losses in the event of default; and (iii) a R&S forecast of future macroeconomic conditions. ECL is determined primarily by utilizing models for the borrowers' PD, LGD and EAD. Adjustments may be made to this data, including (i) statistically calculated estimates to cover the historical fluctuation of the default rates over the credit cycle, the historical variability of loss severity among defaulted loans and the degree to which there are large obligor concentrations in the global portfolio, and (ii) adjustments made for specifically known items, such as current environmental factors and credit trends.

Any adjustments needed to the modeled expected losses in the quantitative calculations are addressed through a qualitative adjustment. The qualitative adjustment considers, among other things: the uncertainty of forward-looking scenarios based on the likelihood and severity of a possible recession; the uncertainty of economic conditions related to an alternative downside scenario; certain portfolio characteristics and concentrations; collateral coverage; model limitations; idiosyncratic events; and other relevant criteria under banking supervisory guidance for loan loss reserves. The qualitative adjustment also reflects the estimated impact of the pandemic on the economic forecasts and the impact on credit loss estimates. The total ACL is composed of the quantitative and qualitative components.

Consumer Loans

For consumer loans, most portfolios including North America cards, mortgages and personal installment loans (PILs) are covered by the PD, LGD and EAD loss forecasting models.

Citi's ability to forecast credit losses over the reasonable and supportable (R&S) period is based on the ability to forecast economic activity over a reasonable and supportable time window.

The R&S period reflects the overall ability to have a reasonable and supportable forecast of credit loss based on economic forecasts.

- The loss models consume all or a portion of the R&S economic forecast and then revert to historical loss experience. The R&S forecast period for consumer loans is 13 quarters and, in most cases, reverts to historically based loss experience either immediately or using a straight-line approach thereafter, while the R&S period for wholesale is nine quarters with an additional straight-line reversion period of three quarters for ECL parameters.
- The ACL incorporates provisions for accrued interest on products that are not subject to a non-accrual and timely write-off policy (e.g., cards and Ready Credit, etc.).

Some smaller international portfolios are covered by econometric models where the gross credit loss (GCL) rate is forecasted. The modeling of all retail products is performed by examining risk drivers for a given portfolio; these drivers relate to exposures with similar credit risk characteristics and consider past events, current conditions and R&S forecasts. Under the PD x LGD x EAD approach, GCLs and recoveries are captured on an undiscounted basis. Citi incorporates expected recoveries on loans into its reserve estimate, including expected recoveries on assets previously written off.

CECL defines the exposure's expected life as the remaining contractual maturity including any expected prepayments. Subsequent changes to the contractual terms that are the result of a re-underwriting are not included in the loan's expected CECL life.

Citi does not establish reserves for the uncollectible accrued interest on non-revolving consumer products, such as mortgages and installment loans, which are subject to a non-accrual and timely write-off policy. As such, only the principal balance is subject to the CECL reserve methodology and interest does not attract a further reserve. FAS 91-deferred origination costs and fees related to new account originations are amortized within a 12-month period, and an ACL is provided for components in the scope of the ASC.

Separate valuation allowances are determined for impaired smaller-balance homogeneous loans whose terms have been modified in a TDR. Long-term modification programs, and short-term (less than 12 months) modifications that provide concessions (such as interest rate reductions) to borrowers in financial difficulty, are reported as TDRs. In addition, loan modifications that involve a trial period are reported as TDRs at the start of the trial period. The ACL for TDRs is determined using a discounted cash flow (DCF) approach. When a DCF approach is used, the initial allowance for ECLs is calculated as the expected contractual cash flows discounted at the loan's original effective interest rate. DCF techniques are applied only for consumer loans classified as TDR loan exposures.

For cards, Citi uses the payment rate approach, which leverages payment rate curves, to determine the payments that should be applied to liquidate the end-of-period balance (CECL balance) in the estimation of EAD. The payment rate approach uses customer payment behavior (payment rate) to establish the portion of the CECL balance that will be paid each month. These payment rates are defined as the percentage of principal payments received in the respective month divided by the prior month's billed principal balance. The liquidation (CECL payment) amount for each forecast period is determined by multiplying the CECL balance by that period's forecasted payment rate. The cumulative sum of these payments less the CECL balance produces the balance liquidation curve. Citi does not apply a non-accrual policy to credit card receivables; rather, they are subject to full charge-off at 180 days past due. As such, the entire customer balance up until write-off, including accrued interest and fees, will be subject to the CECL reserve methodology.

Corporate Loans and HTM Securities

Citi records allowances for credit losses on all financial assets carried at amortized cost that are in the scope of CECL,

including corporate loans classified as HFI and HTM debt securities. Discounting techniques are applied for corporate loans classified as HFI and HTM securities and non-accrual/TDR loan exposures. All cash flows are fully discounted to the reporting date. The ACL includes Citi's estimate of all credit losses expected to be incurred over the estimated full contractual life of the financial asset. The contractual life of the financial asset does not include expected extensions, renewals or modifications, except for instances where the Company reasonably expects to extend the tenor of the financial asset pursuant to a future TDR. Where Citi has an unconditional option to extend the contractual term, Citi does not consider the potential extension in determining the contractual term; however, where the borrower has the sole right to exercise the extension option without Citi's approval, Citi does consider the potential extension in determining the contractual term. The decrease in credit losses under CECL at the date of adoption on January 1, 2020, compared with the prior incurred loss methodology, is largely due to more precise contractual maturities that result in shorter remaining tenors, the incorporation of recoveries and use of more specific historical loss data based on an increase in portfolio segmentation across industries and geographies.

The Company primarily bases its ACL on models that assess the likelihood and severity of credit events and their impact on cash flows under R&S forecasted economic scenarios. Allowances consider the probability of the borrower's default, the loss the Company would incur upon default and the borrower's exposure at default. Such models discount the present value of all future cash flows, using the asset's effective interest rate (EIR). Citi applies a more simplified approach based on historical loss rates to certain exposures recorded in *Other assets* and certain loan exposures in the private bank.

The Company considers the risk of nonpayment to be zero for U.S. Treasuries and U.S. government-sponsored agency guaranteed mortgage-backed securities (MBS) and, as such, Citi does not have an ACL for these securities. For all other HTM debt securities, ECLs are estimated using PD models and discounting techniques, which incorporate assumptions regarding the likelihood and severity of credit losses. For structured securities, specific models use relevant assumptions for the underlying collateral type. A discounting approach is applied to HTM direct obligations of a single issuer, similar to that used for corporate HFI loans.

Other Financial Assets with Zero Expected Credit Losses

For certain financial assets, zero expected credit losses will be recognized where the expectation of nonpayment of the amortized cost basis is zero, based on there being no history of loss and the nature of the receivables.

Secured Financing Transactions

Most of Citi's reverse repurchase agreements, securities borrowing arrangements and margin loans require that the borrower continually adjust the amount of the collateral securing Citi'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 Citi does not expect to incur credit losses on such well-collateralized exposures. For certain margin loans presented in *Loans* on the Consolidated Balance Sheet, credit losses are estimated using the same approach as corporate loans.

Accrued Interest

CECL permits entities to make an accounting policy election not to reserve for interest, if the entity has a policy in place that will result in timely reversal or write-off of interest. However, when a non-accrual or timely charge-off policy is not applied, an ACL is recognized on accrued interest. For HTM debt securities, Citi established a non-accrual policy that results in timely write-off of accrued interest. For corporate loans, where a timely charge-off policy is used, Citi has elected to recognize an ACL on accrued interest receivable. The LGD models for corporate loans include an adjustment for estimated accrued interest.

Reasonably Expected TDRs

For corporate loans, the reasonable expectation of TDR concept requires that the contractual life over which ECLs are estimated be extended when a TDR that results in a tenor extension is reasonably expected. Reasonably expected TDRs are included in the life of the asset. A discounting technique or collateral-dependent practical expedient is used for non-accrual and TDR loan exposures that do not share risk characteristics with other loans and are individually assessed. Loans modified in accordance with the CARES Act and bank regulatory guidance are not classified as TDRs.

Purchased Credit Deteriorated (PCD) Assets

ASC 326 requires entities that have acquired financial assets (such as loans and HTM securities) with an intent to hold, to evaluate whether those assets have experienced a more-than-insignificant deterioration in credit quality since origination. These assets are subject to specialized accounting at initial recognition under CECL. Subsequent measurement of PCD assets will remain consistent with other purchased or originated assets, i.e., non-PCD assets. CECL introduces the notion of PCD assets, which replaces purchased credit impaired (PCI) accounting under prior U.S. GAAP.

CECL requires the estimation of credit losses to be performed on a pool basis unless a PCD asset does not share characteristics with any pool. If certain PCD assets do not meet the conditions for aggregation, those PCD assets should be accounted for separately. This determination must be made at the date the PCD asset is purchased. In estimating ECLs from day 2 onward, pools can potentially be reassembled based upon similar risk characteristics. When PCD assets are pooled, Citi determines the amount of the initial ACL at the pool level. The amount of the initial ACL for a PCD asset represents the portion of the total discount at acquisition that relates to credit and is recognized as a "gross-up" of the purchase price to arrive at the PCD asset's (or pool's) amortized cost. Any difference between the unpaid principal balance and the amortized cost is considered to be related to non-credit factors and results in a discount or premium, which is amortized to interest income over the life of the individual asset (or pool). Direct expenses incurred related to the

acquisition of PCD assets and other assets and liabilities in a business combination are expensed as incurred. Subsequent accounting for acquired PCD assets is the same as the accounting for originated assets; changes in the allowance are recorded in *Provisions for credit losses*.

Consumer

Citi does not purchase whole portfolios of PCD assets in its retail businesses. However, there may be a small portion of a purchased portfolio that is identified as PCD at the purchase date. Interest income recognition does not vary between PCD and non-PCD assets. A consumer financial asset is considered to be more-than-insignificantly credit deteriorated if it is more than 30 days past due at the purchase date.

Corporate

Citi generally classifies wholesale loans and debt securities classified HTM or AFS as PCD when both of the following criteria are met: (i) the purchase price discount is at least 10% of par and (ii) the purchase date is more than 90 days after the origination or issuance date. Citi classifies HTM beneficial interests rated AA- and lower obtained at origination from certain securitization transactions as PCD when there is a significant difference (i.e., 10% or greater) between contractual cash flows, adjusted for prepayments, and expected cash flows at the date of recognition.

Reserve Estimates and Policies

Management provides reserves for an estimate of lifetime ECLs in the funded loan portfolio on the Consolidated Balance Sheet in the form of an ACL. These reserves are established in accordance with Citigroup's credit reserve policies, as approved by the Audit Committee of the Citigroup Board of Directors. Citi's Chief Risk Officer and Chief Financial Officer review the adequacy of the credit loss reserves each quarter with risk management and finance representatives for each applicable business area. Applicable business areas include those having classifiably managed portfolios, where internal credit risk ratings are assigned (primarily ICG) and delinquency managed portfolios (primarily GCB) or modified consumer loans, where concessions were granted due to the borrowers' financial difficulties. The aforementioned representatives for these business areas present recommended reserve balances for their funded and unfunded lending portfolios along with supporting quantitative and qualitative data discussed below:

Estimated credit losses for non-performing, non-homogeneous exposures within a business line's classifiably managed portfolio and impaired smaller-balance homogeneous loans whose terms have been modified due to the borrowers' financial difficulties, where it was determined that a concession was granted to the borrower.

Consideration may be given to the following, as appropriate, when determining this estimate: (i) the present value of expected future cash flows discounted at the loan's original effective rate, (ii) the borrower's overall financial condition, resources and payment record and (iii) the prospects for support from financially responsible guarantors or the realizable value of any collateral. In the determination of the

ACL for TDRs, management considers a combination of historical re-default rates, the current economic environment and the nature of the modification program when forecasting expected cash flows. When impairment is measured based on the present value of expected future cash flows, the entire change in present value is recorded in *Provisions for credit losses*.

Estimated credit losses in the delinquency-managed portfolios for performing exposures.

In addition, risk management and finance representatives who cover business areas with delinquency-managed portfolios containing smaller-balance homogeneous loans present their recommended reserve balances based on leading credit indicators, including loan delinquencies and changes in portfolio size as well as economic trends, including current and future housing prices, unemployment, length of time in foreclosure, costs to sell and GDP. This methodology is applied separately for each product within each geographic region in which these portfolios exist. This evaluation process is subject to numerous estimates and judgments. The frequency of default, risk ratings, loss recovery rates, size and diversity of individual large credits and ability of borrowers with foreign currency obligations to obtain the foreign currency necessary for orderly debt servicing, among other things, are all taken into account during this review. Changes in these estimates could have a direct impact on the credit costs in any period and could result in a change in the allowance.

Allowance for Unfunded Lending Commitments

Credit loss reserves are recognized on all off-balance sheet commitments that are not unconditionally cancelable. Corporate loan EAD models include an incremental usage factor (or credit conversion factor) to estimate ECLs on amounts undrawn at the reporting date. Off-balance sheet commitments include unfunded exposures, revolving facilities, securities underwriting commitments, letters of credit, HELOCs and financial guarantees, which excludes performance guarantees. This reserve is classified on the Consolidated Balance Sheet in *Other liabilities*. Changes to the allowance for unfunded lending commitments are recorded in *Provision for credit losses on unfunded lending commitments*.

Mortgage Servicing Rights (MSRs)

Mortgage servicing rights (MSRs) are recognized as intangible assets when purchased or when the Company sells or securitizes loans acquired through purchase or origination and retains the right to service the loans. Mortgage servicing rights are accounted for at fair value, with changes in value recorded in *Other revenue* in the Company's Consolidated Statement of Income.

For additional information on the Company's MSRs, see Notes 16 and 21 to the Consolidated Financial Statements.

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.

Under ASC Topic 350, *Intangibles—Goodwill and Other* and upon the adoption of ASU No. 2017-04 on January 1, 2020, 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 quantitative test requires a comparison of the fair value of the individual reporting unit to its carrying value, including goodwill. If the fair value of the reporting unit is in excess of the carrying value, the related goodwill is considered not impaired and no further analysis is necessary. If the carrying value of the reporting unit exceeds the fair value, an impairment loss is recognized in an amount equal to that excess, limited to the total amount of goodwill allocated to that reporting unit.

Upon any business disposition, goodwill is allocated to, and derecognized with, the disposed business based on the ratio of the fair value of the disposed business to the fair value of the reporting unit.

Additional information on Citi's goodwill impairment testing can be found in Note 16 to the Consolidated Financial Statements.

Intangible Assets

Intangible assets—including core deposit intangibles, present value of future profits, purchased credit card relationships, credit card contract related intangibles, other customer relationships and other intangible assets, but excluding MSRs—are amortized over their estimated useful lives. Intangible assets that are deemed to have indefinite useful lives, primarily trade names, are not amortized and are subject to annual impairment tests. An impairment exists if the carrying value of the indefinite-lived intangible asset exceeds its fair value. For other intangible assets subject to amortization, an impairment is recognized if the carrying amount is not recoverable and exceeds the fair value of the intangible asset.

Other Assets and Other Liabilities

Other assets include, among other items, loans HFS, deferred tax assets, equity method investments, interest and fees receivable, lease right-of-use assets, premises and equipment (including purchased and developed software), repossessed assets and other receivables. *Other liabilities* include, among other items, accrued expenses and other payables, lease liabilities, deferred tax liabilities and reserves for legal claims, taxes, unfunded lending commitments, repositioning reserves and other payables.

Other Real Estate Owned and Repossessed Assets

Real estate or other assets received through foreclosure or repossession are generally reported in *Other assets*, net of a valuation allowance for selling costs and subsequent declines in fair value.

Securitizations

There are two key accounting determinations that must be made relating to securitizations. Citi 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 Citigroup 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 Citigroup are consolidated.

Interests in the securitized and sold assets may be retained in the form of subordinated or senior interest-only strips, subordinated tranches, spread accounts and servicing rights. In credit card securitizations, the Company retains a seller’s interest in the credit card receivables transferred to the trusts, which is not in securitized form. In the case of consolidated securitization entities, including the credit card trusts, these retained interests are not reported on Citi’s Consolidated Balance Sheet. The securitized loans remain on the balance sheet. Substantially all of the consumer loans sold or securitized through non-consolidated trusts by Citigroup are U.S. prime residential mortgage loans. Retained interests in non-consolidated mortgage securitization trusts are classified as *Trading account assets*, except for MSRs, which are included in *Intangible assets* on Citigroup’s Consolidated Balance Sheet.

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, or the debt is in a fair value hedging relationship.

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 Balance Sheet. If the conditions for sale are not met, the transfer is considered to be a secured borrowing, the assets remain on the Consolidated Balance Sheet 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 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.

For a transfer of a portion of a financial asset to be considered a sale, the portion transferred must meet the definition of a participating interest. A participating interest must represent a pro rata ownership in an entire financial asset; all cash flows must be divided proportionately, with the same priority of payment; no participating interest in the transferred asset may be subordinated to the interest of another participating interest holder; and no party may have the right to pledge or exchange the entire financial asset unless all participating interest holders agree. Otherwise, the transfer is accounted for as a secured borrowing.

See Note 21 to the Consolidated Financial Statements for further discussion.

Risk Management Activities—Derivatives Used for Hedging Purposes

The Company manages its exposures to market movements outside of its trading activities by modifying the asset and liability mix, either directly or through the use of derivative financial products, including interest rate swaps, futures, forwards and purchased options, as well as foreign-exchange contracts. These end-user derivatives are carried at fair value in *Trading account assets* and *Trading account liabilities*.

See Note 22 to the Consolidated Financial Statements for a further discussion of the Company’s hedging and derivative activities.

Instrument-specific Credit Risk

Citi 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. For its most significant pension and postretirement benefit plans (Significant Plans), Citigroup measures and discloses plan obligations, plan assets and periodic plan expense quarterly, instead of annually. The effect of remeasuring the Significant Plan obligations and assets by updating plan actuarial assumptions on a quarterly basis is reflected in *Accumulated other comprehensive income (loss)* and periodic plan expense. All other plans (All Other Plans) are remeasured annually. See Note 8 to the Consolidated Financial Statements.

Stock-Based Compensation

The Company recognizes compensation expense related to stock and option 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 7 to the Consolidated Financial Statements.

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 *Income tax expense*.

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 9 to the Consolidated Financial Statements for a further description of the Company's tax provision and related income tax assets and liabilities.

Commissions, Underwriting and Principal Transactions

Commissions and fees revenues are recognized in income when earned. Underwriting revenues are recognized in income typically at the closing of the transaction. *Principal transactions* revenues are recognized in income on a trade-date basis. See Note 5 to the Consolidated Financial Statements for a description of the Company's revenue recognition policies for *Commissions and fees*, and Note 6 to the Consolidated Financial Statements for details of *Principal transactions* revenue.

Earnings per Share

Earnings per share (EPS) is computed after deducting preferred stock dividends. The Company has granted restricted and deferred share awards with dividend rights that are considered to be participating securities, which are akin to a second class of common stock. Accordingly, a portion of Citigroup's earnings is allocated to those participating securities in the EPS calculation.

Basic earnings per share is computed by dividing income available to common stockholders after the allocation of dividends and undistributed earnings to the participating securities by the weighted average number of common shares outstanding for the period. *Diluted earnings per share* reflects the potential dilution that could occur if securities or other contracts to issue common stock were exercised. It is computed after giving consideration to the weighted average dilutive effect of the Company's stock options and warrants and convertible securities and after the allocation of earnings to the participating securities. Anti-dilutive options and warrants are disregarded in the EPS calculations.

Use of Estimates

Management must make estimates and assumptions that affect the Consolidated Financial Statements and the related Notes to the Consolidated Financial Statements. Such estimates are used in connection with certain fair value measurements. See Note 24 to the Consolidated Financial Statements for further discussions on estimates used in the determination of fair value. Moreover, estimates are significant in determining the amounts of other-than-temporary impairments, impairments of goodwill and other intangible assets, provisions for probable losses that may arise from credit-related exposures and 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.

Cash Flows

Cash equivalents are defined as those amounts included in *Cash and due from banks* and predominately all of *Deposits with banks*. Cash flows from risk management activities are classified in the same category as the related assets and liabilities.

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.

ACCOUNTING CHANGES

Accounting for Financial Instruments—Credit Losses

Overview

In June 2016, the Financial Accounting Standards Board (FASB) issued ASU No. 2016-13, *Financial Instruments—Credit Losses (Topic 326)*. The ASU introduced a new credit loss methodology, the current expected credit losses (CECL) methodology, which requires earlier recognition of credit losses while also providing additional disclosure about credit risk. Citi adopted the ASU as of January 1, 2020, which, as discussed below, resulted in an increase in Citi's *Allowance for credit losses* and a decrease to opening *Retained earnings*, net of deferred income taxes, at January 1, 2020.

The CECL methodology utilizes a lifetime “expected credit loss” measurement objective for the recognition of credit losses for loans, held-to-maturity debt securities, receivables and other financial assets measured at amortized cost at the time the financial asset is originated or acquired. The ACL is adjusted each period for changes in expected lifetime credit losses. The CECL methodology represents a significant change from prior U.S. GAAP and replaced the prior multiple existing impairment methods, which generally required that a loss be incurred before it was recognized. Within the life cycle of a loan or other financial asset, the methodology generally results in the earlier recognition of the provision for credit losses and the related ACL than prior U.S. GAAP. For available-for-sale debt securities where fair value is less than cost that Citi intends to hold or more-likely-than-not will not be required to sell, credit-related impairment, if any, is recognized through an ACL and adjusted each period for changes in credit risk.

January 1, 2020 CECL Transition (Day 1) Impact

The CECL methodology's impact on expected credit losses, among other things, reflects Citi's view of the current state of the economy, forecasted macroeconomic conditions and Citi's portfolios. At the January 1, 2020 date of adoption, based on forecasts of macroeconomic conditions and exposures at that time, the aggregate impact to Citi was an approximate \$4.1 billion, or an approximate 29%, pretax increase in the *Allowance for credit losses*, along with a \$3.1 billion after-tax decrease in *Retained earnings* and a deferred tax asset increase of \$1.0 billion. This transition impact reflects (i) a \$4.9 billion build to the *Allowance for credit losses* for Citi's consumer exposures, primarily driven by the impact on credit card receivables of longer estimated tenors under the CECL lifetime expected credit loss methodology (loss coverage of approximately 23 months) compared to shorter estimated tenors under the probable loss methodology under prior U.S. GAAP (loss coverage of approximately 14 months), net of recoveries; and (ii) a release of \$0.8 billion of reserves primarily related to Citi's corporate net loan loss exposures, largely due to more precise contractual maturities that result in shorter remaining tenors, incorporation of recoveries and use of more specific historical loss data based on an increase in portfolio segmentation across industries and geographies.

Under the CECL methodology, the *Allowance for credit losses* consists of quantitative and qualitative components.

Citi's quantitative component of the *Allowance for credit losses* is model based and utilizes a single forward-looking macroeconomic forecast, complemented by the qualitative component described below, in estimating expected credit losses and discounts inputs for the corporate classifiably managed portfolios. Reasonable and supportable forecast periods vary by product. For example, Citi's consumer models use a 13-quarter reasonable and supportable period and revert to historical loss experience thereafter, while its corporate loan models use a nine-quarter reasonable and supportable period followed by a three-quarter graduated transition to historical loss experience.

Citi's qualitative component of the *Allowance for credit losses* considers (i) the uncertainty of forward-looking scenarios based on the likelihood and severity of a possible recession as another possible scenario; (ii) certain portfolio characteristics, such as portfolio concentration and collateral coverage; and (iii) model limitations as well as idiosyncratic events. Citi calculates a judgmental management adjustment, which is an alternative, more adverse scenario that only considers downside risk.

Accounting for Variable Post-Charge-Off Third-Party Collection Costs

During the second quarter of 2020 Citi changed its accounting for variable post-charge-off third-party collection costs, whereby these costs were accounted for as an increase in expenses as incurred rather than a reduction in expected credit recoveries. Citi concluded that such a change in the method of accounting is preferable in Citi's circumstances as it better reflects the nature of these collection costs. That is, these costs do not represent reduced payments from borrowers and are similar to Citi's other executory third-party vendor contracts that are accounted for as operating expenses as incurred. As a result of this change, Citi had a consumer ACL release of \$426 million in the second quarter of 2020 for its U.S. cards portfolios and \$122 million in the third quarter of 2020 for its international portfolios.

In the fourth quarter of 2020, Citi revised the second quarter of 2020 accounting conclusion from a “change in accounting estimate effected by a change in accounting principle” to a “change in accounting principle,” which requires an adjustment to opening retained earnings rather than net income, with retrospective application to the earliest period presented. Citi considered the guidance in ASC Topic 250, *Accounting Changes and Error Corrections*; ASC Topic 270, *Interim Reporting*; ASC Topic 250-S99-1, *Assessing Materiality*; and ASC Topic 250-S99-23, *Accounting Changes Not Retroactively Applied Due to Immateriality, Considering the Effects of Prior Year Misstatements when Quantifying Misstatements in Current Year Financial Statements*. Citi believes that the effects of the revisions were not material to any previously reported quarterly or annual period. As a result, Citi's full-year and quarterly results have been revised to reflect this change as if it were effective as of January 1, 2020 (impacts to 2018 and 2019 were de minimis). Accordingly, Citi recorded an increase to its beginning retained earnings on January 1, 2020 of \$330 million and a decrease of \$443 million to its ACL. Further, Citi recorded a decrease of \$18 million to its provisions for credit losses on loans in the

first quarter of 2020 and an increase of \$339 million and \$122 million to its provisions for credit losses on loans in the second and third quarters of 2020, respectively. In addition, Citi's operating expenses increased by \$49 million and \$45 million, with a corresponding decrease in net credit losses, in the first and second quarters of 2020, respectively. As a result of these changes, Citi's net income for the year ended December 31, 2020 was \$330 million lower, or \$0.16 per share lower, than under the previous presentation as a change in accounting estimate.

Reference Rate Reform

In March 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. Specifically, the guidance permits an entity, when certain criteria are met, to consider amendments to contracts made to comply with reference rate reform to meet the definition of a modification under U.S. GAAP. It further allows hedge accounting to be maintained and permits a one-time transfer or sale of qualifying held-to-maturity securities. The expedients and exceptions provided by the amendments are permitted to be adopted any time through December 31, 2022 and do not apply to contract modifications made and hedging relationships entered into or evaluated after December 31, 2022, except for certain optional expedients elected for certain hedging relationships existing as of December 31, 2022. The ASU was adopted by Citi as of June 30, 2020 with prospective application and did not impact financial results in 2020.

In January 2021, the FASB issued ASU No. 2021-01, Reference Rate Reform (Topic 848): Scope, which clarifies that the scope of the initial accounting relief issued by the FASB in March 2020 includes derivative instruments that do not reference a rate that is expected to be discontinued but that use an interest rate for margining, discounting, or contract price alignment that is modified as a result of reference rate reform (commonly referred to as the "discounting transition"). The amendments do not apply to contract modifications made after December 31, 2022, new hedging relationships entered into after December 31, 2022, and existing hedging relationships evaluated for effectiveness in periods after December 31, 2022, except for hedging relationships existing as of December 31, 2022, that apply certain optional expedients in which the accounting effects are recorded through the end of the hedging relationship. The ASU was adopted by Citi on a full retrospective basis upon issuance and did not impact financial results in 2020.

Lease Accounting

In February 2016, the FASB issued ASU No. 2016-02, Leases (Topic 842), which increases the transparency and comparability of accounting for lease transactions. The ASU requires lessees to recognize liabilities for operating leases and corresponding right-of-use (ROU) assets on the balance sheet. The ASU also requires quantitative and qualitative disclosures regarding key information about leasing arrangements. Lessee

accounting for finance leases, as well as lessor accounting, is largely unchanged.

Effective January 1, 2019, Citi prospectively adopted the provisions of the ASU. At adoption, Citi recognized a lease liability and a corresponding ROU asset of approximately \$4.4 billion on the Consolidated Balance Sheet related to its future lease payments as a lessee under operating leases. In addition, Citi recorded a \$151 million increase in *Retained earnings* for the cumulative effect of recognizing previously deferred gains on sale/leaseback transactions. Adoption of the ASU did not have a material impact on the Consolidated Statement of Income. See Notes 14 and 26 for additional details.

Citi has elected not to separate lease and non-lease components in its lease contracts and accounts for them as a single lease component. Citi has also elected not to record an ROU asset for short-term leases that have a term of 12 months or less and do not contain purchase options that Citi is reasonably certain to exercise. The cost of short-term leases is recognized in the Consolidated Statement of Income on a straight-line basis over the lease term. In addition, Citi applies the portfolio approach to account for certain equipment leases with nearly identical contractual terms.

Lessee accounting

Operating lease ROU assets and lease liabilities are included in *Other assets* and *Other liabilities*, respectively, on the Consolidated Balance Sheet. Finance lease assets and liabilities are included in *Other assets* and *Long-term debt*, respectively, on the Consolidated Balance Sheet. Citi uses its incremental borrowing rate, factoring in the lease term, to determine the lease liability, which is measured at the present value of future lease payments. The ROU asset is initially measured at the amount of the lease liability plus any prepaid rent and remaining initial direct costs, less any remaining lease incentives and accrued rent. The ROU asset is subject to impairment, during the lease term, in a manner consistent with the impairment of long-lived assets. The lease terms include periods covered by options to extend or terminate the lease depending on whether Citi is reasonably certain to exercise such options.

Lessor accounting

Lessor accounting is largely unchanged under the ASU. Citi acts as a lessor for power, railcar, shipping and aircraft assets, where Citi has executed operating, direct financing and leveraged leasing arrangements. In a direct financing or a leveraged lease, Citi derecognizes the leased asset and records a lease financing receivable at lease commencement in *Loans*. Upon lease termination, Citi may obtain control of the asset, which is then recorded in *Other assets* on the Consolidated Balance Sheet and any remaining receivable for the asset's residual value is derecognized. Under the ASU, leveraged lease accounting is grandfathered and may continue to be applied until the leveraged lease is terminated or modified. Upon modification, the lease must be classified as an operating, direct finance or sales-type lease in accordance with the ASU.

Separately, as part of managing its real estate footprint, Citi subleases excess real estate space via operating lease arrangements.

SEC Staff Accounting Bulletin 118

On December 22, 2017, the SEC issued Staff Accounting Bulletin (SAB) 118, which set forth the accounting for the changes in tax law caused by the enactment of the Tax Cuts and Jobs Act (Tax Reform). SAB 118 provided guidance where the accounting under ASC 740 was incomplete for certain income tax effects of Tax Reform, at the time of the issuance of an entity's financial statements for the period in which Tax Reform was enacted (provisional items). Citi disclosed several provisional items recorded as part of its \$22.6 billion fourth quarter 2017 charge related to Tax Reform.

Citi completed its accounting for Tax Reform under SAB 118 during the fourth quarter of 2018 and recorded a one-time, non-cash tax benefit of \$94 million in *Corporate/Other* related to amounts that were considered provisional pursuant to SAB 118. The adjustments for the provisional amounts consisted of a \$1.2 billion benefit relating to a reduction of the valuation allowance against Citi's FTC carry-forwards and its U.S. residual DTAs related to its non-U.S. branches, offset by additional charges of \$0.2 billion related to the impact of a change to a "quasi-territorial tax system" and \$0.9 billion related to the impact of deemed repatriation of undistributed earnings of non-U.S. subsidiaries.

Also, Citi has made a policy election to account for taxes on Global Intangible Low Taxed Income (GILTI) as incurred.

Revenue Recognition

In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers* (Revenue Recognition), which outlines a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers. The core principle of the revenue model is that an entity recognizes revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled, in exchange for those goods or services. The ASU defines the promised good or service as the performance obligation under the contract.

While the guidance replaces most existing revenue recognition guidance in GAAP, the ASU is not applicable to financial instruments and, therefore, does not impact a majority of Citi's revenues, including net interest income, loan fees, gains on sales and mark-to-market accounting.

In accordance with the new revenue recognition standard, Citi has identified the specific performance obligation (promised services) associated with the contract with the customer and has determined when that specific performance obligation has been satisfied, which may be at a point in time or over time depending on how the performance obligation is defined. The contracts with customers also contain the transaction price, which consists of fixed consideration and/or consideration that may vary (variable consideration), and is defined as the amount of consideration an entity expects to be entitled to when or as the performance obligation is satisfied, excluding amounts collected on behalf of third parties

(including transaction taxes). The amounts recognized at the point in time the performance obligation is satisfied may differ from the ultimate transaction price associated with that performance obligation when a portion of it is based on variable consideration. For example, some consideration is based on the client's month-end balance or market values, which are unknown at the time the contract is executed. The remaining transaction price amount, if any, will be recognized as the variable consideration becomes determinable. In certain transactions, the performance obligation is considered satisfied at a point in time in the future. In this instance, Citi defers revenue on the balance sheet that will only be recognized upon completion of the performance obligation.

The new revenue recognition standard further clarified the guidance related to reporting revenue gross as principal versus net as an agent. In many cases, Citi outsources a component of its performance obligations to third parties. Citi has determined that it acts as principal in the majority of these transactions and therefore presents the amounts paid to these third parties gross within operating expenses.

The Company has retrospectively adopted this standard as of January 1, 2018 and as a result was required to report amounts paid to third parties where Citi is principal to the contract within *Operating expenses*. The adoption resulted in an increase in both revenue and expenses of approximately \$1 billion for each of the years ended December 31, 2020 and 2018 with similar amounts for prior years. Prior to adoption, these expense amounts were reported as contra revenue primarily within *Commissions and fees* and *Administration and other fiduciary fees* revenues. Accordingly, prior periods have been reclassified to conform to the new presentation.

See Note 5 to the Consolidated Financial Statements for a description of the Company's revenue recognition policies for *Commissions and fees* and *Administration and other fiduciary fees*.

Income Tax Impact of Intra-Entity Transfers of Assets

In October 2016, the FASB issued ASU No. 2016-16, *Income Taxes—Intra-Entity Transfers of Assets Other Than Inventory*, which requires an entity to recognize the income tax consequences of an intra-entity transfer of an asset other than inventory when the transfer occurs. The ASU was effective January 1, 2018 and was adopted as of that date. The impact of this standard was an increase of DTAs by approximately \$300 million, a decrease of *Retained earnings* by approximately \$80 million and a decrease of prepaid tax assets by approximately \$380 million.

Clarifying the Definition of a Business

In January 2017, the FASB issued ASU No. 2017-01, *Business Combinations (Topic 805): Clarifying the Definition of a Business*. The definition of a business directly and indirectly affects many areas of accounting (e.g., acquisitions, disposals, goodwill and consolidation). The ASU narrows the definition of a business by introducing a quantitative screen as the first step, such that if substantially all of the fair value of the gross assets acquired is concentrated in a single identifiable asset or a group of similar identifiable assets, then the set of transferred assets and activities is not a business. If the set is not clarified from the quantitative screen, the entity

then evaluates whether the set meets the requirement that a business include, at a minimum, an input and a substantive process that together significantly contribute to the ability to create outputs.

Citi adopted the ASU upon its effective date on January 1, 2018, prospectively. The ongoing impact of the ASU will depend upon the acquisition and disposal activities of Citi. If fewer transactions qualify as a business, there could be less initial recognition of *Goodwill*, but also less goodwill allocated to disposals. There was no impact during 2018 from the adoption of this ASU.

Changes in Accounting for Pension and Postretirement (Benefit) Expense

In March 2017, the FASB issued ASU No. 2017-07, *Compensation—Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost*, which changes the income statement presentation of net benefit expense and requires restating the Company's financial statements for each of the earlier periods presented in Citi's annual and interim financial statements. The change in presentation was effective for annual and interim periods starting January 1, 2018. The ASU requires that only the service cost component of net benefit expense be included in *Compensation and benefits* on the income statement. The other components of net benefit expense are required to be presented outside of *Compensation and benefits* and are presented in *Other operating expenses*. Since both of these income statement line items are part of *Operating expenses*, total *Operating expenses* and *Net income* will not change. This change in presentation did not have a material effect on *Compensation and benefits* and *Other operating expenses* and was applied prospectively. The components of the net benefit expense are disclosed in Note 8 to the Consolidated Financial Statements.

The standard also changes the components of net benefit expense that are eligible for capitalization when employee costs are capitalized in connection with various activities, such as internally developed software, construction-in-progress and loan origination costs. Prospectively from January 1, 2018, only the service cost component of net benefit expense may be capitalized. Existing capitalized balances are not affected. This change in amounts eligible for capitalization does not have a material effect on the Company's Consolidated Financial Statements and related disclosures.

Hedging

In August 2017, the FASB issued ASU No. 2017-12, *Targeted Improvements to Accounting for Hedging Activities*, which better aligns an entity's risk management activities and financial reporting for hedging relationships through changes to the designation and measurement guidance for qualifying hedging relationships and the presentation of hedge results. The ASU requires the change in the fair value of the hedging instrument to be presented in the same income statement line as the hedged item and also requires expanded disclosures. Citi adopted this standard on January 1, 2018 and transferred approximately \$4 billion of prepayable mortgage-backed securities and municipal bonds from held-to-maturity (HTM) into available-for-sale (AFS) securities classification as

permitted as a one-time transfer upon adoption of the standard, as these assets were deemed to be eligible to be hedged under the last-of-layer hedge strategy. The impact to opening *Retained earnings* was immaterial. See Note 19 to the Consolidated Financial Statements for more information.

FUTURE ACCOUNTING CHANGES

Long-Duration Insurance Contracts

In August 2018, the FASB issued ASU No. 2018-12, *Financial Services—Insurance: Targeted Improvements to the Accounting for Long-Duration Contracts*, which changes the existing recognition, measurement, presentation and disclosures for long-duration contracts issued by an insurance entity. Specifically, the guidance (i) improves the timeliness of recognizing changes in the liability for future policy benefits and prescribes the rate used to discount future cash flows for long-duration insurance contracts, (ii) simplifies and improves the accounting for certain market-based options or guarantees associated with deposit (or account balance) contracts, (iii) simplifies the amortization of deferred acquisition costs and (iv) introduces additional quantitative and qualitative disclosures. Citi has certain insurance subsidiaries, primarily in the U.S. and Mexico, that issue long-duration insurance contracts that will be impacted by the requirements of ASU 2018-12.

The effective date of ASU No. 2018-12 was deferred for all insurance entities by ASU No. 2019-09, *Finance Services—Insurance: Effective Date* (issued in October 2019) and by ASU No. 2020-11, *Financial Services—Insurance: Effective Date and Early Application* (issued November 2020). Citi plans to adopt the targeted improvements in ASU 2018-12 on January 1, 2023 and is currently evaluating the impact of the standard on its insurance subsidiaries. Citi does not expect a material impact to its results of operations as a result of adopting the standard.

SUPERSEDED ACCOUNTING PRINCIPLES

Accounting for Credit Losses

Prior to January 1, 2020, Citi applied the incurred loss method for the allowance for credit losses on loans and the other-than-temporary impairment (OTTI) method for HTM securities as follows.

Allowance for Credit Losses

The allowance for credit losses on loans represents management's best estimate of probable credit losses inherent in the portfolio, including probable losses related to large individually evaluated impaired loans and troubled debt restructurings. Additions to the allowance are made through the *Provision for credit losses on loans*. Loan losses are deducted from the allowance and subsequent recoveries are added. Assets received in exchange for loan claims in a restructuring are initially recorded at fair value, with any gain or loss reflected as a recovery or charge-off in the provision.

Evaluating HTM Debt Securities for Other-Than-Temporary Impairment (OTTI)

The Company conducts periodic reviews of all HTM debt securities with unrealized losses to evaluate whether the impairment is other-than-temporary.

An unrealized loss exists when the current fair value of an individual debt security is lower than its adjusted amortized cost basis. Temporary losses related to HTM debt securities generally are not recorded, as these investments are carried at adjusted amortized cost basis. However, for HTM debt securities with credit-related impairment, the credit loss is recognized in earnings as OTTI, and any difference between the cost basis adjusted for the OTTI and fair value is recognized in *AOCI* and amortized as an adjustment of yield over the remaining contractual life of the security.

2. DISCONTINUED OPERATIONS AND SIGNIFICANT DISPOSALS

Summary of Discontinued Operations

The Company's results from *Discontinued operations* consisted of residual activities related to the sales of the Egg Banking plc credit card business in 2011 and the German retail banking business in 2008. All *Discontinued operations* results are recorded within *Corporate/Other*.

The following table summarizes financial information for all *Discontinued operations*:

<i>In millions of dollars</i>	2020	2019	2018
Total revenues, net of interest expense	\$ —	\$ —	\$ —
Loss from discontinued operations	\$ (20)	\$ (31)	\$ (26)
Benefit for income taxes	—	(27)	(18)
Loss from discontinued operations, net of taxes	\$ (20)	\$ (4)	\$ (8)

Cash flows from *Discontinued operations* were not material for all periods presented.

Significant Disposals

There were no significant disposals during 2020 and 2019. The transaction described below was identified as a significant disposal in 2018.

Sale of Mexico Asset Management Business

On September 21, 2018, Citi completed the sale of its Mexico asset management business, which was part of *Latin America GCB*. As part of the sale, Citi derecognized total assets of \$137 million and total liabilities of \$41 million. The transaction resulted in a pretax gain on sale of approximately \$250 million (approximately \$150 million after-tax) recorded in *Other revenue* in 2018. Further, Citi and the buyer entered into a 10-year services framework agreement, with Citi acting as the distributor in exchange for an ongoing fee.

Income before taxes for the divested business, excluding the pretax gain on sale, was as follows:

<i>In millions of dollars</i>	2020	2019	2018
Income before taxes	\$ —	\$ —	\$ 123

3. BUSINESS SEGMENTS

Citigroup's activities are conducted through the following business segments: *Global Consumer Banking (GCB)* and *Institutional Clients Group (ICG)*. In addition, *Corporate/Other* includes activities not assigned to a specific business segment, as well as certain *North America* legacy loan portfolios, discontinued operations and other legacy assets.

The business segments are determined based on products and services provided or type of customers served, of which those identified as non-core are recorded in *Corporate/Other* and are reflective of how management allocates resources and measures financial performance to make business decisions.

GCB includes a global, full-service consumer franchise delivering a wide array of banking, credit card, lending and investment services through a network of local branches, offices and electronic delivery systems and consists of three *GCB* businesses: *North America*, *Latin America* and *Asia* (including consumer banking activities in certain *EMEA* countries).

ICG consists of *Banking and Markets and securities services* and provides corporate, institutional, public sector and high-net-worth clients in 96 countries and jurisdictions with a broad range of banking and financial products and services.

Corporate/Other includes certain unallocated costs of global functions, other corporate expenses and net treasury results, offsets to certain line-item reclassifications and eliminations, the results of certain *North America* legacy loan portfolios, discontinued operations and unallocated taxes.

The accounting policies of these reportable segments are the same as those disclosed in Note 1 to the Consolidated Financial Statements.

The following table presents certain information regarding the Company's continuing operations by reportable segment:

	Revenues, net of interest expense ⁽¹⁾			Provision (benefits) for income taxes			Income (loss) from continuing operations ⁽²⁾			Identifiable assets	
	2020	2019	2018	2020	2019	2018	2020	2019	2018	2020	2019
<i>In millions of dollars, except identifiable assets in billions</i>											
<i>Global Consumer Banking</i>	\$ 29,991	\$ 32,971	\$ 32,339	\$ 212	\$ 1,746	\$ 1,689	\$ 874	\$ 5,702	\$ 5,309	\$ 434	\$ 407
<i>Institutional Clients Group</i>	44,253	39,301	38,325	3,373	3,570	3,756	11,798	12,944	12,574	1,730	1,447
<i>Corporate/Other</i>	54	2,014	2,190	(1,060)	(886)	(88)	(1,565)	825	205	96	97
Total	\$ 74,298	\$ 74,286	\$ 72,854	\$ 2,525	\$ 4,430	\$ 5,357	\$ 11,107	\$ 19,471	\$ 18,088	\$ 2,260	\$ 1,951

- (1) Includes total revenues, net of interest expense (excluding *Corporate/Other*), in *North America* of \$36.3 billion, \$33.9 billion and \$33.4 billion; in *EMEA* of \$12.8 billion, \$12.0 billion and \$11.8 billion; in *Latin America* of \$9.2 billion, \$10.4 billion and \$10.3 billion; and in *Asia* of \$15.9 billion, \$16.0 billion and \$15.3 billion in 2020, 2019 and 2018, respectively. These regional numbers exclude *Corporate/Other*, which largely operates within the U.S.
- (2) Includes pretax provisions for credit losses and for benefits and claims in the *GCB* results of \$11.7 billion, \$7.9 billion and \$7.6 billion; in the *ICG* results of \$5.6 billion, \$0.6 billion and \$0.2 billion; and in the *Corporate/Other* results of \$0.2 billion, \$(0.1) billion and \$(0.2) billion in 2020, 2019 and 2018, respectively.

4. INTEREST REVENUE AND EXPENSE

Interest revenue and *Interest expense* consisted of the following:

<i>In millions of dollars</i>	2020	2019	2018
Interest revenue			
Loan interest, including fees	\$ 40,185	\$ 47,751	\$ 45,682
Deposits with banks	928	2,682	2,203
Securities borrowed and purchased under agreements to resell	2,283	6,872	5,492
Investments, including dividends	7,989	9,860	9,494
Trading account assets ⁽¹⁾	6,125	7,672	6,284
Other interest-bearing assets	579	1,673	1,673
Total interest revenue	\$ 58,089	\$ 76,510	\$ 70,828
Interest expense			
Deposits ⁽²⁾	\$ 6,537	\$ 12,633	\$ 9,616
Securities loaned and sold under agreements to repurchase	2,077	6,263	4,889
Trading account liabilities ⁽¹⁾	628	1,308	1,001
Short-term borrowings and other interest-bearing liabilities	630	2,465	2,209
Long-term debt	4,669	6,494	6,551
Total interest expense	\$ 14,541	\$ 29,163	\$ 24,266
Net interest revenue	\$ 43,548	\$ 47,347	\$ 46,562
Provision for credit losses on loans	15,922	8,218	7,354
Net interest revenue after provision for credit losses on loans	\$ 27,626	\$ 39,129	\$ 39,208

(1) Interest expense on *Trading account liabilities* of ICG is reported as a reduction of *Interest revenue*. *Interest revenue* and *Interest expense* on cash collateral positions are reported in interest on *Trading account assets* and *Trading account liabilities*, respectively.

(2) Includes deposit insurance fees and charges of \$1,203 million, \$781 million and \$1,182 million for 2020, 2019 and 2018, respectively.

5. COMMISSIONS AND FEES; ADMINISTRATION AND OTHER FIDUCIARY FEES

Commissions and Fees

The primary components of *Commissions and fees* revenue are investment banking fees, brokerage commissions, credit card and bank card income and deposit-related fees.

Investment banking fees are substantially composed of underwriting and advisory revenues. Such fees are recognized at the point in time when Citigroup'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, Citi 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 expenses*. The Company has determined that it acts as principal in the majority of these transactions and therefore presents expenses gross within *Other operating expenses*.

Brokerage commissions primarily include 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. Gains or losses, if any, on these transactions are included in *Principal transactions* (see Note 6 to the Consolidated Financial Statements). 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. The Company recognized \$495 million, \$485 million and \$521 million of revenue related to such variable consideration for the years ended December 31, 2020, 2019 and 2018, respectively. These amounts primarily relate to performance obligations satisfied in prior periods.

Credit card and bank card income is primarily composed of interchange fees, which are earned by card issuers based on purchase sales, and certain card fees, including annual fees. Costs related to customer reward programs and certain payments to partners (primarily based on program sales, profitability and customer acquisitions) are recorded as a reduction of credit card and bank card income. Citi's credit card programs have certain partner sharing agreements that vary by partner. These partner sharing agreements are subject to contractually based performance thresholds that if met, would require Citi to make ongoing payments to the partner. The threshold is based on the profitability of a program and is generally calculated based on predefined program revenues less predefined program expenses. In most of Citi's partner sharing agreements, program expenses include net credit losses and, to the extent that the increase in net credit losses reduces Citi's liability for the partners' share for a given program year, it would generally result in lower payments to partners in total for that year and vice versa. Further, in some instances, other partner payments are based on program sales and new account acquisitions. Interchange revenues are recognized as earned on a daily basis when Citi's performance obligation to transmit funds to the payment networks has been satisfied. Annual card fees, net of origination costs, are deferred and amortized on a straight-line basis over a 12-month period. Costs related to card reward programs are recognized when the rewards are earned by the cardholders. Payments to partners are recognized when incurred.

Deposit-related fees consist of service charges on deposit accounts and fees earned from performing cash management activities and other deposit account services. Such fees are recognized in the period in which the related service is provided.

Transactional service fees primarily consist of fees charged for processing services such as cash management, global payments, clearing, international funds transfer and other trade services. Such fees are recognized as/when the associated service is satisfied, which normally occurs at the point in time the service is requested by the customer and provided by Citi.

Insurance distribution revenue consists of commissions earned from third-party insurance companies for marketing and selling insurance policies on behalf of such entities. Such commissions are recognized in *Commissions and fees* at the point in time the associated service is fulfilled, generally when the insurance policy is sold to the policyholder. Sales of certain insurance 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 policy is not recognized until the variable consideration becomes determinable. The Company recognized \$290 million, \$322 million and \$386 million of revenue related to such variable consideration for the years ended December 31, 2020, 2019 and 2018, respectively. These amounts primarily relate to performance obligations satisfied in prior periods.

Insurance premiums consist of premium income from insurance policies that Citi has underwritten and sold to policyholders.

The following table presents *Commissions and fees* revenue:

<i>In millions of dollars</i>	2020				2019				2018			
	ICG	GCB	Corp/ Other	Total	ICG	GCB	Corp/ Other	Total	ICG	GCB	Corp/ Other	Total
Investment banking	\$ 4,483	\$ —	\$ —	\$ 4,483	\$ 3,767	\$ —	\$ —	\$ 3,767	\$ 3,568	\$ —	\$ —	\$ 3,568
Brokerage commissions	1,986	974	—	2,960	1,771	841	—	2,612	1,977	815	—	2,792
Credit card and bank card income												
Interchange fees	703	7,301	—	8,004	1,222	8,621	—	9,843	1,077	8,112	11	9,200
Card-related loan fees	23	626	—	649	60	718	—	778	63	627	12	702
Card rewards and partner payments	(380)	(8,293)	—	(8,673)	(691)	(8,883)	—	(9,574)	(504)	(8,253)	(12)	(8,769)
Deposit-related fees ⁽¹⁾	958	376	—	1,334	1,048	470	—	1,518	1,031	572	1	1,604
Transactional service fees	886	88	—	974	824	123	—	947	733	83	4	820
Corporate finance ⁽²⁾	457	—	—	457	616	—	—	616	734	—	—	734
Insurance distribution revenue	11	492	—	503	12	524	—	536	14	565	11	590
Insurance premiums	—	125	—	125	—	186	—	186	—	119	—	119
Loan servicing	82	30	25	137	78	55	21	154	100	91	37	228
Other	118	310	4	432	99	261	3	363	116	139	14	269
Total commissions and fees⁽³⁾	\$ 9,327	\$ 2,029	\$ 29	\$11,385	\$ 8,806	\$ 2,916	\$ 24	\$11,746	\$ 8,909	\$ 2,870	\$ 78	\$11,857

(1) Includes overdraft fees of \$100 million, \$127 million and \$128 million for the years ended December 31, 2020, 2019 and 2018, respectively. Overdraft fees are accounted for under ASC 310.

(2) Consists primarily of fees earned from structuring and underwriting loan syndications or related financing activity. This activity is accounted for under ASC 310.

(3) *Commissions and fees* includes \$(7,160) million, \$(7,695) million and \$(6,853) million not accounted for under ASC 606, *Revenue from Contracts with Customers*, for the years ended December 31, 2020, 2019 and 2018, respectively. Amounts reported in *Commissions and fees* accounted for under other guidance primarily include card-related loan fees, card reward programs and certain partner payments, corporate finance fees, insurance premiums and loan servicing fees.

Administration and Other Fiduciary Fees

Administration and other fiduciary fees revenue is primarily composed of custody fees and fiduciary fees.

The custody product is composed of numerous services related to the administration, safekeeping and reporting for both U.S. and non-U.S. denominated securities. The services offered to clients include trade settlement, safekeeping, income collection, corporate action notification, record-keeping and reporting, tax reporting and cash management. These services are provided for a wide range of securities, including but not limited to equities, municipal and corporate bonds, mortgage- and asset-backed securities, money market instruments, U.S. Treasuries and agencies, derivative instruments, mutual funds, alternative investments and precious metals. Custody fees are recognized as or when the associated promised service is satisfied, which normally occurs at the point in time the service is requested by the customer and provided by Citi.

Fiduciary fees consist of trust services and investment management services. As an escrow agent, Citi receives, safekeeps, services and manages clients' escrowed assets, such as cash, securities, property (including intellectual property), contracts or other collateral. Citi performs its escrow agent duties by safekeeping the funds 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 Citi'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 expenses*.

The following table presents *Administration and other fiduciary fees* revenue:

<i>In millions of dollars</i>	2020				2019				2018			
	ICG	GCB	Corp/ Other	Total	ICG	GCB	Corp/ Other	Total	ICG	GCB	Corp/ Other	Total
Custody fees	\$1,590	\$ 29	\$ 38	\$1,657	\$1,453	\$ 16	\$ 73	\$1,542	\$1,497	\$ 133	\$ 65	\$1,695
Fiduciary fees	668	602	4	1,274	647	621	28	1,296	645	597	43	1,285
Guarantee fees	529	7	5	541	558	8	7	573	584	9	7	600
Total administration and other fiduciary fees⁽¹⁾	\$2,787	\$ 638	\$ 47	\$3,472	\$2,658	\$ 645	\$ 108	\$3,411	\$2,726	\$ 739	\$ 115	\$3,580

(1) *Administration and other fiduciary fees* includes \$541 million, \$573 million and \$600 million for the years ended December 31, 2020, 2019 and 2018, respectively, that are not accounted for under ASC 606, *Revenue from Contracts with Customers*. These amounts include guarantee fees.

6. 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. Not included in the table below is the impact of net interest revenue related to trading activities, which is an integral part of trading activities' profitability. See Note 4 to the Consolidated Financial Statements for information about net

interest revenue related to trading activities. Principal transactions include CVA (credit valuation adjustments) and FVA (funding valuation adjustments) on over-the-counter derivatives, and gains (losses) on certain economic hedges on loans in *ICG*. These adjustments are discussed further in Note 24 to the Consolidated Financial Statements.

In certain transactions, Citi incurs fees and presents these fees paid to third parties in operating expenses.

The following table presents *Principal transactions* revenue:

<i>In millions of dollars</i>	2020	2019	2018
Interest rate risks ⁽¹⁾	\$ 5,561	\$ 3,831	\$ 2,889
Foreign exchange risks ⁽²⁾	4,158	3,850	3,772
Equity risks ⁽³⁾	1,343	808	1,221
Commodity and other risks ⁽⁴⁾	1,133	546	668
Credit products and risks ⁽⁵⁾	1,690	(143)	355
Total	\$ 13,885	\$ 8,892	\$ 8,905

- (1) Includes revenues from government securities and corporate debt, municipal securities, mortgage securities and other debt instruments. Also includes spot and forward trading of currencies and exchange-traded 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 foreign exchange spot, forward, option and swap contracts, as well as foreign currency translation (FX translation) gains and losses.
- (3) Includes revenues from common, preferred and convertible preferred stock, convertible corporate debt, equity-linked notes and exchange-traded and OTC equity options and warrants.
- (4) Primarily includes revenues from crude oil, refined oil products, natural gas and other commodities trades.
- (5) Includes revenues from structured credit products.

7. INCENTIVE PLANS

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. Most of the shares of common stock issued by Citigroup as part of its equity compensation programs are issued to settle the vesting of the stock components of these awards.

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. \$100,000 (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 25%–60% of their awards in a combination of restricted or deferred stock, deferred cash stock units or deferred cash. Discretionary annual incentive awards to many 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).

Deferred annual incentive awards may be delivered in the form of one or more award types: a restricted or deferred stock award under Citi's Capital Accumulation Program (CAP), or a deferred cash stock unit award and/or a deferred cash award under Citi's Deferred Cash Award Plan. The applicable mix of awards may vary based on the employee's minimum deferral requirement and the country of employment.

Subject to certain exceptions (principally, for retirement-eligible employees), continuous employment within Citigroup is required to vest in CAP, deferred cash stock unit and deferred cash awards. Post employment vesting by retirement-eligible employees and participants who meet other conditions is generally conditioned upon their refraining from competition with Citigroup during the remaining vesting period, unless the employment relationship has been terminated by Citigroup under certain conditions.

Generally, the deferred awards vest in equal annual installments over three- or four-year periods. Vested CAP 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. Generally, in the EU, vested CAP 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 the award type).

Unvested CAP, deferred cash stock units and deferred cash awards are subject to one or more clawback provisions that apply in certain circumstances, including gross misconduct. CAP and deferred cash stock unit awards, made to certain employees, are subject to a formulaic performance-based vesting condition pursuant to which amounts otherwise scheduled to vest will be reduced based on the amount of any pretax loss in the participant's business in the calendar year preceding the scheduled vesting date. A minimum reduction of 20% applies for the first dollar of loss for CAP and deferred cash stock unit awards.

In addition, deferred cash awards are subject to a discretionary performance-based vesting condition under which an amount otherwise scheduled to vest may be reduced in the event of a "material adverse outcome" for which a participant has "significant responsibility." These awards are also subject to an additional clawback provision pursuant to which unvested awards may be canceled if the employee engaged in misconduct or exercised materially imprudent judgment, or failed to supervise or escalate the behavior of other employees who did.

Sign-on and Long-Term Retention Awards

Stock awards and deferred cash awards may be made at various times during the year as sign-on awards to induce new hires to join Citi or to high-potential employees as long-term retention awards.

Vesting periods and other terms and conditions pertaining to these awards tend to vary by grant. Generally, recipients must remain employed through the vesting dates to vest in the awards, except in cases of death, disability or involuntary termination other than for gross misconduct. These awards do not usually provide for post employment vesting by retirement-eligible participants.

Outstanding (Unvested) Stock Awards

A summary of the status of unvested stock awards granted as discretionary annual incentive or sign-on and long-term retention awards is presented below:

Unvested stock awards	Shares	Weighted-average grant date fair value per share
Unvested at December 31, 2019	30,194,715	\$ 61.30
Granted ⁽¹⁾	12,361,412	76.68
Canceled	(606,918)	69.22
Vested ⁽²⁾	(13,722,917)	58.45
Unvested at December 31, 2020	28,226,292	\$ 69.25

(1) The weighted-average fair value of the shares granted during 2019 and 2018 was \$61.78 and \$73.87, respectively.

(2) The weighted-average fair value of the shares vesting during 2020 was approximately \$79.68 per share.

Total unrecognized compensation cost related to unvested stock awards was \$580 million at December 31, 2020. The cost is expected to be recognized over a weighted-average period of 1.6 years.

Performance Share Units

Certain executive officers were awarded a target number of performance share units (PSUs) every February from 2017 to 2020, for performance in the year prior to the award date.

The PSUs granted each February from 2017 to 2020 were earned over the preceding three-year performance period, based half on return on tangible common equity performance in the last year of the three-year performance period and the remaining half on cumulative earnings per share over the three-year performance period.

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 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.

For all award years, the value of each PSU is equal to the value of one share of Citi common stock. Dividend equivalents will be 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, until the award is settled solely in cash after the end of the performance period. The value of the award, subject to the performance goals, is estimated using a 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	2020	2019	2018
Expected volatility	22.26 %	25.33 %	24.93 %
Expected dividend yield	2.82	2.67	1.75

A summary of the performance share unit activity for 2020 is presented below:

Performance share units	Units	Weighted-average grant date fair value per unit
Outstanding, beginning of year	1,492,000	\$ 71.69
Granted ⁽¹⁾	440,349	78.06
Canceled	—	—
Payments	(598,546)	59.22
Outstanding, end of year	1,333,803	\$ 79.39

- (1) Grant activity for 2020 includes additional units earned on the 2017 grant. The weighted-average grant price for the 2020 grant alone was \$83.45. The weighted-average grant date fair value per unit awarded in 2019 and 2018 was \$72.83 and \$83.24, respectively.

PSUs granted in 2017 were equitably adjusted after the enactment of Tax Reform, as required under the terms of those awards. The adjustments were intended to reproduce the expected value of the awards immediately prior to the passage of Tax Reform.

Stock Option Programs

All outstanding stock options are fully vested, with the related expense recognized as a charge to income in prior periods.

The following table presents information with respect to stock option activity under Citigroup's stock option programs:

	2020			2019			2018		
	Options	Weighted-average exercise price	Intrinsic value per share	Options	Weighted-average exercise price	Intrinsic value per share	Options	Weighted-average exercise price	Intrinsic value per share
Outstanding, beginning of year	166,650	\$ 47.42	\$ 32.47	762,225	\$ 101.84	\$ —	1,138,813	\$ 161.96	\$ —
Canceled	—	—	—	(11,365)	40.80	—	—	—	—
Expired	—	—	—	(449,916)	142.30	—	(376,588)	283.63	—
Exercised	—	—	—	(134,294)	39.00	23.50	—	—	—
Outstanding, end of year	166,650	\$ 47.42	\$ 14.24	166,650	\$ 47.42	\$ 32.47	762,225	\$ 101.84	\$ —
Exercisable, end of year	166,650			166,650			762,225		

The following table summarizes information about stock options outstanding under Citigroup's stock option programs at December 31, 2020:

Range of exercise prices	Number outstanding	Options outstanding		Options exercisable	
		Weighted-average contractual life remaining	Weighted-average exercise price	Number exercisable	Weighted-average exercise price
\$41.54–\$60.00	166,650	0.4 years	\$ 47.42	166,650	\$ 47.42
Total at December 31, 2020	166,650	0.4 years	\$ 47.42	166,650	\$ 47.42

Other Variable Incentive Compensation

Citigroup has 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 monthly commissions paid to financial advisors and mortgage loan officers.

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 made or are expected to be made to retirement-eligible employees, the charge to income is accelerated based on when the applicable conditions to 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 entire expense is recognized in the year prior to grant.

Recipients of Citigroup stock awards generally do not have any stockholder rights until shares are delivered upon vesting or exercise, or after the expiration of applicable required holding periods. Recipients of restricted or deferred stock awards and deferred cash stock unit awards, however, may, except as prohibited by applicable regulatory guidance, be entitled to receive or accrue dividends or dividend-equivalent payments during the vesting period. Recipients of restricted stock awards generally are entitled to vote the shares in their award during the vesting 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.

All equity awards granted since April 19, 2005 have been made pursuant to stockholder-approved stock incentive plans that are administered by the Personnel and Compensation Committee of the Citigroup Board of Directors, which is composed entirely of independent non-employee directors.

At December 31, 2020, approximately 34.0 million shares of Citigroup common stock were authorized and available for grant under Citigroup's 2019 Stock Incentive Plan, the only plan from which equity awards are currently granted.

The 2019 Stock Incentive Plan and predecessor plans permit the use of treasury stock or newly issued shares in connection with awards granted under the plans. Treasury shares were used to settle vestings from 2017 to 2020, and for the first quarter of 2021, except where local laws favor newly issued shares. The use of treasury stock or newly issued shares to settle stock awards does not affect the compensation expense recorded in the Consolidated Statement of Income for equity awards.

Incentive Compensation Cost

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

<i>In millions of dollars</i>	2020	2019	2018
Charges for estimated awards to retirement-eligible colleagues	\$ 748	\$ 683	\$ 669
Amortization of deferred cash awards, deferred cash stock units and performance stock units	201	355	202
Immediately vested stock award expense ⁽¹⁾	95	82	75
Amortization of restricted and deferred stock awards ⁽²⁾	420	404	435
Other variable incentive compensation	627	666	640
Total	\$ 2,091	\$ 2,190	\$ 2,021

- (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 colleagues.

8. RETIREMENT BENEFITS

Pension and Postretirement Plans

The Company has several non-contributory defined benefit pension plans covering certain U.S. employees and has various defined benefit pension and termination indemnity plans covering employees outside the U.S.

The 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 offers postretirement health care and life insurance benefits to certain eligible U.S. retired employees, as well as to certain eligible employees outside the U.S.

The Company also sponsors 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.

The plan obligations, plan assets and periodic plan expense for the Company's most significant pension and postretirement benefit plans (Significant Plans) are measured and disclosed quarterly, instead of annually. The Significant Plans captured approximately 90% of the Company's global pension and postretirement plan obligations as of December 31, 2020. All other plans (All Other Plans) are measured annually with a December 31 measurement date.

Net (Benefit) Expense

The following table summarizes the components of net (benefit) expense recognized in the Consolidated Statement of Income for the Company's pension and postretirement plans for Significant Plans and All Other Plans:

<i>In millions of dollars</i>	Pension plans						Postretirement benefit plans					
	U.S. plans			Non-U.S. plans			U.S. plans			Non-U.S. plans		
	2020	2019	2018	2020	2019	2018	2020	2019	2018	2020	2019	2018
Benefits earned during the year	\$ —	\$ 1	\$ 1	\$ 147	\$ 146	\$ 146	\$ —	\$ —	\$ —	\$ 7	\$ 8	\$ 9
Interest cost on benefit obligation	378	469	514	246	287	292	17	24	26	93	104	102
Expected return on assets	(824)	(821)	(844)	(245)	(281)	(291)	(17)	(18)	(14)	(77)	(84)	(88)
Amortization of unrecognized:												
Prior service cost (benefit)	2	2	2	5	(4)	(4)	(2)	—	—	(9)	(10)	(10)
Net actuarial loss	233	200	165	70	61	53	—	—	(1)	20	23	29
Curtailment loss (gain) ⁽¹⁾	—	1	1	(8)	(6)	(1)	—	—	—	—	—	—
Settlement (gain) loss ⁽¹⁾	—	—	—	(1)	6	7	—	—	—	—	—	—
Total net (benefit) expense	\$ (211)	\$ (148)	\$ (161)	\$ 214	\$ 209	\$ 202	\$ (2)	\$ 6	\$ 11	\$ 34	\$ 41	\$ 42

(1) Curtailment and settlement relate to repositioning and divestiture actions.

Contributions

The Company's funding practice for U.S. and non-U.S. pension and postretirement plans is generally to fund to minimum funding requirements in accordance with applicable local laws and regulations. The Company may increase its contributions above the minimum required contribution, if appropriate. In addition, management has the ability to change its funding practices. For the U.S. pension plans, there were no required minimum cash contributions for 2020 or 2019.

The following table summarizes the Company's actual contributions for the years ended December 31, 2020 and 2019, as well as expected Company contributions for 2021. Expected contributions are subject to change, since contribution decisions are affected by various factors, such as market performance, tax considerations and regulatory requirements.

<i>In millions of dollars</i>	Pension plans ⁽¹⁾						Postretirement benefit plans ⁽¹⁾						
	U.S. plans ⁽²⁾			Non-U.S. plans			U.S. plans			Non-U.S. plans			
	2021	2020	2019	2021	2020	2019	2021	2020	2019	2021	2020	2019	
Contributions made by the Company	\$ —	\$ —	\$ 425	\$ 97	\$ 115	\$ 111	\$ —	\$ —	\$ —	\$ 3	\$ 4	\$ 221	
Benefits paid directly by (reimbursements to) the Company		57	56	56	58	43	39	6	(15)	4	5	5	4

(1) Amounts reported for 2021 are expected amounts.

(2) The U.S. pension plans include benefits paid directly by the Company for the nonqualified pension plans.

Funded Status and Accumulated Other Comprehensive Income (AOCI)

The following table summarizes the funded status and amounts recognized on the Consolidated Balance Sheet for the Company's Significant Plans:

In millions of dollars	Pension plans				Postretirement benefit plans			
	U.S. plans		Non-U.S. plans		U.S. plans		Non-U.S. plans	
	2020	2019	2020	2019	2020	2019	2020	2019
Change in projected benefit obligation								
Projected benefit obligation at beginning of year	\$ 13,453	\$ 12,655	\$ 8,105	\$ 7,149	\$ 692	\$ 662	\$ 1,384	\$ 1,159
Benefits earned during the year	—	1	147	146	—	—	7	8
Interest cost on benefit obligation	378	469	246	287	17	24	93	104
Plan amendments ⁽¹⁾	—	—	(4)	7	(104)	—	—	—
Actuarial loss (gain) ⁽²⁾	950	1,263	518	861	(18)	46	30	140
Benefits paid, net of participants' contributions and government subsidy ⁽³⁾	(966)	(936)	(298)	(304)	(28)	(40)	(64)	(72)
Settlement gain ⁽⁴⁾	—	—	(110)	(84)	—	—	—	—
Curtailment loss (gain) ⁽⁴⁾	—	1	(14)	(4)	—	—	—	—
Foreign exchange impact and other	—	—	39	47	—	—	(60)	45
Projected benefit obligation at year end	\$ 13,815	\$ 13,453	\$ 8,629	\$ 8,105	\$ 559	\$ 692	\$ 1,390	\$ 1,384
Change in plan assets								
Plan assets at fair value at beginning of year	\$ 12,717	\$ 11,490	\$ 7,556	\$ 6,699	\$ 345	\$ 345	\$ 1,127	\$ 1,036
Actual return on assets ⁽²⁾	1,502	1,682	584	781	29	36	129	138
Company contributions (reimbursements)	56	481	158	150	(15)	4	9	225
Benefits paid, net of participants' contributions and government subsidy ⁽³⁾	(966)	(936)	(298)	(304)	(28)	(40)	(64)	(72)
Settlement gain ⁽⁴⁾	—	—	(110)	(84)	—	—	—	—
Foreign exchange impact and other	—	—	(59)	314	—	—	(55)	(200)
Plan assets at fair value at year end	\$ 13,309	\$ 12,717	\$ 7,831	\$ 7,556	\$ 331	\$ 345	\$ 1,146	\$ 1,127
Funded status of the plans								
Qualified plans⁽⁵⁾	\$ 230	\$ (23)	\$ (798)	\$ (549)	\$ (228)	\$ (347)	\$ (244)	\$ (257)
Nonqualified plans⁽⁶⁾	(736)	(713)	—	—	—	—	—	—
Funded status of the plans at year end	\$ (506)	\$ (736)	\$ (798)	\$ (549)	\$ (228)	\$ (347)	\$ (244)	\$ (257)
Net amount recognized								
Qualified plans								
Benefit asset	\$ 230	\$ —	\$ 741	\$ 808	\$ —	\$ —	\$ 25	\$ 57
Benefit liability	—	(23)	(1,539)	(1,357)	(228)	(347)	(269)	(314)
Qualified plans	\$ 230	\$ (23)	\$ (798)	\$ (549)	\$ (228)	\$ (347)	\$ (244)	\$ (257)
Nonqualified plans	(736)	(713)	—	—	—	—	—	—
Net amount recognized on the balance sheet	\$ (506)	\$ (736)	\$ (798)	\$ (549)	\$ (228)	\$ (347)	\$ (244)	\$ (257)
Amounts recognized in AOCI								
Net transition obligation	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
Prior service (cost) benefit	(10)	(12)	12	1	101	—	63	76
Net actuarial (loss) gain	(7,132)	(7,092)	(1,863)	(1,735)	56	24	(348)	(416)
Net amount recognized in equity (pretax)	\$ (7,142)	\$ (7,104)	\$ (1,851)	\$ (1,734)	\$ 157	\$ 24	\$ (285)	\$ (340)
Accumulated benefit obligation at year end	\$ 13,812	\$ 13,447	\$ 8,116	\$ 7,618	\$ 559	\$ 692	\$ 1,390	\$ 1,384

(1) U.S. postretirement benefit plan was amended in 2020 to move grandfathered Medicare-eligible retirees to the Medicare individual marketplace.

(2) During 2020 and 2019, the actuarial loss is primarily due to the decline in global discount rates offset by actual return on assets due to favorable asset returns.

(3) U.S. postretirement benefit plans were net of Employer Group Waiver Plan subsidy of \$40 million and \$22 million in 2020 and 2019, respectively.

(4) Curtailment and settlement (gains) losses relate to repositioning and divestiture activities.

(5) The U.S. qualified pension plan is fully funded under specified Employee Retirement Income Security Act (ERISA) funding rules as of January 1, 2021 and no minimum required funding is expected for 2021.

(6) The nonqualified plans of the Company are unfunded.

The following table shows the change in *AOCI* related to the Company's pension, postretirement and post employment plans:

<i>In millions of dollars</i>	2020	2019	2018
Beginning of year balance, net of tax⁽¹⁾⁽²⁾	\$ (6,809)	\$ (6,257)	\$ (6,183)
Actuarial assumptions changes and plan experience	(1,464)	(2,300)	1,288
Net asset gain (loss) due to difference between actual and expected returns	1,076	1,427	(1,732)
Net amortization	318	274	214
Prior service credit (cost)	108	(7)	(7)
Curtailement/settlement gain ⁽³⁾	(8)	1	7
Foreign exchange impact and other	(108)	(66)	136
Change in deferred taxes, net	23	119	20
Change, net of tax	\$ (55)	\$ (552)	\$ (74)
End of year balance, net of tax⁽¹⁾⁽²⁾	\$ (6,864)	\$ (6,809)	\$ (6,257)

(1) See Note 19 to the Consolidated Financial Statements for further discussion of net *AOCI* balance.

(2) Includes net-of-tax amounts for certain profit-sharing plans outside the U.S.

(3) Curtailement and settlement relate to repositioning and divestiture activities.

At December 31, 2020 and 2019, the aggregate projected benefit obligation (PBO), the aggregate accumulated benefit obligation (ABO) and the aggregate fair value of plan assets are presented for all defined benefit pension plans with a PBO in excess of plan assets and for all defined benefit pension plans with an ABO in excess of plan assets as follows:

<i>In millions of dollars</i>	PBO exceeds fair value of plan assets				ABO exceeds fair value of plan assets			
	U.S. plans ⁽¹⁾		Non-U.S. plans		U.S. plans ⁽¹⁾		Non-U.S. plans	
	2020	2019	2020	2019	2020	2019	2020	2019
Projected benefit obligation	\$ 736	\$ 13,453	\$ 4,849	\$ 4,445	\$ 736	\$ 13,453	\$ 4,723	\$ 2,748
Accumulated benefit obligation	734	13,447	4,400	4,041	734	13,447	4,329	2,435
Fair value of plan assets	—	12,717	3,310	3,089	—	12,717	3,212	1,429

(1) As of December 31, 2020, only the nonqualified plans' PBO and ABO exceeded plan assets; As of December 31, 2019, both the qualified and nonqualified plans' PBO and ABO exceeded plan assets.

Plan Assumptions

The Company utilizes a number of assumptions to determine plan obligations and expenses. Changes in one or a combination of these assumptions will have an impact on the Company's pension and postretirement PBO, funded status and (benefit) expense. Changes in the plans' funded status resulting from changes in the PBO and fair value of plan assets will have a corresponding impact on *Accumulated other comprehensive income (loss)*.

The actuarial assumptions at the respective years ended December 31 in the table below are used to measure the year-end PBO and the net periodic (benefit) expense for the subsequent year (period). Since Citi's Significant Plans are measured on a quarterly basis, the year-end rates for those plans are used to calculate the net periodic (benefit) expense for the subsequent year's first quarter.

As a result of the quarterly measurement process, the net periodic (benefit) expense for the Significant Plans is calculated at each respective quarter end based on the preceding quarter-end rates (as shown below for the U.S. and non-U.S. pension and postretirement plans). The actuarial assumptions for All Other Plans are measured annually.

Certain assumptions used in determining pension and postretirement benefit obligations and net benefit expense for the Company's plans are shown in the following table:

<i>At year end</i>	2020	2019
Discount rate		
U.S. plans		
Qualified pension	2.45%	3.25%
Nonqualified pension	2.35	3.25
Postretirement	2.20	3.15
Non-U.S. pension plans		
Range ⁽¹⁾	-0.25 to 11.15	-0.10 to 11.30
Weighted average	3.14	3.65
Non-U.S. postretirement plans		
Range	0.80 to 8.55	0.90 to 9.10
Weighted average	7.42	7.76
Future compensation increase rate⁽²⁾		
Non-U.S. pension plans		
Range	1.20 to 11.25	1.50 to 11.50
Weighted average	3.10	3.17
Expected return on assets		
U.S. plans		
Qualified pension	5.80	6.70
Postretirement ⁽³⁾	5.80/1.50	6.70/3.00
Non-U.S. pension plans		
Range	0.00 to 11.50	0.00 to 11.50
Weighted average	3.39	3.95
Non-U.S. postretirement plans		
Range	5.95 to 8.00	6.20 to 8.00
Weighted average	7.99	7.99

- (1) Due to substantial downward movement in yields, there were negative discount rates for plans with relatively short duration in major markets, such as the Eurozone and Switzerland.
- (2) Not material for U.S. plans.
- (3) For the year ended 2020 and 2019, the expected return on assets for the VEBA Trust was 1.50% and 3.00% respectively.

<i>During the year</i>	2020	2019	2018
Discount rate			
U.S. plans			
Qualified pension	3.25%/3.20%/2.60%/2.55%	4.25%/3.85%/3.45%/3.10%	3.60%/3.95%/4.25%/4.30%
Nonqualified pension	3.25/3.25/2.55/2.50	4.25/3.90/3.50/3.10	3.60/3.95/4.25/4.30
Postretirement	3.15/3.20/2.45/2.35	4.20/3.80/3.35/3.00	3.50/3.90/4.20/4.20
Non-U.S. pension plans ⁽¹⁾			
Range ⁽²⁾	-0.10 to 11.30	-0.05 to 12.00	0.00 to 10.75
Weighted average	3.65	4.47	4.17
Non-U.S. postretirement plans ⁽¹⁾			
Range	0.90 to 9.75	1.75 to 10.75	1.75 to 10.10
Weighted average	7.76	9.05	8.10
Future compensation increase rate⁽³⁾			
Non-U.S. pension plans ⁽¹⁾			
Range	1.50 to 11.50	1.30 to 13.67	1.17 to 13.67
Weighted average	3.17	3.16	3.08
Expected return on assets			
U.S. plans			
Qualified pension ⁽⁴⁾	6.70	6.70	6.80/6.70
Postretirement ⁽⁴⁾	6.70/3.00	6.70/3.00	6.80/6.70/3.00
Non-U.S. pension plans ⁽¹⁾			
Range	0.00 to 11.50	1.00 to 11.50	0.00 to 11.60
Weighted average	3.95	4.30	4.52
Non-U.S. postretirement plans ⁽¹⁾			
Range	6.20 to 8.00	8.00 to 9.20	8.00 to 9.80
Weighted average	7.99	8.01	8.01

- (1) Reflects rates utilized to determine the quarterly expense for Significant non-U.S. pension and postretirement plans.
- (2) Due to substantial downward movement in yields, there were negative discount rates for plans with relatively short duration in major markets, such as the Eurozone and Switzerland.
- (3) Not material for U.S. plans.
- (4) The expected return on assets for the U.S. pension and postretirement plans was lowered from 6.70% to 5.80% effective January 1, 2021 to reflect the lower interest rate environment and a change in target asset allocation.

Discount Rate

The discount rates for the U.S. pension and postretirement plans were selected by reference to a Citigroup-specific analysis using each plan's specific cash flows and compared with high-quality corporate bond indices for reasonableness. The discount rates for the non-U.S. pension and postretirement plans are selected by reference to high-quality corporate bond rates in countries that have developed corporate bond markets. However, where developed corporate bond markets do not exist, the discount rates are selected by reference to local government bond rates with a premium added to reflect the additional risk for corporate bonds in certain countries. Effective December 31, 2019, the established rounding convention is to the nearest 5 bps for all countries.

Expected Return on Assets

The Company determines its assumptions for the expected return on assets for its U.S. pension and postretirement plans using a "building block" approach, which focuses on ranges of anticipated rates of return for each asset class. A weighted average range of nominal rates is then determined based on target allocations to each asset class. Market performance over a number of earlier years is evaluated covering a wide range of economic conditions to determine whether there are sound reasons for projecting any past trends.

The Company considers the expected return on assets to be a long-term assessment of return expectations and does not anticipate changing this assumption unless there are significant changes in investment strategy or economic conditions. This contrasts with the selection of the discount rate and certain other assumptions, which are reconsidered annually (or quarterly for the Significant Plans) in accordance with GAAP.

The expected return on assets for the U.S. pension and postretirement plans Trust was 5.80% at December 31, 2020 and 6.70% at December 31, 2019 and 2018. The expected return on assets reflects the expected annual appreciation of the plan assets and reduces the Company's annual pension expense. The expected return on assets is deducted from the sum of service cost, interest cost and other components of pension expense to arrive at the net pension (benefit) expense.

The following table shows the expected return on assets used in determining the Company's pension expense compared to the actual return on assets during 2020, 2019 and 2018 for the U.S. pension and postretirement plans:

U.S. plans (During the year)	2020	2019	2018
Expected return on assets			
U.S. pension and postretirement trust	6.70%	6.70%	6.80%/6.70%
VEBA trust	3.00	3.00	3.00
Actual return on assets ⁽¹⁾			
U.S. pension and postretirement trust	12.84	15.20	-3.40
VEBA trust	2.11	1.91 to 2.76	0.43 to 1.41

(1) Actual return on assets is presented net of fees.

Sensitivities of Certain Key Assumptions

The following tables summarize the effect on pension expense:

<i>In millions of dollars</i>	Discount rate		
	One-percentage-point increase		
	2020	2019	2018
U.S. plans	\$ 34	\$ 28	\$ 25
Non-U.S. plans	(16)	(19)	(22)

<i>In millions of dollars</i>	One-percentage-point decrease		
	2020	2019	2018
	U.S. plans	\$ (52)	\$ (44)
Non-U.S. plans	25	32	32

The U.S. Qualified Pension Plan was frozen in 2008, and as a result, most service costs have been eliminated. The pension expense for the U.S. Qualified Pension Plan is therefore driven primarily by interest cost rather than by service cost. An increase in the discount rate generally increases pension expense.

For Non-U.S. Pension Plans that are not frozen (in countries such as Mexico, the U.K. and South Korea), there is more service cost. The pension expense for the Non-U.S. Plans is driven by both service cost and interest cost. An increase in the discount rate generally decreases pension expense due to the greater impact on service cost compared to interest cost.

Since the U.S. Qualified Pension Plan was frozen, most of the prospective service cost has been eliminated and the gain/loss amortization period was changed to the life expectancy for inactive participants. As a result, pension expense for the U.S. Qualified Pension Plan is driven more by interest costs than service costs, and an increase in the discount rate would increase pension expense, while a decrease in the discount rate would decrease pension expense.

The following tables summarize the effect on pension expense:

<i>In millions of dollars</i>	Expected return on assets		
	One-percentage-point increase		
	2020	2019	2018
U.S. plans	\$ (123)	\$ (123)	\$ (126)
Non-U.S. plans	(66)	(64)	(64)

<i>In millions of dollars</i>	One-percentage-point decrease		
	2020	2019	2018
	U.S. plans	\$ 123	\$ 123
Non-U.S. plans	66	64	64

Health Care Cost Trend Rate

Assumed health care cost trend rates were as follows:

	2020	2019
Health care cost increase rate for U.S. plans		
Following year	6.50%	6.75%
Ultimate rate to which cost increase is assumed to decline	5.00	5.00
Year in which the ultimate rate is reached	2027	2027
Health care cost increase rate for non-U.S. plans (weighted average)		
Following year	6.85%	6.85%
Ultimate rate to which cost increase is assumed to decline	6.85	6.85
Year in which the ultimate rate is reached	2021	2020

Interest Crediting Rate

The Company has cash balance plans and other plans with promised interest crediting rates. For these plans, the interest crediting rates are set in line with plan rules or country legislation and do not change with market conditions.

At year end	Weighted average interest crediting rate		
	2020	2019	2018
U.S. plans	1.45%	2.25%	3.25%
Non-U.S. plans	1.60	1.61	1.68

Plan Assets

Citigroup's pension and postretirement plans' asset allocations for the U.S. plans and the target allocations by asset category based on asset fair values, are as follows:

Asset category ⁽¹⁾	Target asset allocation	U.S. pension assets at December 31,		U.S. postretirement assets at December 31,	
	2021	2020	2019	2020	2019
Equity securities ⁽²⁾	0–26%	16 %	17 %	16 %	17 %
Debt securities ⁽³⁾	35–82	59	58	59	58
Real estate	0–7	4	4	4	4
Private equity	0–10	3	3	3	3
Other investments	0–30	18	18	18	18
Total		100 %	100 %	100 %	100 %

- (1) Asset allocations for the U.S. plans are set by investment strategy, not by investment product. For example, private equities with an underlying investment in real estate are classified in the real estate asset category, not private equity.
- (2) Equity securities in the U.S. pension and postretirement plans do not include any Citigroup common stock at the end of 2020 and 2019.
- (3) The VEBA Trust for postretirement benefits is primarily invested in cash equivalents and debt securities in 2020 and 2019 and is not reflected in the table above.

Third-party investment managers and advisors provide their services to Citigroup's U.S. pension and postretirement plans. Assets are rebalanced as the Company's Pension Plan Investment Committee deems appropriate. Citigroup's investment strategy, with respect to its assets, is to maintain a globally diversified investment portfolio across several asset classes that, when combined with Citigroup's contributions to

the plans, will maintain the plans' ability to meet all required benefit obligations.

Citigroup's pension and postretirement plans' weighted-average asset allocations for the non-U.S. plans and the actual ranges, and the weighted-average target allocations by asset category based on asset fair values, are as follows:

Asset category ⁽¹⁾	Non-U.S. pension plans				
	Target asset allocation	Actual range at December 31,		Weighted-average at December 31,	
		2021	2020	2019	2020
Equity securities	0–100%	0–100%	0–100%	15 %	13 %
Debt securities	0–100	0–100	0–100	77	80
Real estate	0–15	0–12	0–15	1	1
Other investments	0–100	0–100	0–100	7	6
Total				100 %	100 %

- (1) Similar to the U.S. plans, asset allocations for certain non-U.S. plans are set by investment strategy, not by investment product.

Non-U.S. postretirement plans

Asset category ⁽¹⁾	Target asset allocation	Actual range at December 31,		Weighted-average at December 31,	
	2021	2020	2019	2020	2019
Equity securities	0–38%	0–38%	0–31%	38 %	27 %
Debt securities	56–100	56–100	66–100	56	71
Other investments	0–6	0–6	0–3	6	2
Total				100 %	100 %

(1) Similar to the U.S. plans, asset allocations for certain non-U.S. plans are set by investment strategy, not by investment product.

Fair Value Disclosure

For information on fair value measurements, including descriptions of Levels 1, 2 and 3 of the fair value hierarchy and the valuation methodology utilized by the Company, see Notes 1 and 24 to the Consolidated Financial Statements. Investments measured using the NAV per share practical expedient are excluded from Level 1, Level 2 and Level 3 in the tables below.

Certain investments may transfer between the fair value hierarchy classifications during the year due to changes in valuation methodology and pricing sources.

Plan assets by detailed asset categories and the fair value hierarchy are as follows:

Asset categories	U.S. pension and postretirement benefit plans ⁽¹⁾			
	Fair value measurement at December 31, 2020			
	Level 1	Level 2	Level 3	Total
U.S. equities	\$ 813	\$ —	\$ —	\$ 813
Non-U.S. equities	725	—	—	725
Mutual funds and other registered investment companies	447	—	—	447
Commingled funds	—	1,074	—	1,074
Debt securities	1,275	4,429	—	5,704
Annuity contracts	—	—	1	1
Derivatives	8	6	—	14
Other investments	16	—	57	73
Total investments	\$ 3,284	\$ 5,509	\$ 58	\$ 8,851
Cash and short-term investments	\$ 72	\$ 1,035	\$ —	\$ 1,107
Other investment liabilities	(2)	(10)	—	(12)
Net investments at fair value	\$ 3,354	\$ 6,534	\$ 58	\$ 9,946
Other investment receivables redeemed at NAV			\$	99
Securities valued at NAV				3,595
Total net assets			\$	13,640

(1) The investments of the U.S. pension and postretirement plans are commingled in one trust. At December 31, 2020, the allocable interests of the U.S. pension and postretirement plans were 98.0% and 2.0%, respectively. The investments of the VEBA Trust for postretirement benefits are reflected in the above table.

U.S. pension and postretirement benefit plans⁽¹⁾

Fair value measurement at December 31, 2019

Asset categories	Level 1	Level 2	Level 3	Total
U.S. equities	\$ 739	\$ —	\$ —	\$ 739
Non-U.S. equities	553	—	—	553
Mutual funds and other registered investment companies	280	—	—	280
Commingled funds	—	1,410	—	1,410
Debt securities	1,534	4,046	—	5,580
Annuity contracts	—	—	1	1
Derivatives	10	7	—	17
Other investments	—	—	75	75
Total investments	\$ 3,116	\$ 5,463	\$ 76	\$ 8,655
Cash and short-term investments	\$ 93	\$ 1,080	\$ —	\$ 1,173
Other investment liabilities	(87)	(11)	—	(98)
Net investments at fair value	\$ 3,122	\$ 6,532	\$ 76	\$ 9,730
Other investment receivables redeemed at NAV			\$	22
Securities valued at NAV				3,310
Total net assets			\$	13,062

(1) The investments of the U.S. pension and postretirement plans are commingled in one trust. At December 31, 2019, the allocable interests of the U.S. pension and postretirement plans were 98.0% and 2.0%, respectively. The investments of the VEBA Trust for postretirement benefits are reflected in the above table.

Non-U.S. pension and postretirement benefit plans

Fair value measurement at December 31, 2020

Asset categories	Level 1	Level 2	Level 3	Total
U.S. equities	\$ 5	\$ 16	\$ —	\$ 21
Non-U.S. equities	105	670	—	775
Mutual funds and other registered investment companies	3,137	73	—	3,210
Commingled funds	24	—	—	24
Debt securities	6,705	1,420	—	8,125
Real estate	—	2	2	4
Annuity contracts	—	—	5	5
Derivatives	—	1,005	—	1,005
Other investments	—	—	312	312
Total investments	\$ 9,976	\$ 3,186	\$ 319	\$ 13,481
Cash and short-term investments	\$ 129	\$ 3	\$ —	\$ 132
Other investment liabilities	—	(4,650)	—	(4,650)
Net investments at fair value	\$ 10,105	\$ (1,461)	\$ 319	\$ 8,963
Securities valued at NAV			\$	14
Total net assets			\$	8,977

Non-U.S. pension and postretirement benefit plans

<i>In millions of dollars</i>	Fair value measurement at December 31, 2019			
	Level 1	Level 2	Level 3	Total
Asset categories				
U.S. equities	\$ 4	\$ 12	\$ —	\$ 16
Non-U.S. equities	127	262	—	389
Mutual funds and other registered investment companies	3,223	63	—	3,286
Commingled funds	23	—	—	23
Debt securities	4,307	1,615	10	5,932
Real estate	—	3	1	4
Annuity contracts	—	—	5	5
Derivatives	—	1,590	—	1,590
Other investments	1	—	274	275
Total investments	\$ 7,685	\$ 3,545	\$ 290	\$ 11,520
Cash and short-term investments	\$ 86	\$ 3	\$ —	\$ 89
Other investment liabilities	(3)	(2,938)	—	(2,941)
Net investments at fair value	\$ 7,768	\$ 610	\$ 290	\$ 8,668
Securities valued at NAV			\$	15
Total net assets			\$	8,683

Level 3 Rollforward

The reconciliations of the beginning and ending balances during the year for Level 3 assets are as follows:

In millions of dollars

U.S. pension and postretirement benefit plans						
Asset categories	Beginning Level 3 fair value at Dec. 31, 2019	Realized (losses)	Unrealized gains	Purchases, sales and issuances	Transfers in and/ or out of Level 3	Ending Level 3 fair value at Dec. 31, 2020
Annuity contracts	\$ 1	\$ —	\$ —	\$ —	\$ —	\$ 1
Other investments	75	(3)	3	(18)	—	57
Total investments	\$ 76	\$ (3)	\$ 3	\$ (18)	\$ —	\$ 58

In millions of dollars

U.S. pension and postretirement benefit plans						
Asset categories	Beginning Level 3 fair value at Dec. 31, 2018	Realized (losses)	Unrealized (losses)	Purchases, sales and issuances	Transfers in and/ or out of Level 3	Ending Level 3 fair value at Dec. 31, 2019
Annuity contracts	\$ 1	\$ —	\$ —	\$ —	\$ —	\$ 1
Other investments	127	(7)	12	(57)	—	75
Total investments	\$ 128	\$ (7)	\$ 12	\$ (57)	\$ —	\$ 76

In millions of dollars

Non-U.S. pension and postretirement benefit plans						
Asset categories	Beginning Level 3 fair value at Dec. 31, 2019	Unrealized gains	Purchases, sales and issuances	Transfers in and/ or out of Level 3	Ending Level 3 fair value at Dec. 31, 2020	
Debt securities	\$ 10	\$ —	(10)	—	\$ —	
Real estate	1	1	—	—	2	
Annuity contracts	5	—	—	—	5	
Other investments	274	23	15	—	312	
Total investments	\$ 290	\$ 24	\$ 5	\$ —	\$ 319	

In millions of dollars

Non-U.S. pension and postretirement benefit plans						
Asset categories	Beginning Level 3 fair value at Dec. 31, 2018	Unrealized (losses)	Purchases, sales and issuances	Transfers in and/ or out of Level 3	Ending Level 3 fair value at Dec. 31, 2019	
Debt securities	\$ 9	\$ 1	\$ —	\$ —	\$ 10	
Real estate	1	—	—	—	1	
Annuity contracts	10	—	(5)	—	5	
Other investments	210	7	57	—	274	
Total investments	\$ 230	\$ 8	\$ 52	\$ —	\$ 290	

Investment Strategy

The Company's global pension and postretirement funds' investment strategy is to invest in a prudent manner for the exclusive purpose of providing benefits to participants. The investment strategies are targeted to produce a total return that, when combined with the Company's contributions to the funds, will maintain the funds' ability to meet all required benefit obligations. Risk is controlled through diversification of asset types and investments in domestic and international equities, fixed income securities and cash and short-term investments. The target asset allocation in most locations outside the U.S. is primarily in equity and debt securities. These allocations may vary by geographic region and country depending on the nature of applicable obligations and various other regional considerations. The wide variation in the actual range of plan asset allocations for the funded non-U.S. plans is a result of differing local statutory requirements and economic conditions. For example, in certain countries local law requires that all pension plan assets must be invested in fixed income investments, government funds or local-country securities.

Significant Concentrations of Risk in Plan Assets

The assets of the Company's pension plans are diversified to limit the impact of any individual investment. The U.S. qualified pension plan is diversified across multiple asset classes, with publicly traded fixed income, publicly traded equity, hedge funds, and real estate representing the most significant asset allocations. Investments in these four asset classes are further diversified across funds, managers, strategies, vintages, sectors and geographies, depending on the specific characteristics of each asset class. The pension assets for the Company's non-U.S. Significant Plans are primarily invested in publicly traded fixed income and publicly traded equity securities.

Oversight and Risk Management Practices

The framework for the Company's pension oversight process includes monitoring of retirement plans by plan fiduciaries and/or management at the global, regional or country level, as appropriate. Independent Risk Management contributes to the risk oversight and monitoring for the Company's U.S. qualified pension plan and non-U.S. Significant Pension Plans. Although the specific components of the oversight process are tailored to the requirements of each region, country and plan, the following elements are common to the Company's monitoring and risk management process:

- periodic asset/liability management studies and strategic asset allocation reviews;
- periodic monitoring of funding levels and funding ratios;
- periodic monitoring of compliance with asset allocation guidelines;
- periodic monitoring of asset class and/or investment manager performance against benchmarks; and
- periodic risk capital analysis and stress testing.

Estimated Future Benefit Payments

The Company expects to pay the following estimated benefit payments in future years:

<i>In millions of dollars</i>	Pension plans		Postretirement benefit plans	
	U.S. plans	Non-U.S. plans	U.S. plans	Non-U.S. plans
2021	\$ 820	\$ 566	\$ 58	\$ 76
2022	832	504	55	80
2023	847	507	52	85
2024	852	521	49	90
2025	857	527	45	96
2026–2030	4,101	2,698	181	550

Post Employment Plans

The Company 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 following table summarizes the funded status and amounts recognized in the Company's Consolidated Balance Sheet:

<i>In millions of dollars</i>	2020	2019
Funded status of the plan at year end	\$ (40)	\$ (38)
Net amount recognized in AOCI (pretax)	\$ (17)	\$ (15)

The following table summarizes the net expense (benefit) recognized in the Consolidated Statement of Income for the Company's U.S. post employment plans:

<i>In millions of dollars</i>	2020	2019	2018
Net expense (benefit)	\$ 9	\$ 9	\$ (18)

Defined Contribution Plans

The Company sponsors 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 the Company 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 2020 and 2019, 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 Company contributions are invested according to participants' individual elections. The following tables summarize the Company contributions for the defined contribution plans:

<i>In millions of dollars</i>	U.S. plans		
	2020	2019	2018
Company contributions	\$ 414	\$ 404	\$ 396

<i>In millions of dollars</i>	Non-U.S. plans		
	2020	2019	2018
Company contributions	\$ 304	\$ 281	\$ 283

9. INCOME TAXES

Income Tax Provision

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

<i>In millions of dollars</i>	2020	2019	2018
Current			
Federal	\$ 305	\$ 365	\$ 834
Non-U.S.	4,113	4,352	4,290
State	440	323	284
Total current income taxes	\$ 4,858	\$ 5,040	\$ 5,408
Deferred			
Federal	\$ (1,430)	\$ (907)	\$ (620)
Non-U.S.	(690)	10	371
State	(213)	287	198
Total deferred income taxes	\$ (2,333)	\$ (610)	\$ (51)
Provision for income tax on continuing operations before noncontrolling interests⁽¹⁾	\$ 2,525	\$ 4,430	\$ 5,357
Provision (benefit) for income taxes on discontinued operations	—	(27)	(18)
Income tax expense (benefit) reported in stockholders' equity related to:			
FX translation	23	(11)	(263)
Investment securities	1,214	648	(346)
Employee stock plans	(4)	(16)	(2)
Cash flow hedges	455	269	(8)
Benefit plans	(23)	(119)	(20)
FVO DVA	(141)	(337)	302
Excluded fair value hedges	(8)	8	(17)
Retained earnings ⁽²⁾	(911)	46	(305)
Income taxes before noncontrolling interests	\$ 3,130	\$ 4,891	\$ 4,680

- (1) Includes the tax on realized investment gains and impairment losses resulting in a provision (benefit) of \$454 million and \$(14) million in 2020, \$373 million and \$(9) million in 2019 and \$104 million and \$(32) million in 2018, respectively.
- (2) 2020 reflects the tax effect of ASU 2016-13 for current expected credit losses (CECL). 2019 reflects the tax effect of the accounting change for ASU 2016-02 for lease transactions. 2018 reflects the tax effect of the accounting change for ASU 2016-16 for intra-entity transfers of assets and the tax effect of the accounting change for ASU 2018-03, to report the net unrealized gains on former AFS equity securities. See Note 1 to the Consolidated Financial Statements.

Tax Rate

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

	2020	2019	2018
Federal statutory rate	21.0 %	21.0 %	21.0 %
State income taxes, net of federal benefit	1.3	1.9	1.8
Non-U.S. income tax rate differential	3.5	1.3	5.3
Effect of tax law changes ⁽¹⁾	—	(0.5)	(0.6)
Nondeductible FDIC premiums	1.3	0.4	0.7
Basis difference in affiliates	(0.1)	(0.1)	(2.4)
Tax advantaged investments	(4.4)	(2.3)	(2.0)
Valuation allowance releases ⁽²⁾	(4.4)	(3.0)	—
Other, net	0.3	(0.2)	(1.0)
Effective income tax rate	18.5 %	18.5 %	22.8 %

- (1) 2018 includes one-time Tax Reform benefits of \$94 million for amounts that were considered provisional pursuant to SAB 118.
- (2) See "Deferred Tax Assets" below for a description of the components.

As set forth in the table above, Citi's effective tax rate for 2020 was 18.5%, the same as 2019.

Deferred Income Taxes

Deferred income taxes at December 31 related to the following:

<i>In millions of dollars</i>	2020	2019
Deferred tax assets		
Credit loss deduction	\$ 6,791	\$ 3,809
Deferred compensation and employee benefits	2,510	2,224
U.S. tax on non-U.S. earnings	1,195	1,030
Investment and loan basis differences	1,486	2,727
Tax credit and net operating loss carry-forwards	17,416	19,711
Fixed assets and leases	2,935	2,607
Other deferred tax assets	3,832	3,341
Gross deferred tax assets	\$36,165	\$35,449
Valuation allowance	\$ 5,177	\$ 6,476
Deferred tax assets after valuation allowance	\$30,988	\$28,973
Deferred tax liabilities		
Intangibles and leases	\$ (2,526)	\$ (2,640)
Debt issuances	(50)	(201)
Non-U.S. withholding taxes	(921)	(974)
Interest-related items	(597)	(587)
Other deferred tax liabilities	(2,054)	(1,477)
Gross deferred tax liabilities	\$ (6,148)	\$ (5,879)
Net deferred tax assets	\$24,840	\$23,094

Unrecognized Tax Benefits

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

<i>In millions of dollars</i>	2020	2019	2018
Total unrecognized tax benefits at January 1	\$ 721	\$ 607	\$ 1,013
Net amount of increases for current year's tax positions	51	50	40
Gross amount of increases for prior years' tax positions	217	151	46
Gross amount of decreases for prior years' tax positions	(74)	(44)	(174)
Amounts of decreases relating to settlements	(40)	(21)	(283)
Reductions due to lapse of statutes of limitation	(13)	(23)	(23)
Foreign exchange, acquisitions and dispositions	(1)	1	(12)
Total unrecognized tax benefits at December 31	\$ 861	\$ 721	\$ 607

The total amounts of unrecognized tax benefits at December 31, 2020, 2019 and 2018 that, if recognized, would affect Citi's tax expense are \$0.7 billion, \$0.6 billion and \$0.4 billion, respectively. The remaining uncertain tax positions have offsetting amounts in other jurisdictions or are temporary differences.

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

<i>In millions of dollars</i>	2020		2019		2018	
	Pretax	Net of tax	Pretax	Net of tax	Pretax	Net of tax
Total interest and penalties on the Consolidated Balance Sheet at January 1	\$ 100	\$ 82	\$ 103	\$ 85	\$ 121	\$ 101
Total interest and penalties in the Consolidated Statement of Income	14	10	(4)	(4)	6	6
Total interest and penalties on the Consolidated Balance Sheet at December 31 ⁽¹⁾	118	96	100	82	103	85

(1) Includes \$4 million, \$3 million and \$2 million for non-U.S. penalties in 2020, 2019 and 2018. Also includes \$1 million, \$1 million and \$1 million for state penalties in 2020, 2019 and 2018.

As of December 31, 2020, Citi 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. The potential range of amounts that could affect Citi's effective tax rate is between \$0 and \$150 million.

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
Mexico	2016
New York State and City	2009
United Kingdom	2016
India	2016
Singapore	2011
Hong Kong	2014
Ireland	2016

Non-U.S. Earnings

Non-U.S. pretax earnings approximated \$13.8 billion in 2020, \$16.7 billion in 2019 and \$16.1 billion in 2018. As a U.S. corporation, Citigroup 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, 2020, \$11.0 billion of basis differences of non-U.S. entities was indefinitely invested. At the existing tax rates, additional taxes (net of U.S. FTCs) of \$4.3 billion would have to be provided if such assertions were reversed.

Income taxes are not provided for the Company's "savings bank base year bad debt reserves" that arose before 1988, because under current U.S. tax rules, such taxes will become payable only to the extent that such amounts are distributed in excess of limits prescribed by federal law. At December 31, 2020, the amount of the base year reserves totaled approximately \$358 million (subject to a tax of \$75 million).

Deferred Tax Assets

As of December 31, 2020, Citi had a valuation allowance of \$5.2 billion, composed of valuation allowances of \$1.0 billion on its general basket FTC carry-forwards, \$2.4 billion on its branch basket FTC carry-forwards, \$1.0 billion on its U.S. residual DTA related to its non-U.S. branches, \$0.6 billion on local non-U.S. DTAs and \$0.2 billion on state net operating loss carry-forwards. The amount of Citi's valuation allowances (VA) may change in future years.

In 2020, Citi's VA for carry-forward FTCs in its branch basket decreased by \$1.0 billion and the related VA for the U.S. tax effect on non-U.S. branch temporary differences increased by \$0.2 billion. Of this total branch-related change of \$0.8 billion, \$0.6 billion impacted the tax provision as discussed below. The remainder of the branch basket-related VA decrease of \$0.2 billion was primarily due to carry-forward expirations and changes in foreign exchange rates. The level of branch pretax income, the local branch tax rate and the allocations of Overall Domestic Loss (ODL) and expenses for U.S. tax purposes to the branch basket are the main factors in determining the branch VA. Citi computed these factors for 2020. While the COVID-19 pandemic reduced branch earnings, the allocated ODL was not diminished since a large portion of the pandemic losses will not be recognizable for U.S. taxable income until a future period. In addition, lower than forecasted U.S. interest rates resulted in a lower allocation of interest expense to non-U.S. branches. The combination of the factors enumerated are reflected in the VA release of \$0.5 billion in Citi's full-year effective tax rate. Citi also released branch basket VA of \$0.1 billion in the fourth quarter, with respect to future years, based upon Citi's Operating Plan and estimates of future branch basket factors, as outlined above.

In Citi's general basket for FTCs, changes in the forecasted amount of income in U.S. locations derived from sources outside the U.S., in addition to tax examination changes from prior years, could alter the amount of valuation allowance that is needed against such FTCs. The valuation allowance for the general basket decreased by \$0.1 billion to \$1.0 billion, primarily due to the expiration of carry-forwards in 2020. In the general FTC basket, foreign source income, an important driver in the utilization of FTC carry-forwards for the current year and future years, has been reduced due to the compression in interest rate spreads. The pandemic has otherwise reduced U.S. income, which impacts ODL usage and, correspondingly, the utilization of FTC carry-forwards. Accordingly, management identified actions, which became prudent due to the effects of the pandemic, to increase future foreign source income and U.S. taxable income. These planning actions include geographic asset movements, deferral of future FTC recognition and capitalization of expenses for tax purposes, resulting in no tax provision change to Citi's general basket VA in 2020. In light of the pandemic, Citi will continue to monitor its forecasts and mix of earnings, which could affect Citi's valuation allowance against FTC carry-forwards. Citi continues to look for additional actions that are prudent and feasible, taking into account client, regulatory and operational considerations.

The valuation allowance for U.S. residual DTA related to its non-U.S. branches increased from \$0.8 billion to \$1.0 billion, primarily due to higher capitalized expenses. In addition, the non-U.S. local valuation allowance was reduced from \$1.0 billion to \$0.6 billion, primarily due to an expiration of NOL carry-forwards in a non-U.S. jurisdiction. The following table summarizes Citi's DTAs:

In billions of dollars

Jurisdiction/component ⁽¹⁾	DTAs balance December 31, 2020	DTAs balance December 31, 2019
U.S. federal⁽²⁾		
Net operating losses (NOLs) ⁽³⁾	\$ 3.0	\$ 2.8
Foreign tax credits (FTCs)	4.4	6.3
General business credits (GBCs)	3.6	2.5
Future tax deductions and credits	7.9	6.2
Total U.S. federal	\$ 18.9	\$ 17.8
State and local		
New York NOLs	\$ 1.5	\$ 1.7
Other state NOLs	0.1	0.2
Future tax deductions	1.7	1.3
Total state and local	\$ 3.3	\$ 3.2
Non-U.S.		
NOLs	\$ 0.6	\$ 0.5
Future tax deductions	2.0	1.6
Total non-U.S.	\$ 2.6	\$ 2.1
Total	\$ 24.8	\$ 23.1

- (1) All amounts are net of valuation allowances.
- (2) Included in the net U.S. federal DTAs of \$18.9 billion as of December 31, 2020 were deferred tax liabilities of \$3.7 billion that will reverse in the relevant carry-forward period and may be used to support the DTAs.
- (3) Consists of non-consolidated tax return NOL carry-forwards that are eventually expected to be utilized in Citigroup's consolidated tax return.

The following table summarizes the amounts of tax carry-forwards and their expiration dates:

In billions of dollars

Year of expiration	December 31, 2020	December 31, 2019
U.S. tax return general basket foreign tax credit carry-forwards⁽¹⁾		
2020	\$ —	\$ 0.9
2021	—	1.1
2022	2.3	2.4
2023	0.4	0.4
2025	1.4	1.4
2027	1.2	1.2
Total U.S. tax return general basket foreign tax credit carry-forwards	\$ 5.3	\$ 7.4
U.S. tax return branch basket foreign tax credit carry-forwards⁽¹⁾		
2020	\$ —	\$ 0.7
2021	0.7	0.6
2022	1.0	1.0
2028	0.6	0.9
2029	0.2	0.3
Total U.S. tax return branch basket foreign tax credit carry-forwards	\$ 2.5	\$ 3.5
U.S. tax return general business credit carry-forwards		
2032	\$ 0.3	\$ —
2033	0.3	0.3
2034	0.2	0.2
2035	0.2	0.2
2036	0.2	0.1
2037	0.5	0.5
2038	0.5	0.5
2039	0.7	0.7
2040	0.7	—
Total U.S. tax return general business credit carry-forwards	\$ 3.6	\$ 2.5
U.S. subsidiary separate federal NOL carry-forwards		
2027	\$ 0.1	\$ 0.1
2028	0.1	0.1
2030	0.3	0.3
2033	1.5	1.6
2034	2.0	2.0
2035	3.3	3.3
2036	2.1	2.1
2037	1.0	1.0
Unlimited carry-forward period	3.9	3.0
Total U.S. subsidiary separate federal NOL carry-forwards⁽²⁾	\$ 14.3	\$ 13.5
New York State NOL carry-forwards⁽²⁾		
2034	\$ 8.1	\$ 9.9
New York City NOL carry-forwards⁽²⁾		
2034	\$ 8.7	\$ 10.0
Non-U.S. NOL carry-forwards⁽¹⁾		
Various	\$ 1.2	\$ 1.5

(1) Before valuation allowance.

(2) Pretax.

The time remaining for utilization of the FTC component has shortened, given the passage of time. Although realization is not assured, Citi believes that the realization of the recognized net DTAs of \$24.8 billion at December 31, 2020 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*).

The majority of Citi's U.S. federal net operating loss carry-forward and all of its New York State and City net operating loss carry-forwards, are subject to a carry-forward period of 20 years. This provides enough time to fully utilize the DTAs pertaining to these existing NOL carry-forwards. This is due to Citi's forecast of sufficient U.S. taxable income and the fact that New York State and City continue to tax Citi's non-U.S. income.

With respect to the FTCs component of the DTAs, the carry-forward period is 10 years. Utilization of FTCs in any year is generally limited to 21% of foreign source taxable income in that year. However, overall domestic losses that Citi has incurred of approximately \$26 billion as of December 31, 2020 are allowed to be reclassified as foreign source income to the extent of 50%–100% (at taxpayer's election) of domestic source income produced in subsequent years. Such resulting foreign source income would substantially cover the FTC carry-forwards after valuation allowance. As noted in the tables above, Citi's FTC carry-forwards were \$4.4 billion (\$7.8 billion before valuation allowance) as of December 31, 2020, compared to \$6.3 billion as of December 31, 2019. Citi believes that it will generate sufficient U.S. taxable income within the 10-year carry-forward period to be able to utilize the net FTCs after the valuation allowance, after considering any FTCs produced in the tax return for such period, which must be used prior to any carry-forward utilization.

10. EARNINGS PER SHARE

The following table reconciles the income and share data used in the basic and diluted earnings per share (EPS) computations:

<i>In millions of dollars, except per share amounts</i>	2020	2019	2018
Earnings per common share			
Income from continuing operations before attribution of noncontrolling interests	\$ 11,107	\$ 19,471	\$ 18,088
Less: Noncontrolling interests from continuing operations	40	66	35
Net income from continuing operations (for EPS purposes)	\$ 11,067	\$ 19,405	\$ 18,053
Loss from discontinued operations, net of taxes	(20)	(4)	(8)
Citigroup's net income	\$ 11,047	\$ 19,401	\$ 18,045
Less: Preferred dividends ⁽¹⁾	1,095	1,109	1,174
Net income available to common shareholders	\$ 9,952	\$ 18,292	\$ 16,871
Less: Dividends and undistributed earnings allocated to employee restricted and deferred shares with rights to dividends, applicable to basic EPS	73	121	200
Net income allocated to common shareholders for basic EPS	\$ 9,879	\$ 18,171	\$ 16,671
Weighted-average common shares outstanding applicable to basic EPS (in millions)	2,085.8	2,249.2	2,493.3
Basic earnings per share⁽²⁾			
Income from continuing operations	\$ 4.75	\$ 8.08	\$ 6.69
Discontinued operations	(0.01)	—	—
Net income per share—basic	\$ 4.74	\$ 8.08	\$ 6.69
Net income allocated to common shareholders for basic EPS	\$ 9,879	\$ 18,171	\$ 16,671
Add back: Dividends allocated to employee restricted and deferred shares with rights to dividends that are forfeitable	30	33	—
Net income allocated to common shareholders for diluted EPS	\$ 9,909	\$ 18,204	\$ 16,671
Weighted-average common shares outstanding applicable to basic EPS (in millions)	\$ 2,085.8	\$ 2,249.2	\$ 2,493.3
Effect of dilutive securities			
Options ⁽³⁾	0.1	0.1	0.1
Other employee plans	13.1	16.0	1.4
Adjusted weighted-average common shares outstanding applicable to diluted EPS (in millions)⁽⁴⁾	2,099.0	2,265.3	2,494.8
Diluted earnings per share⁽²⁾			
Income from continuing operations	\$ 4.73	\$ 8.04	\$ 6.69
Discontinued operations	(0.01)	—	—
Net income per share—diluted	\$ 4.72	\$ 8.04	\$ 6.68

(1) See Note 20 to the Consolidated Financial Statements for the potential future impact of preferred stock dividends.

(2) Due to rounding, earnings per share on continuing operations and discontinued operations may not sum to earnings per share on net income.

(3) During 2020, weighted-average options to purchase 0.1 million shares of common stock were outstanding but not included in the computation of earnings per share because the weighted-average exercise price of \$56.25 per share was anti-dilutive. During 2019, no significant options to purchase shares of common stock were outstanding. During 2018, weighted-average options to purchase 0.5 million shares of common stock were outstanding but not included in the computation of earnings per share because the weighted-average exercise prices of \$145.69 per share was anti-dilutive.

(4) Due to rounding, weighted-average common shares outstanding applicable to basic EPS and the effect of dilutive securities may not sum to weighted-average common shares outstanding applicable to diluted EPS.

11. 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:

In millions of dollars	December 31,	
	2020	2019
Securities purchased under agreements to resell	\$ 204,655	\$ 169,874
Deposits paid for securities borrowed	90,067	81,448
Total, net⁽¹⁾	\$ 294,722	\$ 251,322
Allowance for credit losses on securities purchased and borrowed ⁽²⁾	(10)	—
Total, net of allowance	\$ 294,712	\$ 251,322

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

In millions of dollars	December 31,	
	2020	2019
Securities sold under agreements to repurchase	\$ 181,194	\$ 155,164
Deposits received for securities loaned	18,331	11,175
Total, net⁽¹⁾	\$ 199,525	\$ 166,339

- (1) The above tables do not include securities-for-securities lending transactions of \$6.8 billion and \$6.3 billion at December 31, 2020 and 2019, 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*.
- (2) See Note 15 to the Consolidated Financial Statements for further information.

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

To maintain reliable funding under a wide range of market conditions, including under periods of stress, Citi manages these activities by taking into consideration the quality of the underlying collateral and stipulating financing tenor. Citi 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, Citi 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 described in Notes 24 and 25 to the Consolidated Financial Statements. 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 25 to the Consolidated Financial Statements. 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 obtains or posts 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, 2020

<i>In millions of dollars</i>	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	\$ 362,025	\$ 157,370	\$ 204,655	\$ 159,232	\$ 45,423
Deposits paid for securities borrowed	96,425	6,358	90,067	13,474	76,593
Total	\$ 458,450	\$ 163,728	\$ 294,722	\$ 172,706	\$ 122,016

<i>In millions of dollars</i>	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	\$ 338,564	\$ 157,370	\$ 181,194	\$ 95,563	\$ 85,631
Deposits received for securities loaned	24,689	6,358	18,331	7,982	10,349
Total	\$ 363,253	\$ 163,728	\$ 199,525	\$ 103,545	\$ 95,980

As of December 31, 2019

<i>In millions of dollars</i>	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	\$ 281,274	\$ 111,400	\$ 169,874	\$ 134,150	\$ 35,724
Deposits paid for securities borrowed	90,047	8,599	81,448	27,067	54,381
Total	\$ 371,321	\$ 119,999	\$ 251,322	\$ 161,217	\$ 90,105

<i>In millions of dollars</i>	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	\$ 266,564	\$ 111,400	\$ 155,164	\$ 91,034	\$ 64,130
Deposits received for securities loaned	19,774	8,599	11,175	3,138	8,037
Total	\$ 286,338	\$ 119,999	\$ 166,339	\$ 94,172	\$ 72,167

- (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, 2020					
<i>In millions of dollars</i>	Open and overnight	Up to 30 days	31–90 days	Greater than 90 days	Total
Securities sold under agreements to repurchase	\$ 160,754	\$ 98,226	\$ 41,679	\$ 37,905	\$ 338,564
Deposits received for securities loaned	17,038	3	2,770	4,878	24,689
Total	\$ 177,792	\$ 98,229	\$ 44,449	\$ 42,783	\$ 363,253

As of December 31, 2019					
<i>In millions of dollars</i>	Open and overnight	Up to 30 days	31–90 days	Greater than 90 days	Total
Securities sold under agreements to repurchase	\$ 108,534	\$ 82,749	\$ 35,108	\$ 40,173	\$ 266,564
Deposits received for securities loaned	15,758	208	1,789	2,019	19,774
Total	\$ 124,292	\$ 82,957	\$ 36,897	\$ 42,192	\$ 286,338

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, 2020			
<i>In millions of dollars</i>	Repurchase agreements	Securities lending agreements	Total
U.S. Treasury and federal agency securities	\$ 112,437	\$ —	\$ 112,437
State and municipal securities	664	2	666
Foreign government securities	130,017	194	130,211
Corporate bonds	20,149	78	20,227
Equity securities	21,497	24,149	45,646
Mortgage-backed securities	45,566	—	45,566
Asset-backed securities	3,307	—	3,307
Other	4,927	266	5,193
Total	\$ 338,564	\$ 24,689	\$ 363,253

As of December 31, 2019			
<i>In millions of dollars</i>	Repurchase agreements	Securities lending agreements	Total
U.S. Treasury and federal agency securities	\$ 100,781	\$ 27	\$ 100,808
State and municipal securities	1,938	5	1,943
Foreign government securities	95,880	272	96,152
Corporate bonds	18,761	249	19,010
Equity securities	12,010	19,069	31,079
Mortgage-backed securities	28,458	—	28,458
Asset-backed securities	4,873	—	4,873
Other	3,863	152	4,015
Total	\$ 266,564	\$ 19,774	\$ 286,338

12. 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. Citi 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 Citi 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.

Citi 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, Citi 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 Citi. 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* consisted of the following:

<i>In millions of dollars</i>	December 31,	
	2020	2019
Receivables from customers	\$ 18,097	\$ 15,912
Receivables from brokers, dealers and clearing organizations	26,709	23,945
Total brokerage receivables⁽¹⁾	\$ 44,806	\$ 39,857
Payables to customers	\$ 39,319	\$ 37,613
Payables to brokers, dealers and clearing organizations	11,165	10,988
Total brokerage payables⁽¹⁾	\$ 50,484	\$ 48,601

- (1) Includes brokerage receivables and payables recorded by Citi broker-dealer entities that are accounted for in accordance with the AICPA Accounting Guide for Brokers and Dealers in Securities as codified in ASC 940-320.

13. INVESTMENTS

The following table presents Citi's investments by category:

<i>In millions of dollars</i>	December 31,	
	2020	2019
Debt securities available-for-sale (AFS)	\$ 335,084	\$ 280,265
Debt securities held-to-maturity (HTM) ⁽¹⁾	104,943	80,775
Marketable equity securities carried at fair value ⁽²⁾	515	458
Non-marketable equity securities carried at fair value ⁽²⁾	551	704
Non-marketable equity securities measured using the measurement alternative ⁽³⁾	962	700
Non-marketable equity securities carried at cost ⁽⁴⁾	5,304	5,661
Total investments	\$ 447,359	\$ 368,563

(1) Carried at adjusted amortized cost basis, net of any ACL.

(2) Unrealized gains and losses are recognized in earnings.

(3) Impairment losses and adjustments to the carrying value as a result of observable price changes are recognized in earnings. See "Non-Marketable Equity Securities Not Carried at Fair Value" below.

(4) Represents shares issued by the Federal Reserve Bank, Federal Home Loan Banks and certain exchanges of which Citigroup is a member.

The following table presents interest and dividend income on investments:

<i>In millions of dollars</i>	2020	2019	2018
Taxable interest	\$ 7,554	\$ 9,269	\$ 8,704
Interest exempt from U.S. federal income tax	301	404	521
Dividend income	134	187	269
Total interest and dividend income on investments	\$ 7,989	\$ 9,860	\$ 9,494

The following table presents realized gains and losses on the sales of investments, which exclude impairment losses:

<i>In millions of dollars</i>	2020	2019	2018
Gross realized investment gains	\$ 1,895	\$ 1,599	\$ 682
Gross realized investment losses	(139)	(125)	(261)
Net realized gains on sales of investments	\$ 1,756	\$ 1,474	\$ 421

The Company from time to time may sell certain debt securities that were classified as HTM. These sales are in response to significant deterioration in the creditworthiness of the issuers or securities or because the Company has collected a substantial portion (at least 85%) of the principal outstanding at acquisition of the security. In addition, certain other debt securities were reclassified to AFS investments in response to

significant credit deterioration. Because the Company generally intends to sell these reclassified debt securities, Citi recorded impairment on the securities. In 2018, \$61 million of HTM debt securities were sold and \$8 million of HTM debt securities were reclassified to AFS in accordance with generally accepting accounting standards. There were no such activities during 2019 and 2020.

Debt Securities Available-for-Sale

The amortized cost and fair value of AFS debt securities were as follows:

<i>In millions of dollars</i>	December 31, 2020					December 31, 2019			
	Amortized cost	Gross unrealized gains	Gross unrealized losses	Allowance for credit losses	Fair value	Amortized cost	Gross unrealized gains	Gross unrealized losses	Fair value
Debt securities AFS									
Mortgage-backed securities ⁽¹⁾									
U.S. government-sponsored agency guaranteed	\$ 42,836	\$ 1,134	\$ 52	\$ —	\$ 43,918	\$ 34,963	\$ 547	\$ 280	\$ 35,230
Non-U.S. residential	568	3	—	—	571	789	3	—	792
Commercial	49	1	—	—	50	75	—	—	75
Total mortgage-backed securities	\$ 43,453	\$ 1,138	\$ 52	\$ —	\$ 44,539	\$ 35,827	\$ 550	\$ 280	\$ 36,097
U.S. Treasury and federal agency securities									
U.S. Treasury	\$ 144,094	\$ 2,108	\$ 49	\$ —	\$ 146,153	\$ 106,429	\$ 50	\$ 380	\$ 106,099
Agency obligations	50	1	—	—	51	5,336	3	20	5,319
Total U.S. Treasury and federal agency securities	\$ 144,144	\$ 2,109	\$ 49	\$ —	\$ 146,204	\$ 111,765	\$ 53	\$ 400	\$ 111,418
State and municipal	\$ 3,753	\$ 13	\$ 47	\$ —	\$ 3,719	\$ 5,024	\$ 43	\$ 89	\$ 4,978
Foreign government	123,467	1,623	122	—	124,968	110,958	586	241	111,303
Corporate	10,444	152	91	5	10,500	11,266	52	101	11,217
Asset-backed securities ⁽¹⁾	277	5	4	—	278	524	—	2	522
Other debt securities	4,871	5	—	—	4,876	4,729	1	—	4,730
Total debt securities AFS	\$ 330,409	\$ 5,045	\$ 365	\$ 5	\$ 335,084	\$ 280,093	\$ 1,285	\$ 1,113	\$ 280,265

(1) The Company invests in mortgage- and asset-backed securities, which are typically issued by VIEs through securitization transactions. The Company's maximum exposure to loss from these VIEs is equal to the carrying amount of the securities, which is reflected in the table above. For mortgage- and asset-backed securitizations in which the Company has other involvement, see Note 21 to the Consolidated Financial Statements.

At December 31, 2020, the amortized cost of fixed income securities exceeded their fair value by \$365 million. Of the \$365 million, \$280 million represented unrealized losses on fixed income investments that have been in a gross-unrealized-loss position for less than a year and, of these, 70% were rated investment grade; and \$85 million represented unrealized losses on fixed income investments that have been in a gross-unrealized-loss position for a year or more and, of these, 78% were rated investment grade. Of the \$85 million, \$61 million represents foreign government securities.

The following table shows the fair value of AFS debt securities that have been in an unrealized loss position:

	Less than 12 months		12 months or longer		Total	
	Fair value	Gross unrealized losses	Fair value	Gross unrealized losses	Fair value	Gross unrealized losses
<i>In millions of dollars</i>						
December 31, 2020						
Debt securities AFS						
Mortgage-backed securities						
U.S. government-sponsored agency guaranteed	\$ 3,588	\$ 30	\$ 298	\$ 22	\$ 3,886	\$ 52
Non-U.S. residential	1	—	—	—	1	—
Commercial	7	—	4	—	11	—
Total mortgage-backed securities	\$ 3,596	\$ 30	\$ 302	\$ 22	\$ 3,898	\$ 52
U.S. Treasury and federal agency securities						
U.S. Treasury	\$ 25,031	\$ 49	\$ —	\$ —	\$ 25,031	\$ 49
Agency obligations	50	—	—	—	50	—
Total U.S. Treasury and federal agency securities	\$ 25,081	\$ 49	\$ —	\$ —	\$ 25,081	\$ 49
State and municipal	\$ 3,214	\$ 47	\$ 24	\$ —	\$ 3,238	\$ 47
Foreign government	29,344	61	3,502	61	32,846	122
Corporate	1,083	90	24	1	1,107	91
Asset-backed securities	194	3	39	1	233	4
Other debt securities	182	—	—	—	182	—
Total debt securities AFS	\$ 62,694	\$ 280	\$ 3,891	\$ 85	\$ 66,585	\$ 365
December 31, 2019						
Debt securities AFS						
Mortgage-backed securities						
U.S. government-sponsored agency guaranteed	\$ 9,780	\$ 242	\$ 1,877	\$ 38	\$ 11,657	\$ 280
Non-U.S. residential	208	—	1	—	209	—
Commercial	16	—	27	—	43	—
Total mortgage-backed securities	\$ 10,004	\$ 242	\$ 1,905	\$ 38	\$ 11,909	\$ 280
U.S. Treasury and federal agency securities						
U.S. Treasury	\$ 45,484	\$ 248	\$ 26,907	\$ 132	\$ 72,391	\$ 380
Agency obligations	781	2	3,897	18	4,678	20
Total U.S. Treasury and federal agency securities	\$ 46,265	\$ 250	\$ 30,804	\$ 150	\$ 77,069	\$ 400
State and municipal	\$ 362	\$ 62	\$ 266	\$ 27	\$ 628	\$ 89
Foreign government	35,485	149	8,170	92	43,655	241
Corporate	2,916	98	123	3	3,039	101
Asset-backed securities	112	1	166	1	278	2
Other debt securities	1,307	—	—	—	1,307	—
Total debt securities AFS	\$ 96,451	\$ 802	\$ 41,434	\$ 311	\$ 137,885	\$ 1,113

The following table presents the amortized cost and fair value of AFS debt securities by contractual maturity dates:

<i>In millions of dollars</i>	December 31,			
	2020		2019	
	Amortized cost	Fair value	Amortized cost	Fair value
Mortgage-backed securities⁽¹⁾				
Due within 1 year	\$ 27	\$ 27	\$ 20	\$ 20
After 1 but within 5 years	567	571	573	574
After 5 but within 10 years	688	757	594	626
After 10 years ⁽²⁾	42,171	43,184	34,640	34,877
Total	\$ 43,453	\$ 44,539	\$ 35,827	\$ 36,097
U.S. Treasury and federal agency securities				
Due within 1 year	\$ 34,834	\$ 34,951	\$ 40,757	\$ 40,688
After 1 but within 5 years	108,160	110,091	70,128	69,850
After 5 but within 10 years	1,150	1,162	854	851
After 10 years ⁽²⁾	—	—	26	29
Total	\$ 144,144	\$ 146,204	\$ 111,765	\$ 111,418
State and municipal				
Due within 1 year	\$ 427	\$ 428	\$ 932	\$ 932
After 1 but within 5 years	189	198	714	723
After 5 but within 10 years	276	267	195	215
After 10 years ⁽²⁾	2,861	2,826	3,183	3,108
Total	\$ 3,753	\$ 3,719	\$ 5,024	\$ 4,978
Foreign government				
Due within 1 year	\$ 48,133	\$ 48,258	\$ 42,611	\$ 42,666
After 1 but within 5 years	67,365	68,586	58,820	59,071
After 5 but within 10 years	5,908	6,011	8,192	8,198
After 10 years ⁽²⁾	2,061	2,113	1,335	1,368
Total	\$ 123,467	\$ 124,968	\$ 110,958	\$ 111,303
All other⁽³⁾				
Due within 1 year	\$ 6,661	\$ 6,665	\$ 7,306	\$ 7,311
After 1 but within 5 years	7,814	7,891	8,279	8,275
After 5 but within 10 years	1,018	1,034	818	797
After 10 years ⁽²⁾	99	64	116	86
Total	\$ 15,592	\$ 15,654	\$ 16,519	\$ 16,469
Total debt securities AFS	\$ 330,409	\$ 335,084	\$ 280,093	\$ 280,265

- (1) Includes mortgage-backed securities of U.S. government-sponsored agencies. The Company invests in mortgage- and asset-backed securities, which are typically issued by VIEs through securitization transactions.
- (2) Investments with no stated maturities are included as contractual maturities of greater than 10 years. Actual maturities may differ due to call or prepayment rights.
- (3) Includes corporate, asset-backed and other debt securities.

Debt Securities Held-to-Maturity

The carrying value and fair value of debt securities HTM were as follows:

<i>In millions of dollars</i>	Amortized cost, net ⁽¹⁾	Gross unrealized gains	Gross unrealized losses	Fair value
December 31, 2020				
Debt securities HTM				
Mortgage-backed securities ⁽²⁾				
U.S. government-sponsored agency guaranteed	\$ 49,004	\$ 2,162	\$ 15	\$ 51,151
Non-U.S. residential	1,124	3	1	1,126
Commercial	825	1	1	825
Total mortgage-backed securities	\$ 50,953	\$ 2,166	\$ 17	\$ 53,102
U.S. Treasury securities ⁽³⁾	\$ 21,293	\$ 4	\$ 55	\$ 21,242
State and municipal	9,185	755	11	9,929
Foreign government	1,931	91	—	2,022
Asset-backed securities ⁽²⁾	21,581	6	92	21,495
Total debt securities HTM, net	\$ 104,943	\$ 3,022	\$ 175	\$ 107,790
December 31, 2019				
Debt securities HTM				
Mortgage-backed securities ⁽²⁾⁽⁴⁾				
U.S. government-sponsored agency guaranteed	\$ 46,637	\$ 1,047	\$ 21	\$ 47,663
Non-U.S. residential	1,039	5	—	1,044
Commercial	582	1	—	583
Total mortgage-backed securities	\$ 48,258	\$ 1,053	\$ 21	\$ 49,290
State and municipal ⁽⁵⁾	\$ 9,104	\$ 455	\$ 28	\$ 9,531
Foreign government	1,934	37	1	1,970
Asset-backed securities ⁽²⁾	21,479	12	59	21,432
Total debt securities HTM	\$ 80,775	\$ 1,557	\$ 109	\$ 82,223

- (1) Amortized cost is reported net of ACL of \$86 million at December 31, 2020. There was no allowance as of December 31, 2019 due to CECL not being adopted until January 1, 2020.
- (2) The Company invests in mortgage- and asset-backed securities. These securitizations are generally considered VIEs. The Company's maximum exposure to loss from these VIEs is equal to the carrying amount of the securities, which is reflected in the table above. For mortgage- and asset-backed securitizations in which the Company has other involvement, see Note 21 to the Consolidated Financial Statements.
- (3) In August 2020, Citibank transferred \$13.1 billion of investments in U.S. Treasury securities from AFS classification to HTM classification in accordance with ASC 320. At the time of transfer, the securities were in an unrealized gain position of \$144 million. The gain amounts will remain in *AOI* and will be amortized over the remaining life of the securities.
- (4) In March 2019, Citibank transferred \$5 billion of agency residential mortgage-backed securities (RMBS) from AFS classification to HTM classification in accordance with ASC 320. At the time of transfer, the securities were in an unrealized loss position of \$56 million. The loss amounts will remain in *AOI* and be amortized over the remaining life of the securities.
- (5) In December 2019, Citibank transferred \$173 million of state and municipal bonds from AFS classification to HTM classification in accordance with ASC 320. At the time of transfer, the bonds were in an unrealized gain position of \$5 million. The gain amounts will remain in *AOI* and be amortized over the remaining life of the securities.

The Company has the positive intent and ability to hold these securities to maturity or, where applicable, to exercise any issuer call options, absent any unforeseen significant changes in circumstances, including deterioration in credit or changes in regulatory capital requirements.

The net unrealized losses classified in *AOCI* for HTM securities primarily relate to debt securities previously classified as AFS that were transferred to HTM, and include any cumulative fair value hedge adjustments. The net unrealized loss amount also includes any non-credit-related changes in fair value of HTM debt securities that have suffered credit impairment recorded in earnings. The *AOCI* balance related to HTM debt securities is amortized as an adjustment of yield, in a manner consistent with the accretion of any difference between the carrying value at the transfer date and par value of the same debt securities.

The table below shows the fair value of debt securities HTM that have been in an unrecognized loss position at December 31, 2019:

	Less than 12 months		12 months or longer		Total	
	Fair value	Gross unrecognized losses	Fair value	Gross unrecognized losses	Fair value	Gross unrecognized losses
<i>In millions of dollars</i>						
December 31, 2019						
Debt securities HTM						
Mortgage-backed securities	\$ 3,590	\$ 10	\$ 1,116	\$ 11	\$ 4,706	\$ 21
State and municipal	34	1	1,125	27	1,159	28
Foreign government	1,970	1	—	—	1,970	1
Asset-backed securities	7,972	11	765	48	8,737	59
Total debt securities HTM	\$ 13,566	\$ 23	\$ 3,006	\$ 86	\$ 16,572	\$ 109

Note: Excluded from the gross unrecognized losses presented in the table above are \$(582) million of net unrealized losses recorded in *AOCI* as of December 31, 2019, primarily related to the difference between the amortized cost and carrying value of HTM debt securities that were reclassified from AFS. Substantially all of these net unrecognized losses relate to securities that have been in a loss position for 12 months or longer at December 31, 2019.

The following table presents the carrying value and fair value of HTM debt securities by contractual maturity dates:

<i>In millions of dollars</i>	December 31,			
	2020		2019	
	Amortized cost ⁽¹⁾	Fair value	Amortized cost	Fair value
Mortgage-backed securities				
Due within 1 year	\$ 81	\$ 81	\$ 17	\$ 17
After 1 but within 5 years	463	477	458	463
After 5 but within 10 years	1,699	1,873	1,662	1,729
After 10 years ⁽²⁾	48,710	50,671	46,121	47,081
Total	\$ 50,953	\$ 53,102	\$ 48,258	\$ 49,290
U.S. Treasury securities				
Due within 1 year	\$ —	\$ —	\$ —	\$ —
After 1 but within 5 years	18,955	19,127	—	—
After 5 but within 10 years	2,338	2,115	—	—
After 10 years ⁽²⁾	—	—	—	—
Total	\$ 21,293	\$ 21,242	\$ —	\$ —
State and municipal				
Due within 1 year	\$ 6	\$ 6	\$ 2	\$ 26
After 1 but within 5 years	139	142	123	160
After 5 but within 10 years	818	869	597	590
After 10 years ⁽²⁾	8,222	8,912	8,382	8,755
Total	\$ 9,185	\$ 9,929	\$ 9,104	\$ 9,531
Foreign government				
Due within 1 year	\$ 361	\$ 360	\$ 650	\$ 652
After 1 but within 5 years	1,570	1,662	1,284	1,318
After 5 but within 10 years	—	—	—	—
After 10 years ⁽²⁾	—	—	—	—
Total	\$ 1,931	\$ 2,022	\$ 1,934	\$ 1,970
All other⁽³⁾				
Due within 1 year	\$ —	\$ —	\$ —	\$ —
After 1 but within 5 years	—	—	—	—
After 5 but within 10 years	11,795	15,020	8,545	8,543
After 10 years ⁽²⁾	9,786	6,475	12,934	12,889
Total	\$ 21,581	\$ 21,495	\$ 21,479	\$ 21,432
Total debt securities HTM	\$ 104,943	\$ 107,790	\$ 80,775	\$ 82,223

(1) Amortized cost is reported net of ACL of \$86 million at December 31, 2020. There was no allowance as of December 31, 2019 due to CECL not being adopted until January 1, 2020.

(2) Investments with no stated maturities are included as contractual maturities of greater than 10 years. Actual maturities may differ due to call or prepayment rights.

(3) Includes corporate and asset-backed securities.

HTM Debt Securities Delinquency and Non-Accrual Details

Citi did not have any HTM securities that were delinquent or on non-accrual status at December 31, 2020.

There were no purchased credit-deteriorated HTM debt securities held by the Company as of December 31, 2020.

Evaluating Investments for Impairment

AFS Debt Securities

Overview—AFS Debt Securities

The Company conducts periodic reviews of all AFS debt securities with unrealized losses to evaluate whether the impairment resulted from expected credit losses or from other factors and to evaluate the Company's intent to sell such securities.

An AFS debt security is impaired when the current fair value of an individual AFS debt security is less than its amortized cost basis.

The Company recognizes the entire difference between amortized cost basis and fair value in earnings for impaired AFS debt securities that Citi has an intent to sell or for which Citi believes it will more-likely-than-not be required to sell prior to recovery of the amortized cost basis. However, for those AFS debt securities that the Company does not intend to sell and is not likely to be required to sell, only the credit-related impairment is recognized in earnings by recording an ACL. Any remaining fair value decline for such securities is recorded in *AOCl*. The Company does not consider the length of time that the fair value of a security is below its amortized cost when determining if a credit loss exists.

For AFS debt securities, credit losses exist where Citi does not expect to receive contractual principal and interest cash flows sufficient to recover the entire amortized cost basis of a security. The ACL is limited to the amount by which the AFS debt security's amortized cost basis exceeds its fair value. The allowance is increased or decreased if credit conditions subsequently worsen or improve. Reversals of credit losses are recognized in earnings.

The Company's review for impairment of AFS debt securities generally entails:

- identification and evaluation of impaired investments;
- consideration of evidential matter, including an evaluation of factors or triggers that could cause individual positions to qualify as credit impaired and those that would not support credit impairment; and
- documentation of the results of these analyses, as required under business policies.

The sections below describe the Company's process for identifying expected credit impairments for debt security types that have the most significant unrealized losses as of December 31, 2020.

Mortgage-Backed Securities

Citi records no allowances for credit losses on U.S. government-agency-guaranteed mortgage-backed securities, because the Company expects to incur no credit losses in the event of default due to a history of incurring no credit losses and due to the nature of the counterparties.

State and Municipal Securities

The process for estimating credit losses in Citigroup's AFS state and municipal bonds is primarily based on a credit analysis that incorporates third-party credit ratings. Citi monitors the bond issuers and any insurers providing default protection in the form of financial guarantee insurance. The average external credit rating, ignoring any insurance, is Aa2/AA. In the event of an external rating downgrade or other indicator of credit impairment (i.e., based on instrument-specific estimates of cash flows or probability of issuer default), the subject bond is specifically reviewed for adverse changes in the amount or timing of expected contractual principal and interest payments.

For AFS state and municipal bonds with unrealized losses that Citi plans to sell, or would more-likely-than-not be required to sell, the full impairment is recognized in earnings. For AFS state and municipal bonds where Citi has no intent to sell and it is more-likely-than-not that the Company will not be required to sell, Citi records an allowance for expected credit losses for the amount it expects not to collect, capped at the difference between the bond's amortized cost basis and fair value.

Equity Method Investments

Management assesses equity method investments that have fair values that are lower than their respective carrying values for other-than-temporary impairment (OTTI). Fair value is measured as price multiplied by quantity if the investee has publicly listed securities. If the investee is not publicly listed, other methods are used (see Note 24 to the Consolidated Financial Statements).

For impaired equity method investments that Citi plans to sell prior to recovery of value or would more-likely-than-not be required to sell, with no expectation that the fair value will recover prior to the expected sale date, the full impairment is recognized in earnings as OTTI regardless of severity and duration. The measurement of the OTTI does not include partial projected recoveries subsequent to the balance sheet date.

For impaired equity method investments that management does not plan to sell and is not more-likely-than-not to be required to sell prior to recovery of value, the evaluation of whether an impairment is other-than-temporary is based on (i) whether and when an equity method investment will recover in value and (ii) whether the investor has the intent and ability to hold that investment for a period of time sufficient to recover the value. The determination of whether the impairment is considered other-than-temporary considers the following indicators:

- the cause of the impairment and the financial condition and near-term prospects of the issuer, including any specific events that may influence the operations of the issuer;
- the intent and ability to hold the investment for a period of time sufficient to allow for any anticipated recovery in market value; and
- the length of time and extent to which fair value has been less than the carrying value.

Recognition and Measurement of Impairment

The following tables present total impairment on *Investments* recognized in earnings:

<i>In millions of dollars</i>	Year ended December 31, 2020		
	AFS	Other assets	Total
Impairment losses related to debt securities that the Company does not intend to sell nor will likely be required to sell:			
Total impairment losses recognized during the period	\$ —	\$ —	\$ —
Less: portion of impairment loss recognized in <i>AOCI</i> (before taxes)	—	—	—
Net impairment losses recognized in earnings for debt securities that the Company does not intend to sell nor will likely be required to sell	\$ —	\$ —	\$ —
Impairment losses recognized in earnings for debt securities that the Company intends to sell, would more-likely-than-not be required to sell or will be subject to an issuer call deemed probable of exercise	109	—	109
Total impairment losses recognized in earnings	\$ 109	\$ —	\$ 109

<i>In millions of dollars</i>	Year ended December 31, 2019			
	AFS	HTM	Other assets	Total
Impairment losses related to debt securities that the Company does not intend to sell nor will likely be required to sell:				
Total impairment losses recognized during the period	\$ 1	\$ —	\$ 1	\$ 2
Less: portion of impairment loss recognized in <i>AOCI</i> (before taxes)	—	—	—	—
Net impairment losses recognized in earnings for debt securities that the Company does not intend to sell nor will likely be required to sell	\$ 1	\$ —	\$ 1	\$ 2
Impairment losses recognized in earnings for debt securities that the Company intends to sell, would more-likely-than-not be required to sell or will be subject to an issuer call deemed probable of exercise	20	—	1	21
Total impairment losses recognized in earnings	\$ 21	\$ —	\$ 2	\$ 23

<i>In millions of dollars</i>	Year ended December 31, 2018			
	AFS ⁽¹⁾	HTM	Other assets	Total
Impairment losses related to securities that the Company does not intend to sell nor will likely be required to sell:				
Total impairment losses recognized during the period	\$ —	\$ —	\$ —	\$ —
Less: portion of impairment loss recognized in <i>AOCI</i> (before taxes)	—	—	—	—
Net impairment losses recognized in earnings for securities that the Company does not intend to sell nor will likely be required to sell	\$ —	\$ —	\$ —	\$ —
Impairment losses recognized in earnings for securities that the Company intends to sell, would more-likely-than-not be required to sell or will be subject to an issuer call deemed probable of exercise	125	—	—	125
Total impairment losses recognized in earnings	\$ 125	\$ —	\$ —	\$ 125

(1) For the year ended December 31, 2018, amounts represent AFS debt securities.

The following presents the credit-related impairments recognized in earnings for AFS securities held that the Company does not intend to sell nor will likely be required to sell at December 31, 2020:

Allowance for Credit Losses on AFS Debt Securities

	Year ended December 31, 2020		
	Foreign government	Corporate	Total AFS
<i>In millions of dollars</i>			
Allowance for credit losses at beginning of year	\$ —	\$ —	\$ —
Less: Write-offs	—	—	—
Recoveries of amounts written-off	—	2	2
Net credit losses (NCLs)	\$ —	\$ 2	\$ 2
NCLs	\$ —	\$ (2)	\$ (2)
Net reserve builds on securities that did not have previous reserves	3	5	8
Net reserve builds (releases) on securities that had previous reserves	(3)	—	(3)
Total provision for credit losses	\$ —	\$ 3	\$ 3
Initial allowance on newly purchased credit-deteriorated securities during the year	—	—	—
Allowance for credit losses at end of year	\$ —	\$ 5	\$ 5

The following are 12-month rollforwards of the credit-related impairments recognized in earnings for AFS and HTM debt securities held that the Company does not intend to sell nor will likely be required to sell at December 31, 2019:

	Cumulative OTTI credit losses recognized in earnings on debt securities still held				Dec. 31, 2019 balance
	Dec. 31, 2018 balance	Credit impairments recognized in earnings on securities not previously impaired	Credit impairments recognized in earnings on securities that have been previously impaired	Changes due to credit-impaired securities sold, transferred or matured ⁽¹⁾	
<i>In millions of dollars</i>					
AFS debt securities					
Mortgage-backed securities ⁽¹⁾	\$ 1	\$ —	\$ —	\$ —	\$ 1
State and municipal	—	—	4	—	4
Corporate	4	—	—	—	4
All other debt securities	—	1	—	—	1
Total OTTI credit losses recognized for AFS debt securities	\$ 5	\$ 1	\$ 4	\$ —	\$ 10
HTM debt securities					
State and municipal	3	—	—	—	3
Total OTTI credit losses recognized for HTM debt securities	\$ 3	\$ —	\$ —	\$ —	\$ 3

(1) Primarily consists of Prime securities.

Non-Marketable Equity Securities Not Carried at Fair Value

Non-marketable equity securities are required to be measured at fair value with changes in fair value recognized in earnings unless (i) the measurement alternative is elected or (ii) the investment represents Federal Reserve Bank and Federal Home Loan Bank stock or certain exchange seats that continue to be carried at cost.

The election to measure a non-marketable equity security using the measurement alternative is made on an instrument-by-instrument basis. Under the measurement alternative, an equity security is carried at cost plus or minus changes resulting from observable prices in orderly transactions for the identical or a similar investment of the same issuer. The carrying value of the equity security is adjusted to fair value on the date of an observed transaction. Fair value may differ from the observed transaction price due to a number of factors, including marketability adjustments and differences in rights and obligations when the observed transaction is not for the identical investment held by Citi.

Equity securities under the measurement alternative are also assessed for impairment. On a quarterly basis, management qualitatively assesses whether each equity security under the measurement alternative is impaired. Impairment indicators that are considered include, but are not limited to, the following:

- a significant deterioration in the earnings performance, credit rating, asset quality or business prospects of the investee;
- a significant adverse change in the regulatory, economic or technological environment of the investee;
- a significant adverse change in the general market condition of either the geographical area or the industry in which the investee operates;
- a bona fide offer to purchase, an offer by the investee to sell or a completed auction process for the same or similar investment for an amount less than the carrying amount of that investment; and
- factors that raise significant concerns about the investee's ability to continue as a going concern, such as negative cash flows from operations, working capital deficiencies or noncompliance with statutory capital requirements or debt covenants.

When the qualitative assessment indicates that impairment exists, the investment is written down to fair value, with the full difference between the fair value of the investment and its carrying amount recognized in earnings.

Below is the carrying value of non-marketable equity securities measured using the measurement alternative at December 31, 2020 and 2019:

<i>In millions of dollars</i>	December 31, 2020	December 31, 2019
Measurement alternative:		
Carrying value	\$ 962	\$ 700

Below are amounts recognized in earnings and life-to-date amounts for non-marketable equity securities measured using the measurement alternative:

<i>In millions of dollars</i>	Years ended December 31,	
	2020	2019
Measurement alternative⁽¹⁾:		
Impairment losses	\$ 56	\$ 9
Downward changes for observable prices	19	16
Upward changes for observable prices	144	123

- (1) See Note 24 to the Consolidated Financial Statements for additional information on these nonrecurring fair value measurements.

<i>In millions of dollars</i>	Life-to-date amounts on securities still held December 31, 2020	
Measurement alternative:		
Impairment losses	\$ 68	
Downward changes for observable prices		53
Upward changes for observable prices		486

A similar impairment analysis is performed for non-marketable equity securities carried at cost. For the years ended December 31, 2020 and 2019, there was no impairment loss recognized in earnings for non-marketable equity securities carried at cost.

Investments in Alternative Investment Funds That Calculate Net Asset Value

The Company holds investments in certain alternative investment funds that calculate net asset value (NAV), or its equivalent, including private equity funds, funds of funds and real estate funds, as provided by third-party asset managers. Investments in such funds are generally classified as non-marketable equity securities carried at fair value. The fair values of these investments are estimated using the NAV of the Company's ownership interest in the funds. Some of these investments are in "covered funds" for purposes of the

Volcker Rule, which prohibits certain proprietary investment activities and limits the ownership of, and relationships with, covered funds. On April 21, 2017, Citi's request for extension of the permitted holding period under the Volcker Rule for certain of its investments in illiquid funds was approved, allowing the Company to hold such investments until the earlier of five years from the July 21, 2017 expiration date of the general conformance period or the date such investments mature or are otherwise conformed with the Volcker Rule.

	Fair value		Unfunded commitments		Redemption frequency (if currently eligible) monthly, quarterly, annually	Redemption notice period
	December 31, 2020	December 31, 2019	December 31, 2020	December 31, 2019		
<i>In millions of dollars</i>						
Private equity funds ⁽¹⁾⁽²⁾	\$ 123	\$ 134	\$ 62	\$ 62	—	—
Real estate funds ⁽²⁾⁽³⁾	9	10	20	18	—	—
Mutual/collective investment funds	20	26	—	—		
Total	\$ 152	\$ 170	\$ 82	\$ 80	—	—

- (1) Private equity funds include funds that invest in infrastructure, emerging markets and venture capital.
- (2) With respect to the Company's investments in private equity funds and real estate funds, distributions from each fund will be received as the underlying assets held by these funds are liquidated. It is estimated that the underlying assets of these funds will be liquidated over a period of several years as market conditions allow. Private equity and real estate funds do not allow redemption of investments by their investors. Investors are permitted to sell or transfer their investments, subject to the approval of the general partner or investment manager of these funds, which generally may not be unreasonably withheld.
- (3) Includes several real estate funds that invest primarily in commercial real estate in the U.S., Europe and Asia.

14. LOANS

Citigroup loans are reported in two categories: consumer and corporate. These categories are classified primarily according to the segment and subsegment that manage the loans.

Consumer Loans

Consumer loans represent loans and leases managed primarily by *GCB* and *Corporate/Other*.

Citigroup has established a risk management process to monitor, evaluate and manage the principal risks associated with its consumer loan portfolio. Credit quality indicators that are actively monitored include delinquency status, consumer credit scores under Fair Isaac Corporation (FICO) and loan to value (LTV) ratios, each as discussed in more detail below.

Included in the loan table above are lending products whose terms may give rise to greater credit issues. Credit cards with below-market introductory interest rates and interest-only loans are examples of such products. These products are closely managed using credit techniques that are intended to mitigate their higher inherent risk.

Delinquency Status

Delinquency status is monitored and considered a key indicator of credit quality of consumer loans. Principally, the U.S. residential first mortgage loans use the Mortgage Bankers Association (MBA) method of reporting delinquencies, which considers a loan delinquent if a monthly payment has not been received by the end of the day immediately preceding the loan's next due date. All other loans use a method of reporting delinquencies that considers a loan delinquent if a monthly payment has not been received by the close of business on the loan's next due date.

As a general policy, residential first mortgages, home equity loans and installment loans are classified as non-accrual when loan payments are 90 days contractually past due. Credit cards and unsecured revolving loans generally accrue interest until payments are 180 days past due. Home equity loans in regulated bank entities are classified as non-accrual if the related residential first mortgage is 90 days or more past due. Mortgage loans, other than Federal Housing Administration (FHA)-insured loans, are classified as non-accrual within 60 days of notification that the borrower has filed for bankruptcy.

The policy for re-aging modified U.S. consumer loans to current status varies by product. Generally, one of the conditions to qualify for these modifications is that a minimum number of payments (typically ranging from one to three) be made. Upon modification, the loan is re-aged to current status. However, re-aging practices for certain open-ended consumer loans, such as credit cards, are governed by Federal Financial Institutions Examination Council (FFIEC) guidelines. For open-ended consumer loans subject to FFIEC guidelines, one of the conditions for a loan to be re-aged to current status is that at least three consecutive minimum monthly payments, or the equivalent amount, must be received. In addition, under FFIEC guidelines, the number of times that such a loan can be re-aged is subject to limitations (generally once in 12 months and twice in five years).

Furthermore, FHA and Department of Veterans Affairs (VA) loans are modified under those respective agencies' guidelines and payments are not always required in order to re-age a modified loan to current.

The following tables provide Citi's consumer loans by type:

Consumer Loans, Delinquencies and Non-Accrual Status at December 31, 2020

<i>In millions of dollars</i>	Total current ⁽¹⁾⁽²⁾	30–89 days past due ⁽³⁾⁽⁴⁾	≥ 90 days past due ⁽³⁾⁽⁴⁾	Past due government guaranteed ⁽⁵⁾	Total loans	Non-accrual loans for which there are no loan loss reserves	Non-accrual loans for which there are loan loss reserves	Total non-accrual	90 days past due and accruing
In North America offices⁽⁶⁾									
Residential first mortgages ⁽⁷⁾	\$ 46,471	\$ 402	\$ 381	\$ 524	\$ 47,778	\$ 136	\$ 509	\$ 645	\$ 332
Home equity loans ⁽⁸⁾⁽⁹⁾	6,829	78	221	—	7,128	72	307	379	—
Credit cards	127,827	1,228	1,330	—	130,385	—	—	—	1,330
Personal, small business and other	4,472	27	10	—	4,509	2	33	35	—
Total	\$ 185,599	\$ 1,735	\$ 1,942	\$ 524	\$189,800	\$ 210	\$ 849	\$ 1,059	\$ 1,662
In offices outside North America⁽⁶⁾									
Residential first mortgages ⁽⁷⁾	\$ 39,557	\$ 213	\$ 199	\$ —	\$ 39,969	\$ —	\$ 486	\$ 486	\$ —
Credit cards	21,718	429	545	—	22,692	—	384	384	376
Personal, small business and other	35,925	319	134	—	36,378	—	212	212	—
Total	\$ 97,200	\$ 961	\$ 878	\$ —	\$ 99,039	\$ —	\$ 1,082	\$ 1,082	\$ 376
Total Citigroup⁽¹⁰⁾	\$ 282,799	\$ 2,696	\$ 2,820	\$ 524	\$288,839	\$ 210	\$ 1,931	\$ 2,141	\$ 2,038

Consumer Loans, Delinquencies and Non-Accrual Status at December 31, 2019

<i>In millions of dollars</i>	Total current ⁽¹⁾⁽²⁾	30–89 days past due ⁽³⁾	≥ 90 days past due ⁽³⁾	Past due government guaranteed ⁽⁵⁾	Total loans	Total non-accrual	90 days past due and accruing
In North America offices⁽⁶⁾							
Residential first mortgages ⁽⁷⁾	\$ 45,942	\$ 411	\$ 221	\$ 434	\$ 47,008	\$ 479	\$ 288
Home equity loans ⁽⁸⁾⁽⁹⁾	8,860	174	189	—	9,223	405	—
Credit cards	145,477	1,759	1,927	—	149,163	—	1,927
Personal, small business and other	3,641	44	14	—	3,699	21	—
Total	\$ 203,920	\$ 2,388	\$ 2,351	\$ 434	\$209,093	\$ 905	\$ 2,215
In offices outside North America⁽⁶⁾							
Residential first mortgages ⁽⁷⁾	\$ 37,654	\$ 210	\$ 160	\$ —	\$ 38,024	\$ 425	\$ —
Credit cards	25,111	426	372	—	25,909	310	242
Personal, small business and other	36,118	272	132	—	36,522	176	—
Total	\$ 98,883	\$ 908	\$ 664	\$ —	\$100,455	\$ 911	\$ 242
Total Citigroup⁽¹⁰⁾	\$ 302,803	\$ 3,296	\$ 3,015	\$ 434	\$309,548	\$ 1,816	\$ 2,457

(1) Loans less than 30 days past due are presented as current.

(2) Includes \$14 million and \$18 million at December 31, 2020 and 2019, respectively, of residential first mortgages recorded at fair value.

(3) Excludes loans guaranteed by U.S. government-sponsored agencies.

(4) Loans modified under Citi's consumer relief programs continue to be reported in the same delinquency bucket they were in at the time of modification, and thus almost all would not be reported as 30-89 or 90+ days past due for the duration of the programs (which have various durations, and certain of which may be renewed by the customer).

(5) Consists of residential first mortgages that are guaranteed by U.S. government-sponsored agencies that are 30–89 days past due of \$0.2 billion and \$0.1 billion and 90 days or more past due of \$0.4 billion and \$0.3 billion at December 31, 2020 and 2019, respectively.

(6) North America includes the U.S., Canada and Puerto Rico. Mexico is included in offices outside North America.

(7) Includes approximately \$0.1 billion and \$0.1 billion at December 31, 2020 and 2019, respectively, of residential first mortgage loans in process of foreclosure.

(8) Includes approximately \$0.1 billion and \$0.1 billion at December 31, 2020 and 2019, respectively, of home equity loans in process of foreclosure.

(9) Fixed-rate home equity loans and loans extended under home equity lines of credit, which are typically in junior lien positions.

(10) Consumer loans are net of unearned income of \$749 million and \$783 million at December 31, 2020 and 2019, respectively. Unearned income on consumer loans primarily represents unamortized origination fees and costs, premiums and discounts.

Interest Income Recognized for Non-Accrual Consumer Loans

<i>In millions of dollars</i>	Interest income	
	For the year ended December 31, 2020	
In North America offices⁽¹⁾		
Residential first mortgages	\$	15
Home equity loans		8
Credit cards		—
Personal, small business and other		—
Total	\$	23
In offices outside North America⁽¹⁾		
Residential first mortgages	\$	—
Credit cards		—
Personal, small business and other		—
Total	\$	—
Total Citigroup	\$	23

(1) North America includes the U.S., Canada and Puerto Rico. Mexico is included in offices outside North America.

During the years ended December 31, 2020 and 2019, the Company sold and/or reclassified to HFS \$414 million and \$2,857 million, respectively, of consumer loans.

Consumer Credit Scores (FICO)

In the U.S., independent credit agencies rate an individual's risk for assuming debt based on the individual's credit history and assign every consumer a Fair Isaac Corporation (FICO) credit score. These scores are continually updated by the agencies based upon an individual's credit actions (e.g., taking out a loan or missed or late payments).

The following tables provide details on the FICO scores for Citi's U.S. consumer loan portfolio based on end-of-period receivables by year of origination. FICO scores are updated monthly for substantially all of the portfolio or, otherwise, on a quarterly basis for the remaining portfolio.

FICO score distribution in U.S. portfolio ⁽¹⁾		December 31, 2020				
<i>In millions of dollars</i>	Less than 680	680 to 760	Greater than 760	FICO not available	Total loans	
Residential first mortgages						
2020	\$ 187	\$ 3,741	\$ 9,052			
2019	150	1,857	5,384			
2018	246	655	1,227			
2017	298	846	1,829			
2016	323	1,368	3,799			
Prior	1,708	4,133	9,105			
Total residential first mortgages	\$ 2,912	\$ 12,600	\$ 30,396	\$ 1,870	\$ 47,778	
Credit cards⁽²⁾						
Home equity loans (pre-reset)	\$ 292	\$ 1,014	\$ 1,657			
Home equity loans (post-reset)	1,055	1,569	1,524			
Total home equity loans	\$ 1,347	\$ 2,583	\$ 3,181	\$ 17	\$ 7,128	
Installment and other						
2020	\$ 23	\$ 58	\$ 95			
2019	79	106	134			
2018	82	80	84			
2017	26	27	30			
2016	10	9	8			
Prior	214	393	529			
Personal, small business and other	\$ 434	\$ 673	\$ 880	\$ 2,522	\$ 4,509	
Total	\$ 30,920	\$ 68,634	\$ 84,224	\$ 5,450	\$ 189,228	

(1) The FICO bands in the tables are consistent with general industry peer presentations.

(2) Excludes \$572 million of balances related to Canada.

FICO score distribution in U.S. portfolio ⁽¹⁾		December 31, 2019				
<i>In millions of dollars</i>	Less than 680	680 to 760	Greater than 760	FICO not available	Total loans	
Residential first mortgages	\$ 3,608	\$ 13,264	\$ 28,442	\$ 1,694	\$ 47,008	
Credit cards ⁽²⁾	33,290	59,536	52,935	2,773	148,534	
Home equity loans	1,901	3,530	3,732	60	9,223	
Personal, small business and other	564	907	1,473	755	3,699	
Total	\$ 39,363	\$ 77,237	\$ 86,582	\$ 5,282	\$ 208,464	

(1) The FICO bands in the tables are consistent with general industry peer presentations.

(2) Excludes \$629 million of balances related to Canada.

Loan to Value (LTV) Ratios

LTV ratios (loan balance divided by appraised value) are calculated at origination and updated by applying market price data.

The following tables provide details on the LTV ratios for Citi's U.S. consumer mortgage portfolios. LTV ratios are

updated monthly using the most recent Core Logic Home Price Index data available for substantially all of the portfolio applied at the Metropolitan Statistical Area level, if available, or the state level if not. The remainder of the portfolio is updated in a similar manner using the Federal Housing Finance Agency indices.

LTV distribution in U.S. portfolio		December 31, 2020				
<i>In millions of dollars</i>		Less than or equal to 80%	> 80% but less than or equal to 100%	Greater than 100%	LTV not available	Total
Residential first mortgages						
2020	\$	11,447	\$ 1,543	\$ —		
2019		7,029	376	2		
2018		1,617	507	11		
2017		2,711	269	4		
2016		5,423	84	2		
Prior		14,966	66	16		
Total residential first mortgages	\$	43,193	\$ 2,845	\$ 35	\$ 1,705	\$ 47,778
Home equity loans (pre-reset)	\$	2,876	\$ 50	\$ 16		
Home equity loans (post-reset)		3,782	290	58		
Total home equity loans	\$	6,658	\$ 340	\$ 74	\$ 56	\$ 7,128
Total	\$	49,851	\$ 3,185	\$ 109	\$ 1,761	\$ 54,906

LTV distribution in U.S. portfolio		December 31, 2019				
<i>In millions of dollars</i>		Less than or equal to 80%	> 80% but less than or equal to 100%	Greater than 100%	LTV not available	Total
Residential first mortgages	\$	41,993	\$ 3,313	\$ 98	\$ 1,604	\$ 47,008
Home equity loans		8,101	829	237	56	9,223
Total	\$	50,094	\$ 4,142	\$ 335	\$ 1,660	\$ 56,231

Impaired Consumer Loans

A loan is considered impaired when Citi believes it is probable that all amounts due according to the original contractual terms of the loan will not be collected. Impaired consumer loans include non-accrual loans, as well as smaller-balance homogeneous loans whose terms have been modified due to the borrower's financial difficulties and where Citi has granted a concession to the borrower. These modifications may

include interest rate reductions and/or principal forgiveness. Impaired consumer loans exclude smaller-balance homogeneous loans that have not been modified and are carried on a non-accrual basis.

The following tables present information about impaired consumer loans and interest income recognized on impaired consumer loans:

At and for the year ended December 31, 2020

<i>In millions of dollars</i>	Recorded investment ⁽¹⁾⁽²⁾	Unpaid principal balance	Related specific allowance ⁽³⁾	Average carrying value ⁽⁴⁾	Interest income recognized ⁽⁵⁾
Mortgage and real estate					
Residential first mortgages	\$ 1,787	\$ 1,962	\$ 157	\$ 1,661	\$ 68
Home equity loans	478	651	60	527	13
Credit cards	1,982	2,135	918	1,926	106
Personal, small business and other	552	552	210	463	63
Total	\$ 4,799	\$ 5,300	\$ 1,345	\$ 4,577	\$ 250

At and for the year ended December 31, 2019

<i>In millions of dollars</i>	Recorded investment ⁽¹⁾⁽²⁾	Unpaid principal balance	Related specific allowance ⁽³⁾	Average carrying value ⁽⁴⁾	Interest income recognized ⁽⁵⁾
Mortgage and real estate					
Residential first mortgages	\$ 1,666	\$ 1,838	\$ 161	\$ 1,925	\$ 60
Home equity loans	592	824	123	637	9
Credit cards	1,931	2,288	771	1,890	103
Personal, small business and other	419	455	135	683	55
Total	\$ 4,608	\$ 5,405	\$ 1,190	\$ 5,135	\$ 227

- (1) Recorded investment in a loan includes net deferred loan fees and costs, unamortized premium or discount and direct write-downs and includes accrued interest only on credit card loans.
- (2) For December 31, 2020, \$211 million of residential first mortgages and \$147 million of home equity loans do not have a specific allowance. For December 31, 2019, \$405 million of residential first mortgages and \$212 million of home equity loans do not have a specific allowance.
- (3) Included in the *Allowance for credit losses on loans*.
- (4) Average carrying value represents the average recorded investment ending balance for the last four quarters and does not include the related specific allowance.
- (5) Includes amounts recognized on both an accrual and cash basis.

Consumer Troubled Debt Restructurings⁽¹⁾

For the year ended December 31, 2020⁽¹⁾

<i>In millions of dollars, except number of loans modified</i>	Number of loans modified	Post-modification recorded investment ⁽²⁾⁽³⁾	Deferred principal ⁽⁴⁾	Contingent principal forgiveness ⁽⁵⁾	Principal forgiveness ⁽⁶⁾	Average interest rate reduction
North America						
Residential first mortgages	1,225	\$ 209	\$ —	\$ —	\$ —	— %
Home equity loans	296	27	—	—	—	1
Credit cards	215,466	1,038	—	—	—	17
Personal, small business and other	2,452	28	—	—	—	5
Total⁽⁷⁾	219,439	\$ 1,302	\$ —	\$ —	\$ —	
International						
Residential first mortgages	2,542	\$ 141	\$ 3	\$ —	\$ —	2 %
Credit cards	90,694	401	—	—	12	15
Personal, small business and other	41,079	301	—	—	8	10
Total⁽⁷⁾	134,315	\$ 843	\$ 3	\$ —	\$ 20	

For the year ended December 31, 2019

<i>In millions of dollars, except number of loans modified</i>	Number of loans modified	Post-modification recorded investment ⁽²⁾⁽⁸⁾	Deferred principal ⁽⁴⁾	Contingent principal forgiveness ⁽⁵⁾	Principal forgiveness ⁽⁶⁾	Average interest rate reduction
North America						
Residential first mortgages	1,122	\$ 172	\$ —	\$ —	\$ —	— %
Home equity loans	717	79	3	—	—	1
Credit cards	268,778	1,165	—	—	—	17
Personal, small business and other	1,719	15	—	—	—	5
Total⁽⁷⁾	272,336	\$ 1,431	\$ 3	\$ —	\$ —	
International						
Residential first mortgages	2,448	\$ 74	\$ —	\$ —	\$ —	— %
Credit cards	72,325	288	—	—	10	17
Personal, small business and other	29,192	204	—	—	6	9
Total⁽⁷⁾	103,965	\$ 566	\$ —	\$ —	\$ 16	

(1) The above tables do not include loan modifications that meet the TDR relief criteria in the Coronavirus Aid, Relief, and Economic Security Act (CARES Act) or the interagency guidance.

(2) Post-modification balances include past-due amounts that are capitalized at the modification date.

(3) Post-modification balances in *North America* include \$13 million of residential first mortgages and \$2 million of home equity loans to borrowers who have gone through Chapter 7 bankruptcy in the year ended December 31, 2020. These amounts include \$9 million of residential first mortgages and \$2 million of home equity loans that were newly classified as TDRs during 2020, based on previously received OCC guidance.

(4) Represents portion of contractual loan principal that is non-interest bearing, but still due from the borrower. Such deferred principal is charged off at the time of permanent modification to the extent that the related loan balance exceeds the underlying collateral value.

(5) Represents portion of contractual loan principal that is non-interest bearing and, depending upon borrower performance, eligible for forgiveness.

(6) Represents portion of contractual loan principal that was forgiven at the time of permanent modification.

(7) The above tables reflect activity for restructured loans that were considered TDRs during the year.

(8) Post-modification balances in *North America* include \$19 million of residential first mortgages and \$7 million of home equity loans to borrowers who have gone through Chapter 7 bankruptcy in the year ended December 31, 2019. These amounts include \$11 million of residential first mortgages and \$6 million of home equity loans that were newly classified as TDRs during 2019, based on previously received OCC guidance.

The following table presents consumer TDRs that defaulted for which the payment default occurred within one year of a permanent modification. Default is defined as 60 days past due.

<i>In millions of dollars</i>	Years ended December 31,	
	2020	2019
North America		
Residential first mortgages	\$ 71	\$ 85
Home equity loans	14	15
Credit cards	317	301
Personal, small business and other	4	4
Total	\$ 406	\$ 405
International		
Residential first mortgages	\$ 26	\$ 13
Credit cards	178	142
Personal, small business and other	78	74
Total	\$ 282	\$ 229

Purchased Credit-Deteriorated Assets

<i>In millions of dollars</i>	Year ended December 31, 2020		
	Credit cards	Mortgages ⁽¹⁾	Installment and other
Purchase price	\$ 4	\$ 49	\$ —
Allowance for credit losses at acquisition date	4	—	—
Discount or premium attributable to non-credit factors	—	—	—
Par value (amortized cost basis)	\$ 8	\$ 49	\$ —

(1) Includes loans sold to agencies that were bought back at par due to repurchase agreements.

Corporate Loans

Corporate loans represent loans and leases managed by ICG. The following table presents information by corporate loan type:

<i>In millions of dollars</i>	December 31, 2020	December 31, 2019
In North America offices⁽¹⁾		
Commercial and industrial	\$ 57,731	\$ 55,929
Financial institutions	55,809	53,922
Mortgage and real estate ⁽²⁾	60,675	53,371
Installment and other	26,744	31,238
Lease financing	673	1,290
Total	\$ 201,632	\$ 195,750
In offices outside North America⁽¹⁾		
Commercial and industrial	\$ 104,072	\$ 112,668
Financial institutions	32,334	40,211
Mortgage and real estate ⁽²⁾	11,371	9,780
Installment and other	33,759	27,303
Lease financing	65	95
Governments and official institutions	3,811	4,128
Total	\$ 185,412	\$ 194,185
Corporate loans, net of unearned income⁽³⁾	\$ 387,044	\$ 389,935

(1) North America includes the U.S., Canada and Puerto Rico. Mexico is included in offices outside North America. The classification between offices in North America and outside North America is based on the domicile of the booking unit. The difference between the domicile of the booking unit and the domicile of the managing unit is not material.

(2) Loans secured primarily by real estate.

(3) Corporate loans are net of unearned income of (\$844) million and (\$814) million at December 31, 2020 and 2019, respectively. Unearned income on corporate loans primarily represents interest received in advance, but not yet earned, on loans originated on a discounted basis.

The Company sold and/or reclassified to held-for-sale \$2.2 billion and \$2.6 billion of corporate loans during the years ended December 31, 2020 and 2019, respectively. The Company did not have significant purchases of corporate loans classified as held-for-investment for the years ended December 31, 2020 or 2019.

Lease financing

Citi is a lessor in the power, railcars, shipping and aircraft sectors, where the Company has executed operating, direct financing and leveraged leases. Citi's \$0.7 billion of lease financing receivables, as of December 31, 2020, is composed of approximately equal balances of direct financing lease receivables and net investments in leveraged leases. Citi uses the interest rate implicit in the lease to determine the present value of its lease financing receivables. Interest income on direct financing and leveraged leases during the year ended December 31, 2020 was not material.

The Company's leases have an average remaining maturity of approximately three and a half years. In certain cases, Citi obtains residual value insurance from third parties and/or the lessee to manage the risk associated with the residual value of the leased assets. The receivable related to the residual value of the leased assets is \$0.3 billion as of December 31, 2020, while the amount covered by residual value guarantees is \$0.2 billion.

The Company's operating leases, where Citi is a lessor, are not significant to the Consolidated Financial Statements.

Delinquency Status

Citi generally does not manage corporate loans on a delinquency basis. Corporate loans are identified as impaired and placed on a cash (non-accrual) basis when it is determined, based on actual experience and a forward-looking assessment of the collectability of the loan in full, that the payment of interest or principal is doubtful or when interest or principal is 90 days past due, except when the loan is well collateralized and in the process of collection. Any interest accrued on impaired corporate loans and leases is reversed at 90 days and charged against current earnings, and interest is thereafter included in earnings only to the extent actually received in cash. When there is doubt regarding the ultimate collectability of principal, all cash receipts are thereafter applied to reduce the recorded investment in the loan. While corporate loans are generally managed based on their internally assigned risk rating (see further discussion below), the following tables present delinquency information by corporate loan type.

Corporate Loan Delinquencies and Non-Accrual Details at December 31, 2020

<i>In millions of dollars</i>	30–89 days past due and accruing ⁽¹⁾	≥ 90 days past due and accruing ⁽¹⁾	Total past due and accruing	Total non-accrual ⁽²⁾	Total current ⁽³⁾	Total loans ⁽⁴⁾
Commercial and industrial	\$ 400	\$ 109	\$ 509	\$ 2,795	\$ 153,036	\$ 156,340
Financial institutions	668	65	733	92	86,864	87,689
Mortgage and real estate	450	247	697	505	70,836	72,038
Lease financing	62	12	74	24	640	738
Other	112	19	131	111	63,157	63,399
Loans at fair value						6,840
Total	\$ 1,692	\$ 452	\$ 2,144	\$ 3,527	\$ 374,533	\$ 387,044

Corporate Loan Delinquencies and Non-Accrual Details at December 31, 2019

<i>In millions of dollars</i>	30–89 days past due and accruing ⁽¹⁾	≥ 90 days past due and accruing ⁽¹⁾	Total past due and accruing	Total non-accrual ⁽²⁾	Total current ⁽³⁾	Total loans ⁽⁴⁾
Commercial and industrial	\$ 676	\$ 93	\$ 769	\$ 1,828	\$ 164,249	\$ 166,846
Financial institutions	791	3	794	50	91,008	91,852
Mortgage and real estate	534	4	538	188	62,425	63,151
Lease financing	58	9	67	41	1,277	1,385
Other	190	22	212	81	62,341	62,634
Loans at fair value						4,067
Total	\$ 2,249	\$ 131	\$ 2,380	\$ 2,188	\$ 381,300	\$ 389,935

- (1) Corporate loans that are 90 days past due are generally classified as non-accrual. Corporate loans are considered past due when principal or interest is contractually due but unpaid.
- (2) Non-accrual loans generally include those loans that are 90 days or more past due or those loans for which Citi believes, based on actual experience and a forward-looking assessment of the collectability of the loan in full, that the payment of interest or principal is doubtful.
- (3) Loans less than 30 days past due are presented as current.
- (4) Total loans include loans at fair value, which are not included in the various delinquency columns.

Citigroup has a risk management process to monitor, evaluate and manage the principal risks associated with its corporate loan portfolio. As part of its risk management process, Citi assigns numeric risk ratings to its corporate loan facilities based on quantitative and qualitative assessments of the obligor and facility. These risk ratings are reviewed at least annually or more often if material events related to the obligor or facility warrant. Factors considered in assigning the risk ratings include financial condition of the obligor, qualitative assessment of management and strategy, amount and sources of repayment, amount and type of collateral and guarantee arrangements, amount and type of any contingencies associated with the obligor and the obligor's industry and geography.

The obligor risk ratings are defined by ranges of default probabilities. The facility risk ratings are defined by ranges of loss norms, which are the product of the probability of default and the loss given default. The investment grade rating categories are similar to the category BBB-/Baa3 and above as defined by S&P and Moody's. Loans classified according to the bank regulatory definitions as special mention, substandard and doubtful will have risk ratings within the non-investment-grade categories.

Corporate Loans Credit Quality Indicators

<i>In millions of dollars</i>	Recorded investment in loans ⁽¹⁾							Totals as of	
	Term loans by year of origination						Revolving line of credit arrangements ⁽²⁾	December 31, 2020	December 31, 2019
	2020	2019	2018	2017	2016	Prior			
Investment grade⁽³⁾									
Commercial and industrial ⁽⁴⁾	\$ 38,398	\$ 7,607	\$ 5,929	\$ 3,909	\$ 2,094	\$ 8,670	\$ 25,819	\$ 92,426	\$ 110,797
Financial institutions ⁽⁴⁾	10,560	2,964	2,106	782	681	2,030	56,239	75,362	80,533
Mortgage and real estate	6,793	6,714	5,174	2,568	1,212	1,719	1,557	25,737	27,571
Other ⁽⁵⁾	10,874	3,566	4,597	952	780	5,290	31,696	57,755	58,155
Total investment grade	\$ 66,625	\$ 20,851	\$ 17,806	\$ 8,211	\$ 4,767	\$ 17,709	\$ 115,311	\$ 251,280	\$ 277,056
Non-investment grade⁽³⁾									
<i>Accrual</i>									
Commercial and industrial ⁽⁴⁾	\$ 19,683	\$ 4,794	\$ 4,645	\$ 2,883	\$ 1,182	\$ 4,533	\$ 23,400	\$ 61,120	\$ 54,220
Financial institutions ⁽⁴⁾	7,413	700	654	274	141	197	2,855	12,234	11,269
Mortgage and real estate	1,882	1,919	2,058	1,457	697	837	551	9,401	3,811
Other ⁽⁵⁾	1,407	918	725	370	186	657	1,986	6,249	5,734
<i>Non-accrual</i>									
Commercial and industrial ⁽⁴⁾	260	203	192	143	57	223	1,717	2,795	1,828
Financial institutions	1	—	—	—	—	—	91	92	50
Mortgage and real estate	13	4	3	18	8	32	427	505	188
Other ⁽⁵⁾	15	3	12	29	2	65	9	135	122
Total non-investment grade	\$ 30,674	\$ 8,541	\$ 8,289	\$ 5,174	\$ 2,273	\$ 6,544	\$ 31,036	\$ 92,531	\$ 77,222
Non-rated private bank loans managed on a delinquency basis⁽³⁾⁽⁶⁾	\$ 9,823	\$ 7,121	\$ 3,533	\$ 3,674	\$ 4,300	\$ 7,942	\$ —	\$ 36,393	\$ 31,590
Loans at fair value⁽⁷⁾								6,840	4,067
Corporate loans, net of unearned income	\$ 107,122	\$ 36,513	\$ 29,628	\$ 17,059	\$ 11,340	\$ 32,195	\$ 146,347	\$ 387,044	\$ 389,935

(1) Recorded investment in a loan includes net deferred loan fees and costs, unamortized premium or discount, less any direct write-downs.

(2) There were no significant revolving line of credit arrangements that converted to term loans during the year.

(3) Held-for-investment loans are accounted for on an amortized cost basis.

(4) Includes certain short-term loans with less than one year in tenor.

(5) Other includes installment and other, lease financing and loans to government and official institutions.

(6) Non-rated private bank loans mainly include mortgage and real estate loans to private banking clients.

(7) Loans at fair value include loans to commercial and industrial, financial institutions, mortgage and real estate and other.

Impaired collateral-dependent loans and leases, where repayment is expected to be provided solely by the sale of the underlying collateral and there are no other available and reliable sources of repayment, are written down to the lower of carrying value or collateral value, less cost to sell. Cash-basis loans are returned to an accrual status when all contractual principal and interest amounts are reasonably assured of repayment and there is a sustained period of repayment performance, generally six months, in accordance with the contractual terms of the loan.

Non-Accrual Corporate Loans

The following tables present non-accrual loan information by corporate loan type and interest income recognized on non-accrual corporate loans:

At and for the year ended December 31, 2020					
<i>In millions of dollars</i>	Recorded investment ⁽¹⁾	Unpaid principal balance	Related specific allowance	Average carrying value ⁽²⁾	Interest income recognized ⁽³⁾
Non-accrual corporate loans					
Commercial and industrial	\$ 2,795	\$ 3,664	\$ 442	\$ 2,649	\$ 14
Financial institutions	92	181	17	132	—
Mortgage and real estate	505	803	38	413	—
Lease financing	24	24	—	34	—
Other	111	235	18	174	21
Total non-accrual corporate loans	\$ 3,527	\$ 4,907	\$ 515	\$ 3,402	\$ 35

At and for the year ended December 31, 2019					
<i>In millions of dollars</i>	Recorded investment ⁽¹⁾	Unpaid principal balance	Related specific allowance	Average carrying value ⁽²⁾	Interest income recognized ⁽³⁾
Non-accrual corporate loans					
Commercial and industrial	\$ 1,828	\$ 1,942	\$ 283	\$ 1,449	\$ 33
Financial institutions	50	120	2	63	—
Mortgage and real estate	188	362	10	192	—
Lease financing	41	41	—	8	—
Other	81	202	4	76	9
Total non-accrual corporate loans	\$ 2,188	\$ 2,667	\$ 299	\$ 1,788	\$ 42

<i>In millions of dollars</i>	December 31, 2020		December 31, 2019	
	Recorded investment ⁽¹⁾	Related specific allowance	Recorded investment ⁽¹⁾	Related specific allowance
Non-accrual corporate loans with specific allowances				
Commercial and industrial	\$ 1,523	\$ 442	\$ 714	\$ 283
Financial institutions	90	17	40	2
Mortgage and real estate	246	38	48	10
Lease financing	—	—	—	—
Other	68	18	7	4
Total non-accrual corporate loans with specific allowances	\$ 1,927	\$ 515	\$ 809	\$ 299
Non-accrual corporate loans without specific allowances				
Commercial and industrial	\$ 1,272		\$ 1,114	
Financial institutions	2		10	
Mortgage and real estate	259		140	
Lease financing	24		41	
Other	43		74	
Total non-accrual corporate loans without specific allowances	\$ 1,600	N/A	\$ 1,379	N/A

(1) Recorded investment in a loan includes net deferred loan fees and costs, unamortized premium or discount, less any direct write-downs.

(2) Average carrying value represents the average recorded investment balance and does not include related specific allowances.

(3) Interest income recognized for the year ended December 31, 2018 was \$56 million.

N/A Not applicable

Corporate Troubled Debt Restructurings⁽¹⁾

For the year ended December 31, 2020

<i>In millions of dollars</i>	Carrying value of TDRs modified during the period	TDRs involving changes in the amount and/or timing of principal payments ⁽²⁾	TDRs involving changes in the amount and/or timing of interest payments ⁽³⁾	TDRs involving changes in the amount and/or timing of both principal and interest payments
Commercial and industrial	\$ 247	\$ —	\$ —	\$ 247
Mortgage and real estate	19	—	—	19
Other	19	6	—	13
Total	\$ 285	\$ 6	\$ —	\$ 279

For the year ended December 31, 2019

<i>In millions of dollars</i>	Carrying value of TDRs modified during the period	TDRs involving changes in the amount and/or timing of principal payments ⁽²⁾	TDRs involving changes in the amount and/or timing of interest payments ⁽³⁾	TDRs involving changes in the amount and/or timing of both principal and interest payments
Commercial and industrial	\$ 283	\$ 19	\$ —	\$ 264
Mortgage and real estate	16	—	—	16
Other	6	6	—	—
Total	\$ 305	\$ 25	\$ —	\$ 280

- (1) The above tables do not include loan modifications that meet the TDR relief criteria in the CARES Act or the interagency guidance.
- (2) TDRs involving changes in the amount or timing of principal payments may involve principal forgiveness or deferral of periodic and/or final principal payments. Because forgiveness of principal is rare for corporate loans, modifications typically have little to no impact on the loans' projected cash flows and thus little to no impact on the allowance established for the loans. Charge-offs for amounts deemed uncollectible may be recorded at the time of the restructuring or may have already been recorded in prior periods such that no charge-off is required at the time of the modification.
- (3) TDRs involving changes in the amount or timing of interest payments may involve a below-market interest rate.

The following table presents total corporate loans modified in a TDR as well as those TDRs that defaulted and for which the payment default occurred within one year of a permanent modification. Default is defined as 60 days past due, except for classifiably managed commercial banking loans, where default is defined as 90 days past due.

<i>In millions of dollars</i>	TDR balances at December 31, 2020	TDR loans that re-defaulted in 2020 within one year of modification	TDR balances at December 31, 2019	TDR loans that re-defaulted in 2019 within one year of modification
Commercial and industrial	\$ 325	\$ —	\$ 426	\$ 35
Financial institutions	—	—	—	—
Mortgage and real estate	92	—	79	—
Lease financing	—	—	—	—
Other	33	—	44	—
Total⁽¹⁾	\$ 450	\$ —	\$ 549	\$ 35

- (1) The above table reflects activity for loans outstanding that were considered TDRs as of the end of the reporting period.

15. ALLOWANCE FOR CREDIT LOSSES

<i>In millions of dollars</i>	2020	2019	2018
Allowance for credit losses on loans (ACLL) at beginning of year	\$ 12,783	\$ 12,315	\$ 12,355
Adjustments to opening balance:			
Financial instruments—credit losses (CECL) ⁽¹⁾	4,201	—	—
Variable post-charge-off third-party collection costs ⁽¹⁾	(443)	—	—
Adjusted ACLL at beginning of year	\$ 16,541	\$ 12,315	\$ 12,355
Gross credit losses on loans	\$ (9,263)	\$ (9,341)	\$ (8,665)
Gross recoveries on loans	1,652	1,573	1,552
Net credit losses on loans (NCLs)	\$ (7,611)	\$ (7,768)	\$ (7,113)
NCLs	\$ 7,611	\$ 7,768	\$ 7,113
Net reserve builds for loans	7,635	364	394
Net specific reserve builds (releases) for loans	676	86	(153)
Total provision for credit losses on loans (PCLL)	\$ 15,922	\$ 8,218	\$ 7,354
Initial allowance for credit losses on newly purchased credit-deteriorated assets during the period	4	—	—
Other, net (see table below)	100	18	(281)
ACLL at end of year	\$ 24,956	\$ 12,783	\$ 12,315
Allowance for credit losses on unfunded lending commitments (ACLUC) at beginning of year⁽²⁾	\$ 1,456	\$ 1,367	\$ 1,258
Adjustment to opening balance for CECL adoption ⁽¹⁾	(194)	—	—
Provision (release) for credit losses on unfunded lending commitments	1,446	92	113
Other, net ⁽³⁾	(53)	(3)	(4)
ACLUC at end of year⁽²⁾	\$ 2,655	\$ 1,456	\$ 1,367
Total allowance for credit losses on loans, leases and unfunded lending commitments	\$ 27,611	\$ 14,239	\$ 13,682

Other, net details

<i>In millions of dollars</i>	2020	2019	2018
Sales or transfers of various consumer loan portfolios to HFS			
Transfer of real estate loan portfolios	\$ (4)	\$ (42)	\$ (91)
Transfer of other loan portfolios	—	—	(110)
Sales or transfers of various consumer loan portfolios to HFS	\$ (4)	\$ (42)	\$ (201)
FX translation	97	60	(60)
Other	7	—	(20)
Other, net	\$ 100	\$ 18	\$ (281)

(1) See “Accounting Changes” in Note 1 to the Consolidated Financial Statements for additional details.

(2) Represents additional credit loss reserves for unfunded lending commitments and letters of credit recorded in *Other liabilities* on the Consolidated Balance Sheet.

(3) 2020 includes a non-provision transfer of \$68 million, representing reserves on performance guarantees. The reserves on these contracts have been reclassified out of the allowance for credit losses on unfunded lending commitments and into *Other liabilities* on the Consolidated Balance Sheet beginning in 2020.

Allowance for Credit Losses on Loans and End-of-Period Loans at December 31, 2020

<i>In millions of dollars</i>	Corporate	Consumer	Total
ACLL at beginning of year	\$ 2,886	\$ 9,897	\$ 12,783
Adjustments to opening balance:			
Financial instruments—credit losses (CECL) ⁽¹⁾	(721)	4,922	4,201
Variable post-charge-off third-party collection costs ⁽¹⁾	—	(443)	(443)
Adjusted ACLL at beginning of year	\$ 2,165	\$ 14,376	\$ 16,541
Charge-offs	\$ (1,072)	\$ (8,191)	\$ (9,263)
Recoveries	86	1,566	1,652
Replenishment of net charge-offs	986	6,625	7,611
Net reserve builds (releases)	2,890	4,745	7,635
Net specific reserve builds (releases)	282	394	676
Initial allowance for credit losses on newly purchased credit-deteriorated assets during the year	—	4	4
Other	65	35	100
Ending balance	\$ 5,402	\$ 19,554	\$ 24,956
Allowance for credit losses on loans			
Collectively evaluated	\$ 4,887	\$ 18,207	\$ 23,094
Individually evaluated	515	1,345	1,860
Purchased credit deteriorated	—	2	2
Total allowance for credit losses on loans	\$ 5,402	\$ 19,554	\$ 24,956
Loans, net of unearned income			
Collectively evaluated	\$ 376,677	\$ 283,885	\$ 660,562
Individually evaluated	3,527	4,799	8,326
Purchased credit deteriorated	—	141	141
Held at fair value	6,840	14	6,854
Total loans, net of unearned income	\$ 387,044	\$ 288,839	\$ 675,883

(1) See “Accounting Changes” in Note 1 to the Consolidated Financial Statements for additional details.

Allowance for Credit Losses on Loans and End-of-Period Loans at December 31, 2019

<i>In millions of dollars</i>	Corporate	Consumer	Total
ACLL at beginning of year	\$ 2,811	\$ 9,504	\$ 12,315
Charge-offs	(487)	(8,854)	(9,341)
Recoveries	95	1,478	1,573
Replenishment of net charge-offs	392	7,376	7,768
Net reserve builds (releases)	96	268	364
Net specific reserve builds (releases)	(21)	107	86
Other	—	18	18
Ending balance	\$ 2,886	\$ 9,897	\$ 12,783
Allowance for credit losses on loans			
Collectively evaluated	\$ 2,587	\$ 8,706	\$ 11,293
Individually evaluated	299	1,190	1,489
Purchased credit deteriorated	—	1	1
Total allowance for credit losses on loans	\$ 2,886	\$ 9,897	\$ 12,783
Loans, net of unearned income			
Collectively evaluated	\$ 383,828	\$ 304,794	\$ 688,622
Individually evaluated	2,040	4,608	6,648
Purchased credit deteriorated	—	128	128
Held at fair value	4,067	18	4,085
Total loans, net of unearned income	\$ 389,935	\$ 309,548	\$ 699,483

Allowance for Credit Losses on Loans at December 31, 2018

<i>In millions of dollars</i>	Corporate	Consumer	Total
ACLL at beginning of year	\$ 2,943	\$ 9,412	\$ 12,355
Charge-offs	(343)	(8,322)	(8,665)
Recoveries	138	1,414	1,552
Replenishment of net charge-offs	205	6,908	7,113
Net reserve builds (releases)	42	352	394
Net specific reserve builds (releases)	(151)	(2)	(153)
Other	\$ (23)	\$ (258)	\$ (281)
Ending balance	\$ 2,811	\$ 9,504	\$ 12,315

Allowance for Credit Losses on HTM Debt Securities

<i>In millions of dollars</i>	Year ended December 31, 2020					Total HTM
	Mortgage-backed	State and municipal	Foreign government	Asset-backed		
Allowance for credit losses on HTM debt securities at beginning of year	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
Adjustment to opening balance for CECL adoption	—	61	4	5	70	70
Net credit losses (NCLs)	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
NCLs	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
Net reserve builds (releases)	(2)	10	(2)	1	7	7
Net specific reserve builds (releases)	—	—	—	—	—	—
Total provision for credit losses on HTM debt securities	\$ (2)	\$ 10	\$ (2)	\$ 1	\$ 7	\$ 7
Other, net	\$ 5	\$ 3	\$ 4	\$ (3)	\$ 9	\$ 9
Initial allowance for credit losses on newly purchased credit-deteriorated securities during the year	—	—	—	—	—	—
Allowance for credit losses on HTM debt securities at end of year	\$ 3	\$ 74	\$ 6	\$ 3	\$ 86	\$ 86

Allowance for Credit Losses on Other Assets

<i>In millions of dollars</i>	Year ended December 31, 2020						Total
	Cash and due from banks	Deposits with banks	Securities borrowed and purchased under agreements to resell	Brokerage receivables	All other assets ⁽¹⁾		
Allowance for credit losses at beginning of year	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
Adjustment to opening balance for CECL adoption	6	14	2	1	3	26	26
Net credit losses (NCLs)	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
NCLs	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
Net reserve builds (releases)	(6)	5	8	(1)	1	7	7
Total provision for credit losses	\$ (6)	\$ 5	\$ 8	\$ (1)	\$ 1	\$ 7	\$ 7
Other, net	\$ —	\$ 1	\$ —	\$ —	\$ 21	\$ 22	\$ 22
Allowance for credit losses on other assets at end of year	\$ —	\$ 20	\$ 10	\$ —	\$ 25	\$ 55	\$ 55

(1) Primarily accounts receivable.

For ACL on AFS debt securities, see Note 13 to the Consolidated Financial Statements.

16. GOODWILL AND INTANGIBLE ASSETS

Goodwill

The changes in *Goodwill* by segment were as follows:

<i>In millions of dollars</i>	Global Consumer Banking	Institutional Clients Group	Corporate/ Other	Total
Balance at December 31, 2017	\$ 12,128	\$ 10,112	\$ 16	\$ 22,256
Foreign exchange translation	\$ (41)	\$ (153)	\$ —	\$ (194)
Divestitures ⁽¹⁾	—	—	(16)	(16)
Balance at December 31, 2018	\$ 12,087	\$ 9,959	\$ —	\$ 22,046
Foreign exchange translation	\$ 15	\$ 65	\$ —	\$ 80
Balance at December 31, 2019	\$ 12,102	\$ 10,024	\$ —	\$ 22,126
Foreign exchange translation	\$ 40	\$ (4)	\$ —	\$ 36
Balance at December 31, 2020	\$ 12,142	\$ 10,020	\$ —	\$ 22,162

(1) Primarily related to the sale of consumer operations in Colombia in 2018.

The Company performed its annual goodwill impairment test as of July 1, 2020, at the level below each business segment (referred to as a reporting unit) which indicated that the fair values of the Company's reporting units as a percentage of their carrying values ranged from approximately 115% to 136%, resulting in no impairment. While the inherent risk related to uncertainty is embedded in the key assumptions used in the valuations, the economic environment and Citi's outlook continues to evolve due to the challenges and uncertainties related to the impact of the COVID-19 pandemic. Further deterioration in macroeconomic and market conditions, including potential adverse effects to economic forecasts due to the severity and duration of the pandemic, as well as the responses of governments, customers and clients, could negatively influence the assumptions used in the valuations, in particular, the discount rates, exit multiples and growth rates used in net income projections. If the future were to differ from management's estimate of key assumptions (e.g., net interest revenue and loan volume), and associated cash flows were to decrease, Citi could potentially experience material goodwill impairment charges in the future.

For additional information regarding Citi's goodwill impairment testing process, see the following Notes to the Consolidated Financial Statements: Note 1 for Citi's Accounting Policy for goodwill, including the adoption of a new accounting standard regarding the subsequent measurement of goodwill, and Note 3 for a description of Citi's Business Segments.

Intangible Assets

The components of intangible assets were as follows:

<i>In millions of dollars</i>	December 31, 2020			December 31, 2019		
	Gross carrying amount	Accumulated amortization	Net carrying amount	Gross carrying amount	Accumulated amortization	Net carrying amount
Purchased credit card relationships	\$ 5,648	\$ 4,229	\$ 1,419	\$ 5,676	\$ 4,059	\$ 1,617
Credit card contract-related intangibles ⁽¹⁾	3,929	1,276	2,653	5,393	3,069	2,324
Core deposit intangibles	45	44	1	434	433	1
Other customer relationships	455	314	141	424	275	149
Present value of future profits	32	30	2	34	31	3
Indefinite-lived intangible assets	190	—	190	228	—	228
Other	72	67	5	82	77	5
Intangible assets (excluding MSRs)	\$ 10,371	\$ 5,960	\$ 4,411	\$ 12,271	\$ 7,944	\$ 4,327
Mortgage servicing rights (MSRs) ⁽²⁾	336	—	336	495	—	495
Total intangible assets	\$ 10,707	\$ 5,960	\$ 4,747	\$ 12,766	\$ 7,944	\$ 4,822

(1) Primarily reflects contract-related intangibles associated with the American Airlines, The Home Depot, Costco and AT&T credit card program agreements, which represented 96% of the aggregate net carrying amount as of December 31, 2020.

(2) For additional information on Citi's MSRs, see Note 21 to the Consolidated Financial Statements.

Intangible assets amortization expense was \$419 million, \$564 million and \$557 million for 2020, 2019 and 2018, respectively. Intangible assets amortization expense is estimated to be \$364 million in 2021, \$350 million in 2022, \$351 million in 2023, \$365 million in 2024 and \$370 million in 2025.

The changes in intangible assets were as follows:

<i>In millions of dollars</i>	Net carrying amount at December 31, 2019	Acquisitions/renewals/divestitures	Amortization	Impairments	FX translation and other	Net carrying amount at December 31, 2020
Purchased credit card relationships ⁽¹⁾	\$ 1,617	\$ 11	\$ (200)	\$ (10)	\$ 1	\$ 1,419
Credit card contract-related intangibles ⁽²⁾	2,324	509	(183)	—	3	2,653
Core deposit intangibles	1	—	—	—	—	1
Other customer relationships	149	—	(24)	—	16	141
Present value of future profits	3	—	—	—	(1)	2
Indefinite-lived intangible assets	228	—	—	(28)	(10)	190
Other	5	7	(12)	—	5	5
Intangible assets (excluding MSRs)	\$ 4,327	\$ 527	\$ (419)	\$ (38)	\$ 14	\$ 4,411
Mortgage servicing rights (MSRs) ⁽³⁾	495	—	—	—	—	336
Total intangible assets	\$ 4,822	\$ —	\$ —	\$ —	\$ —	\$ 4,747

(1) Reflects intangibles for the value of cardholder relationships, which are discrete from partner contract-related intangibles and include credit card accounts primarily in the Costco, Macy's and Sears portfolios.

(2) Primarily reflects contract-related intangibles associated with the American Airlines, The Home Depot, Costco and AT&T credit card program agreements, which represent 96% of the aggregate net carrying amount at December 31, 2020 and 2019. During 2020, Citi renewed its contract with American Airlines.

(3) For additional information on Citi's MSRs, including the rollforward from 2019 to 2020, see Note 21 to the Consolidated Financial Statements.

17. DEBT

Short-Term Borrowings

<i>In millions of dollars</i>	December 31,			
	2020		2019	
	Balance	Weighted average coupon	Balance	Weighted average coupon
Commercial paper				
Bank ⁽¹⁾	\$ 10,022		\$ 10,155	
Broker-dealer and other ⁽²⁾	7,988		6,321	
Total commercial paper	\$ 18,010	0.77 %	\$ 16,476	1.98 %
Other borrowings⁽³⁾	11,504	0.48	28,573	1.94
Total	\$ 29,514		\$ 45,049	

(1) Represents Citibank entities as well as other bank entities.

(2) Represents broker-dealer and other non-bank subsidiaries that are consolidated into Citigroup Inc., the parent holding company.

(3) Includes borrowings from Federal Home Loan Banks and other market participants. At December 31, 2020 and 2019, collateralized short-term advances from Federal Home Loan Banks were \$4.0 billion and \$17.6 billion, respectively.

Borrowings under bank lines of credit may be at interest rates based on LIBOR, CD rates, the prime rate or bids submitted by the banks. Citigroup pays commitment fees for its lines of credit.

Some of Citigroup's non-bank subsidiaries have credit facilities with Citigroup's subsidiary depository institutions, including Citibank. Borrowings under these facilities are secured in accordance with Section 23A of the Federal Reserve Act.

Citigroup Global Markets Holdings Inc. (CGMHI) has borrowing agreements consisting of facilities that CGMHI has been advised are available, but where no contractual lending obligation exists. These arrangements are reviewed on an ongoing basis to ensure flexibility in meeting CGMHI's short-term requirements.

Long-Term Debt

<i>In millions of dollars</i>	Weighted average coupon ⁽¹⁾	Maturities	Balances at December 31,	
			2020	2019
Citigroup Inc.⁽²⁾				
Senior debt	2.82 %	2021-2098	\$142,197	\$ 123,292
Subordinated debt ⁽³⁾	4.38	2022-2046	26,636	25,463
Trust preferred securities	6.26	2036-2067	1,730	1,722
Bank⁽⁴⁾				
Senior debt	1.64	2021-2049	44,742	53,340
Broker-dealer⁽⁵⁾				
Senior debt	0.72	2021-2070	55,896	44,817
Subordinated debt ⁽³⁾	—	2022-2046	485	126
Total	2.66 %		\$271,686	\$ 248,760
Senior debt			\$242,835	\$ 221,449
Subordinated debt⁽³⁾			27,121	25,589
Trust preferred securities			1,730	1,722
Total			\$271,686	\$ 248,760

(1) The weighted average coupon excludes structured notes accounted for at fair value.

(2) Represents the parent holding company.

(3) Includes notes that are subordinated within certain countries, regions or subsidiaries.

(4) Represents Citibank entities as well as other bank entities. At December 31, 2020 and 2019, collateralized long-term advances from Federal Home Loan Banks were \$10.9 billion and \$5.5 billion, respectively.

(5) Represents broker-dealer and other non-bank subsidiaries that are consolidated into Citigroup Inc., the parent holding company. Certain Citigroup consolidated hedging activities are also included in this line.

The Company issues both fixed- and variable-rate debt in a range of currencies. It uses derivative contracts, primarily interest rate swaps, to effectively convert a portion of its fixed-rate debt to variable-rate debt. The maturity structure of the derivatives generally corresponds to the maturity structure of the debt being hedged. In addition, the Company uses other derivative contracts to manage the foreign exchange impact of certain debt issuances. At December 31, 2020, the Company's overall weighted average interest rate for long-term debt, excluding structured notes accounted for at fair value, was 2.66% on a contractual basis and 2.64% including the effects of derivative contracts.

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

<i>In millions of dollars</i>	2021	2022	2023	2024	2025	Thereafter	Total
Citigroup Inc.	\$ 15,605	\$ 13,159	\$ 14,805	\$ 12,329	\$ 13,733	\$ 100,933	\$ 170,564
Bank	18,577	14,608	2,685	4,588	501	3,782	44,741
Broker-dealer	9,139	8,978	8,557	4,089	4,643	20,975	56,381
Total	\$ 43,321	\$ 36,745	\$ 26,047	\$ 21,006	\$ 18,877	\$ 125,690	\$ 271,686

The following table summarizes Citi's outstanding trust preferred securities at December 31, 2020:

Trust	Issuance date	Securities issued	Liquidation value ⁽¹⁾	Coupon rate ⁽²⁾	Common shares issued to parent	Junior subordinated debentures owned by trust			
						Amount	Maturity	Redeemable by issuer beginning	
<i>In millions of dollars, except securities and share amounts</i>									
Citigroup Capital III	Dec. 1996	194,053	\$ 194	7.625 %	6,003	\$ 200	Dec. 1, 2036	Not redeemable	
Citigroup Capital XIII	Sept. 2010	89,840,000	2,246	3 mo LIBOR + 637 bps	1,000	2,246	Oct. 30, 2040	Oct. 30, 2015	
Citigroup Capital XVIII	June 2007	99,901	137	3 mo Sterling LIBOR + 88.75 bps	50	137	June 28, 2067	June 28, 2017	
Total obligated			\$ 2,577			\$ 2,583			

Note: Distributions on the trust preferred securities and interest on the subordinated debentures are payable semiannually for Citigroup Capital III and Citigroup Capital XVIII and quarterly for Citigroup Capital XIII.

- (1) Represents the notional value received by outside investors from the trusts at the time of issuance. This differs from Citi's balance sheet carrying value due primarily to unamortized discount and issuance costs.
- (2) In each case, the coupon rate on the subordinated debentures is the same as that on the trust preferred securities.

18. REGULATORY CAPITAL

Citigroup is subject to risk-based capital and leverage standards issued by the Federal Reserve Board, which constitute the U.S. Basel III rules. Citi's U.S.-insured depository institution subsidiaries, including Citibank, are subject to similar standards issued by their respective primary bank regulatory agencies. These standards are used to evaluate

capital adequacy and include the required minimums shown in the following table. The regulatory agencies are required by law to take specific, prompt corrective actions with respect to institutions that do not meet minimum capital standards.

The following table sets forth for Citigroup and Citibank the regulatory capital tiers, total risk-weighted assets, quarterly adjusted average total assets, Total Leverage Exposure, risk-based capital ratios and leverage ratios:

<i>In millions of dollars, except ratios</i>	Citigroup				Citibank		
	Stated minimum	Well-capitalized minimum	December 31, 2020	December 31, 2019	Well-capitalized minimum	December 31, 2020	December 31, 2019
Common Equity Tier 1 Capital			\$ 147,274	\$ 137,798	\$ 142,884	\$ 130,720	
Tier 1 Capital			167,053	155,805	144,992	132,847	
Total Capital (Tier 1 Capital + Tier 2 Capital)—Standardized Approach			204,849	193,711	169,235	157,253	
Total Capital (Tier 1 Capital + Tier 2 Capital)—Advanced Approaches			195,959	181,337	161,294	145,918	
Total risk-weighted assets—Standardized Approach			1,221,576	1,168,848	1,030,081	1,022,607	
Total risk-weighted assets—Advanced Approaches			1,255,284	1,142,804	1,012,129	938,735	
Quarterly adjusted average total assets ⁽¹⁾			2,265,615	1,957,039	1,680,056	1,459,780	
Total Leverage Exposure ⁽²⁾			2,386,881	2,513,702	2,167,969	1,958,173	
Common Equity Tier 1 Capital ratio ⁽³⁾	4.5 %	N/A	11.73 %	11.79 %	6.5 %	13.87 %	12.78 %
Tier 1 Capital ratio ⁽³⁾	6.0	6.0 %	13.31	13.33	8.0	14.08	12.99
Total Capital ratio ⁽³⁾	8.0	10.0	15.61	15.87	10.0	15.94	15.38
Tier 1 Leverage ratio	4.0	N/A	7.37	7.96	5.0	8.63	9.10
Supplementary Leverage ratio	3.0	N/A	7.00	6.20	6.0	6.69	6.78

(1) Tier 1 Leverage ratio denominator.

(2) Supplementary Leverage ratio denominator.

(3) Citigroup's reportable Common Equity Tier 1 Capital, Tier 1 Capital and Total Capital ratios as of December 31, 2020 were the lower derived under the Basel III Advanced Approaches frameworks, whereas Citigroup's reportable Common Equity Tier 1 Capital and Tier 1 Capital ratios were the lower derived under the Basel III Standardized Approach and the reportable Total Capital ratio was the lower derived under the Basel III Advanced Approaches framework as of December 31, 2019. As of December 31, 2020 and 2019, Citibank's reportable Common Equity Tier 1 Capital and Tier 1 Capital ratios were the lower derived under the Basel III Standardized Approach, whereas the Total Capital ratios were the lower derived under the Basel III Advanced Approaches frameworks as of December 31, 2020 and the lower derived under the Standardized Approach as of December 31, 2019.

N/A Not applicable

As indicated in the table above, Citigroup and Citibank were "well capitalized" under the current federal bank regulatory agency definitions as of December 31, 2020 and 2019.

Banking Subsidiaries—Constraints on Dividends

There are various legal limitations on the ability of Citigroup's subsidiary depository institutions to extend credit, pay dividends or otherwise supply funds to Citigroup and its non-bank subsidiaries. The approval of the Office of the Comptroller of the Currency is required if total dividends declared in any calendar year were to exceed amounts specified by the agency's regulations.

In determining the dividends, each subsidiary depository institution must also consider its effect on applicable risk-based capital and leverage ratio requirements, as well as policy statements of the federal bank regulatory agencies that indicate that banking organizations should generally pay dividends out of current operating earnings. Citigroup received \$2.3 billion and \$17.3 billion in dividends from Citibank during 2020 and 2019, respectively.

19. CHANGES IN ACCUMULATED OTHER COMPREHENSIVE INCOME (LOSS) (AOCI)

Changes in each component of Citigroup's *Accumulated other comprehensive income (loss)* were as follows:

<i>In millions of dollars</i>	Net unrealized gains (losses) on investment securities	Debt valuation adjustment (DVA) ⁽¹⁾	Cash flow hedges ⁽²⁾	Benefit plans ⁽³⁾	Foreign currency translation adjustment (CTA), net of hedges ⁽⁴⁾	Excluded component of fair value hedges ⁽⁵⁾	Accumulated other comprehensive income (loss)
Balance, December 31, 2017	\$ (1,158)	\$ (921)	\$ (698)	\$ (6,183)	\$ (25,708)	\$ —	\$ (34,668)
Adjustment to opening balance, net of taxes ⁽⁶⁾	\$ (3)	\$ —	\$ —	\$ —	\$ —	\$ —	\$ (3)
Adjusted balance, beginning of year	\$ (1,161)	\$ (921)	\$ (698)	\$ (6,183)	\$ (25,708)	\$ —	\$ (34,671)
Other comprehensive income before reclassifications	(866)	1,081	(135)	(240)	(2,607)	(57)	(2,824)
Increase (decrease) due to amounts reclassified from <i>AOCI</i> ⁽⁷⁾	(223)	32	105	166	245	—	325
Change, net of taxes	\$ (1,089)	\$ 1,113	\$ (30)	\$ (74)	\$ (2,362)	\$ (57)	\$ (2,499)
Balance, December 31, 2018	\$ (2,250)	\$ 192	\$ (728)	\$ (6,257)	\$ (28,070)	\$ (57)	\$ (37,170)
Other comprehensive income before reclassifications	3,065	(1,151)	549	(758)	(321)	25	1,409
Increase (decrease) due to amounts reclassified from <i>AOCI</i>	(1,080)	15	302	206	—	—	(557)
Change, net of taxes	\$ 1,985	\$ (1,136)	\$ 851	\$ (552)	\$ (321)	\$ 25	\$ 852
Balance at December 31, 2019	\$ (265)	\$ (944)	\$ 123	\$ (6,809)	\$ (28,391)	\$ (32)	\$ (36,318)
Other comprehensive income before reclassifications	4,837	(490)	2,027	(287)	(250)	(15)	5,822
Increase (decrease) due to amounts reclassified from <i>AOCI</i>	(1,252)	15	(557)	232	—	—	(1,562)
Change, net of taxes	\$ 3,585	\$ (475)	\$ 1,470	\$ (55)	\$ (250)	\$ (15)	\$ 4,260
Balance at December 31, 2020	\$ 3,320	\$ (1,419)	\$ 1,593	\$ (6,864)	\$ (28,641)	\$ (47)	\$ (32,058)

- (1) Changes in DVA are reflected as a component of *AOCI*, pursuant to the adoption of ASU 2016-01 relating to the presentation of DVA on fair value option liabilities.
- (2) Primarily driven by Citi's pay fixed/receive floating interest rate swap programs that hedge the floating rates on liabilities.
- (3) Primarily reflects adjustments based on the quarterly actuarial valuations of the Company's significant pension and postretirement plans, annual actuarial valuations of all other plans and amortization of amounts previously recognized in other comprehensive income.
- (4) Primarily reflects the movements in (by order of impact) the Mexican peso, Brazilian real, South Korean won and Euro against the U.S. dollar and changes in related tax effects and hedges for the year ended December 31, 2020. Primarily reflects the movements in (by order of impact) the Indian rupee, Brazilian real, Chilean peso and Euro against the U.S. dollar and changes in related tax effects and hedges for the year ended December 31, 2019. Primarily reflects the movements in (by order of impact) the Brazilian real, Indian rupee, Mexican peso and Australian dollar against the U.S. dollar and changes in related tax effects and hedges for the year ended December 31, 2018. Amounts recorded in the CTA component of *AOCI* remain in *AOCI* until the sale or substantial liquidation of the foreign entity, at which point such amounts related to the foreign entity are reclassified into earnings.
- (5) Beginning in the first quarter of 2018, changes in the excluded component of fair value hedges are reflected as a component of *AOCI*, pursuant to the early adoption of ASU 2017-12, *Targeted Improvements to Accounting for Hedging Activities*. See Note 1 of the Consolidated Financial Statements for further information regarding this change.
- (6) Citi adopted ASU 2016-01 and ASU 2018-03 on January 1, 2018. Upon adoption, a cumulative effect adjustment was recorded from *AOCI* to *Retained earnings* for net unrealized gains on former AFS equity securities. For additional information, see Note 1 to the Consolidated Financial Statements.
- (7) Includes the impact of the release of foreign currency translation adjustment, net of hedges, upon meeting the accounting trigger for substantial liquidation of Citi's Japan Consumer Finance business during the fourth quarter of 2018. See Note 1 to the Consolidated Financial Statements.

The pretax and after-tax changes in each component of *Accumulated other comprehensive income (loss)* were as follows:

<i>In millions of dollars</i>	Pretax	Tax effect⁽¹⁾	After-tax
Balance, December 31, 2017	\$ (41,228)	\$ 6,560	\$ (34,668)
Adjustment to opening balance ⁽²⁾	(4)	1	(3)
Adjusted balance, beginning of year	\$ (41,232)	\$ 6,561	\$ (34,671)
Change in net unrealized gains (losses) on investment securities	(1,435)	346	(1,089)
Debt valuation adjustment (DVA)	1,415	(302)	1,113
Cash flow hedges	(38)	8	(30)
Benefit plans	(94)	20	(74)
Foreign currency translation adjustment	(2,624)	262	(2,362)
Excluded component of fair value hedges	(74)	17	(57)
Change	\$ (2,850)	\$ 351	\$ (2,499)
Balance, December 31, 2018	\$ (44,082)	\$ 6,912	\$ (37,170)
Change in net unrealized gains (losses) on investment securities	2,633	(648)	1,985
Debt valuation adjustment (DVA)	(1,473)	337	(1,136)
Cash flow hedges	1,120	(269)	851
Benefit plans	(671)	119	(552)
Foreign currency translation adjustment	(332)	11	(321)
Excluded component of fair value hedges	33	(8)	25
Change	\$ 1,310	\$ (458)	\$ 852
Balance, December 31, 2019	\$ (42,772)	\$ 6,454	\$ (36,318)
Change in net unrealized gains (losses) on AFS debt securities	4,799	(1,214)	3,585
Debt valuation adjustment (DVA)	(616)	141	(475)
Cash flow hedges	1,925	(455)	1,470
Benefit plans	(78)	23	(55)
Foreign currency translation adjustment	(227)	(23)	(250)
Excluded component of fair value hedges	(23)	8	(15)
Change	\$ 5,780	\$ (1,520)	\$ 4,260
Balance, December 31, 2020	\$ (36,992)	\$ 4,934	\$ (32,058)

(1) Includes the impact of ASU 2018-02, which transferred amounts from *AOCI* to *Retained earnings*. See Note 1 to the Consolidated Financial Statements.

(2) Citi adopted ASU 2016-01 and ASU 2018-03 on January 1, 2018. Upon adoption, a cumulative effect adjustment was recorded from *AOCI* to *Retained earnings* for net unrealized gains on former AFS equity securities. For additional information, see Note 1 to the Consolidated Financial Statements.

The Company recognized pretax (gains) losses related to amounts in *AOCI* reclassified to the Consolidated Statement of Income as follows:

<i>In millions of dollars</i>	Increase (decrease) in AOCI due to amounts reclassified to Consolidated Statement of Income		
	Year ended December 31,		
	2020	2019	2018
Realized (gains) losses on sales of investments	\$ (1,756)	\$ (1,474)	\$ (421)
Gross impairment losses	109	23	125
Subtotal, pretax	\$ (1,647)	\$ (1,451)	\$ (296)
Tax effect	395	371	73
Net realized (gains) losses on investments, after-tax⁽¹⁾	\$ (1,252)	\$ (1,080)	\$ (223)
Realized DVA (gains) losses on fair value option liabilities, pretax	\$ 20	\$ 20	\$ 41
Tax effect	(5)	(5)	(9)
Net realized DVA, after-tax	\$ 15	\$ 15	\$ 32
Interest rate contracts	\$ (734)	\$ 384	\$ 301
Foreign exchange contracts	4	7	17
Subtotal, pretax	\$ (730)	\$ 391	\$ 318
Tax effect	173	(89)	(213)
Amortization of cash flow hedges, after-tax⁽²⁾	\$ (557)	\$ 302	\$ 105
Amortization of unrecognized:			
Prior service cost (benefit)	\$ (5)	\$ (12)	\$ (34)
Net actuarial loss	322	286	248
Curtailment/settlement impact ⁽³⁾	(8)	1	6
Subtotal, pretax	\$ 309	\$ 275	\$ 220
Tax effect	(77)	(69)	(54)
Amortization of benefit plans, after-tax⁽³⁾	\$ 232	\$ 206	\$ 166
Excluded component of fair value hedges, pretax	\$ —	\$ —	\$ —
Tax effect	—	—	—
Excluded component of fair value hedges, after-tax	\$ —	\$ —	\$ —
Foreign currency translation adjustment, pretax	\$ —	\$ —	\$ 34
Tax effect	—	—	211
Foreign currency translation adjustment, after-tax	\$ —	\$ —	\$ 245
Total amounts reclassified out of AOCI, pretax	\$ (2,048)	\$ (765)	\$ 317
Total tax effect	486	208	8
Total amounts reclassified out of AOCI, after-tax	\$ (1,562)	\$ (557)	\$ 325

(1) The pretax amount is reclassified to *Realized gains (losses) on sales of investments, net* and *Gross impairment losses* in the Consolidated Statement of Income. See Note 13 to the Consolidated Financial Statements for additional details.

(2) See Note 22 to the Consolidated Financial Statements for additional details.

(3) See Note 8 to the Consolidated Financial Statements for additional details.

20. PREFERRED STOCK

The following table summarizes the Company's preferred stock outstanding:

	Issuance date	Redeemable by issuer beginning	Dividend rate	Redemption price per depositary share/ preference share	Number of depositary shares	Carrying value <i>in millions of dollars</i>	
						December 31, 2020	December 31, 2019
Series A ⁽¹⁾	October 29, 2012	January 30, 2023	5.950 %	\$ 1,000	1,500,000	\$ 1,500	\$ 1,500
Series B ⁽²⁾	December 13, 2012	February 15, 2023	5.900	1,000	750,000	750	750
Series D ⁽³⁾	April 30, 2013	May 15, 2023	5.350	1,000	1,250,000	1,250	1,250
Series J ⁽⁴⁾	September 19, 2013	September 30, 2023	7.125	25	38,000,000	950	950
Series K ⁽⁵⁾	October 31, 2013	November 15, 2023	6.875	25	59,800,000	1,495	1,495
Series M ⁽⁶⁾	April 30, 2014	May 15, 2024	6.300	1,000	1,750,000	1,750	1,750
Series O ⁽⁷⁾	March 20, 2015	March 27, 2020	5.875	1,000	1,500,000	—	1,500
Series P ⁽⁸⁾	April 24, 2015	May 15, 2025	5.950	1,000	2,000,000	2,000	2,000
Series Q ⁽⁹⁾	August 12, 2015	August 15, 2020	4.316	1,000	1,250,000	1,250	1,250
Series R ⁽¹⁰⁾	November 13, 2015	November 15, 2020	4.699	1,000	1,500,000	1,500	1,500
Series S ⁽¹¹⁾	February 2, 2016	February 12, 2021	6.300	25	41,400,000	1,035	1,035
Series T ⁽¹²⁾	April 25, 2016	August 15, 2026	6.250	1,000	1,500,000	1,500	1,500
Series U ⁽¹³⁾	September 12, 2019	September 12, 2024	5.000	1,000	1,500,000	1,500	1,500
Series V ⁽¹⁴⁾	January 23, 2020	January 30, 2025	4.700	1,000	1,500,000	1,500	—
Series W ⁽¹⁵⁾	December 10, 2020	December 10, 2025	4.000	1,000	1,500,000	1,500	—
						\$ 19,480	\$ 17,980

- (1) Issued as depositary shares, each representing a 1/25th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable semiannually on January 30 and July 30 at a fixed rate until, but excluding, January 30, 2023, thereafter payable quarterly on January 30, April 30, July 30 and October 30 at a floating rate, in each case when, as and if declared by the Citi Board of Directors.
- (2) Issued as depositary shares, each representing a 1/25th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable semiannually on February 15 and August 15 at a fixed rate until, but excluding, February 15, 2023, thereafter payable quarterly on February 15, May 15, August 15 and November 15 at a floating rate, in each case when, as and if declared by the Citi Board of Directors.
- (3) Issued as depositary shares, each representing a 1/25th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable semiannually on May 15 and November 15 at a fixed rate until, but excluding, May 15, 2023, thereafter payable quarterly on February 15, May 15, August 15 and November 15 at a floating rate, in each case when, as and if declared by the Citi Board of Directors.
- (4) Issued as depositary shares, each representing a 1/1,000th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable quarterly on March 30, June 30, September 30 and December 30 at a fixed rate until, but excluding, September 30, 2023, thereafter payable quarterly on the same dates at a floating rate, in each case when, as and if declared by the Citi Board of Directors.
- (5) Issued as depositary shares, each representing a 1/1,000th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable quarterly on February 15, May 15, August 15 and November 15 at a fixed rate until, but excluding, November 15, 2023, thereafter payable quarterly on the same dates at a floating rate, in each case when, as and if declared by the Citi Board of Directors.
- (6) Issued as depositary shares, each representing a 1/25th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable semiannually on May 15 and November 15 at a fixed rate until, but excluding, May 15, 2024, thereafter payable quarterly on February 15, May 15, August 15 and November 15 at a floating rate, in each case when, as and if declared by the Citi Board of Directors.
- (7) The Series O preferred stock was redeemed in full on March 27, 2020.
- (8) Issued as depositary shares, each representing a 1/25th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable semiannually on May 15 and November 15 at a fixed rate until, but excluding, May 15, 2025, and thereafter payable quarterly on February 15, May 15, August 15 and November 15 at a floating rate, in each case when, as and if declared by the Citi Board of Directors.
- (9) Issued as depositary shares, each representing a 1/25th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable semiannually on February 15 and August 15 at a fixed rate until, but excluding, August 15, 2020, and thereafter payable quarterly on February 15, May 15, August 15 and November 15 at a floating rate, in each case when, as and if declared by the Citi Board of Directors.
- (10) Issued as depositary shares, each representing a 1/25th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable semiannually on May 15 and November 15 at a fixed rate until November 15, 2020, thereafter payable quarterly on February 15, May 15, August 15 and November 15 at a floating rate, in each case when, as and if declared by the Citi Board of Directors.
- (11) Issued as depositary shares, each representing a 1/1,000th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable quarterly on February 12, May 12, August 12 and November 12 at a fixed rate, in each case when, as and if declared by the Citi Board of Directors.
- (12) Issued as depositary shares, each representing a 1/25th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable semiannually on February 15 and August 15 at a fixed rate until, but excluding, August 15, 2026, thereafter payable quarterly on February 15, May 15, August 15 and November 15 at a floating rate, in each case when, as and if declared by the Citi Board of Directors.
- (13) Issued as depositary shares, each representing a 1/25th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable semiannually on March 12 and September 12 at a fixed rate until, but excluding, September 12, 2024, thereafter payable quarterly on March 12, June 12, September 12 and December 12 at a floating rate, in each case when, as and if declared by the Citi Board of Directors.
- (14) Issued as depositary shares, each representing a 1/25th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable semiannually on January 30 and July 30 at a fixed rate until, but excluding, January 30, 2025, thereafter payable quarterly on January 30, April 30, July 30 and October 30 at a floating rate, in each case when, as and if declared by the Citi Board of Directors.

- (15) Issued as depositary shares, each representing a 1/25th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable quarterly on March 10, June 10, September 10 and December 10 at a fixed rate until, but excluding, December 10, 2025, thereafter payable quarterly on the same dates at a floating rate, in each case when, as and if declared by the Citi Board of Directors.

During 2020, Citi distributed \$1,095 million in dividends on its outstanding preferred stock. On January 21, 2021, Citi declared preferred dividends of approximately \$292 million for the first quarter of 2021.

During the first quarter of 2021, Citi issued \$2.3 billion of Series X preferred shares. In addition, Citi redeemed all of its Series S preferred shares for \$1.035 billion, and \$465 million of its Series R preferred shares. As of February 26, 2021, Citi estimates it will distribute preferred dividends of approximately \$254 million, \$293 million and \$254 million in the second, third and fourth quarters of 2021, respectively, subject to such dividends being declared by the Citi Board of Directors.

21. 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 Citi are to obtain liquidity and favorable capital treatment by securitizing certain financial assets, to assist clients in securitizing their financial assets and to create investment products for clients. 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. Citigroup may be the provider of certain credit enhancements as well as the counterparty to any related derivative contracts.

Most of Citigroup's SPEs are variable interest entities (VIEs), as described below.

Variable Interest Entities

VIEs are entities that have either a total equity investment that is insufficient to permit the entity to finance its activities without additional subordinated financial support or whose equity investors lack the characteristics of a controlling financial interest (i.e., ability to make significant decisions through voting rights or similar rights and a right to receive the expected residual returns of the entity or an obligation to absorb the expected losses of the entity). 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. Citigroup would be deemed to have a controlling financial interest and be the primary beneficiary if it has both of the following characteristics:

- power to direct the activities of the VIE that most significantly impact the entity's economic performance; and
- an obligation to absorb losses of the entity that could potentially be significant to the VIE, or a right to receive benefits from the entity that could potentially be significant to 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 (for example, 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.

Citigroup's involvement with consolidated and unconsolidated VIEs with which the Company holds significant variable interests or has continuing involvement through servicing a majority of the assets in a VIE is presented below:

<i>In millions of dollars</i>	As of December 31, 2020								
	Total involvement with SPE assets	Consolidated VIE/SPE assets	Significant unconsolidated VIE assets ⁽³⁾	Maximum exposure to loss in significant unconsolidated VIEs ⁽¹⁾					Total
				Funded exposures ⁽²⁾		Unfunded exposures			
				Debt investments	Equity investments	Funding commitments	Guarantees and derivatives		
Credit card securitizations	\$ 32,420	\$ 32,420	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
Mortgage securitizations ⁽⁴⁾									
U.S. agency-sponsored	123,999	—	123,999	1,948	—	—	61	2,009	
Non-agency-sponsored	46,132	939	45,193	2,550	—	2	1	2,553	
Citi-administered asset-backed commercial paper conduits	16,730	16,730	—	—	—	—	—	—	
Collateralized loan obligations (CLOs)	18,332	—	18,332	4,273	—	—	—	4,273	
Asset-based financing ⁽⁵⁾	222,274	8,069	214,205	25,153	1,587	9,114	—	35,854	
Municipal securities tender option bond trusts (TOBs)	3,349	835	2,514	—	—	1,611	—	1,611	
Municipal investments	20,335	—	20,335	2,569	4,056	3,041	—	9,666	
Client intermediation	1,352	910	442	88	—	—	56	144	
Investment funds	488	153	335	—	—	15	—	15	
Other	—	—	—	—	—	—	—	—	
Total	\$ 485,411	\$ 60,056	\$ 425,355	\$ 36,581	\$ 5,643	\$ 13,783	\$ 118	\$ 56,125	

<i>In millions of dollars</i>	As of December 31, 2019								
	Total involvement with SPE assets	Consolidated VIE/SPE assets	Significant unconsolidated VIE assets ⁽³⁾	Maximum exposure to loss in significant unconsolidated VIEs ⁽¹⁾					Total
				Funded exposures ⁽²⁾		Unfunded exposures			
				Debt investments	Equity investments	Funding commitments	Guarantees and derivatives		
Credit card securitizations	\$ 43,534	\$ 43,534	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
Mortgage securitizations ⁽⁴⁾									
U.S. agency-sponsored	117,374	—	117,374	2,671	—	—	72	2,743	
Non-agency-sponsored	39,608	1,187	38,421	876	—	—	1	877	
Citi-administered asset-backed commercial paper conduits	15,622	15,622	—	—	—	—	—	—	
Collateralized loan obligations (CLOs)	17,395	—	17,395	4,199	—	—	—	4,199	
Asset-based financing ⁽⁵⁾	196,728	6,139	190,589	23,756	1,151	9,524	—	34,431	
Municipal securities tender option bond trusts (TOBs)	6,950	1,458	5,492	4	—	3,544	—	3,548	
Municipal investments	20,312	—	20,312	2,636	4,274	3,034	—	9,944	
Client intermediation	1,455	1,391	64	4	—	—	—	4	
Investment funds	827	174	653	5	—	16	1	22	
Other	352	1	351	169	—	39	—	208	
Total	\$ 460,157	\$ 69,506	\$ 390,651	\$ 34,320	\$ 5,425	\$ 16,157	\$ 74	\$ 55,976	

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

(2) Included on Citigroup's December 31, 2020 and 2019 Consolidated Balance Sheet.

(3) 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.

(4) Citigroup 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.

(5) Included within this line are loans to third-party sponsored private equity funds, which represent \$78 billion and \$69 billion in unconsolidated VIE assets and \$425 million and \$711 million in maximum exposure to loss as of December 31, 2020 and 2019, respectively.

The previous tables do not include:

- certain venture capital investments made by some of the Company's private equity subsidiaries, as the Company accounts for these investments in accordance with the Investment Company Audit Guide (codified in ASC 946);
- certain investment funds for which the Company provides investment management services and personal estate trusts for which the Company provides administrative, trustee and/or investment management services;
- certain third-party sponsored private equity funds to which the Company provides secured credit facilities. The Company has no decision-making power and does not consolidate these funds, some of which may meet the definition of a VIE. The Company's maximum exposure to loss is generally limited to a loan or lending-related commitment. As of December 31, 2020 and 2019, the Company's maximum exposure to loss related to these deals was \$57 billion and \$52.5 billion, respectively (for more information on these positions, see Notes 14 and 26 to the Consolidated Financial Statements);
- 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* or *Investments*, in which the Company has no other involvement with the related securitization entity deemed to be significant (for more information on these positions, see Notes 13 and 24 to the Consolidated Financial Statements);
- certain representations and warranties exposures in legacy ICG-sponsored mortgage- and asset-backed securitizations in which the Company has no variable interest or continuing involvement as servicer. The outstanding balance of mortgage loans securitized during 2005 to 2008 in which the Company has no variable interest or continuing involvement as servicer was approximately \$5.22 billion and \$6 billion at December 31, 2020 and 2019, respectively;
- certain representations and warranties exposures in Citigroup residential mortgage securitizations in which the original mortgage loan balances are no longer outstanding; and
- VIEs such as trust preferred securities trusts used in connection with the Company's funding activities. The Company does not have a variable interest in these trusts.

The asset balances for consolidated VIEs represent the carrying amounts of the assets consolidated by the Company. The carrying amount may represent the amortized cost or the current fair value of the assets depending on the legal form of the asset (e.g., loan or security) and the Company's standard accounting policies for the asset type and line of business.

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 funded 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 remaining undrawn committed amount, including liquidity and credit facilities provided by the Company or 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.

Funding Commitments for Significant Unconsolidated VIEs—Liquidity Facilities and Loan Commitments

The following table presents the notional amount of liquidity facilities and loan commitments that are classified as funding commitments in the VIE tables above:

<i>In millions of dollars</i>	December 31, 2020		December 31, 2019	
	Liquidity facilities	Loan/equity commitments	Liquidity facilities	Loan/equity commitments
Non-agency-sponsored mortgage securitizations	\$ —	\$ 2	\$ —	\$ —
Asset-based financing	—	9,114	—	9,524
Municipal securities tender option bond trusts (TOBs)	1,611	—	3,544	—
Municipal investments	—	3,041	—	3,034
Investment funds	—	15	—	16
Other	—	—	—	39
Total funding commitments	\$ 1,611	\$ 12,172	\$ 3,544	\$ 12,613

Consolidated VIEs

The Company engages in on-balance sheet securitizations, which are securitizations that do not qualify for sales treatment; thus, the assets remain on Citi's Consolidated Balance Sheet, and any proceeds received are recognized as secured liabilities. The consolidated VIEs represent more than a hundred separate entities with which the Company is involved. In general, the third-party investors in the obligations of consolidated VIEs have legal recourse only to the assets of the respective VIEs and do not have such recourse to the Company, except where Citi has provided a guarantee to the investors or is the counterparty to certain

derivative transactions involving the VIE. Thus, Citigroup's maximum legal exposure to loss related to consolidated VIEs is significantly less than the carrying value of the consolidated VIE assets due to outstanding third-party financing. Intercompany assets and liabilities are excluded from Citi's Consolidated Balance Sheet. All VIE assets are restricted from being sold or pledged as collateral. The cash flows from these assets are the only source used to pay down the associated liabilities, which are non-recourse to Citi's general assets. See the Consolidated Balance Sheet for more information about these Consolidated VIE assets and liabilities.

Significant Interests in Unconsolidated VIEs—Balance Sheet Classification

The following table presents the carrying amounts and classification of significant variable interests in unconsolidated VIEs:

<i>In billions of dollars</i>	December 31, 2020	December 31, 2019
Cash	\$ —	\$ —
Trading account assets	2.0	2.6
Investments	10.6	9.9
Total loans, net of allowance	29.3	26.7
Other	0.3	0.5
Total assets	\$ 42.2	\$ 39.7

Credit Card Securitizations

The Company securitizes credit card receivables through trusts established to purchase the receivables. Citigroup transfers receivables into the trusts on a non-recourse basis. Credit card securitizations are revolving securitizations: as customers pay their credit card balances, the cash proceeds are used to purchase new receivables and replenish the receivables in the trust.

Substantially all of the Company's credit card securitization activity is through two trusts—Citibank Credit Card Master Trust (Master Trust) and Citibank Omni Master Trust (Omni Trust), with the substantial majority through the Master Trust. These trusts are consolidated entities because, as

servicer, Citigroup has the power to direct the activities that most significantly impact the economic performance of the trusts. Citigroup holds a seller's interest and certain securities issued by the trusts, which could result in exposure to potentially significant losses or benefits from the trusts. Accordingly, the transferred credit card receivables remain on Citi's Consolidated Balance Sheet with no gain or loss recognized. The debt issued by the trusts to third parties is included on Citi's Consolidated Balance Sheet.

Citi utilizes securitizations as one of the sources of funding for its business in *North America*. The following table reflects amounts related to the Company's securitized credit card receivables:

<i>In billions of dollars</i>	December 31, 2020	December 31, 2019
Ownership interests in principal amount of trust credit card receivables		
Sold to investors via trust-issued securities	\$ 15.7	\$ 19.7
Retained by Citigroup as trust-issued securities	7.9	6.2
Retained by Citigroup via non-certificated interests	11.1	17.8
Total	\$ 34.7	\$ 43.7

The following table summarizes selected cash flow information related to Citigroup's credit card securitizations:

<i>In billions of dollars</i>	2020	2019	2018
Proceeds from new securitizations	\$ 0.3	\$ —	\$ 6.8
Pay down of maturing notes	(4.3)	(7.6)	(8.3)

Managed Loans

After securitization of credit card receivables, the Company continues to maintain credit card customer account relationships and provides servicing for receivables transferred to the trusts. As a result, the Company considers the securitized credit card receivables to be part of the business it manages. As Citigroup consolidates the credit card trusts, all managed securitized card receivables are on-balance sheet.

Funding, Liquidity Facilities and Subordinated Interests

As noted above, Citigroup securitizes credit card receivables through two securitization trusts—Master Trust and Omni Trust. The liabilities of the trusts are included on the Consolidated Balance Sheet, excluding those retained by Citigroup.

Master Trust Liabilities (at Par Value)

The Master Trust issues fixed- and floating-rate term notes. Some of the term notes may be issued to multi-seller commercial paper conduits. The weighted average maturity of the third-party term notes issued by the Master Trust was 2.9 years as of December 31, 2020 and 3.1 years as of December 31, 2019.

<i>In billions of dollars</i>	Dec. 31, 2020	Dec. 31, 2019
Term notes issued to third parties	\$ 13.9	\$ 18.2
Term notes retained by Citigroup affiliates	2.7	4.3
Total Master Trust liabilities	\$ 16.6	\$ 22.5

Omni Trust Liabilities (at Par Value)

The Omni Trust issues fixed- and floating-rate term notes, some of which are purchased by multi-seller commercial paper conduits. The weighted average maturity of the third-party term notes issued by the Omni Trust was 1.1 years as of December 31, 2020 and 1.6 years as of December 31, 2019.

<i>In billions of dollars</i>	Dec. 31, 2020	Dec. 31, 2019
Term notes issued to third parties	\$ 1.8	\$ 1.5
Term notes retained by Citigroup affiliates	5.2	1.9
Total Omni Trust liabilities	\$ 7.0	\$ 3.4

Mortgage Securitizations

Citigroup provides a wide range of mortgage loan products to a diverse customer base. Once originated, the Company often securitizes these loans through the use of VIEs. These VIEs are funded through the issuance of trust certificates backed solely by the transferred assets. These certificates have the same life as the transferred assets. In addition to providing a source of liquidity and less expensive funding, securitizing these assets also reduces Citi's credit exposure to the borrowers. These mortgage loan securitizations are primarily non-recourse, thereby effectively transferring the risk of future credit losses to the purchasers of the securities issued by the trust.

Citi's U.S. consumer mortgage business generally retains the servicing rights and in certain instances retains investment securities, interest-only strips and residual interests in future cash flows from the trusts and also provides servicing for a limited number of ICG securitizations. Citi's ICG business may hold investment securities pursuant to credit risk retention rules or in connection with secondary market-making activities.

The Company securitizes mortgage loans generally through either a U.S. government-sponsored agency, such as Ginnie Mae, Fannie Mae or Freddie Mac (U.S. agency-sponsored mortgages), or private label (non-agency-sponsored

mortgages) securitization. Citi is not the primary beneficiary of its U.S. agency-sponsored mortgage securitization entities because Citigroup does not have the power to direct the activities of the VIEs that most significantly impact the entities' economic performance. Therefore, Citi does not consolidate these U.S. agency-sponsored mortgage securitization entities. Substantially all of the consumer loans sold or securitized through non-consolidated trusts by Citigroup are U.S. prime residential mortgage loans. Retained interests in non-consolidated agency-sponsored mortgage securitization trusts are classified as *Trading account assets*, except for MSRs, which are included in *Other assets* on Citigroup's Consolidated Balance Sheet.

Citigroup does not consolidate certain non-agency-sponsored mortgage securitization entities because Citi is either not the servicer with the power to direct the significant activities of the entity or Citi is the servicer, but the servicing relationship is deemed to be a fiduciary relationship; therefore, Citi is not deemed to be the primary beneficiary of the entity.

In certain instances, the Company has (i) the power to direct the activities and (ii) the obligation to either absorb losses or the right to receive benefits that could be potentially significant to its non-agency-sponsored mortgage securitization entities and, therefore, is the primary beneficiary and, thus, consolidates the VIE.

The following tables summarize selected cash flow information and retained interests related to Citigroup mortgage securitizations:

	2020		2019		2018	
	U.S. agency-sponsored mortgages	Non-agency-sponsored mortgages	U.S. agency-sponsored mortgages	Non-agency-sponsored mortgages	U.S. agency-sponsored mortgages	Non-agency-sponsored mortgages
<i>In billions of dollars</i>						
Principal securitized	\$ 9.4	\$ 11.3	\$ 5.3	\$ 15.6	\$ 4.0	\$ 5.6
Proceeds from new securitizations ⁽¹⁾	10.0	11.4	5.5	15.5	4.2	7.1
Contractual servicing fees received	0.1	—	0.1	—	0.1	—
Purchases of previously transferred financial assets	0.4	—	0.2	—	0.2	—

Note: Excludes re-securitization transactions.

(1) The proceeds from new securitizations in 2019 include \$0.2 billion related to personal loan securitizations.

For non-consolidated mortgage securitization entities where the transfer of loans to the VIE meets the conditions for sale accounting, Citi recognizes a gain or loss based on the difference between the carrying value of the transferred assets and the proceeds received (generally cash but may be beneficial interests or servicing rights).

Agency and non-agency securitization gains for the year ended December 31, 2020 were \$88.4 million and \$139.4 million, respectively.

Agency and non-agency securitization gains for the year ended December 31, 2019 were \$16 million and \$73.4 million, respectively, and \$17 million and \$36 million, respectively, for the year ended December 31, 2018.

	2020			2019		
	U.S. agency-sponsored mortgages	Non-agency-sponsored mortgages ⁽¹⁾		U.S. agency-sponsored mortgages	Non-agency-sponsored mortgages ⁽¹⁾	
		Senior interests ⁽²⁾	Subordinated interests		Senior interests	Subordinated interests
<i>In millions of dollars</i>						
Carrying value of retained interests ⁽³⁾	\$ 315	\$ 1,210	\$ 145	\$ 491	\$ 748	\$ 102

(1) Disclosure of non-agency-sponsored mortgages as senior and subordinated interests is indicative of the interests' position in the capital structure of the securitization.

(2) Senior interests in non-agency-sponsored mortgages include \$112 million related to personal loan securitizations at December 31, 2020.

(3) Retained interests consist of Level 2 or Level 3 assets depending on the observability of significant inputs. See Note 24 to the Consolidated Financial Statements for more information about fair value measurements.

Key assumptions used in measuring the fair value of retained interests at the date of sale or securitization of mortgage receivables were as follows:

	December 31, 2020		
	U.S. agency- sponsored mortgages	Non-agency-sponsored mortgages ⁽¹⁾	
		Senior interests	Subordinated interests
Weighted average discount rate	5.4%	1.7 %	3.0 %
Weighted average constant prepayment rate	25.8%	3.4 %	25.0 %
Weighted average anticipated net credit losses ⁽²⁾	NM	1.7 %	0.5 %
Weighted average life	4.8 years	3.8 years	2.3 years

	December 31, 2019		
	U.S. agency- sponsored mortgages	Non-agency-sponsored mortgages ⁽¹⁾	
		Senior interests	Subordinated interests
Weighted average discount rate	9.3%	3.6 %	4.6 %
Weighted average constant prepayment rate	12.9%	10.5 %	7.6 %
Weighted average anticipated net credit losses ⁽²⁾	NM	3.9 %	2.8 %
Weighted average life	6.6 years	3.0 years	11.4 years

- (1) Disclosure of non-agency-sponsored mortgages as senior and subordinated interests is indicative of the interests' position in the capital structure of the securitization.
- (2) Anticipated net credit losses represent estimated loss severity associated with defaulted mortgage loans underlying the mortgage securitizations disclosed above. Anticipated net credit losses, in this instance, do not represent total credit losses incurred to date, nor do they represent credit losses expected on retained interests in mortgage securitizations.
- NM Anticipated net credit losses are not meaningful due to U.S. agency guarantees.

The interests retained by the Company range from highly rated and/or senior in the capital structure to unrated and/or residual interests. Key assumptions used in measuring the fair value of retained interests in securitizations of mortgage receivables at period end were as follows:

	December 31, 2020		
	U.S. agency- sponsored mortgages	Non-agency-sponsored mortgages ⁽¹⁾	
		Senior interests	Subordinated interests
Weighted average discount rate	5.9%	7.2%	4.3%
Weighted average constant prepayment rate	22.7%	5.3%	4.7%
Weighted average anticipated net credit losses ⁽²⁾	NM	1.2%	1.4%
Weighted average life	4.5 years	5.3 years	4.7 years

	December 31, 2019		
	U.S. agency- sponsored mortgages	Non-agency-sponsored mortgages ⁽¹⁾	
		Senior interests	Subordinated interests
Weighted average discount rate	9.8%	7.6%	4.2%
Weighted average constant prepayment rate	10.1%	3.6%	6.1%
Weighted average anticipated net credit losses ⁽²⁾	NM	5.2%	2.7%
Weighted average life	6.6 years	5.9 years	29.3 years

- (1) Disclosure of non-agency-sponsored mortgages as senior and subordinated interests is indicative of the interests' position in the capital structure of the securitization.
- (2) Anticipated net credit losses represent estimated loss severity associated with defaulted mortgage loans underlying the mortgage securitizations disclosed above. Anticipated net credit losses, in this instance, do not represent total credit losses incurred to date, nor do they represent credit losses expected on retained interests in mortgage securitizations.
- NM Anticipated net credit losses are not meaningful due to U.S. agency guarantees.

The sensitivity of the fair value to adverse changes of 10% and 20% in each of the key assumptions is presented in the tables below. The negative effect of each change is calculated independently, holding all other assumptions constant. Because the key assumptions may not be independent, the net effect of simultaneous adverse changes in the key assumptions may be less than the sum of the individual effects shown below.

<i>In millions of dollars</i>	December 31, 2020		
	U.S. agency-sponsored mortgages	Non-agency-sponsored mortgages	
		Senior interests	Subordinated interests
Discount rate			
Adverse change of 10%	\$ (8)	\$ —	\$ (1)
Adverse change of 20%	(15)	(1)	(1)
Constant prepayment rate			
Adverse change of 10%	(21)	—	—
Adverse change of 20%	(40)	—	—
Anticipated net credit losses			
Adverse change of 10%	NM	—	—
Adverse change of 20%	NM	—	—

<i>In millions of dollars</i>	December 31, 2019		
	U.S. agency-sponsored mortgages	Non-agency-sponsored mortgages	
		Senior interests	Subordinated interests
Discount rate			
Adverse change of 10%	\$ (18)	\$ —	\$ (1)
Adverse change of 20%	(35)	(1)	(1)
Constant prepayment rate			
Adverse change of 10%	(18)	—	—
Adverse change of 20%	(35)	—	—
Anticipated net credit losses			
Adverse change of 10%	NM	—	—
Adverse change of 20%	NM	—	—

NM Anticipated net credit losses are not meaningful due to U.S. agency guarantees.

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

<i>In billions of dollars, except liquidation losses in millions</i>	Securitized assets		90 days past due		Liquidation losses	
	2020	2019	2020	2019	2020	2019
	Securitized assets					
Residential mortgages ⁽¹⁾	\$ 16.9	\$ 11.7	\$ 0.5	\$ 0.4	\$ 26.2	\$ 49.0
Commercial and other	23.9	19.0	—	—	—	—
Total	\$ 40.8	\$ 30.7	\$ 0.5	\$ 0.4	\$ 26.2	\$ 49.0

(1) Securitized assets include \$0.2 billion of personal loan securitizations as of December 31, 2020.

Mortgage Servicing Rights (MSRs)

In connection with the securitization of mortgage loans, Citi's U.S. consumer mortgage business generally retains the servicing rights, which entitle the Company to a future stream of cash flows based on the outstanding principal balances of the loans and the contractual servicing fee. Failure to service the loans in accordance with contractual requirements may lead to a termination of the servicing rights and the loss of future servicing fees.

These transactions create intangible assets referred to as MSRs, which are recorded at fair value on Citi's Consolidated Balance Sheet. The fair value of Citi's capitalized MSRs was \$336 million and \$495 million at December 31, 2020 and 2019, respectively. The MSRs correspond to principal loan balances of \$53 billion and \$58 billion as of December 31, 2020 and 2019, respectively.

The following table summarizes the changes in capitalized MSRs:

<i>In millions of dollars</i>	2020	2019
Balance, beginning of year	\$ 495	\$ 584
Originations	123	70
Changes in fair value of MSRs due to changes in inputs and assumptions	(204)	(84)
Other changes ⁽¹⁾	(78)	(75)
Sale of MSRs	—	—
Balance, as of December 31	\$ 336	\$ 495

(1) Represents changes due to customer payments and passage of time.

The fair value of the MSRs is primarily affected by changes in prepayments of mortgages that result from shifts in mortgage interest rates. Specifically, higher interest rates tend to lead to declining prepayments, which causes the fair value of the MSRs to increase. In managing this risk, Citigroup economically hedges a significant portion of the value of its MSRs through the use of interest rate derivative contracts, forward purchase and sale commitments of mortgage-backed securities and purchased securities, all classified as *Trading account assets*.

The Company receives fees during the course of servicing previously securitized mortgages. The amounts of these fees were as follows:

<i>In millions of dollars</i>	2020	2019	2018
Servicing fees	\$ 142	\$ 148	\$ 172
Late fees	5	8	4
Ancillary fees	—	1	8
Total MSR fees	\$ 147	\$ 157	\$ 184

In the Consolidated Statement of Income these fees are primarily classified as *Commissions and fees*, and changes in MSR fair values are classified as *Other revenue*.

Re-securitizations

The Company engages in re-securitization transactions in which debt securities are transferred to a VIE in exchange for new beneficial interests. Citi did not transfer non-agency (private label) securities to re-securitization entities during the years ended December 31, 2020 and 2019. These securities are

backed by either residential or commercial mortgages and are often structured on behalf of clients.

As of December 31, 2020 and December 31, 2019, Citi held no retained interests in private label re-securitization transactions structured by Citi.

The Company also re-securitizes U.S. government-agency guaranteed mortgage-backed (agency) securities. During the years ended December 31, 2020 and 2019, Citi transferred agency securities with a fair value of approximately \$42.8 billion and \$31.9 billion, respectively, to re-securitization entities.

As of December 31, 2020, the fair value of Citi-retained interests in agency re-securitization transactions structured by Citi totaled approximately \$1.6 billion (including \$916 million related to re-securitization transactions executed in 2020) compared to \$2.2 billion as of December 31, 2019 (including \$1.3 billion related to re-securitization transactions executed in 2019), which is recorded in *Trading account assets*. The original fair value of agency re-securitization transactions in which Citi holds a retained interest as of December 31, 2020 and 2019 was approximately \$83.6 billion and \$73.5 billion, respectively.

As of December 31, 2020 and 2019, the Company did not consolidate any private label or agency re-securitization entities.

Citi-Administered Asset-Backed Commercial Paper Conduits

The Company is active in the asset-backed commercial paper conduit business as administrator of several multi-seller commercial paper conduits and also as a service provider to single-seller and other commercial paper conduits sponsored by third parties.

Citi's multi-seller commercial paper conduits are designed to provide the Company's clients access to low-cost funding in the commercial paper markets. The conduits purchase assets from or provide financing facilities to clients and are funded by issuing commercial paper to third-party investors. The conduits generally do not purchase assets originated by Citi. The funding of the conduits is facilitated by the liquidity support and credit enhancements provided by the Company.

As administrator to Citi's conduits, the Company is generally responsible for selecting and structuring assets purchased or financed by the conduits, making decisions regarding the funding of the conduits, including determining the tenor and other features of the commercial paper issued, monitoring the quality and performance of the conduits' assets and facilitating the operations and cash flows of the conduits. In return, the Company earns structuring fees from customers for individual transactions and earns an administration fee from the conduit, which is equal to the income from the client program and liquidity fees of the conduit after payment of conduit expenses. This administration fee is fairly stable, since most risks and rewards of the underlying assets are passed back to the clients. Once the asset pricing is negotiated, most ongoing income, costs and fees are relatively stable as a percentage of the conduit's size.

The conduits administered by Citi do not generally invest in liquid securities that are formally rated by third parties. The assets are privately negotiated and structured transactions that

are generally designed to be held by the conduit, rather than actively traded and sold. The yield earned by the conduit on each asset is generally tied to the rate on the commercial paper issued by the conduit, thus passing interest rate risk to the client. Each asset purchased by the conduit is structured with transaction-specific credit enhancement features provided by the third-party client seller, including over-collateralization, cash and excess spread collateral accounts, direct recourse or third-party guarantees. These credit enhancements are sized with the objective of approximating a credit rating of A or above, based on Citi's internal risk ratings. At December 31, 2020 and 2019, the commercial paper conduits administered by Citi had approximately \$16.7 billion and \$15.6 billion of purchased assets outstanding, respectively, and had incremental funding commitments with clients of approximately \$17.1 billion and \$16.3 billion, respectively.

Substantially all of the funding of the conduits is in the form of short-term commercial paper. At December 31, 2020 and 2019, the weighted average remaining lives of the commercial paper issued by the conduits were approximately 54 and 49 days, respectively.

The primary credit enhancement provided to the conduit investors is in the form of transaction-specific credit enhancements described above. In addition to the transaction-specific credit enhancements, the conduits, other than the government guaranteed loan conduit, have obtained a letter of credit from the Company, which is equal to at least 8% to 10% of the conduit's assets with a minimum of \$200 million. The letters of credit provided by the Company to the conduits total approximately \$1.5 billion as of December 31, 2020 and \$1.4 billion as of December 31, 2019. The net result across multi-seller conduits administered by the Company is that, in the event that defaulted assets exceed the transaction-specific credit enhancements described above, any losses in each conduit are allocated first to the Company and then to the commercial paper investors.

Citigroup also provides the conduits with two forms of liquidity agreements that are used to provide funding to the conduits in the event of a market disruption, among other events. Each asset of the conduits is supported by a transaction-specific liquidity facility in the form of an asset purchase agreement (APA). Under the APA, the Company has generally agreed to purchase non-defaulted eligible receivables from the conduit at par. The APA is not designed to provide credit support to the conduit, as it generally does not permit the purchase of defaulted or impaired assets. Any funding under the APA will likely subject the underlying conduit clients to increased interest costs. In addition, the Company provides the conduits with program-wide liquidity in the form of short-term lending commitments. Under these commitments, the Company has agreed to lend to the conduits in the event of a short-term disruption in the commercial paper market, subject to specified conditions. The Company receives fees for providing both types of liquidity agreements and considers these fees to be on fair market terms.

Finally, Citi is one of several named dealers in the commercial paper issued by the conduits and earns a market-based fee for providing such services. Along with third-party dealers, the Company makes a market in the commercial paper and may from time to time fund commercial paper pending

sale to a third party. On specific dates with less liquidity in the market, the Company may hold in inventory commercial paper issued by conduits administered by the Company, as well as conduits administered by third parties. Separately, in the normal course of business, Citi purchases commercial paper, including commercial paper issued by Citigroup's conduits. At December 31, 2020 and 2019, the Company owned \$6.6 billion and \$5.5 billion, respectively, of the commercial paper issued by its administered conduits. The Company's investments were not driven by market illiquidity and the Company is not obligated under any agreement to purchase the commercial paper issued by the conduits.

The asset-backed commercial paper conduits are consolidated by Citi. The Company has determined that, through its roles as administrator and liquidity provider, it has the power to direct the activities that most significantly impact the entities' economic performance. These powers include its ability to structure and approve the assets purchased by the conduits, its ongoing surveillance and credit mitigation activities, its ability to sell or repurchase assets out of the conduits and its liability management. In addition, as a result of all the Company's involvement described above, it was concluded that Citi has an economic interest that could potentially be significant. However, the assets and liabilities of the conduits are separate and apart from those of Citigroup. No assets of any conduit are available to satisfy the creditors of Citigroup or any of its other subsidiaries.

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.

Citi 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 Citi entities may purchase some portion of a CLO's liabilities for investment purposes. In addition, Citi 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.

The following tables summarize selected cash flow information and retained interests related to Citigroup CLOs:

<i>In billions of dollars</i>	2020	2019	2018
Principal securitized	\$ 0.1	\$ —	\$ —
Proceeds from new securitizations	0.1	—	—
Cash flows received on retained interests and other net cash flows	—	—	0.1

<i>In millions of dollars</i>	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2018
Carrying value of retained interests	\$ 1,611	\$ 1,404	\$ 3,142

All of Citi's retained interests were held-to-maturity securities as of December 31, 2020 and 2019.

Asset-Based Financing

The Company provides loans and other forms of financing to VIEs that hold assets. Those loans are subject to the same credit approvals as all other loans originated or purchased by the Company. Financings in the form of debt securities or derivatives are, in most circumstances, reported in *Trading account assets* and accounted for at fair value through earnings. The Company generally does not have the power to direct the activities that most significantly impact these VIEs' economic performance; thus, it does not consolidate them.

The primary types of Citi's asset-based financings, total assets of the unconsolidated VIEs with significant involvement and Citi's maximum exposure to loss are shown below. For Citi to realize the maximum loss, the VIE (borrower) would have to default with no recovery from the assets held by the VIE.

<i>In millions of dollars</i>	December 31, 2020	
	Total unconsolidated VIE assets	Maximum exposure to unconsolidated VIEs
Type		
Commercial and other real estate	\$ 34,570	\$ 7,758
Corporate loans	12,022	7,654
Other (including investment funds, airlines and shipping)	167,613	20,442
Total	\$ 214,205	\$ 35,854

<i>In millions of dollars</i>	December 31, 2019	
	Total unconsolidated VIE assets	Maximum exposure to unconsolidated VIEs
Type		
Commercial and other real estate	\$ 31,377	\$ 7,489
Corporate loans	7,088	5,802
Other (including investment funds, airlines and shipping)	152,124	21,140
Total	\$ 190,589	\$ 34,431

Municipal Securities Tender Option Bond (TOB) Trusts

Municipal TOB trusts may hold fixed- or floating-rate, taxable or tax-exempt securities issued by state and local governments and municipalities. TOB trusts are typically structured as single-issuer entities whose assets are purchased from either the Company or from other investors in the municipal securities market. TOB trusts finance the purchase of their municipal assets by issuing two classes of certificates: long-dated, floating rate certificates ("Floaters") that are puttable pursuant to a liquidity facility and residual interest certificates ("Residuals"). The Floaters are purchased by third-party investors, typically tax-exempt money market funds. The Residuals are purchased by the original owner of the municipal securities that are being financed.

From Citigroup's perspective, there are two types of TOB trusts: customer and non-customer. Customer TOB trusts are those trusts utilized by customers of the Company to finance their securities, generally municipal securities. The Residuals issued by these trusts are purchased by the customer being financed. Non-customer TOB trusts are generally used by the Company to finance its own municipal securities investments; the Residuals issued by non-customer TOB trusts are purchased by the Company.

With respect to both customer and non-customer TOB trusts, Citi may provide remarketing agent services. If Floaters are optionally tendered and the Company, in its role as remarketing agent, is unable to find a new investor to purchase the optionally tendered Floaters within a specified period of time, Citigroup may, but is not obligated to, purchase the tendered Floaters into its own inventory. The level of the Company's inventory of such Floaters fluctuates.

For certain customer TOB trusts, Citi may also serve as a voluntary advance provider. In this capacity, the Company may, but is not obligated to, make loan advances to customer TOB trusts to purchase optionally tendered Floaters that have not otherwise been successfully remarketed to new investors. Such loans are secured by pledged Floaters. As of December 31, 2020, Citi had no outstanding voluntary advances to customer TOB trusts.

For certain non-customer trusts, the Company also provides credit enhancement. At December 31, 2020 and 2019, none of the municipal bonds owned by non-customer TOB trusts were subject to a credit guarantee provided by the Company.

Citigroup also provides liquidity services to many customer and non-customer trusts. If a trust is unwound early due to an event other than a credit event on the underlying municipal bonds, the underlying municipal bonds are sold out of the trust and bond sale proceeds are used to redeem the outstanding trust certificates. If this results in a shortfall between the bond sale proceeds and the redemption price of the tendered Floaters, the Company, pursuant to the liquidity agreement, would be obligated to make a payment to the trust to satisfy that shortfall. For certain customer TOB trusts, Citigroup has also executed a reimbursement agreement with the holder of the Residual, pursuant to which the Residual holder is obligated to reimburse the Company for any payment the Company makes under the liquidity arrangement. These reimbursement agreements may be subject to daily margining based on changes in the market value of the underlying

municipal bonds. In cases where a third party provides liquidity to a non-customer TOB trust, a similar reimbursement arrangement may be executed, whereby the Company (or a consolidated subsidiary of the Company), as Residual holder, would absorb any losses incurred by the liquidity provider.

For certain other non-customer TOB trusts, Citi serves as tender option provider. The tender option provider arrangement allows Floater holders to put their interests directly to the Company at any time, subject to the requisite notice period requirements, at a price of par.

At December 31, 2020 and 2019, liquidity agreements provided with respect to customer TOB trusts totaled \$1.6 billion and \$3.5 billion, respectively, of which \$0.8 billion and \$1.6 billion, respectively, were offset by reimbursement agreements. For the remaining exposure related to TOB transactions, where the residual owned by the customer was at least 25% of the bond value at the inception of the transaction, no reimbursement agreement was executed.

Citi considers both customer and non-customer TOB trusts to be VIEs. Customer TOB trusts are not consolidated by the Company, as the power to direct the activities that most significantly impact the trust's economic performance rests with the customer Residual holder, which may unilaterally cause the sale of the trust's bonds.

Non-customer TOB trusts generally are consolidated because the Company holds the Residual interest and thus has the unilateral power to cause the sale of the trust's bonds.

The Company also provides other liquidity agreements or letters of credit to customer-sponsored municipal investment funds, which are not variable interest entities, and municipality-related issuers that totaled \$3.6 billion as of December 31, 2020 and \$7.0 billion as of December 31, 2019. These liquidity agreements and letters of credit are offset by reimbursement agreements with various term-out provisions.

Municipal Investments

Municipal investment transactions include debt and equity interests in partnerships that finance the construction and rehabilitation of low-income housing, facilitate lending in new or underserved markets or finance the construction or operation of renewable municipal energy facilities. Citi generally invests in these partnerships as a limited partner and earns a return primarily through the receipt of tax credits and grants earned from the investments made by the partnership. The Company may also provide construction loans or permanent loans for the development or operation of real estate properties held by partnerships. These entities are generally considered VIEs. The power to direct the activities of these entities is typically held by the general partner. Accordingly, these entities are not consolidated by Citigroup.

Client Intermediation

Client intermediation transactions represent a range of transactions designed to provide investors with specified returns based on the returns of an underlying security, referenced asset or index. These transactions include credit-linked notes and equity-linked notes. In these transactions, the VIE typically obtains exposure to the underlying security, referenced asset or index through a derivative instrument, such

as a total-return swap or a credit-default swap. In turn, the VIE issues notes to investors that pay a return based on the specified underlying security, referenced asset or index. The VIE invests the proceeds in a financial asset or a guaranteed insurance contract that serves as collateral for the derivative contract over the term of the transaction. The Company's involvement in these transactions includes being the counterparty to the VIE's derivative instruments and investing in a portion of the notes issued by the VIE. In certain transactions, the investor's maximum risk of loss is limited and the Company absorbs risk of loss above a specified level. Citi does not have the power to direct the activities of the VIEs that most significantly impact their economic performance and thus it does not consolidate them.

Citi's maximum risk of loss in these transactions is defined as the amount invested in notes issued by the VIE and the notional amount of any risk of loss absorbed by Citi through a separate instrument issued by the VIE. The derivative instrument held by the Company may generate a receivable from the VIE (for example, where the Company purchases credit protection from the VIE in connection with the VIE's issuance of a credit-linked note), which is collateralized by the assets owned by the VIE. These derivative instruments are not considered variable interests and any associated receivables are not included in the calculation of maximum exposure to the VIE.

Investment Funds

The Company is the investment manager for certain investment funds and retirement funds that invest in various asset classes including private equity, hedge funds, real estate, fixed income and infrastructure. Citigroup earns a management fee, which is a percentage of capital under management, and may earn performance fees. In addition, for some of these funds the Company has an ownership interest in the investment funds. Citi has also established a number of investment funds as opportunities for qualified colleagues to invest in private equity investments. The Company acts as investment manager for these funds and may provide colleagues with financing on both recourse and non-recourse bases for a portion of the colleagues' investment commitments.

22. DERIVATIVES

In the ordinary course of business, Citigroup 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. Citigroup enters into derivative contracts relating to interest rate, foreign currency, commodity and other market/credit risks for the following reasons:

- *Trading Purposes*: Citigroup trades derivatives as an active market maker. Citigroup 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. Citigroup also manages its derivative risk positions through offsetting trade activities, controls focused on price verification and daily reporting of positions to senior managers.
- *Hedging*: Citigroup uses derivatives in connection with its own risk management activities to hedge certain risks or reposition the risk profile of the Company. Hedging may be accomplished by applying hedge accounting in accordance with ASC 815, *Derivatives and Hedging*, or by an economic hedge. For example, Citigroup 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 AFS securities, commodities and borrowings, as well as other interest-sensitive assets and liabilities. In addition, foreign exchange contracts are used to hedge non-U.S.-dollar-

denominated debt, foreign currency-denominated AFS securities and net investment exposures.

Derivatives may expose Citigroup to market, credit or liquidity risks in excess of the amounts recorded on the Consolidated Balance Sheet. 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 Citi 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 a party's becoming a materially weaker credit 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. Citi 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, Citi generally transacts much lower volumes of derivatives under master netting agreements where Citi 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.

As of January 1, 2018, Citigroup early adopted ASU 2017-12, *Targeted Improvements to Accounting for Hedging Activities*. This standard primarily impacts Citi's accounting for derivatives designated as cash flow hedges and fair value hedges. Refer to the respective sections below for details.

Information pertaining to Citigroup's derivative activities, based on notional amounts, is presented in the table below. Derivative notional amounts are reference amounts from which contractual payments are derived and do not represent a complete measure of Citi's exposure to derivative transactions. Citi'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 Citi 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 Citi's market share, levels of client activity and other factors. All derivatives are recorded in *Trading account assets/Trading account liabilities* on the Consolidated Balance Sheet.

Derivative Notionals

<i>In millions of dollars</i>	Hedging instruments under ASC 815		Trading derivative instruments	
	December 31, 2020	December 31, 2019	December 31, 2020	December 31, 2019
Interest rate contracts				
Swaps	\$ 334,351	\$ 318,089	\$ 17,724,147	\$ 17,063,272
Futures and forwards	—	—	4,142,514	3,636,658
Written options	—	—	1,573,483	2,114,511
Purchased options	—	—	1,418,255	1,857,770
Total interest rate contracts	\$ 334,351	\$ 318,089	\$ 24,858,399	\$ 24,672,211
Foreign exchange contracts				
Swaps	\$ 65,709	\$ 63,104	\$ 6,567,304	\$ 6,063,853
Futures, forwards and spot	37,080	38,275	3,945,391	3,979,188
Written options	47	80	907,338	908,061
Purchased options	53	80	900,626	959,149
Total foreign exchange contracts	\$ 102,889	\$ 101,539	\$ 12,320,659	\$ 11,910,251
Equity contracts				
Swaps	\$ —	\$ —	\$ 274,098	\$ 197,893
Futures and forwards	—	—	67,025	66,705
Written options	—	—	441,003	560,571
Purchased options	—	—	328,202	422,393
Total equity contracts	\$ —	\$ —	\$ 1,110,328	\$ 1,247,562
Commodity and other contracts				
Swaps	\$ —	\$ —	\$ 80,127	\$ 69,445
Futures and forwards	924	1,195	143,175	137,192
Written options	—	—	71,376	91,587
Purchased options	—	—	67,849	86,631
Total commodity and other contracts	\$ 924	\$ 1,195	\$ 362,527	\$ 384,855
Credit derivatives⁽¹⁾				
Protection sold	\$ —	\$ —	\$ 543,607	\$ 603,387
Protection purchased	—	—	612,770	703,926
Total credit derivatives	\$ —	\$ —	\$ 1,156,377	\$ 1,307,313
Total derivative notionals	\$ 438,164	\$ 420,823	\$ 39,808,290	\$ 39,522,192

(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 tables present the gross and net fair values of the Company's derivative transactions and the related offsetting amounts as of December 31, 2020 and 2019. 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 tables reflect 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. As a result, the tables reflect a reduction of approximately \$280 billion and \$180 billion as of December 31, 2020 and 2019, respectively, of derivative assets and derivative liabilities that previously would have been reported on a gross basis, but are now legally settled and not subject to collateral. The tables also present 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

In millions of dollars at December 31, 2020	Derivatives classified in Trading account assets/liabilities ⁽¹⁾⁽²⁾	
	Assets	Liabilities
Derivatives instruments designated as ASC 815 hedges		
Over-the-counter	\$ 1,781	\$ 161
Cleared	74	319
Interest rate contracts	\$ 1,855	\$ 480
Over-the-counter	\$ 2,037	\$ 2,042
Foreign exchange contracts	\$ 2,037	\$ 2,042
Total derivatives instruments designated as ASC 815 hedges	\$ 3,892	\$ 2,522
Derivatives instruments not designated as ASC 815 hedges		
Over-the-counter	\$ 228,519	\$ 209,330
Cleared	11,041	12,563
Exchange traded	46	38
Interest rate contracts	\$ 239,606	\$ 221,931
Over-the-counter	\$ 153,791	\$ 152,784
Cleared	842	1,239
Exchange traded	—	1
Foreign exchange contracts	\$ 154,633	\$ 154,024
Over-the-counter	\$ 29,244	\$ 41,036
Cleared	1	18
Exchange traded	21,274	22,515
Equity contracts	\$ 50,519	\$ 63,569
Over-the-counter	\$ 13,659	\$ 17,076
Exchange traded	879	1,017
Commodity and other contracts	\$ 14,538	\$ 18,093
Over-the-counter	\$ 7,826	\$ 7,951
Cleared	1,963	2,178
Credit derivatives	\$ 9,789	\$ 10,129
Total derivatives instruments not designated as ASC 815 hedges	\$ 469,085	\$ 467,746
Total derivatives	\$ 472,977	\$ 470,268
Cash collateral paid/received ⁽³⁾	\$ 32,778	\$ 8,196
Less: Netting agreements ⁽⁴⁾	(364,879)	(364,879)
Less: Netting cash collateral received/paid ⁽⁵⁾	(63,915)	(45,628)
Net receivables/payables included on the Consolidated Balance Sheet⁽⁶⁾	\$ 76,961	\$ 67,957
Additional amounts subject to an enforceable master netting agreement, but not offset on the Consolidated Balance Sheet		
Less: Cash collateral received/paid	\$ (1,567)	\$ (473)
Less: Non-cash collateral received/paid	(7,408)	(13,087)
Total net receivables/payables⁽⁶⁾	\$ 67,986	\$ 54,397

(1) The derivatives fair values are also presented in Note 24 to the Consolidated Financial Statements.

(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) Reflects the net amount of the \$78,406 million and \$72,111 million of gross cash collateral paid and received, respectively. Of the gross cash collateral paid, \$45,628 million was used to offset trading derivative liabilities. Of the gross cash collateral received, \$63,915 million was used to offset trading derivative assets.

(4) Represents the netting of balances with the same counterparty under enforceable netting agreements. Approximately \$336 billion, \$9 billion and \$20 billion of the netting against trading account asset/liability balances is attributable to each of the OTC, cleared and exchange-traded derivatives, respectively.

(5) 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.

(6) The net receivables/payables include approximately \$6 billion of derivative asset and \$8 billion of derivative liability fair values not subject to enforceable master netting agreements, respectively.

In millions of dollars at December 31, 2019

Derivatives classified
in Trading account assets/liabilities⁽¹⁾⁽²⁾

Derivatives instruments designated as ASC 815 hedges	Assets	Liabilities
Over-the-counter	\$ 1,682	\$ 143
Cleared	41	111
Interest rate contracts	\$ 1,723	\$ 254
Over-the-counter	\$ 1,304	\$ 908
Cleared	—	2
Foreign exchange contracts	\$ 1,304	\$ 910
Total derivatives instruments designated as ASC 815 hedges	\$ 3,027	\$ 1,164
Derivatives instruments not designated as ASC 815 hedges		
Over-the-counter	\$ 189,892	\$ 169,749
Cleared	5,896	7,472
Exchange traded	157	180
Interest rate contracts	\$ 195,945	\$ 177,401
Over-the-counter	\$ 105,401	\$ 108,807
Cleared	862	1,015
Exchange traded	3	—
Foreign exchange contracts	\$ 106,266	\$ 109,822
Over-the-counter	\$ 21,311	\$ 22,411
Exchange traded	7,160	8,075
Equity contracts	\$ 28,471	\$ 30,486
Over-the-counter	\$ 13,582	\$ 16,773
Exchange traded	630	542
Commodity and other contracts	\$ 14,212	\$ 17,315
Over-the-counter	\$ 8,896	\$ 8,975
Cleared	1,513	1,763
Credit derivatives	\$ 10,409	\$ 10,738
Total derivatives instruments not designated as ASC 815 hedges	\$ 355,303	\$ 345,762
Total derivatives	\$ 358,330	\$ 346,926
Cash collateral paid/received ⁽³⁾	\$ 17,926	\$ 14,391
Less: Netting agreements ⁽⁴⁾	(274,970)	(274,970)
Less: Netting cash collateral received/paid ⁽⁵⁾	(44,353)	(38,919)
Net receivables/payables included on the Consolidated Balance Sheet⁽⁶⁾	\$ 56,933	\$ 47,428
Additional amounts subject to an enforceable master netting agreement, but not offset on the Consolidated Balance Sheet		
Less: Cash collateral received/paid	\$ (861)	\$ (128)
Less: Non-cash collateral received/paid	(13,143)	(7,308)
Total net receivables/payables⁽⁶⁾	\$ 42,929	\$ 39,992

(1) The derivatives fair values are also presented in Note 24 to the Consolidated Financial Statements.

(2) Over-the-counter (OTC) derivatives include 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) Reflects the net amount of the \$56,845 million and \$58,744 million of gross cash collateral paid and received, respectively. Of the gross cash collateral paid, \$38,919 million was used to offset trading derivative liabilities. Of the gross cash collateral received, \$44,353 million was used to offset trading derivative assets.

(4) Represents the netting of balances with the same counterparty under enforceable netting agreements. Approximately \$262 billion, \$6 billion and \$7 billion of the netting against trading account asset/liability balances is attributable to each of the OTC, cleared and exchange-traded derivatives, respectively.

(5) 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.

(6) The net receivables/payables include approximately \$7 billion of derivative asset and \$6 billion of derivative liability fair values not subject to enforceable master netting agreements, respectively.

For the years ended December 31, 2020, 2019 and 2018, amounts recognized in *Principal transactions* in the Consolidated Statement of Income include certain derivatives not designated in a qualifying hedging relationship. Citigroup 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 6 to the Consolidated Financial Statements for further information.

The amounts recognized in *Other revenue* in the Consolidated Statement of Income related to derivatives not designated in a qualifying hedging relationship are shown below. The table below does not include any offsetting gains (losses) on the economically hedged items to the extent that such amounts are also recorded in *Other revenue*.

In millions of dollars	Gains (losses) included in Other revenue		
	Year ended December 31,		
	2020	2019	2018
Interest rate contracts	\$ 63	\$ 57	\$ (25)
Foreign exchange	(57)	(29)	(197)
Total	\$ 6	\$ 28	\$ (222)

Accounting for Derivative Hedging

Citigroup 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 foreign exchange risk, that causes changes in the fair value of an asset or liability or variability in the expected future cash flows of an existing asset, liability or a forecasted transaction that may affect earnings.

Derivative contracts hedging the risks associated with changes in fair value are referred to as fair value hedges, while contracts hedging the variability of expected future cash flows are cash flow hedges. Hedges that utilize derivatives or debt instruments to manage the foreign exchange risk associated with equity investments in non-U.S.-dollar-functional-currency foreign subsidiaries (net investment in a foreign operation) are net investment hedges.

To qualify as an accounting hedge under the hedge accounting rules (versus an economic hedge where hedge accounting is not applied), 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. The assessment of effectiveness may exclude changes in the value of the hedged item that are unrelated to the risks being hedged and the changes in fair value of the derivative associated with time value. Prior to January 1, 2018, these excluded items were recognized in current earnings for the hedging derivative, while changes in the value of a hedged item that were not related to the hedged risk were not recorded. Upon adoption of ASC 2017-12, Citi excludes changes in the cross-currency basis associated with cross-currency swaps from the assessment of hedge effectiveness and records it in *Other comprehensive income*.

Discontinued Hedge Accounting

A hedging instrument must be highly effective in accomplishing the hedge objective of offsetting either changes in the fair value or cash flows of the hedged item for the risk being hedged. Management may voluntarily de-designate an accounting hedge at any time, but if a hedging relationship is not highly effective, it no longer qualifies for hedge accounting and must be de-designated. Subsequent changes in the fair value of the derivative are recognized in *Other revenue* or *Principal transactions*, similar to trading derivatives, with no offset recorded related to the hedged item.

For fair value hedges, any changes in the fair value of the hedged item remain as part of the basis of the asset or liability and are ultimately realized as an element of the yield on the item. For cash flow hedges, changes in fair value of the end-user derivative remain in *Accumulated other comprehensive income (loss) (AOCI)* and are included in the earnings of future periods when the forecasted hedged cash flows impact earnings. However, if it becomes probable that some or all of the hedged forecasted transactions will not occur, any amounts that remain in *AOCI* related to these transactions must be immediately reflected in *Other revenue*.

The foregoing criteria are applied on a decentralized basis, consistent with the level at which market risk is managed, but are subject to various limits and controls. The underlying asset, liability or forecasted transaction may be an individual item or a portfolio of similar items.

Fair Value Hedges

Hedging of Benchmark Interest Rate Risk

Citigroup's fair value hedges are primarily hedges of fixed-rate long-term debt or assets, such as available-for-sale debt securities or loans.

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 hedged item attributable to the hedged risk are presented within *Interest revenue* or *Interest expense* based on whether the hedged item is an asset or a liability.

Citigroup has executed a last-of-layer hedge, which permits an entity to hedge the interest rate risk of a stated portion of a closed portfolio of prepayable financial assets that are expected to remain outstanding for the designated tenor of the hedge. In accordance with ASC 815, an entity may exclude prepayment risk when measuring the change in fair value of the hedged item attributable to interest rate risk under the last-of-layer approach. Similar to other fair value hedges, where the hedged item is an asset, the fair value of the hedged item attributable to interest rate risk will be presented in *Interest revenue* along with the change in the fair value of the hedging instrument.

Hedging of Foreign Exchange Risk

Citigroup hedges the change in fair value attributable to foreign exchange rate movements in available-for-sale debt securities and long-term debt that are denominated in currencies other than the functional currency of the entity holding the securities or issuing the debt. The hedging instrument is generally a forward foreign exchange contract or a cross-currency swap contract. Citigroup considers the premium associated with forward contracts (i.e., the differential between the spot and contractual forward rates) as the cost of hedging; this amount is excluded from the assessment of hedge effectiveness and is generally reflected directly in earnings over the life of the hedge. Citi also excludes changes in cross-currency basis associated with cross-currency swaps from the assessment of hedge effectiveness and records it in *Other comprehensive income*.

Hedging of Commodity Price Risk

Citigroup 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 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 change in the fair value of the hedging instrument recorded in earnings includes changes in forward rates, Citigroup excludes the differential between the spot and the contractual forward rates under the futures contract from the assessment of hedge effectiveness, and it is generally reflected directly in earnings over the life of the hedge. Citi also excludes changes in forward rates from the assessment of hedge effectiveness and records it in *Other comprehensive income*.

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

	Gains (losses) on fair value hedges⁽¹⁾					
	Year ended December 31,					
	2020		2019		2018	
<i>In millions of dollars</i>	Other revenue	Net interest revenue	Other revenue	Net interest revenue	Other revenue	Net interest revenue
Gain (loss) on the hedging derivatives included in assessment of the effectiveness of fair value hedges						
Interest rate hedges	\$ —	\$ 4,189	\$ —	\$ 2,273	\$ —	\$ 794
Foreign exchange hedges	1,442	—	337	—	(2,064)	—
Commodity hedges	(164)	—	(33)	—	(123)	—
Total gain (loss) on the hedging derivatives included in assessment of the effectiveness of fair value hedges	\$ 1,278	\$ 4,189	\$ 304	\$ 2,273	\$ (2,187)	\$ 794
Gain (loss) on the hedged item in designated and qualifying fair value hedges						
Interest rate hedges	\$ —	\$ (4,537)	\$ —	\$ (2,085)	\$ —	\$ (747)
Foreign exchange hedges	(1,442)	—	(337)	—	2,064	—
Commodity hedges	164	—	33	—	124	—
Total gain (loss) on the hedged item in designated and qualifying fair value hedges	\$ (1,278)	\$ (4,537)	\$ (304)	\$ (2,085)	\$ 2,188	\$ (747)
Net gain (loss) on the hedging derivatives excluded from assessment of the effectiveness of fair value hedges						
Interest rate hedges	\$ —	\$ (23)	\$ —	\$ 3	\$ —	\$ (5)
Foreign exchange hedges ⁽²⁾	(73)	—	(109)	—	(4)	—
Commodity hedges	131	—	41	—	(19)	—
Total net gain (loss) on the hedging derivatives excluded from assessment of the effectiveness of fair value hedges	\$ 58	\$ (23)	\$ (68)	\$ 3	\$ (23)	\$ (5)

(1) Gain (loss) amounts for interest rate risk hedges are included in *Interest income/Interest expense*. The accrued interest income on fair value hedges is recorded in *Net interest revenue* and is excluded from this table.

(2) Amounts relate to the premium associated with forward contracts (differential between spot and contractual forward rates) that are excluded from the assessment of hedge effectiveness and are generally reflected directly in earnings. Amounts related to cross-currency basis, which are recognized in *AOI*, are not reflected in the table above. The amount of cross-currency basis that was included in *AOI* was \$(23) million and \$33 million for the years ended December 31, 2020 and 2019, 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 value of the hedged item until the hedged item is derecognized from the balance sheet. The table below presents the carrying amount of Citi's hedged assets and liabilities under qualifying fair value hedges at December 31, 2020 and 2019, along with the cumulative hedge 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, 2020			
Debt securities AFS⁽¹⁾⁽³⁾	\$ 81,082	\$ 28	\$ 342
Long-term debt	169,026	5,554	4,989
As of December 31, 2019			
Debt securities AFS ⁽²⁾⁽³⁾	\$ 94,659	\$ (114)	\$ 743
Long-term debt	157,387	2,334	3,445

- (1) These amounts include a cumulative basis adjustment of \$(18) million for active hedges and \$62 million for de-designated hedges as of December 31, 2020 related to certain prepayable financial assets previously designated as the hedged item in a fair value hedge using the last-of-layer approach. The Company designated approximately \$2,527 million as the hedged amount (from a closed portfolio of prepayable financial assets with a carrying value of \$19 billion as of December 31, 2020) in a last-of-layer hedging relationship.
- (2) These amounts include a cumulative basis adjustment of \$(8) million for active hedges and \$157 million for de-designated hedges as of December 31, 2019 related to certain prepayable financial assets designated as the hedged item in a fair value hedge using the last-of-layer approach. The Company designated approximately \$605 million as the hedged amount (from a closed portfolio of prepayable financial assets with a carrying value of \$20 billion as of December 31, 2019) in a last-of-layer hedging relationship.
- (3) Carrying amount represents the amortized cost.

Cash Flow Hedges

Citigroup hedges the variability of forecasted cash flows due to changes in contractually specified interest rates associated with floating-rate assets/liabilities and other forecasted transactions. Variable cash flows from those liabilities are synthetically converted to fixed-rate cash flows by entering into receive-variable, pay-fixed interest rate swaps and receive-variable, pay-fixed forward-starting interest rate swaps. Variable cash flows associated with certain assets are synthetically converted to fixed-rate cash flows by entering into receive-fixed, pay-variable interest rate swaps. These cash flow hedging relationships use either regression analysis or dollar-offset ratio analysis to assess whether the hedging relationships are highly effective at inception and on an ongoing basis. Prior to the adoption of ASU 2017-12, Citigroup designated the risk being hedged as the risk of overall variability in the hedged cash flows for certain items.

With the adoption of ASU 2017-12, Citigroup hedges the variability from changes in a contractually specified rate and recognizes the entire change in fair value of the cash flow hedging instruments in *AOCI*. Prior to the adoption of ASU 2017-12, to the extent that these derivatives were not fully effective, changes in their fair values in excess of changes in the value of the hedged transactions were immediately included in *Other revenue*. With the adoption of ASU 2017-12, such amounts are no longer required to be immediately recognized in income, but instead the full change in the value of the hedging instrument is required to be recognized in *AOCI*, and then recognized in earnings in the same period that the cash flows impact earnings. The pretax change in *AOCI* from cash flow hedges is presented below:

<i>In millions of dollars</i>	2020		2019		2018				
Amount of gain (loss) recognized in <i>AOCI</i> on derivatives									
Interest rate contracts	\$	2,670	\$	746	\$	(361)			
Foreign exchange contracts		(15)		(17)		5			
Total gain (loss) recognized in <i>AOCI</i>	\$	2,655	\$	729	\$	(356)			
Amount of gain (loss) reclassified from <i>AOCI</i> to earnings⁽¹⁾									
		Other revenue	Net interest revenue	Other revenue	Net interest revenue	Other revenue	Net interest revenue		
Interest rate contracts	\$	—	\$	734	\$	—	\$	(301)	
Foreign exchange contracts		(4)		—		(7)		—	
Total gain (loss) reclassified from <i>AOCI</i> into earnings	\$	(4)	\$	734	\$	(7)	\$	(384)	
Net pretax change in cash flow hedges included within <i>AOCI</i>		\$	1,925		\$	1,120		\$	(38)

(1) All amounts reclassified into earnings for interest rate contracts are included in *Interest income/Interest expense (Net interest revenue)*. For all other hedges, the amounts reclassified to earnings are included primarily in *Other revenue* and *Net interest revenue* in the Consolidated Statement of Income.

For cash flow hedges, the entire change in the fair value of the hedging derivative is recognized in *AOCI* and then reclassified to earnings in the same period that the forecasted hedged cash flows impact earnings. The net gain (loss) associated with cash flow hedges expected to be reclassified from *AOCI* within 12 months of December 31, 2020 is approximately \$920 million. The maximum length of time over which forecasted cash flows are hedged is 10 years.

The after-tax impact of cash flow hedges on *AOCI* is shown in Note 19 to the Consolidated Financial Statements.

Net Investment Hedges

Consistent with ASC 830-20, *Foreign Currency Matters—Foreign Currency Transactions*, ASC 815 allows the hedging of the foreign currency risk of a net investment in a foreign operation. Citigroup uses foreign currency forwards, cross-currency swaps, options and foreign currency-denominated debt instruments to manage the foreign exchange risk associated with Citigroup's equity investments in several non-U.S.-dollar-functional-currency foreign subsidiaries. Citigroup records the change in the carrying amount of these investments in *Foreign currency translation adjustment* within *AOCI*. Simultaneously, the effective portion of the hedge of this exposure is also recorded in *Foreign currency translation adjustment* and any ineffective portion is immediately recorded in earnings.

For derivatives designated as net investment hedges, Citigroup follows the forward-rate method outlined in ASC 815-35-35. According to that method, all changes in fair value, including changes related to the forward-rate component of the foreign currency forward contracts and the time value of foreign currency options, are recorded in *Foreign currency translation adjustment* within *AOCI*.

For foreign currency-denominated debt instruments that are designated as hedges of net investments, the translation gain or loss that is recorded in *Foreign currency translation adjustment* is based on the spot exchange rate between the functional currency of the respective subsidiary and the U.S. dollar, which is the functional currency of Citigroup. To the extent that the notional amount of the hedging instrument exactly matches the hedged net investment, and the underlying exchange rate of the derivative hedging instrument relates to the exchange rate between the functional currency of the net investment and Citigroup's functional currency (or, in the case of a non-derivative debt instrument, such instrument is denominated in the functional currency of the net investment), no ineffectiveness is recorded in earnings.

The pretax gain (loss) recorded in *Foreign currency translation adjustment* within *AOCI*, related to net investment hedges, was \$(600) million, \$(569) million and \$1,147 million for the years ended December 31, 2020, 2019 and 2018, respectively.

Economic Hedges

Citigroup often uses economic hedges when hedge accounting would be too complex or operationally burdensome. End-user derivatives that are economic hedges are carried at fair value, with changes in value included in either *Principal transactions* or *Other revenue*.

For asset/liability management hedging, fixed-rate long-term debt is recorded at amortized cost under GAAP.

For other hedges that either do not meet the ASC 815 hedging criteria or for which management decides not to apply ASC 815 hedge accounting, the derivative is recorded at fair value on the balance sheet with the associated changes in fair value recorded in earnings, while the debt continues to be carried at amortized cost. Therefore, current earnings are affected by the interest rate shifts and other factors that cause a change in the swap's value, but for which no offsetting change in value is recorded on the debt.

Citigroup may alternatively elect to account for the debt at fair value under the fair value option. Once the irrevocable election is made upon issuance of the debt, the full change in fair value of the debt is reported in earnings. The changes in fair value of the related interest rate swap are also reflected in earnings, which provides a natural offset to the debt's fair value change. To the extent that the two amounts differ because the full change in the fair value of the debt includes risks not offset by the interest rate swap, the difference is automatically captured in current earnings.

Additional economic hedges include hedges of the credit risk component of commercial loans and loan commitments. Citigroup periodically evaluates its hedging strategies in other areas and may designate either an accounting hedge or an economic hedge after considering the relative costs and benefits. Economic hedges are also employed when the hedged item itself is marked to market through current earnings, such as hedges of commitments to originate one- to four-family mortgage loans to be HFS and MSRs.

Credit Derivatives

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

Citi monitors its counterparty credit risk in credit derivative contracts. As of December 31, 2020 and 2019, approximately 97% and 98%, respectively, of the gross receivables are from counterparties with which Citi maintains collateral agreements. A majority of Citi's top 15 counterparties (by receivable balance owed to Citi) 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 Citi 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 credit and are generally limited to the market standard of failure to pay on indebtedness and bankruptcy of the reference credit 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 credit. 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 Citi's credit derivatives portfolio by counterparty and derivative form:

<i>In millions of dollars at December 31, 2020</i>	Fair values		Notionals	
	Receivable ⁽¹⁾	Payable ⁽²⁾	Protection purchased	Protection sold
By industry of counterparty				
Banks	\$ 2,902	\$ 3,187	\$ 117,685	\$ 120,739
Broker-dealers	1,770	1,215	46,928	44,692
Non-financial	109	90	5,740	2,217
Insurance and other financial institutions	5,008	5,637	442,417	375,959
Total by industry of counterparty	\$ 9,789	\$ 10,129	\$ 612,770	\$ 543,607
By instrument				
Credit default swaps and options	\$ 9,254	\$ 9,254	\$ 599,633	\$ 538,426
Total return swaps and other	535	875	13,137	5,181
Total by instrument	\$ 9,789	\$ 10,129	\$ 612,770	\$ 543,607
By rating of reference entity				
Investment grade	\$ 4,136	\$ 4,037	\$ 478,643	\$ 418,147
Non-investment grade	5,653	6,092	134,127	125,460
Total by rating of reference entity	\$ 9,789	\$ 10,129	\$ 612,770	\$ 543,607
By maturity				
Within 1 year	\$ 914	\$ 1,355	\$ 134,080	\$ 125,464
From 1 to 5 years	6,022	5,991	421,682	374,376
After 5 years	2,853	2,783	57,008	43,767
Total by maturity	\$ 9,789	\$ 10,129	\$ 612,770	\$ 543,607

(1) The fair value amount receivable is composed of \$3,514 million under protection purchased and \$6,275 million under protection sold.

(2) The fair value amount payable is composed of \$7,037 million under protection purchased and \$3,092 million under protection sold.

<i>In millions of dollars at December 31, 2019</i>	Fair values		Notionals	
	Receivable ⁽¹⁾	Payable ⁽²⁾	Protection purchased	Protection sold
By industry of counterparty				
Banks	\$ 4,017	\$ 4,102	\$ 172,461	\$ 169,546
Broker-dealers	1,724	1,528	54,843	53,846
Non-financial	92	76	2,601	1,968
Insurance and other financial institutions	4,576	5,032	474,021	378,027
Total by industry of counterparty	\$ 10,409	\$ 10,738	\$ 703,926	\$ 603,387
By instrument				
Credit default swaps and options	\$ 9,759	\$ 9,791	\$ 685,643	\$ 593,850
Total return swaps and other	650	947	18,283	9,537
Total by instrument	\$ 10,409	\$ 10,738	\$ 703,926	\$ 603,387
By rating of reference entity				
Investment grade	\$ 4,579	\$ 4,578	\$ 560,806	\$ 470,778
Non-investment grade	5,830	6,160	143,120	132,609
Total by rating of reference entity	\$ 10,409	\$ 10,738	\$ 703,926	\$ 603,387
By maturity				
Within 1 year	\$ 1,806	\$ 2,181	\$ 231,135	\$ 176,188
From 1 to 5 years	7,275	7,265	414,237	379,915
After 5 years	1,328	1,292	58,554	47,284
Total by maturity	\$ 10,409	\$ 10,738	\$ 703,926	\$ 603,387

(1) The fair value amount receivable is composed of \$3,415 million under protection purchased and \$6,994 million under protection sold.

(2) The fair value amount payable is composed of \$7,793 million under protection purchased and \$2,945 million under protection sold.

Fair values included in the above tables are prior to application of any netting agreements and cash collateral. For notional amounts, Citi 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 tranching 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. Citi’s internal ratings are in line with the related external rating system.

Citigroup 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 credit 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 both December 31, 2020 and 2019 was \$25 billion and \$30 billion, respectively. The Company posted \$22 billion and \$28 billion as collateral for this exposure in the normal course of business as of December 31, 2020 and 2019, respectively.

A downgrade could trigger additional collateral or cash settlement requirements for the Company and certain affiliates. In the event that Citigroup and Citibank were downgraded a single notch by all three major rating agencies as of December 31, 2020, the Company could be required to post an additional \$0.8 billion 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 \$0.2 billion upon the single notch downgrade, resulting in aggregate cash obligations and collateral requirements of approximately \$1 billion.

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 to the Consolidated Financial Statements 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), both the asset amounts derecognized and the gross cash proceeds received as of the date of derecognition were \$2.0 billion and \$5.8 billion as of December 31, 2020 and 2019, respectively.

At December 31, 2020, the fair value of these previously derecognized assets was \$2.2 billion. The fair value of the total return swaps as of December 31, 2020 was \$135 million recorded as gross derivative assets and \$7 million recorded as gross derivative liabilities. At December 31, 2019, the fair value of these previously derecognized assets was \$5.9 billion, and the fair value of the total return swaps was \$117 million recorded as gross derivative assets and \$43 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.

23. 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 Citigroup's total credit exposure. Although Citigroup's portfolio of financial instruments is broadly diversified along industry, 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, 2020, Citigroup'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 and investments issued by the U.S. government and its agencies, amounted to \$370.1 billion and \$250.9 billion at December 31, 2020 and 2019, respectively. The German and Japanese governments and their agencies, which are rated investment grade by both Moody's and S&P, were the next largest exposures. The Company's exposure to Germany amounted to \$51.8 billion and \$29.8 billion at December 31, 2020 and 2019, respectively, and was composed of investment securities, loans and trading assets. The Company's exposure to Japan amounted to \$35.5 billion and \$33.3 billion at December 31, 2020 and 2019, respectively, and was composed of investment securities, loans and trading assets.

The Company's exposure to states and municipalities amounted to \$24.4 billion and \$31.4 billion at December 31, 2020 and 2019, respectively, and was composed of trading assets, investment securities, derivatives and lending activities.

24. 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 default of a counterparty is factored into the valuation of derivative and other positions as well as the impact of Citigroup's own credit risk on derivatives and other liabilities 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 significant value drivers are *observable* in active markets.
- 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 frequency of transactions, the size of the bid-ask spread and the amount of adjustment necessary when comparing similar transactions are all factors in determining the relevance of observed prices in those markets.

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 or whether 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 make use of acceptable practical expedients (such as matrix pricing) to calculate fair value, in which case the items are classified as Level 2.

The Company may also apply a price-based methodology, which 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. The frequency and size of transactions are among the

factors that are driven by the liquidity of markets and determine the relevance of observed prices in those markets. If relevant and observable prices are available, those valuations may be classified as Level 2. When that is not the case, and there are one or more significant unobservable "price" inputs, then those valuations will be classified as Level 3.

Furthermore, when a quoted price is stale, a significant adjustment to the price of a similar security is necessary to reflect differences in the terms of the actual security or loan being valued, or prices from independent sources are insufficient to corroborate the 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. Vendors' and brokers' 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, including an indication of the level in the fair value hierarchy in which each instrument is generally classified. 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 does not include adjustment 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. Citi 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 Citi 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 the relevant population of 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 Citi'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. Citi'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.

Citi's CVA and FVA methodology consists 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 aggregate net cash flows that are subject to nonperformance risk. This process identifies specific, point-in-time future cash flows that are subject to nonperformance risk and unsecured funding, 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. Citi'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 future liquidity spreads is applied to the expected future funding requirement.

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 counterparties. 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, 2020 and 2019:

<i>In millions of dollars</i>	Credit and funding valuation adjustments contra-liability (contra-asset)	
	December 31, 2020	December 31, 2019
	Counterparty CVA	\$ (800)
Asset FVA	(525)	(530)
Citigroup (own-credit) CVA	403	341
Liability FVA	67	72
Total CVA—derivative instruments⁽¹⁾	\$ (855)	\$ (822)

(1) FVA is included with CVA for presentation purposes.

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 Citi's own fair value option (FVO) liabilities for the years indicated:

<i>In millions of dollars</i>	Credit/funding/debt valuation adjustments gain (loss)		
	2020	2019	2018
Counterparty CVA	\$ (101)	\$ 149	\$ (109)
Asset FVA	(95)	13	46
Own-credit CVA	133	(131)	178
Liability FVA	(6)	(63)	56
Total CVA—derivative instruments	\$ (69)	\$ (32)	\$ 171
DVA related to own FVO liabilities ⁽¹⁾	\$ (616)	\$ (1,473)	\$ 1,415
Total CVA and DVA⁽²⁾	\$ (685)	\$ (1,505)	\$ 1,586

(1) See Notes 1, 17 and 19 to the Consolidated Financial Statements.

(2) FVA is included with CVA for presentation purposes.

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

No quoted prices exist for these instruments, so 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 as 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 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. Vendors compile prices from various sources and may apply matrix pricing for similar bonds or loans where no price is observable. A price-based methodology utilizes, where available, quoted prices or other market information obtained from recent trading activity of assets 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 a quoted price is stale, a significant adjustment to the price of a similar security or loan is necessary to reflect differences in the terms of the actual security or loan being valued, or prices from independent sources are insufficient to corroborate valuation, a loan or security is generally classified as Level 3. The price input used in a price-based methodology may be zero for a security, such as a subprime collateralized debt obligation (CDO), that is not receiving any principal or interest and is not expected to receive any in the future.

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, with adjustments made to account for various costs associated with the process of securitization. Where such a price verification is possible, loan portfolios are typically classified as Level 2 in 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 are 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 of 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 model.

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. The Company typically uses OIS curves as fair value measurement inputs for the valuation of certain derivatives.

Investments

The investments category includes available-for-sale debt and marketable equity securities whose fair values are generally determined by utilizing similar procedures described for trading securities above or, in some cases, using vendor pricing as the primary source.

Also included in investments are 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 do not generally trade. 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 as Level 3 of the fair value hierarchy.

In addition, the Company holds investments in certain alternative investment funds that calculate NAV per share, including hedge funds, private equity funds and real estate funds. Investments in funds are generally classified as non-marketable equity securities carried at fair value. The fair values of these investments are estimated using the NAV per share of the Company's ownership interest in the funds where it is not probable that the investment will be realized at a price other than the NAV. Consistent with the provisions of ASU 2015-07, these investments have not been categorized within the fair value hierarchy and are not included in the tables below. See Note 13 to the Consolidated Financial Statements for additional information.

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 generally classified as 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 as Level 2 or Level 3 depending on the observability of significant inputs to the model.

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, 2020 and 2019. 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 of the fair value hierarchy. The effects of these hedges are presented gross in the following tables:

Fair Value Levels

<i>In millions of dollars at December 31, 2020</i>	Level 1	Level 2	Level 3	Gross inventory	Netting ⁽¹⁾	Net balance
Assets						
Securities borrowed and purchased under agreements to resell	\$ —	\$ 335,073	\$ 320	\$ 335,393	\$ (150,189)	\$ 185,204
Trading non-derivative assets						
Trading mortgage-backed securities						
U.S. government-sponsored agency guaranteed	—	42,903	27	42,930	—	42,930
Residential	—	391	340	731	—	731
Commercial	—	893	136	1,029	—	1,029
Total trading mortgage-backed securities	\$ —	\$ 44,187	\$ 503	\$ 44,690	\$ —	\$ 44,690
U.S. Treasury and federal agency securities	\$ 64,529	\$ 2,269	\$ —	\$ 66,798	\$ —	\$ 66,798
State and municipal	—	1,224	94	1,318	—	1,318
Foreign government	68,195	15,143	51	83,389	—	83,389
Corporate	1,607	18,840	375	20,822	—	20,822
Equity securities	54,117	12,289	73	66,479	—	66,479
Asset-backed securities	—	776	1,606	2,382	—	2,382
Other trading assets ⁽²⁾	—	11,295	945	12,240	—	12,240
Total trading non-derivative assets	\$ 188,448	\$ 106,023	\$ 3,647	\$ 298,118	\$ —	\$ 298,118
Trading derivatives						
Interest rate contracts	\$ 42	\$ 238,026	\$ 3,393	\$ 241,461		
Foreign exchange contracts	2	155,994	674	156,670		
Equity contracts	66	48,362	2,091	50,519		
Commodity contracts	—	13,546	992	14,538		
Credit derivatives	—	8,634	1,155	9,789		
Total trading derivatives	\$ 110	\$ 464,562	\$ 8,305	\$ 472,977		
Cash collateral paid ⁽³⁾				\$ 32,778		
Netting agreements					\$ (364,879)	
Netting of cash collateral received					(63,915)	
Total trading derivatives	\$ 110	\$ 464,562	\$ 8,305	\$ 505,755	\$ (428,794)	\$ 76,961
Investments						
Mortgage-backed securities						
U.S. government-sponsored agency guaranteed	\$ —	\$ 43,888	\$ 30	\$ 43,918	\$ —	\$ 43,918
Residential	—	571	—	571	—	571
Commercial	—	50	—	50	—	50
Total investment mortgage-backed securities	\$ —	\$ 44,509	\$ 30	\$ 44,539	\$ —	\$ 44,539
U.S. Treasury and federal agency securities	\$ 146,032	\$ 172	\$ —	\$ 146,204	\$ —	\$ 146,204
State and municipal	—	2,885	834	3,719	—	3,719
Foreign government	77,056	47,644	268	124,968	—	124,968
Corporate	6,326	4,114	60	10,500	—	10,500
Marketable equity securities	287	228	—	515	—	515
Asset-backed securities	—	277	1	278	—	278
Other debt securities	—	4,876	—	4,876	—	4,876
Non-marketable equity securities ⁽⁴⁾	—	50	349	399	—	399
Total investments	\$ 229,701	\$ 104,755	\$ 1,542	\$ 335,998	\$ —	\$ 335,998

Table continues on the next page.

<i>In millions of dollars at December 31, 2020</i>	Level 1	Level 2	Level 3	Gross inventory	Netting ⁽¹⁾	Net balance
Loans	\$ —	\$ 4,869	\$ 1,985	\$ 6,854	\$ —	\$ 6,854
Mortgage servicing rights	—	—	336	336	—	336
Non-trading derivatives and other financial assets measured on a recurring basis	\$ 6,230	\$ 8,383	\$ —	\$ 14,613	\$ —	\$ 14,613
Total assets	\$ 424,489	\$ 1,023,665	\$ 16,135	\$ 1,497,067	\$ (578,983)	\$ 918,084
Total as a percentage of gross assets⁽⁵⁾	29.0 %	69.9 %	1.1 %			
Liabilities						
Interest-bearing deposits	\$ —	\$ 1,752	\$ 206	\$ 1,958	\$ —	\$ 1,958
Securities loaned and sold under agreements to repurchase	—	156,644	631	157,275	(97,069)	60,206
Trading account liabilities						
Securities sold, not yet purchased	85,353	14,477	214	100,044	—	100,044
Other trading liabilities	—	—	26	26	—	26
Total trading liabilities	\$ 85,353	\$ 14,477	\$ 240	\$ 100,070	\$ —	\$ 100,070
Trading derivatives						
Interest rate contracts	\$ 25	\$ 220,607	\$ 1,779	\$ 222,411		
Foreign exchange contracts	3	155,441	622	156,066		
Equity contracts	53	58,212	5,304	63,569		
Commodity contracts	—	17,393	700	18,093		
Credit derivatives	—	9,022	1,107	10,129		
Total trading derivatives	\$ 81	\$ 460,675	\$ 9,512	\$ 470,268		
Cash collateral received⁽⁶⁾				\$ 8,196		
Netting agreements					\$ (364,879)	
Netting of cash collateral paid					(45,628)	
Total trading derivatives	\$ 81	\$ 460,675	\$ 9,512	\$ 478,464	\$ (410,507)	\$ 67,957
Short-term borrowings	\$ —	\$ 4,464	\$ 219	\$ 4,683	\$ —	\$ 4,683
Long-term debt	—	41,853	25,210	67,063	—	67,063
Total non-trading derivatives and other financial liabilities measured on a recurring basis	\$ 6,762	\$ 72	\$ 1	\$ 6,835	\$ —	\$ 6,835
Total liabilities	\$ 92,196	\$ 679,937	\$ 36,019	\$ 816,348	\$ (507,576)	\$ 308,772
Total as a percentage of gross liabilities⁽⁵⁾	11.4 %	84.1 %	4.5 %			

- (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 positions related to investments in unallocated precious metals, as discussed in Note 25 to the Consolidated Financial Statements. Also includes physical commodities accounted for at the lower of cost or fair value and unfunded credit products.
- (3) Reflects the net amount of \$78,406 million of gross cash collateral paid, of which \$45,628 million was used to offset trading derivative liabilities.
- (4) Amounts exclude \$0.2 billion of investments measured at net asset value (NAV) in accordance with ASU No. 2015-07, *Fair Value Measurement (Topic 820): Disclosures for Investments in Certain Entities That Calculate Net Asset Value per Share (or Its Equivalent)*.
- (5) 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.
- (6) Reflects the net amount of \$72,111 million of gross cash collateral received, of which \$63,915 million was used to offset trading derivative assets.

Fair Value Levels

<i>In millions of dollars at December 31, 2019</i>	Level 1	Level 2	Level 3	Gross inventory	Netting ⁽¹⁾	Net balance
Assets						
Securities borrowed and purchased under agreements to resell	\$ —	\$ 254,253	\$ 303	\$ 254,556	\$ (101,363)	\$153,193
Trading non-derivative assets						
Trading mortgage-backed securities						
U.S. government-sponsored agency guaranteed	—	27,661	10	27,671	—	27,671
Residential	—	573	123	696	—	696
Commercial	—	1,632	61	1,693	—	1,693
Total trading mortgage-backed securities	\$ —	\$ 29,866	\$ 194	\$ 30,060	\$ —	\$ 30,060
U.S. Treasury and federal agency securities	\$ 26,159	\$ 3,736	\$ —	\$ 29,895	\$ —	\$ 29,895
State and municipal	—	2,573	64	2,637	—	2,637
Foreign government	50,948	20,326	52	71,326	—	71,326
Corporate	1,332	17,246	313	18,891	—	18,891
Equity securities	41,663	9,878	100	51,641	—	51,641
Asset-backed securities	—	1,539	1,177	2,716	—	2,716
Other trading assets ⁽²⁾	74	11,412	555	12,041	—	12,041
Total trading non-derivative assets	\$ 120,176	\$ 96,576	\$ 2,455	\$ 219,207	\$ —	\$219,207
Trading derivatives						
Interest rate contracts	\$ 7	\$ 196,493	\$ 1,168	\$ 197,668		
Foreign exchange contracts	1	107,022	547	107,570		
Equity contracts	83	28,148	240	28,471		
Commodity contracts	—	13,498	714	14,212		
Credit derivatives	—	9,960	449	10,409		
Total trading derivatives	\$ 91	\$ 355,121	\$ 3,118	\$ 358,330		
Cash collateral paid⁽³⁾				\$ 17,926		
Netting agreements					\$ (274,970)	
Netting of cash collateral received					(44,353)	
Total trading derivatives	\$ 91	\$ 355,121	\$ 3,118	\$ 376,256	\$ (319,323)	\$ 56,933
Investments						
Mortgage-backed securities						
U.S. government-sponsored agency guaranteed	\$ —	\$ 35,198	\$ 32	\$ 35,230	\$ —	\$ 35,230
Residential	—	793	—	793	—	793
Commercial	—	74	—	74	—	74
Total investment mortgage-backed securities	\$ —	\$ 36,065	\$ 32	\$ 36,097	\$ —	\$ 36,097
U.S. Treasury and federal agency securities	\$ 106,103	\$ 5,315	\$ —	\$ 111,418	\$ —	\$111,418
State and municipal	—	4,355	623	4,978	—	4,978
Foreign government	69,957	41,196	96	111,249	—	111,249
Corporate	5,150	6,076	45	11,271	—	11,271
Marketable equity securities	87	371	—	458	—	458
Asset-backed securities	—	500	22	522	—	522
Other debt securities	—	4,730	—	4,730	—	4,730
Non-marketable equity securities ⁽⁴⁾	—	93	441	534	—	534
Total investments	\$ 181,297	\$ 98,701	\$ 1,259	\$ 281,257	\$ —	\$281,257

Table continues on the next page.

<i>In millions of dollars at December 31, 2019</i>	Level 1	Level 2	Level 3	Gross inventory	Netting ⁽¹⁾	Net balance
Loans	\$ —	\$ 3,683	\$ 402	\$ 4,085	\$ —	\$ 4,085
Mortgage servicing rights	—	—	495	495	—	495
Non-trading derivatives and other financial assets measured on a recurring basis	\$ 5,628	\$ 7,201	\$ 1	\$ 12,830	\$ —	\$ 12,830
Total assets	\$307,192	\$ 815,535	\$ 8,033	\$ 1,148,686	\$ (420,686)	\$728,000
Total as a percentage of gross assets⁽⁵⁾	27.2 %	72.1 %	0.7 %			
Liabilities						
Interest-bearing deposits	\$ —	\$ 2,104	\$ 215	\$ 2,319	\$ —	\$ 2,319
Securities loaned and sold under agreements to repurchase	—	111,567	757	112,324	(71,673)	40,651
Trading account liabilities						
Securities sold, not yet purchased	60,429	11,965	48	72,442	—	72,442
Other trading liabilities	—	24	—	24	—	24
Total trading liabilities	\$ 60,429	\$ 11,989	\$ 48	\$ 72,466	\$ —	\$ 72,466
Trading account derivatives						
Interest rate contracts	\$ 8	\$ 176,480	\$ 1,167	\$ 177,655		
Foreign exchange contracts	—	110,180	552	110,732		
Equity contracts	144	28,506	1,836	30,486		
Commodity contracts	—	16,542	773	17,315		
Credit derivatives	—	10,233	505	10,738		
Total trading derivatives	\$ 152	\$ 341,941	\$ 4,833	\$ 346,926		
Cash collateral received⁽⁶⁾				\$ 14,391		
Netting agreements					\$ (274,970)	
Netting of cash collateral paid					(38,919)	
Total trading derivatives	\$ 152	\$ 341,941	\$ 4,833	\$ 361,317	\$ (313,889)	\$ 47,428
Short-term borrowings	\$ —	\$ 4,933	\$ 13	\$ 4,946	\$ —	\$ 4,946
Long-term debt	—	38,614	17,169	55,783	—	55,783
Non-trading derivatives and other financial liabilities measured on a recurring basis	\$ 6,280	\$ 63	\$ —	\$ 6,343	\$ —	\$ 6,343
Total liabilities	\$ 66,861	\$ 511,211	\$23,035	\$ 615,498	\$ (385,562)	\$229,936
Total as a percentage of gross liabilities⁽⁵⁾	11.1 %	85.0 %	3.8 %			

- (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 positions related to investments in unallocated precious metals, as discussed in Note 25 to the Consolidated Financial Statements. Also includes physical commodities accounted for at the lower of cost or fair value and unfunded credit products.
- (3) Reflects the net amount of \$56,845 million of gross cash collateral paid, of which \$38,919 million was used to offset trading derivative liabilities.
- (4) Amounts exclude \$0.2 billion of investments measured at NAV in accordance with ASU 2015-07, *Fair Value Measurement (Topic 820): Disclosures for Investments in Certain Entities That Calculate Net Asset Value per Share (or Its Equivalent)*.
- (5) 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.
- (6) Reflects the net amount of \$58,744 million of gross cash collateral received, of which \$44,353 million was used to offset trading derivative assets.

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, 2020 and 2019. 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

<i>In millions of dollars</i>	Dec. 31, 2019	Net realized/unrealized gains (losses) included in ⁽¹⁾		Transfers		Purchases	Issuances	Sales	Settlements	Dec. 31, 2020	Unrealized gains (losses) still held ⁽³⁾
		Principal transactions	Other ⁽¹⁾⁽²⁾	into Level 3	out of Level 3						
Assets										0	
Securities borrowed and purchased under agreements to resell	\$ 303	\$ 23	\$ —	\$ —	\$ —	\$ 194	\$ —	\$ —	\$ (200)	\$ 320	\$ 43
Trading non-derivative assets											
Trading mortgage-backed securities											
U.S. government-sponsored agency guaranteed	10	(79)	—	21	(11)	392	—	(306)	—	27	(1)
Residential	123	79	—	234	(68)	486	—	(514)	—	340	(20)
Commercial	61	—	—	162	(35)	174	—	(226)	—	136	(14)
Total trading mortgage-backed securities	\$ 194	\$ —	\$ —	\$ 417	\$ (114)	\$ 1,052	\$ —	\$ (1,046)	\$ —	\$ 503	\$ (35)
U.S. Treasury and federal agency securities	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
State and municipal	64	2	—	33	(3)	62	—	(64)	—	94	4
Foreign government	52	(35)	—	9	(1)	169	—	(143)	—	51	(7)
Corporate	313	246	—	211	(136)	770	—	(1,023)	(6)	375	(37)
Marketable equity securities	100	(16)	—	43	(2)	240	—	(292)	—	73	(11)
Asset-backed securities	1,177	(105)	—	677	(131)	1,406	—	(1,418)	—	1,606	(248)
Other trading assets	555	315	—	471	(343)	387	19	(440)	(19)	945	(56)
Total trading non-derivative assets	\$ 2,455	\$ 407	\$ —	\$ 1,861	\$ (730)	\$ 4,086	\$ 19	\$ (4,426)	\$ (25)	\$ 3,647	\$ (390)
Trading derivatives, net⁽⁴⁾											
Interest rate contracts	\$ 1	\$ 429	\$ —	\$ 1,644	\$ 16	\$ 41	\$ 134	\$ (34)	\$ (617)	\$ 1,614	\$ 161
Foreign exchange contracts	(5)	105	—	(61)	48	74	—	(55)	(54)	52	130
Equity contracts	(1,596)	(536)	—	(519)	378	35	—	(886)	(89)	(3,213)	(3,868)
Commodity contracts	(59)	(1)	—	99	(108)	101	—	(61)	321	292	407
Credit derivatives	(56)	123	—	173	(334)	—	—	—	142	48	(136)
Total trading derivatives, net⁽⁴⁾	\$ (1,715)	\$ 120	\$ —	\$ 1,336	\$ —	\$ 251	\$ 134	\$ (1,036)	\$ (297)	\$ (1,207)	\$ (3,306)

In millions of dollars	Dec. 31, 2019	Net realized/unrealized gains (losses) included in ⁽¹⁾		Transfers		Purchases	Issuances	Sales	Settlements	Dec. 31, 2020	Unrealized gains (losses) still held ⁽³⁾
		Principal transactions	Other ⁽¹⁾⁽²⁾	into Level 3	out of Level 3						
Investments											
Mortgage-backed securities											
U.S. government-sponsored agency guaranteed	\$ 32	\$ —	\$ (5)	\$ 2	\$ —	\$ 1	\$ —	\$ —	\$ —	\$ 30	\$ (104)
Residential	—	—	76	—	—	—	—	(76)	—	—	5
Commercial	—	—	—	—	—	—	—	—	—	—	—
Total investment mortgage-backed securities	\$ 32	\$ —	\$ 71	\$ 2	\$ —	\$ 1	\$ —	\$ (76)	\$ —	\$ 30	\$ (99)
U.S. Treasury and federal agency securities											
State and municipal	623	—	(3)	322	(131)	121	—	(98)	—	834	(20)
Foreign government	96	—	11	27	(64)	381	—	(183)	—	268	(4)
Corporate	45	—	6	49	(152)	162	—	(50)	—	60	—
Marketable equity securities	—	—	(1)	1	—	—	—	—	—	—	—
Asset-backed securities	22	—	(1)	—	—	—	—	(20)	—	1	(4)
Other debt securities	—	—	—	—	—	—	—	—	—	—	—
Non-marketable equity securities	441	—	(35)	—	(2)	2	3	(3)	(57)	349	10
Total investments	\$ 1,259	\$ —	\$ 48	\$ 401	\$ (349)	\$ 667	\$ 3	\$ (430)	\$ (57)	\$ 1,542	\$ (117)
Loans											
Mortgage servicing rights	495	—	(204)	—	—	—	123	—	(78)	336	(180)
Other financial assets measured on a recurring basis	1	—	—	—	—	—	—	(1)	—	—	—
Liabilities											
Interest-bearing deposits	\$ 215	\$ —	\$ 11	\$ 278	\$ (152)	\$ —	\$ 34	\$ —	\$ (158)	\$ 206	\$ (142)
Securities loaned and sold under agreements to repurchase	757	5	—	—	—	—	—	—	(121)	631	(18)
Trading account liabilities											
Securities sold, not yet purchased	48	(102)	—	271	(17)	—	—	10	(200)	214	(163)
Other trading liabilities	—	9	—	35	—	—	—	—	—	26	23
Short-term borrowings	13	78	—	220	(6)	—	86	—	(16)	219	(91)
Long-term debt	17,169	(1,489)	—	6,553	(2,615)	—	10,270	—	(7,656)	25,210	(1,679)
Other financial liabilities measured on a recurring basis	—	—	—	—	—	—	3	—	(2)	1	—

- (1) Net realized/unrealized gains (losses) are presented as increase (decrease) to Level 3 assets, and as (increase) decrease to Level 3 liabilities. Changes in fair value of available-for-sale debt securities are recorded in *AOCI*, unless related to credit impairment, while gains and losses from sales are recorded in *Realized gains (losses) from sales of investments* in the Consolidated Statement of Income.
- (2) Unrealized gains (losses) on MSRs are recorded in *Other revenue* in the Consolidated Statement of Income.
- (3) Represents the amount of total gains or losses for the period, included in earnings (and *AOCI* for changes in fair value of available-for-sale debt securities and 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, 2020.
- (4) Total Level 3 trading derivative assets and liabilities have been netted in these tables for presentation purposes only.

In millions of dollars	Dec. 31, 2018	Net realized/unrealized gains (losses) included in ⁽¹⁾		Transfers		Purchases	Issuances	Sales	Settlements	Dec. 31, 2019	Unrealized gains (losses) still held ⁽³⁾
		Principal transactions	Other ⁽¹⁾⁽²⁾	into Level 3	out of Level 3						
Assets											
Securities borrowed and purchased under agreements to resell	\$ 115	\$ (5)	\$ —	\$ 191	\$ (4)	\$ 195	\$ —	\$ —	\$ (189)	\$ 303	\$ 3
Trading non-derivative assets											
Trading mortgage-backed securities											
U.S. government-sponsored agency guaranteed	156	—	—	54	(72)	160	(1)	(287)	—	10	1
Residential	268	15	—	86	(80)	227	—	(393)	—	123	10
Commercial	77	14	—	150	(105)	136	—	(211)	—	61	(4)
Total trading mortgage-backed securities	\$ 501	\$ 29	\$ —	\$ 290	\$ (257)	\$ 523	\$ (1)	\$ (891)	\$ —	\$ 194	\$ 7
U.S. Treasury and federal agency securities	\$ 1	\$ (9)	\$ —	\$ —	\$ —	\$ 20	\$ —	\$ (11)	\$ (1)	\$ —	\$ —
State and municipal	200	(2)	—	1	(19)	2	—	(118)	—	64	(2)
Foreign government	31	28	—	12	(7)	88	—	(100)	—	52	1
Corporate	360	284	—	213	(86)	323	(29)	(742)	(10)	313	(11)
Marketable equity securities	153	(21)	—	13	(19)	117	—	(143)	—	100	(51)
Asset-backed securities	1,484	(65)	—	51	(127)	738	—	(904)	—	1,177	29
Other trading assets	818	(52)	—	97	(283)	598	36	(630)	(29)	555	(257)
Total trading non-derivative assets	\$ 3,548	\$ 192	\$ —	\$ 677	\$ (798)	\$ 2,409	\$ 6	\$ (3,539)	\$ (40)	\$ 2,455	\$ (284)
Trading derivatives, net⁽⁴⁾											
Interest rate contracts	\$ (154)	\$ 116	\$ —	\$ (129)	\$ 172	\$ 154	\$ 45	\$ (1)	\$ (202)	\$ 1	\$ 2,194
Foreign exchange contracts	(6)	(73)	—	152	(97)	113	—	(114)	20	(5)	(134)
Equity contracts	(784)	(425)	—	(213)	274	(111)	(147)	(8)	(182)	(1,596)	(422)
Commodity contracts	(18)	(121)	—	(15)	(15)	252	—	(133)	(9)	(59)	(33)
Credit derivatives	61	(412)	—	(114)	204	—	—	14	191	(56)	(289)
Total trading derivatives, net⁽⁴⁾	\$ (901)	\$ (915)	\$ —	\$ (319)	\$ 538	\$ 408	\$ (102)	\$ (242)	\$ (182)	\$ (1,715)	\$ 1,316
Investments											
Mortgage-backed securities											
U.S. government-sponsored agency guaranteed	\$ 32	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ 32	\$ (1)
Residential	—	—	—	—	—	—	—	—	—	—	—
Commercial	—	—	—	—	—	—	—	—	—	—	—
Total investment mortgage-backed securities	\$ 32	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ 32	\$ (1)
U.S. Treasury and federal agency securities	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
State and municipal	708	—	86	14	(318)	430	—	(297)	—	623	82
Foreign government	68	—	2	—	—	145	—	(119)	—	96	2
Corporate	156	—	(14)	3	(94)	—	—	(6)	—	45	—
Marketable equity securities	—	—	—	—	—	—	—	—	—	—	—
Asset-backed securities	187	—	(11)	122	(612)	550	—	(214)	—	22	13
Other debt securities	—	—	—	—	—	—	—	—	—	—	—
Non-marketable equity securities	586	—	(11)	39	(1)	11	—	(151)	(32)	441	16
Total investments	\$ 1,737	\$ —	\$ 52	\$ 178	\$ (1,025)	\$ 1,136	\$ —	\$ (787)	\$ (32)	\$ 1,259	\$ 112

Table continues on the next page.

In millions of dollars	Dec. 31, 2018	Net realized/unrealized gains (losses) included in ⁽¹⁾		Transfers		Purchases	Issuances	Sales	Settlements	Dec. 31, 2019	Unrealized gains (losses) still held ⁽³⁾
		Principal transactions	Other ⁽¹⁾⁽²⁾	into Level 3	out of Level 3						
Loans	\$ 277	\$ —	\$ 192	\$ 148	\$ (189)	\$ 16	\$ —	\$ (40)	\$ (2)	\$ 402	\$ 186
Mortgage servicing rights	584	—	(84)	—	—	—	70	—	(75)	495	(68)
Other financial assets measured on a recurring basis	—	—	96	6	(2)	2	32	(21)	(112)	1	18
Liabilities											
Interest-bearing deposits	\$ 495	\$ —	\$ (16)	\$ 10	\$ (783)	\$ —	\$ 843	\$ —	\$ (366)	\$ 215	\$ (25)
Securities loaned and sold under agreements to repurchase	983	121	—	1	4	—	—	(168)	58	757	(26)
Trading account liabilities											
Securities sold, not yet purchased	586	122	—	68	(443)	19	—	(12)	(48)	48	3
Other trading liabilities	—	—	—	—	—	—	—	—	—	—	—
Short-term borrowings	37	32	—	13	(42)	—	168	—	(131)	13	(1)
Long-term debt	12,570	(1,899)	—	3,304	(4,411)	—	6,766	—	(2,958)	17,169	(1,411)
Other financial liabilities measured on a recurring basis	—	—	4	5	—	—	4	—	(5)	—	—

(1) Net realized/unrealized gains (losses) are presented as increase (decrease) to Level 3 assets, and as (increase) decrease to Level 3 liabilities. Changes in fair value of available-for-sale debt securities are recorded in *AOI*, unless related to credit impairment, while gains and losses from sales are recorded in *Realized gains (losses) from sales of investments* in the Consolidated Statement of Income.

(2) Unrealized gains (losses) on MSRs are recorded in *Other revenue* in the Consolidated Statement of Income.

(3) Represents the amount of total gains or losses for the period, included in earnings (and *AOI* for changes in fair value of available-for-sale debt securities and *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, 2019.

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

Level 3 Fair Value Rollforward

The following were the significant Level 3 transfers for the period December 31, 2019 to December 31, 2020:

- During the 12 months ended December 31, 2020, transfers of *Interest rate contracts* of \$1.6 billion from Level 2 to Level 3 were due to interest rate option volatility becoming an unobservable and/or significant input relative to the overall valuation of inflation and other interest rate derivatives.
- During the 12 months ended December 31, 2020, \$6.6 billion of *Long-term debt* containing embedded derivatives was transferred from Level 2 to Level 3, as a result of interest rate option volatility, equity correlation and credit derivative inputs becoming unobservable and/or significant input relative to the overall valuation of certain structured long-term debt products. In other instances, market changes resulted in unobservable volatility inputs becoming insignificant to the overall valuation of the instrument (e.g., when an option becomes deep-in or deep-out of the money). This has resulted in \$2.6 billion of certain structured long-term debt products being transferred from Level 3 to Level 2 during the 12 months ended December 31, 2020.

The following were the significant Level 3 transfers for the period December 31, 2018 to December 31, 2019:

- Transfers of *Long-term debt* of \$3.3 billion from Level 2 to Level 3, and of \$4.4 billion from Level 3 to Level 2, mainly related to structured debt, reflecting changes in the significance of unobservable inputs as well as certain underlying market inputs becoming less or more observable.

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 valuation methodologies used to measure the fair value of these positions include discounted cash flow analysis, internal models and comparative analysis. A position is classified within Level 3 of the fair value hierarchy when one or more unobservable inputs are used that are considered significant to its valuation. The specific reason an input is deemed unobservable varies; for example, at least one significant input to the pricing model is not observable in the market, at

least one significant input has been adjusted to make it more representative of the position being valued or the price quote available does not reflect sufficient trading activities.

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. 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.

<i>As of December 31, 2020</i>	Fair value ⁽¹⁾ <i>(in millions)</i>	Methodology	Input	Low ⁽²⁾⁽³⁾	High ⁽²⁾⁽³⁾	Weighted average ⁽⁴⁾
Assets						
Securities borrowed and purchased under agreements to resell	\$ 320	Model-based	Credit spread	15 bps	15 bps	15 bps
			Interest rate	0.30 %	0.35 %	0.32 %
Mortgage-backed securities	\$ 344	Price-based	Price	\$ 30	\$ 111	\$ 80
		Yield analysis	Yield	2.63 %	21.80 %	10.13 %
State and municipal, foreign government, corporate and other debt securities	\$ 1,566	Price-based	Price	\$ —	\$ 2,265	\$ 90
		Model-based	Credit spread	35 bps	375 bps	226 bps
Marketable equity securities⁽⁵⁾	\$ 36	Model-based	Price	\$ —	\$ 31,000	\$ 5,132
		Price-based	WAL	1.48 years	1.48 years	1.48 years
			Recovery <i>(in millions)</i>	\$ 5,733	\$ 5,733	\$ 5,733
Asset-backed securities	\$ 863	Price-based	Price	\$ 2	\$ 157	\$ 59
		Yield analysis	Yield	3.77 %	21.77 %	9.01 %
Non-marketable equities	\$ 205	Comparables analysis	Illiquidity discount	10.00 %	45.00 %	25.29 %
			PE ratio	13.60x	28.00x	22.83x
		Price-based	Price	\$ 136	\$ 2,041	\$ 1,647
			EBITDA multiples	3.30x	36.70x	15.10x
			Adjustment factor	0.20x	0.61x	0.25x
			Appraised value <i>(in thousands)</i>	\$ 287	\$ 39,745	\$ 21,754
			Revenue multiple	2.70x	28.00x	8.92x
Derivatives—gross⁽⁶⁾						
Interest rate contracts (gross)	\$ 5,143	Model-based	Inflation volatility	0.27 %	2.36 %	0.78 %
			IR normal volatility	0.11 %	0.73 %	0.52 %
Foreign exchange contracts (gross)	\$ 1,296	Model-based	FX volatility	1.70 %	12.63 %	5.41 %
			Contingent event	100.00 %	100.00 %	100.00 %
			Interest rate	0.84 %	84.09 %	17.55 %
			IR normal volatility	0.11 %	0.52 %	0.46 %
			IR-FX correlation	40.00 %	60.00 %	50.00 %
			IR-IR correlation	(21.71)%	40.00 %	38.09 %
Equity contracts (gross)⁽⁷⁾	\$ 7,330	Model-based	Equity volatility	5.00 %	91.43 %	42.74 %
			Forward price	65.88 %	105.20 %	91.82 %
Commodity and other contracts (gross)	\$ 1,636	Model-based	Commodity correlation	(44.92)%	95.91 %	70.60 %
			Commodity volatility	0.16 %	80.17 %	23.72 %
			Forward price	15.40 %	262.00 %	98.53 %
Credit derivatives (gross)	\$ 1,854	Model-based	Credit spread	3.50 bps	352.35 bps	99.89 bps

<i>As of December 31, 2020</i>	Fair value⁽¹⁾ <i>(in millions)</i>	Methodology	Input	Low⁽²⁾⁽³⁾	High⁽²⁾⁽³⁾	Weighted average⁽⁴⁾
	408	Price-based	Recovery rate	20.00 %	60.00 %	41.60 %
			Credit correlation	25.00 %	80.00 %	43.36 %
			Upfront points	— %	107.20 %	48.10 %
Loans and leases	\$ 1,804	Model-based	Equity volatility	24.65 %	83.09 %	58.23 %
Mortgage servicing rights	258	Cash flow	Yield	2.86 %	16.00 %	6.32 %
	78	Model-based	WAL	2.66 years	5.40 years	4.46 years
Liabilities						
Interest-bearing deposits	\$ 206	Model-based	IR Normal volatility	0.11 %	0.73 %	0.54 %
Securities loaned and sold under agreements to repurchase	\$ 631	Model-based	Interest rate	0.08 %	1.86 %	0.71 %
Trading account liabilities						
Securities sold, not yet purchased and other trading liabilities	\$ 178	Model-based	IR lognormal volatility	52.06 %	128.87 %	89.82 %
	62	Price-based	Price	\$ —	\$ 866	\$ 80
			Interest rate	10.03 %	20.07 %	13.70 %
Short-term borrowings and long-term debt	\$ 24,827	Model-based	IR Normal volatility	0.11 %	0.73 %	0.51 %
			Forward price	15.40 %	262.00 %	92.48 %

<i>As of December 31, 2019</i>	Fair value⁽¹⁾ <i>(in millions)</i>	Methodology	Input	Low⁽²⁾⁽³⁾	High⁽²⁾⁽³⁾	Weighted average⁽⁴⁾
Assets						
Securities borrowed and purchased under agreements to resell	\$ 303	Model-based	Credit spread	15 bps	15 bps	15 bps
			Interest rate	1.59 %	3.67 %	2.72 %
Mortgage-backed securities	\$ 196	Price-based	Price	\$ 36	\$ 505	\$ 97
	22	Model-based				
State and municipal, foreign government, corporate and other debt securities	\$ 880	Model-based	Price	\$ —	\$ 1,238	\$ 90
	677	Price-based	Credit spread	35 bps	295 bps	209 bps
Marketable equity securities⁽⁵⁾	\$ 70	Price-based	Price	\$ —	\$ 38,500	\$ 2,979
	30	Model-based	WAL	1.48 years	1.48 years	1.48 years
			Recovery <i>(in millions)</i>	\$ 5,450	\$ 5,450	\$ 5,450
Asset-backed securities	\$ 812	Price-based	Price	\$ 4	\$ 103	\$ 60
	368	Yield analysis	Yield	0.61 %	23.38 %	8.88 %
Non-marketable equities	\$ 316	Comparables analysis	EBITDA multiples	7.00x	17.95x	10.34x
	97	Price-based	Appraised value <i>(in thousands)</i>	\$ 397	\$ 33,246	\$ 8,446
			Price	\$ 3	\$ 2,019	\$ 1,020
			PE ratio	14.70x	28.70x	20.54x
			Price to book ratio	1.50x	3.00x	1.88x
			Discount to price	— %	10.00 %	2.32 %
Derivatives—gross⁽⁶⁾						
Interest rate contracts (gross)	\$ 2,196	Model-based	Inflation volatility	0.21 %	2.74 %	0.79 %
			Mean reversion	1.00 %	20.00 %	10.50 %
			IR normal volatility	0.09 %	0.66 %	0.53 %
Foreign exchange contracts (gross)	\$ 1,099	Model-based	FX volatility	1.27 %	12.16 %	9.17 %
			IR normal volatility	0.27 %	0.66 %	0.58 %
			FX rate	37.39 %	586.84 %	80.64 %
			Interest rate	2.72 %	56.14 %	13.11 %

			IR-IR correlation	(51.00)%	40.00 %	32.00 %
			IR-FX correlation	40.00 %	60.00 %	50.00 %
Equity contracts (gross) ⁽⁷⁾	\$	2,076	Model-based	Equity volatility	3.16 %	52.80 %
				Forward price	62.60 %	112.69 %
				WAL	1.48 years	1.48 years
				Recovery (in millions)	\$ 5,450	\$ 5,450
					\$ 5,450	\$ 5,450
Commodity and other contracts (gross)	\$	1,487	Model-based	Forward price	37.62 %	362.57 %
				Commodity volatility	5.25 %	93.63 %
				Commodity correlation	(39.65)%	87.81 %
Credit derivatives (gross)	\$	613	Model-based	Credit spread	8 bps	283 bps
		341	Price-based	Upfront points	2.59 %	99.94 %
				Price	\$ 12	\$ 100
					\$ 87	\$ 87
				Credit correlation	25.00 %	87.00 %
				Recovery rate	20.00 %	65.00 %
Loans and leases	\$	378	Model-based	Credit spread	9 bps	52 bps
				Equity volatility	32.00 %	32.00 %
Mortgage servicing rights	\$	418	Cash flow	Yield	1.78 %	12.00 %
		77	Model-based	WAL	4.07 years	8.13 years
					6.61 years	6.61 years
Liabilities						
Interest-bearing deposits	\$	215	Model-based	Mean reversion	1.00 %	20.00 %
				Forward price	97.59 %	111.06 %
Securities loaned and sold under agreements to repurchase	\$	757	Model-based	Interest rate	1.59 %	2.38 %
Trading account liabilities						
Securities sold, not yet purchased	\$	46	Price-based	Price	\$ —	\$ 866
Short-term borrowings and long-term debt		17,182	Model-based	Mean reversion	1.00 %	20.00 %
				IR normal volatility	0.09 %	0.66 %
				Forward price	37.62 %	362.57 %
				Equity-IR correlation	15.00 %	44.00 %
					32.66 %	32.66 %

(1) The fair value amounts presented in these tables represent the primary valuation technique or techniques for each class of assets or liabilities.

(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) Both trading and nontrading 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 disperse 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, CDOs backed by loans or bonds, mortgages, subprime mortgages 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 using 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 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 bonds) 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. In other situations, the estimated yield may not represent sufficient market liquidity and must be adjusted as well. 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. An increase in prepayments—in speed or magnitude—generally creates losses for the holder of these 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 securities' 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 (such as asset-backed securities), there is no directly observable market input for recovery, but indications of recovery levels are available from pricing services. The assumed recovery of a security may differ from its actual recovery that will be observable in the future. The recovery rate impacts the valuation of credit securities. 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.

Items Measured at Fair Value on a Nonrecurring Basis

Certain assets and liabilities are measured at fair value on a nonrecurring basis and, therefore, are not included in the tables above. These include assets measured at cost that have been written down to fair value during the periods as a result of an impairment. These also include non-marketable equity securities that have been measured using the measurement alternative and are either (i) written down to fair value during the periods as a result of an impairment or (ii) adjusted upward or downward to fair value as a result of a transaction observed during the periods for the identical or similar investment of the same issuer. In addition, these assets include loans held-for-sale and other real estate owned that are measured at the lower of cost or market value.

The following tables present the carrying amounts of all assets that were still held for which a nonrecurring fair value measurement was recorded:

<i>In millions of dollars</i>	Fair value	Level 2	Level 3
December 31, 2020			
Loans HFS ⁽¹⁾	\$ 3,375	\$ 478	\$ 2,897
Other real estate owned	17	4	13
Loans ⁽²⁾	1,015	679	336
Non-marketable equity securities measured using the measurement alternative	315	312	3
Total assets at fair value on a nonrecurring basis	\$ 4,722	\$ 1,473	\$ 3,249

<i>In millions of dollars</i>	Fair value	Level 2	Level 3
December 31, 2019			
Loans HFS ⁽¹⁾	\$ 4,579	\$ 3,249	\$ 1,330
Other real estate owned	20	6	14
Loans ⁽²⁾	344	93	251
Non-marketable equity securities measured using the measurement alternative	249	249	—
Total assets at fair value on a nonrecurring basis	\$ 5,192	\$ 3,597	\$ 1,595

- (1) Net of fair value amounts on the unfunded portion of loans HFS recognized as *Other liabilities* on the Consolidated Balance Sheet.
- (2) Represents impaired loans held for investment whose carrying amount is based on the fair value of the underlying collateral less costs to sell, primarily real estate.

The fair value of loans HFS is determined where possible using quoted secondary-market prices. If no such quoted price exists, the fair value of a loan is determined using quoted prices for a similar asset or assets, adjusted for the specific attributes of that loan. Fair value for the other real estate owned is based on appraisals. For loans whose carrying amount is based on the fair value of the underlying collateral, the fair values depend on the type of collateral. Fair value of the collateral is typically estimated based on quoted market prices if available, appraisals or other internal valuation techniques.

Where the fair value of the related collateral is based on an unadjusted appraised value, the loan is generally classified as Level 2. Where significant adjustments are made to the appraised value, the loan is classified as Level 3. In addition, for corporate loans, appraisals of the collateral are often based on sales of similar assets; however, because the prices of similar assets require significant adjustments to reflect the unique features of the underlying collateral, these fair value measurements are generally classified as Level 3.

The fair value of non-marketable equity securities under the measurement alternative is based on observed transaction prices for the identical or similar investment of the same issuer, or an internal valuation technique in the case of an impairment. Where significant adjustments are made to the observed transaction price or when an internal valuation technique is used, the security is classified as Level 3. Fair value may differ from the observed transaction price due to a number of factors, including marketability adjustments and differences in rights and obligations when the observed transaction is not for the identical investment held by Citi.

Valuation Techniques and Inputs for Level 3 Nonrecurring Fair Value Measurements

The following tables present the valuation techniques covering the majority of Level 3 nonrecurring fair value measurements and the most significant unobservable inputs used in those measurements:

<i>As of December 31, 2020</i>	Fair value ⁽¹⁾ <i>(in millions)</i>	Methodology	Input	Low ⁽²⁾	High	Weighted average ⁽³⁾
Loans HFS	\$ 2,683	Price-based	Price	\$ 79	\$ 100	\$ 98
Other real estate owned	\$ 7	Price-based	Appraised value ⁽⁴⁾	\$ 3,110,711	\$ 4,241,357	\$ 3,586,975
	4	Recovery analysis	Price	51	51	51
Loans ⁽⁵⁾	\$ 147	Price-based	Price	\$ 2	\$ 49	\$ 23
	73	Recovery analysis	Recovery rate	0.99 %	78.00 %	13.37 %
			Appraised value ⁽⁴⁾	\$ 34	\$ 43,646,426	\$ 17,762,950

<i>As of December 31, 2019</i>	Fair value ⁽¹⁾ <i>(in millions)</i>	Methodology	Input	Low ⁽²⁾	High	Weighted average ⁽³⁾
Loans HFS	\$ 1,320	Price-based	Price	\$ 86	\$ 100	\$ 99
Other real estate owned	\$ 11	Price-based	Appraised value ⁽⁴⁾	\$2,297,358	\$ 8,394,102	\$ 5,615,884
	5	Recovery analysis				
Loans ⁽⁵⁾	\$ 100	Recovery analysis	Recovery rate	0.57 %	100.00 %	64.78 %
	54	Cash flow	Price	\$ 2	\$ 54	\$ 27
	47	Price-based	Cost of capital	0.10 %	100.00 %	54.84 %
	66	Price-based	Price	\$17,521,218	\$ 43,646,426	\$ 30,583,822

(1) The fair value amounts presented in this table represent the primary valuation technique or techniques for each class of assets or liabilities.

(2) Some inputs are shown as zero due to rounding.

(3) Weighted averages are calculated based on the fair values of the instruments.

(4) Appraised values are disclosed in whole dollars.

(5) Represents impaired loans held for investment whose carrying amount is based on the fair value of the underlying collateral less costs to sell, primarily real estate.

Nonrecurring Fair Value Changes

The following tables present total nonrecurring fair value measurements for the period, included in earnings, attributable to the change in fair value relating to assets that were still held:

<i>In millions of dollars</i>	Year ended December 31, 2020
Loans HFS	\$ (91)
Other real estate owned	(1)
Loans ⁽¹⁾	(137)
Non-marketable equity securities measured using the measurement alternative	70
Total nonrecurring fair value gains (losses)	\$ (159)

<i>In millions of dollars</i>	Year ended December 31, 2019
Loans HFS	\$ —
Other real estate owned	(1)
Loans ⁽¹⁾	(56)
Non-marketable equity securities measured using the measurement alternative	99
Total nonrecurring fair value gains (losses)	\$ 42

(1) Represents loans held for investment whose carrying amount is based on the fair value of the underlying collateral less costs to sell, primarily real estate.

Estimated Fair Value of Financial Instruments Not Carried at Fair Value

The following tables present the carrying value and fair value of Citigroup'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, pension and benefit obligations, certain insurance contracts 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, excess fair value associated with deposits with no fixed maturity 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 a wide range of franchise, relationship and intangible values, which are integral to a full assessment of Citigroup'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.

<i>In billions of dollars</i>	December 31, 2020		Estimated fair value		
	Carrying value	Estimated fair value	Level 1	Level 2	Level 3
Assets					
Investments	\$ 110.3	\$ 113.2	\$ 23.3	\$ 87.0	\$ 2.9
Securities borrowed and purchased under agreements to resell	109.5	109.5	—	109.5	—
Loans ⁽¹⁾⁽²⁾	643.3	663.9	—	0.6	663.3
Other financial assets ⁽²⁾⁽³⁾	383.2	383.2	291.5	18.1	73.6
Liabilities					
Deposits	\$ 1,278.7	\$ 1,278.8	\$ —	\$ 1,093.3	\$ 185.5
Securities loaned and sold under agreements to repurchase	139.3	139.3	—	139.3	—
Long-term debt ⁽⁴⁾	204.6	221.2	—	197.8	23.4
Other financial liabilities ⁽⁵⁾	102.4	102.4	—	19.2	83.2

<i>In billions of dollars</i>	December 31, 2019		Estimated fair value		
	Carrying value	Estimated fair value	Level 1	Level 2	Level 3
Assets					
Investments	\$ 86.4	\$ 87.8	\$ 1.9	\$ 83.8	\$ 2.1
Securities borrowed and purchased under agreements to resell	98.1	98.1	—	98.1	—
Loans ⁽¹⁾⁽²⁾	681.2	677.7	—	4.7	673.0
Other financial assets ⁽²⁾⁽³⁾	262.4	262.4	177.6	16.3	68.5
Liabilities					
Deposits	\$ 1,068.3	\$ 1,066.7	\$ —	\$ 875.5	\$ 191.2
Securities loaned and sold under agreements to repurchase	125.7	125.7	—	125.7	—
Long-term debt ⁽⁴⁾	193.0	203.8	—	187.3	16.5
Other financial liabilities ⁽⁵⁾	110.2	110.2	—	37.5	72.7

(1) The carrying value of loans is net of the *Allowance for credit losses on loans* of \$25.0 billion for December 31, 2020 and \$12.8 billion for December 31, 2019. In addition, the carrying values exclude \$0.7 billion and \$1.4 billion of lease finance receivables at December 31, 2020 and 2019, respectively.

(2) Includes items measured at fair value on a nonrecurring basis.

(3) Includes cash and due from banks, deposits with banks, brokerage receivables, reinsurance recoverables and other financial instruments included in *Other assets* on the Consolidated Balance Sheet, for all of which the carrying value is a reasonable estimate of fair value.

(4) The carrying value includes long-term debt balances under qualifying fair value hedges.

- (5) Includes brokerage payables, separate and variable accounts, short-term borrowings (carried at cost) and other financial instruments included in *Other liabilities* on the Consolidated Balance Sheet, for all of which the carrying value is a reasonable estimate of fair value.

The estimated fair values of the Company's corporate unfunded lending commitments at December 31, 2020 and 2019 were liabilities of \$7.3 billion and \$5.1 billion, respectively, substantially all of which are classified as Level 3. The Company does not estimate the fair values of consumer unfunded lending commitments, which are generally cancelable by providing notice to the borrower.

25. FAIR VALUE ELECTIONS

The Company may elect to report most financial instruments and certain other items 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 firm commitment 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 *AOCl*. Additional discussion regarding the applicable areas in which fair value elections were made is presented in Note 24 to the Consolidated Financial Statements.

The Company has elected fair value accounting for its mortgage servicing rights (MSRs). See Note 21 to the Consolidated Financial Statements for further discussions regarding the accounting and reporting of MSRs.

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

<i>In millions of dollars</i>	Changes in fair value—gains (losses) for the years ended December 31,	
	2020	2019
Assets		
Securities borrowed and purchased under agreements to resell	\$ —	\$ 6
Trading account assets	(136)	77
Investments	—	—
Loans		
Certain corporate loans	2,486	(222)
Certain consumer loans	1	—
Total loans	\$ 2,487	\$ (222)
Other assets		
MSRs	\$ (204)	\$ (84)
Certain mortgage loans HFS ⁽¹⁾	299	91
Total other assets	\$ 95	\$ 7
Total assets	\$ 2,446	\$ (132)
Liabilities		
Interest-bearing deposits	\$ (154)	\$ (205)
Securities loaned and sold under agreements to repurchase	(559)	386
Trading account liabilities	(1)	27
Short-term borrowings ⁽²⁾	802	(78)
Long-term debt ⁽²⁾	(2,700)	(5,174)
Total liabilities	\$ (2,612)	\$ (5,044)

(1) Includes gains (losses) associated with interest rate lock commitments for those loans that have been originated and elected under the fair value option.

(2) Includes DVA that is included in *AOCl*. See Notes 19 and 24 to the Consolidated Financial Statements.

Own Debt Valuation Adjustments (DVA)

Own debt valuation adjustments are recognized on Citi's liabilities for which the fair value option has been elected using Citi'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*. See Note 1 to the Consolidated Financial Statements for additional information.

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 the Company's credit spreads.

The estimated changes in the fair value of these non-derivative liabilities due to such changes in the Company's own credit spread (or instrument-specific credit risk) were a loss of \$616 million and a loss of \$1,473 million for the years ended December 31, 2020 and 2019, respectively. Changes in fair value resulting from changes in instrument-specific credit risk were estimated by incorporating the Company'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 Non-Collateralized 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, the United Kingdom and Japan. 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 revenue and interest expense are measured based on the contractual rates specified in the transactions and are reported as *Interest revenue* and *Interest expense* in the Consolidated Statement of Income.

Certain Loans and Other Credit Products

Citigroup has also elected the fair value option for certain other originated and purchased loans, including certain unfunded loan products, such as guarantees and letters of credit, executed by Citigroup's lending and trading businesses. None of these credit products are highly leveraged financing commitments. Significant groups of transactions include loans and unfunded loan products that are expected to be either sold or securitized in the near term, or transactions where the economic risks are hedged with derivative instruments, such as purchased credit default swaps or total return swaps where the Company pays the total return on the underlying loans to a third party. Citigroup has elected the fair value option to mitigate accounting mismatches in cases where hedge accounting is complex and to achieve operational simplifications. Fair value was not elected for most lending transactions across the Company.

The following table provides information about certain credit products carried at fair value:

<i>In millions of dollars</i>	December 31, 2020		December 31, 2019	
	Trading assets	Loans	Trading assets	Loans
Carrying amount reported on the Consolidated Balance Sheet	\$ 8,063	\$ 6,854	\$ 8,320	\$ 4,086
Aggregate unpaid principal balance in excess of (less than) fair value	(915)	(14)	410	315
Balance of non-accrual loans or loans more than 90 days past due	—	4	—	1
Aggregate unpaid principal balance in excess of (less than) fair value for non-accrual loans or loans more than 90 days past due	—	—	—	—

In addition to the amounts reported above, \$1,068 million and \$1,062 million of unfunded commitments related to certain credit products selected for fair value accounting were outstanding as of December 31, 2020 and 2019, respectively.

Changes in the fair value of funded and unfunded credit products are classified in *Principal transactions* in Citi's Consolidated Statement of Income. Related interest revenue is measured based on the contractual interest rates and reported as *Interest revenue on Trading account assets* or loan interest depending on the balance sheet classifications of the credit products. The changes in fair value for the years ended December 31, 2020 and 2019 due to instrument-specific credit risk totaled to a loss of \$(16) million and a gain of \$95 million, respectively.

Certain Investments in Unallocated Precious Metals

Citigroup invests in unallocated precious metals accounts (gold, silver, platinum and palladium) as part of its commodity and foreign currency trading activities or to economically hedge certain exposures from issuing structured liabilities. Under ASC 815, the investment is bifurcated into a debt host contract and a commodity forward derivative instrument. Citigroup elects the fair value option for the debt host contract, and reports the debt host contract within *Trading account assets* on the Company's Consolidated Balance Sheet. The total carrying amount of debt host contracts across unallocated precious metals accounts was approximately \$0.5 billion and \$0.2 billion at December 31, 2020 and 2019, respectively. The amounts are expected to fluctuate based on trading activity in future periods.

As part of its commodity and foreign currency trading activities, Citi trades unallocated precious metals investments and executes forward purchase and forward sale derivative contracts with trading counterparties. When Citi sells an unallocated precious metals investment, Citi's receivable from its depository bank is repaid and Citi derecognizes its investment in the unallocated precious metal. The forward purchase or sale contract with the trading counterparty indexed to unallocated precious metals is accounted for as a derivative, at fair value through earnings. As of December 31, 2020, there were approximately \$7.4 billion and \$6.3 billion in notional amounts of such forward purchase and forward sale derivative contracts outstanding, respectively.

Certain Investments in Private Equity and Real Estate Ventures

Citigroup invests in private equity and real estate ventures for the purpose of earning investment returns and for capital appreciation. The Company has elected the fair value option for certain of these ventures, because such investments are considered similar to many private equity or hedge fund activities in Citi's investment companies, which are reported at fair value. The fair value option brings consistency in the accounting and evaluation of these investments. All investments (debt and equity) in such private equity and real estate entities are accounted for at fair value. These investments are classified as *Investments* on Citigroup's Consolidated Balance Sheet.

Changes in the fair values of these investments are classified in *Other revenue* in the Company's Consolidated Statement of Income.

Certain Mortgage Loans Held-for-Sale (HFS)

Citigroup has elected the fair value option for certain purchased and originated prime fixed-rate and conforming adjustable-rate first mortgage loans HFS. These loans are intended for sale or securitization and are hedged with derivative instruments. The Company has elected the fair value option to mitigate accounting mismatches in cases where hedge accounting is complex and to achieve operational simplifications.

The following table provides information about certain mortgage loans HFS carried at fair value:

<i>In millions of dollars</i>	December 31, 2020	December 31, 2019
Carrying amount reported on the Consolidated Balance Sheet	\$ 1,742	\$ 1,254
Aggregate fair value in excess of (less than) unpaid principal balance	91	(31)
Balance of non-accrual loans or loans more than 90 days past due	—	1
Aggregate unpaid principal balance in excess of fair value for non-accrual loans or loans more than 90 days past due	—	—

The changes in the fair values of these mortgage loans are reported in *Other revenue* in the Company's Consolidated Statement of Income. There was no net change in fair value during the years ended December 31, 2020 and 2019 due to instrument-specific credit risk. Related interest income continues to be measured based on the contractual interest rates and reported as *Interest revenue* in the Consolidated Statement of Income.

Certain Structured Liabilities

The Company has elected the fair value option for certain structured liabilities whose performance is linked to structured interest rates, inflation, currency, equity, referenced credit or commodity risks. The Company elected the fair value option because these exposures are considered to be trading-related positions and, therefore, are managed on a fair value basis. These positions will continue to be classified as debt, deposits or derivatives (*Trading account liabilities*) on the Company's Consolidated Balance Sheet according to their legal form.

The following table provides information about the carrying value of structured notes, disaggregated by type of embedded derivative instrument:

<i>In billions of dollars</i>	December 31, 2020	December 31, 2019
Interest rate linked	\$ 16.0	\$ 22.6
Foreign exchange linked	1.2	0.7
Equity linked	27.3	23.7
Commodity linked	1.4	1.8
Credit linked	2.6	0.9
Total	\$ 48.5	\$ 49.7

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 structured 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 Balance Sheet. 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 Income.

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

<i>In millions of dollars</i>	December 31, 2020	December 31, 2019
Carrying amount reported on the Consolidated Balance Sheet	\$ 67,063	\$ 55,783
Aggregate unpaid principal balance in excess of (less than) fair value	(5,130)	(2,967)

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

<i>In millions of dollars</i>	December 31, 2020	December 31, 2019
Carrying amount reported on the Consolidated Balance Sheet	\$ 4,683	\$ 4,946
Aggregate unpaid principal balance in excess of (less than) fair value	68	1,411

26. PLEDGED ASSETS, COLLATERAL, GUARANTEES AND COMMITMENTS

Pledged Assets

In connection with Citi's financing and trading activities, Citi has pledged assets to collateralize its obligations under repurchase agreements, secured financing agreements, secured liabilities of consolidated VIEs and other borrowings. The approximate carrying values of the significant components of pledged assets recognized on Citi's Consolidated Balance Sheet included the following:

<i>In millions of dollars</i>	December 31, 2020	December 31, 2019
Investment securities	\$ 231,696	\$ 152,352
Loans	239,699	236,033
Trading account assets	174,717	131,392
Total	\$ 646,112	\$ 519,777

Restricted Cash

Citigroup defines restricted cash (as cash subject to withdrawal restrictions) to include cash deposited with central banks that must be maintained to meet minimum regulatory requirements, and cash set aside for the benefit of customers or for other purposes such as compensating balance arrangements or debt retirement. Restricted cash includes minimum reserve requirements with the Federal Reserve Bank and certain other central banks and cash segregated to satisfy rules regarding the protection of customer assets as required by Citigroup broker-dealers' primary regulators, including the United States Securities and Exchange Commission (SEC), the Commodity Futures Trading Commission and the United Kingdom's Prudential Regulation Authority.

Restricted cash is included on the Consolidated Balance Sheet within the following balance sheet lines:

<i>In millions of dollars</i>	December 31, 2020	December 31, 2019
Cash and due from banks	\$ 3,774	\$ 3,758
Deposits with banks, net of allowance	14,203	26,493
Total	\$ 17,977	\$ 30,251

In addition, included in *Cash and due from banks* and *Deposits with banks* at December 31, 2020 and 2019 were \$9.4 billion and \$8.5 billion, respectively, of cash segregated under federal and other brokerage regulations or deposited with clearing organizations.

In response to the COVID-19 pandemic, the Federal Reserve Bank and certain other central banks eased regulations related to minimum required cash deposited with central banks. This resulted in a decrease in Citigroup's restricted cash amount at December 31, 2020.

Collateral

At December 31, 2020 and 2019, the approximate fair value of collateral received by Citi that may be resold or repledged, excluding the impact of allowable netting, was \$671.6 billion and \$569.8 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, 2020 and 2019, a substantial portion of the collateral received by Citi 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.

In addition, at December 31, 2020 and 2019, Citi had pledged \$470.7 billion and \$388.9 billion, respectively, of collateral that may not be sold or repledged by the secured parties.

Leases

The Company's operating leases, where Citi 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 the options. These leases have a weighted-average remaining lease term of approximately six years as of December 31, 2020 and 2019. The operating lease ROU asset was \$2.8 billion and \$3.1 billion, as of December 31, 2020 and 2019, respectively. The operating lease ROU liability was \$3.1 billion and \$3.3 billion, as of December 31, 2020 and 2019, respectively. The Company recognizes fixed lease costs on a straight-line basis throughout the lease term in the Consolidated Statement of Income. In addition, variable lease costs are recognized in the period in which the obligation for those payments is incurred. The total operating lease expense (principally for offices, branches and equipment), net of \$27 million and \$56 million of sublease income, was \$1,054 million and \$1,084 million for the years ended December 31, 2020 and 2019, respectively. During 2019, Citi purchased a previously leased property in London. The purchased property is included in *Other assets* on the Consolidated Balance Sheet at both December 31, 2020 and 2019.

The table below provides the Cash Flow Statement Supplemental Information:

<i>In millions of dollars</i>	December 31, 2020	December 31, 2019
Cash paid for amounts included in the measurement of lease liabilities	\$ 814	\$ 942
Right-of-use assets obtained in exchange for new operating lease liabilities ⁽¹⁾⁽²⁾	447	499

- (1) Represents non-cash activity and, accordingly, is not reflected in the Consolidated Statement of Cash Flow.
- (2) Excludes the decrease in the right-of-use assets related to the purchase of a previously leased property.

Citi's future lease payments are as follows:

In millions of dollars

2021	\$	791
2022		663
2023		518
2024		399
2025		307
Thereafter		766
Total future lease payments	\$	3,444
Less imputed interest (based on weighted-average discount rate of 3.6%)	\$	(356)
Lease liability	\$	3,088

Operating lease expense was \$1.0 billion for the year ended December 31, 2018.

Guarantees

Citi provides a variety of guarantees and indemnifications to its customers to enhance their credit standing and enable them to complete a wide variety 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, Citi believes such amounts bear no relationship to the anticipated losses, if any, on these guarantees.

The following tables present information about Citi's guarantees:

<i>In billions of dollars at December 31, 2020</i>	Maximum potential amount of future payments			Carrying value <i>(in millions of dollars)</i>
	Expire within 1 year	Expire after 1 year	Total amount outstanding	
Financial standby letters of credit	\$ 25.3	\$ 68.4	\$ 93.7	\$ 1,407
Performance guarantees	7.3	6.0	13.3	72
Derivative instruments considered to be guarantees	20.0	60.9	80.9	671
Loans sold with recourse	—	1.2	1.2	9
Securities lending indemnifications ⁽¹⁾	112.2	—	112.2	—
Credit card merchant processing ⁽¹⁾⁽²⁾	101.9	—	101.9	3
Credit card arrangements with partners	0.2	0.8	1.0	7
Custody indemnifications and other	—	37.3	37.3	35
Total	\$ 266.9	\$ 174.6	\$ 441.5	\$ 2,204

<i>In billions of dollars at December 31, 2019</i>	Maximum potential amount of future payments			Carrying value <i>(in millions of dollars)</i>
	Expire within 1 year	Expire after 1 year	Total amount outstanding	
Financial standby letters of credit	\$ 31.9	\$ 61.4	\$ 93.3	\$ 581
Performance guarantees	6.9	5.5	12.4	36
Derivative instruments considered to be guarantees	35.2	60.8	96.0	474
Loans sold with recourse	—	1.2	1.2	7
Securities lending indemnifications ⁽¹⁾	87.8	—	87.8	—
Credit card merchant processing ⁽¹⁾⁽²⁾	91.6	—	91.6	—
Credit card arrangements with partners	0.2	0.4	0.6	23
Custody indemnifications and other	—	33.7	33.7	41
Total	\$ 253.6	\$ 163.0	\$ 416.6	\$ 1,162

- (1) The carrying values of securities lending indemnifications and credit card merchant processing were not material for either period presented, as the probability of potential liabilities arising from these guarantees is minimal.
- (2) At December 31, 2020 and 2019, this maximum potential exposure was estimated to be \$102 billion and \$92 billion, respectively. However, Citi believes that the maximum exposure is not representative of the actual potential loss exposure based on its historical experience. This contingent liability is unlikely to arise, as most products and services are delivered when purchased and amounts are refunded when items are returned to merchants.

Financial Standby Letters of Credit

Citi issues standby letters of credit, which substitute its own credit for that of the borrower. If a letter of credit is drawn down, the borrower is obligated to repay Citi. Standby letters of credit protect a third party from defaults on contractual obligations. Financial standby letters of credit include (i) guarantees of payment of insurance premiums and reinsurance risks that support industrial revenue bond underwriting, (ii) settlement of payment obligations to clearing houses, including futures and over-the-counter derivatives clearing (see further discussion below), (iii) support options and purchases of securities in lieu of escrow deposit accounts and (iv) letters of credit that backstop loans, credit facilities, promissory notes and trade acceptances.

Performance Guarantees

Performance guarantees and letters of credit are issued to guarantee a customer's tender bid on a construction or systems-installation project or to guarantee completion of such projects in accordance with contract terms. They are also issued to support a customer's obligation to supply specified products, commodities or maintenance or warranty services to a third party.

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. For a discussion of Citi's derivatives activities, see Note 22 to the Consolidated Financial Statements.

Derivative instruments considered to be guarantees include only those instruments that require Citi 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 Citi are excluded from the tables above as they are disclosed separately in Note 22 to the Consolidated Financial Statements. In instances where Citi's maximum potential future payment is unlimited, the notional amount of the contract is disclosed.

Loans Sold with Recourse

Loans sold with recourse represent Citi's obligations to reimburse the buyers for loan losses under certain circumstances. Recourse refers to the clause in a sales agreement under which a seller/lender will fully reimburse the buyer/investor for any losses resulting from the purchased loans. This may be accomplished by the seller's taking back any loans that become delinquent.

In addition to the amounts shown in the tables above, Citi has recorded a repurchase reserve for its potential repurchases or make-whole liability regarding residential mortgage representation and warranty claims related to its whole loan sales to U.S. government-sponsored agencies and, to a lesser extent, private investors. The repurchase reserve was approximately \$31 million and \$37 million at December 31, 2020 and 2019, respectively, and these amounts are included in *Other liabilities* on the Consolidated Balance Sheet.

Securities Lending Indemnifications

Owners of securities frequently lend those securities for a fee to other parties who may sell them short or deliver them to another party to satisfy some other obligation. Banks may administer such securities lending programs for their clients. Securities lending indemnifications are issued by the bank to guarantee that a securities lending customer will be made whole in the event that the security borrower does not return the security subject to the lending agreement and collateral held is insufficient to cover the market value of the security.

Credit Card Merchant Processing

Credit card merchant processing guarantees represent the Company's indirect obligations in connection with (i) providing transaction processing services to various merchants with respect to its private label cards and (ii) potential liability for bank card transaction processing services. The nature of the liability in either case arises as a result of a billing dispute between a merchant and a cardholder that is ultimately resolved in the cardholder's favor. The merchant is liable to refund the amount to the cardholder. In general, if the credit card processing company is unable to collect this amount from the merchant, the credit card processing company bears the loss for the amount of the credit or refund paid to the cardholder.

With regard to (i) above, Citi has the primary contingent liability with respect to its portfolio of private label merchants. The risk of loss is mitigated as the cash flows between Citi and the merchant are settled on a net basis, and Citi has the right to offset any payments with cash flows otherwise due to the merchant. To further mitigate this risk, Citi may delay settlement, require a merchant to make an escrow deposit, include event triggers to provide Citi with more financial and

operational control in the event of the financial deterioration of the merchant or require various credit enhancements (including letters of credit and bank guarantees). In the unlikely event that a private label merchant is unable to deliver products, services or a refund to its private label cardholders, Citi is contingently liable to credit or refund cardholders.

With regard to (ii) above, Citi has a potential liability for bank card transactions where Citi provides the transaction processing services as well as those where a third party provides the services and Citi acts as a secondary guarantor, should that processor fail to perform.

Citi's maximum potential contingent liability related to both bank card and private label merchant processing services is estimated to be the total volume of credit card transactions that meet the requirements to be valid charge-back transactions at any given time. At December 31, 2020 and 2019, this maximum potential exposure was estimated to be \$101.9 billion and \$91.6 billion, respectively.

However, Citi believes that the maximum exposure is not representative of the actual potential loss exposure based on its historical experience. This contingent liability is unlikely to arise, as most products and services are delivered when purchased and amounts are refunded when items are returned to merchants. Citi assesses the probability and amount of its contingent liability related to merchant processing based on the financial strength of the primary guarantor, the extent and nature of unresolved charge-backs and its historical loss experience. At December 31, 2020 and 2019, the losses incurred and the carrying amounts of Citi's contingent obligations related to merchant processing activities were immaterial.

Credit Card Arrangements with Partners

Citi, in one of its credit card partner arrangements, provides guarantees to the partner regarding the volume of certain customer originations during the term of the agreement. To the extent that such origination targets are not met, the guarantees serve to compensate the partner for certain payments that otherwise would have been generated in connection with such originations.

Custody Indemnifications

Custody indemnifications are issued to guarantee that custody clients will be made whole in the event that a third-party subcustodian or depository institution fails to safeguard clients' assets.

Other Guarantees and Indemnifications

Credit Card Protection Programs

Citi, through its credit card businesses, provides various cardholder protection programs on several of its card products, including programs that provide insurance coverage for rental cars, coverage for certain losses associated with purchased products, price protection for certain purchases and protection for lost luggage. These guarantees are not included in the table, since the total outstanding amount of the guarantees and Citi's maximum exposure to loss cannot be quantified. The protection is limited to certain types of purchases and losses, and it is not possible to quantify the purchases that would qualify for these benefits at any given time. Citi assesses the probability and amount of its potential liability related to these programs based on the extent and nature of its historical loss experience. At December 31, 2020 and 2019, the actual and estimated losses incurred and the carrying value of Citi's obligations related to these programs were immaterial.

Other Representation and Warranty Indemnifications

In the normal course of business, Citi 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 Citi 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 Citi'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, these indemnifications are not included in the tables above.

Value-Transfer Networks (Including Exchanges and Clearing Houses) (VTNs)

Citi is a member of, or shareholder in, hundreds 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. Citi'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. The maximum exposure is difficult to estimate as this

would require an assessment of claims that have not yet occurred; however, Citi believes the risk of loss is remote given historical experience with the VTNs. Accordingly, Citi's participation in VTNs is not reported in the guarantees tables above, and there are no amounts reflected on the Consolidated Balance Sheet as of December 31, 2020 or 2019 for potential obligations that could arise from Citi's involvement with VTN associations.

Long-Term Care Insurance Indemnification

In 2000, Travelers Life & Annuity (Travelers), then a subsidiary of Citi, entered into a reinsurance agreement to transfer the risks and rewards of its long-term care (LTC) business to GE Life (now Genworth Financial Inc., or Genworth), then a subsidiary of the General Electric Company (GE). As part of this transaction, the reinsurance obligations were provided by two regulated insurance subsidiaries of GE Life, which funded two collateral trusts with securities. Presently, as discussed below, the trusts are referred to as the Genworth Trusts.

As part of GE's spin-off of Genworth in 2004, GE retained the risks and rewards associated with the 2000 Travelers reinsurance agreement by providing a reinsurance contract to Genworth through GE's Union Fidelity Life Insurance Company (UFLIC) subsidiary that covers the Travelers LTC policies. In addition, GE provided a capital maintenance agreement in favor of UFLIC that is designed to assure that UFLIC will have the funds to pay its reinsurance obligations. As a result of these reinsurance agreements and the spin-off of Genworth, Genworth has reinsurance protection from UFLIC (supported by GE) and has reinsurance obligations in connection with the Travelers LTC policies. As noted below, the Genworth reinsurance obligations now benefit Brighthouse Financial, Inc. (Brighthouse). While neither Brighthouse nor Citi are direct beneficiaries of the capital maintenance agreement between GE and UFLIC, Brighthouse and Citi benefit indirectly from the existence of the capital maintenance agreement, which helps assure that UFLIC will continue to have funds necessary to pay its reinsurance obligations to Genworth.

In connection with Citi's 2005 sale of Travelers to MetLife Inc. (MetLife), Citi provided an indemnification to MetLife for losses (including policyholder claims) relating to the LTC business for the entire term of the Travelers LTC policies, which, as noted above, are reinsured by subsidiaries of Genworth. In 2017, MetLife spun off its retail insurance business to Brighthouse. As a result, the Travelers LTC policies now reside with Brighthouse. The original reinsurance agreement between Travelers (now Brighthouse) and Genworth remains in place and Brighthouse is the sole beneficiary of the Genworth Trusts. The Genworth Trusts are designed to provide collateral to Brighthouse in an amount equal to the statutory liabilities of Brighthouse in respect of the Travelers LTC policies. The assets in the Genworth Trusts are evaluated and adjusted periodically to ensure that the fair value of the assets continues to provide collateral in an amount equal to these estimated statutory liabilities, as the liabilities change over time.

If both (i) Genworth fails to perform under the original Travelers/GE Life reinsurance agreement for any reason,

including its insolvency or the failure of UFLIC to perform under its reinsurance contract or GE to perform under the capital maintenance agreement, and (ii) the assets of the two Genworth Trusts are insufficient or unavailable, then Citi, through its LTC reinsurance indemnification, must reimburse Brighthouse for any losses incurred in connection with the LTC policies. Since both events would have to occur before Citi would become responsible for any payment to Brighthouse pursuant to its indemnification obligation, and the likelihood of such events occurring is currently not probable, there is no liability reflected on the Consolidated Balance Sheet as of December 31, 2020 and 2019 related to this indemnification. However, if both events become reasonably possible (meaning more than remote but less than probable), Citi will be required to estimate and disclose a reasonably possible loss or range of loss to the extent that such an estimate could be made. In addition, if both events become probable, Citi will be required to accrue for such liability in accordance with applicable accounting principles.

Citi continues to closely monitor its potential exposure under this indemnification obligation, given GE's 2018 LTC and other charges and the September 2019 AM Best credit ratings downgrade for the Genworth subsidiaries.

Separately, Genworth announced that it had agreed to be purchased by China Oceanwide Holdings Co., Ltd, subject to a series of conditions and regulatory approvals. Citi is monitoring these developments.

Futures and Over-the-Counter Derivatives Clearing

Citi provides clearing services on central clearing parties (CCPs) for clients that need to clear exchange-traded and over-the-counter (OTC) derivatives contracts with CCPs. Based on all relevant facts and circumstances, Citi has concluded that it acts as an agent for accounting purposes in its role as clearing member for these client transactions. As such, Citi does not reflect the underlying exchange-traded or OTC derivatives contracts in its Consolidated Financial Statements. See Note 22 for a discussion of Citi's derivatives activities that are reflected in its Consolidated Financial Statements.

As a clearing member, Citi collects and remits cash and securities collateral (margin) between its clients and the respective CCP. In certain circumstances, Citi 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 depository institutions such as banks or carry brokers.

There are two types of margin: initial and variation. Where Citi 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 and due from banks*, respectively.

However, for exchange-traded and OTC-cleared derivatives contracts where Citi 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 Citi's Consolidated Balance Sheet. These conditions are met when Citi has contractually agreed with the client that (i) Citi will pass through to the client all interest paid by the CCP or depository institutions on the cash initial margin, (ii) Citi will not utilize its right as a clearing member to transform cash margin into other assets, (iii) Citi 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 Citi's bankruptcy estate. The total amount of cash initial margin collected and remitted in this manner was approximately \$16.6 billion and \$13.3 billion as of December 31, 2020 and 2019, 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, Citi 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, Citi 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 Citi as clearing member. Citi generally holds incremental cash or securities margin posted by the client, which would typically be expected to be sufficient to mitigate Citi'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 Citi's Consolidated Balance Sheet.

Carrying Value—Guarantees and Indemnifications

At December 31, 2020 and 2019, the total carrying amounts of the liabilities related to the guarantees and indemnifications included in the tables above amounted to approximately \$2.2 billion and \$1.2 billion, respectively. The carrying value of financial and performance guarantees is included in *Other liabilities*. For loans sold with recourse, the carrying value of the liability is included in *Other liabilities*.

Collateral

Cash collateral available to Citi to reimburse losses realized under these guarantees and indemnifications amounted to \$51.6 billion and \$46.7 billion at December 31, 2020 and 2019, respectively. Securities and other marketable assets held as collateral amounted to \$80.1 billion and \$58.6 billion at December 31, 2020 and 2019, respectively. The majority of collateral is held to reimburse losses realized under securities lending indemnifications. In addition, letters of credit in favor of Citi held as collateral amounted to \$6.6 billion and \$4.4 billion at December 31, 2020 and 2019, respectively. Other property may also be available to Citi to cover losses under certain guarantees and indemnifications; however, the value of such property has not been determined.

Performance Risk

Citi evaluates the performance risk of its guarantees based on the assigned referenced counterparty internal or external ratings. Where external ratings are used, investment-grade ratings are considered to be Baa/BBB and above, while anything below is considered non-investment grade. Citi's internal ratings are in line with the related external rating system. On certain underlying referenced assets or entities, ratings are not available. Such referenced assets are included in the "not rated" category. The maximum potential amount of the future payments related to the outstanding guarantees is determined to be the notional amount of these contracts, which is the par amount of the assets guaranteed.

Presented in the tables below are the maximum potential amounts of future payments that are classified based on internal and external credit ratings. 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, Citi believes such amounts bear no relationship to the anticipated losses, if any, on these guarantees.

Maximum potential amount of future payments

	Investment grade	Non-investment grade	Not rated	Total
<i>In billions of dollars at December 31, 2020</i>				
Financial standby letters of credit	\$ 78.5	\$ 14.6	\$ 0.6	\$ 93.7
Performance guarantees	9.8	3.0	0.5	13.3
Derivative instruments deemed to be guarantees	—	—	80.9	80.9
Loans sold with recourse	—	—	1.2	1.2
Securities lending indemnifications	—	—	112.2	112.2
Credit card merchant processing	—	—	101.9	101.9
Credit card arrangements with partners	—	—	1.0	1.0
Custody indemnifications and other	24.9	12.4	—	37.3
Total	\$ 113.2	\$ 30.0	\$ 298.3	\$ 441.5

Maximum potential amount of future payments

	Investment grade	Non-investment grade	Not rated	Total
<i>In billions of dollars at December 31, 2019</i>				
Financial standby letters of credit	\$ 81.2	\$ 11.6	\$ 0.5	\$ 93.3
Performance guarantees	9.7	2.3	0.4	12.4
Derivative instruments deemed to be guarantees	—	—	96.0	96.0
Loans sold with recourse	—	—	1.2	1.2
Securities lending indemnifications	—	—	87.8	87.8
Credit card merchant processing	—	—	91.6	91.6
Credit card arrangements with partners	—	—	0.6	0.6
Custody indemnifications and other	21.3	12.4	—	33.7
Total	\$ 112.2	\$ 26.3	\$ 278.1	\$ 416.6

Credit Commitments and Lines of Credit

The table below summarizes Citigroup's credit commitments:

<i>In millions of dollars</i>	U.S.	Outside of U.S.	December 31, 2020	December 31, 2019
Commercial and similar letters of credit	\$ 658	\$ 4,563	\$ 5,221	\$ 4,533
One- to four-family residential mortgages	2,654	2,348	5,002	3,721
Revolving open-end loans secured by one- to four-family residential properties	8,326	1,300	9,626	10,799
Commercial real estate, construction and land development	11,256	1,611	12,867	12,981
Credit card lines	606,768	103,631	710,399	708,023
Commercial and other consumer loan commitments	201,969	120,489	322,458	324,359
Other commitments and contingencies	5,177	538	5,715	1,948
Total	\$ 836,808	\$ 234,480	\$ 1,071,288	\$ 1,066,364

The majority of unused commitments are contingent upon customers' maintaining specific credit standards. Commercial commitments generally have floating interest rates and fixed expiration dates and may require payment of fees. Such fees (net of certain direct costs) are deferred and, upon exercise of the commitment, amortized over the life of the loan or, if exercise is deemed remote, amortized over the commitment period.

Commercial and Similar Letters of Credit

A commercial letter of credit is an instrument by which Citigroup substitutes its credit for that of a customer to enable the customer to finance the purchase of goods or to incur other commitments. Citigroup issues a letter on behalf of its client to a supplier and agrees to pay the supplier upon presentation of documentary evidence that the supplier has performed in accordance with the terms of the letter of credit. When a letter of credit is drawn, the customer is then required to reimburse Citigroup.

One- to Four-Family Residential Mortgages

A one- to four-family residential mortgage commitment is a written confirmation from Citigroup to a seller of a property that the bank will advance the specified sums enabling the buyer to complete the purchase.

Revolving Open-End Loans Secured by One- to Four-Family Residential Properties

Revolving open-end loans secured by one- to four-family residential properties are essentially home equity lines of credit. A home equity line of credit is a loan secured by a primary residence or second home to the extent of the excess of fair market value over the debt outstanding for the first mortgage.

Commercial Real Estate, Construction and Land Development

Commercial real estate, construction and land development include unused portions of commitments to extend credit for the purpose of financing commercial and multifamily residential properties as well as land development projects.

Both secured-by-real-estate and unsecured commitments are included in this line, as well as undistributed loan proceeds, where there is an obligation to advance for construction progress payments. However, this line only includes those extensions of credit that, once funded, will be classified as *Total loans, net* on the Consolidated Balance Sheet.

Credit Card Lines

Citigroup provides credit to customers by issuing credit cards. The credit card lines are cancelable by providing notice to the cardholder or without such notice as permitted by local law.

Commercial and Other Consumer Loan Commitments

Commercial and other consumer loan commitments include overdraft and liquidity facilities as well as commercial commitments to make or purchase loans, purchase third-party receivables, provide note issuance or revolving underwriting facilities and invest in the form of equity.

Other Commitments and Contingencies

Other commitments and contingencies include all other transactions related to commitments and contingencies not reported on the lines above.

Unsettled Reverse Repurchase and Securities Borrowing Agreements and Unsettled Repurchase and Securities Lending Agreements

In addition, in the normal course of business, Citigroup 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, 2020 and 2019, Citigroup had approximately \$71.8 billion and \$34.0 billion in unsettled reverse repurchase and securities borrowing agreements, and \$62.5 billion and \$38.7 billion in unsettled repurchase and securities lending agreements, respectively. 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, see Note 11 to the Consolidated Financial Statements.

27. 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.

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 the litigation, regulatory and 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, 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, fair lending, 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, certain affiliates and subsidiaries of Citigroup 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 Asset Forfeiture and Money Laundering 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 seeks 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 an 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. As of December 31, 2020, Citigroup estimates that the reasonably possible unaccrued loss for these matters ranges up to approximately \$1.4 billion in the aggregate.

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 accruals ultimately incurred for the matters as to 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 legal or other 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 Citigroup. 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 Citigroup's consolidated results of operations or cash flows in particular quarterly or annual periods.

ANZ Underwriting Matter

In 2018, the Australian Commonwealth Director of Public Prosecutions (CDPP) filed charges against Citigroup Global Markets Australia Pty Limited (CGMA) for alleged criminal cartel offenses following a referral by the Australian Competition and Consumer Commission. CDPP alleges that the cartel conduct took place following an institutional share placement by Australia and New Zealand Banking Group Limited (ANZ) in August 2015, where CGMA acted as joint underwriter and lead manager with other banks. CDPP also charged other banks and individuals, including current and former Citi employees. Separately, the Australian Securities and Investments Commission is conducting an investigation, and CGMA is cooperating with the investigation. Charges relating to CGMA are captioned R v. CITIGROUP GLOBAL MARKETS AUSTRALIA PTY LIMITED. The matter is before the Federal Court in New South Wales, Australia. Additional information concerning this action is publicly available in court filings under the docket number NSD 1316 - NSD 1324/2020.

Facilitation Trading Matters

Regulatory agencies in Asia Pacific countries and elsewhere are conducting investigations or making inquiries regarding Citigroup affiliates' equity sales trading desks in connection with facilitation trades, which are securities transactions in which Citigroup trades fully or partially as principal. Citigroup is cooperating with these investigations and inquiries.

Foreign Exchange Matters

Regulatory Actions: Government and regulatory agencies in the U.S. and in other jurisdictions are conducting investigations or making inquiries regarding Citigroup's foreign exchange business. Citigroup is cooperating with these and related investigations and inquiries.

Antitrust and Other Litigation: In 2018, a number of institutional investors who opted out of the previously disclosed August 2018 final settlement filed an action against Citigroup, Citibank, Citigroup Global Markets Inc. (CGMI) and other defendants, captioned ALLIANZ GLOBAL INVESTORS, ET AL. v. BANK OF AMERICA CORP., ET AL., in the United States District Court for the Southern District of New York. Plaintiffs allege that defendants manipulated, and colluded to manipulate, the foreign exchange markets. Plaintiffs assert claims under the Sherman Act and unjust enrichment claims, and seek consequential and punitive damages and other forms of relief. On July 28, 2020, plaintiffs filed a third amended complaint. Additional information concerning this action is publicly available in court filings under the docket number 18 Civ. 10364 (S.D.N.Y.) (Schofield, J.).

In 2018, a group of institutional investors issued a claim against Citigroup, Citibank and other defendants, captioned ALLIANZ GLOBAL INVESTORS GMBH AND OTHERS v. BARCLAYS BANK PLC AND OTHERS, in the High Court of Justice in London. Claimants allege that defendants manipulated, and colluded to manipulate, the foreign exchange market in violation of EU and U.K. competition laws. Additional information concerning this action is publicly available in court filings under the case number CL-2018-000840.

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. Additional information concerning this action is publicly available in court filings under the docket numbers 15 Civ. 2290 (N.D. Cal.) (Chhabria, J.) and 15 Civ. 9300 (S.D.N.Y.) (Schofield, J.).

In 2017, putative classes of indirect purchasers of certain foreign exchange instruments filed an action against Citigroup, Citibank, Citicorp, CGMI and other defendants, captioned CONTANT, ET AL. v. BANK OF AMERICA CORP., ET AL., in the United States District Court for the Southern District of New York. Plaintiffs allege that defendants engaged in a conspiracy to fix currency prices. Plaintiffs assert claims under the Sherman Act and various state antitrust laws, and seek compensatory damages and treble damages. On November 19, 2020, the court granted final approval of a settlement between plaintiffs and Citigroup, Citibank, Citicorp and CGMI. Additional information concerning this action is publicly available in court filings under the docket number 17 Civ. 3139 (S.D.N.Y.) (Schofield, J.).

In 2019, an application, captioned MICHAEL O'HIGGINS FX CLASS REPRESENTATIVE LIMITED v. BARCLAYS BANK PLC AND OTHERS, was made to the U.K.'s Competition Appeal Tribunal requesting permission to commence collective proceedings against Citigroup, Citibank and other defendants. The application seeks 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). Additional information concerning this action is publicly available in court filings under the case number 1329/7/7/19.

In 2019, an application, captioned PHILLIP EVANS v. BARCLAYS BANK PLC AND OTHERS, was made to the U.K.'s Competition Appeal Tribunal requesting permission to commence collective proceedings against Citigroup, Citibank and other defendants. The application seeks compensatory damages similar to those in the Michael O'Higgins FX Class Representative Limited application. Additional information concerning this action is publicly available in court filings under the case number 1336/7/7/19.

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 and 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. A hearing on Citibank's motion to dismiss plaintiffs' petition for certification is scheduled for April 12, 2021. Additional information concerning this action is publicly available in court filings under the docket number CA 29013-09-18.

Hong Kong Private Bank Litigation

In 2007, a claim was filed in the High Court of Hong Kong claiming damages of over \$51 million against Citibank. The case, captioned PT ASURANSI TUGU PRATAMA INDONESIA TBK v. CITIBANK N.A., was dismissed in 2018 by the Hong Kong Court of First Instance on grounds that the claim was time-barred. Plaintiff has appealed the court's dismissal. Additional information concerning this action is publicly available in court filings under the docket number CACV 548/2018.

Interbank Offered Rates-Related Litigation and Other Matters

Antitrust and Other Litigation: In 2016, a putative class action was filed against Citibank, Citigroup and other defendants, now captioned FUND LIQUIDATION HOLDINGS LLC, AS ASSIGNOR AND SUCCESSOR-IN-INTEREST TO FRONTPOINT ASIAN EVENT DRIVEN FUND L.P., ET AL. v. CITIBANK, N.A., ET AL., in the United States District Court for the Southern District of New York. Plaintiffs allege that defendants manipulated the Singapore Interbank Offered Rate and Singapore Swap Offer Rate. Plaintiffs assert claims under the Sherman Act, the Clayton Act, the RICO Act and state law. In 2018, plaintiffs entered into a settlement with Citigroup and Citibank, under which Citigroup and Citibank agreed to pay approximately \$10 million. In July 2019, the court found that it lacked subject-matter jurisdiction over the non-settling defendants and dismissed the case. The court also found that it lacked jurisdiction to approve the settlement and denied plaintiffs' motion for preliminary approval of the settlement. In August 2019, plaintiffs filed an appeal with 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 16 Civ. 5263 (S.D.N.Y.) (Hellerstein, J.) and 19-2719 (2d Cir.).

In 2016, Banque Delubac filed an action against Citigroup, Citigroup Global Markets Limited (CGML) and Citigroup Europe Plc, captioned SCS BANQUE DELUBAC & CIE v. CITIGROUP INC., ET AL., in the Commercial Court of Aubenas in France. Plaintiff alleges that defendants suppressed LIBOR submissions between 2005 and 2012 and that Banque Delubac's EURIBOR-linked lending activity was negatively impacted as a result. Plaintiff asserts a claim under tort law, and seeks compensatory damages and consequential damages. In November 2018, the Commercial Court of Aubenas referred the case to the Commercial Court of Marseille. In March 2019, the Court of Appeal of Nîmes held that neither the Commercial Court of Aubenas nor any other court of France has territorial jurisdiction over Banque Delubac's claims. In May 2019, plaintiff filed an appeal before the *Cour de cassation* of France challenging the Court of Appeal of Nîmes's decision. Additional information concerning this action is publicly available in court filings under docket numbers RG no. 2018F02750 in the Commercial Court of Marseille and 19-16.931 in the *Cour de cassation*.

In May 2019, three putative class actions filed against Citigroup, Citibank, CGMI and other defendants were consolidated, under the caption IN RE ICE LIBOR ANTITRUST LITIGATION, in the United States District Court of the Southern District of New York. In July 2019,

plaintiffs filed a consolidated amended complaint. Plaintiffs allege that defendants suppressed ICE LIBOR. Plaintiffs assert claims under the Sherman Act, the Clayton Act, and unjust enrichment, and seek compensatory damages, disgorgement, and treble damages. In March 2020, the court granted defendants' motion to dismiss the action for failure to state a claim, which plaintiffs appealed to the United States Court of Appeals for the Second Circuit. On December 28, 2020, DYJ Holdings, LLC filed a motion to intervene as a plaintiff, given that the existing plaintiffs intended to withdraw from the case, which defendants opposed and separately moved to dismiss for lack of subject matter jurisdiction. Additional information concerning this action is publicly available in court filings under the docket numbers 19 Civ. 439 (S.D.N.Y.) (Daniels, J.) and 20-1492 (2d Cir.).

On August 18, 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. On November 11, 2020, defendants filed a motion to transfer the case to the United States District Court for the Southern District of New York. Additional information concerning this action is publicly available in court filings under the docket number 20 Civ. 5832 (N.D. Cal.) (Donato, J.).

Interchange Fee Litigation

Beginning in 2005, several putative class actions were filed against Citigroup, Citibank, and Citicorp, together with Visa, MasterCard, and other banks and their affiliates, in various federal district courts and consolidated with other related individual cases in a multi-district litigation proceeding in the United States District Court for the Eastern District of New York. This proceeding is captioned IN RE PAYMENT CARD INTERCHANGE FEE AND MERCHANT DISCOUNT ANTITRUST LITIGATION.

The plaintiffs, merchants that accept Visa and MasterCard branded payment cards, as well as various membership associations that claim to represent certain groups of merchants, allege, among other things, that defendants have engaged in conspiracies to set the price of interchange and merchant discount fees on credit and debit card transactions and to restrain trade unreasonably through various Visa and MasterCard rules governing merchant conduct, all in violation of Section 1 of the Sherman Act and certain California statutes. Plaintiffs further alleged violations of Section 2 of the Sherman Act. Supplemental complaints also were filed against defendants in the putative class actions alleging that Visa's and MasterCard's respective initial public offerings were anticompetitive and violated Section 7 of the Clayton Act, and that MasterCard's initial public offering constituted a fraudulent conveyance.

In 2014, the district court entered a final judgment approving the terms of a class settlement. Various objectors appealed from the final class settlement approval order to the United States Court of Appeals for the Second Circuit.

In 2016, the Court of Appeals reversed the district court's approval of the class settlement and remanded for further proceedings. The district court thereafter appointed separate interim counsel for a putative class seeking damages and a putative class seeking injunctive relief. Amended or new complaints on behalf of the putative classes and various individual merchants were subsequently filed, including a further amended complaint on behalf of a putative damages class and a new complaint on behalf of a putative injunctive class, both of which named Citigroup and Related Parties. In addition, numerous merchants have filed amended or new complaints against Visa, MasterCard, and in some instances one or more issuing banks, including Citigroup and affiliates.

In 2019, the district court granted the damages class plaintiffs' motion for final approval of a new settlement with the defendants. The settlement involves the damages class only and does not settle the claims of the injunctive relief class or any actions brought on a non-class basis by individual merchants. The settlement provides for a cash payment to the damages class of \$6.24 billion, later reduced by \$700 million based on the transaction volume of class members that opted-out from the settlement. Several merchants and merchant groups have appealed the final approval order. Additional information concerning these consolidated actions is publicly available in court filings under the docket number MDL 05-1720 (E.D.N.Y.) (Brodie, J.).

Interest Rate and Credit Default Swap Matters

Regulatory Actions: The Commodity Futures Trading Commission (CFTC) is conducting an investigation into alleged anticompetitive conduct in the trading and clearing of interest rate swaps (IRS) by investment banks. Citigroup is cooperating with the investigation.

Antitrust and Other 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 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 all of 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. 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. Additional information concerning this action is publicly available in court filings under the docket number 17-CV-4302 (S.D.N.Y.) (Sullivan, J.).

Parmalat Litigation

In 2004, an Italian commissioner appointed to oversee the administration of various Parmalat companies filed a complaint against Citigroup, Citibank, and related parties, alleging that the defendants facilitated a number of frauds by Parmalat insiders. In 2008, a jury rendered a verdict in Citigroup's favor and awarded Citi \$431 million. In 2019, the Italian Supreme Court affirmed the decision in the full amount of \$431 million. Citigroup has taken steps to enforce the judgment in Italian and Belgian courts. Additional information concerning these actions is publicly available in court filings under the docket numbers 27618/2014, 4133/2019, and 22098/2019 (Italy), and 20/3617/A and 20/4007/A (Brussels).

In 2015, Parmalat filed a claim in an Italian civil court in Milan claiming damages of €1.8 billion against Citigroup, Citibank, and related parties. The Milan court dismissed Parmalat's claim on grounds that it was duplicative of Parmalat's previously unsuccessful claims. In 2019, the Milan Court of Appeal rejected Parmalat's appeal of the Milan court's dismissal. In June 2019, Parmalat filed a further appeal with the Italian Supreme Court. Additional information concerning this action is publicly available in court filings under the docket numbers 1009/2018 and 20598/2019.

On January 29, 2020, Parmalat, its three directors, and its sole shareholder, Sofil S.a.s., as co-plaintiffs, filed a claim before the Italian civil court in Milan seeking a declaratory judgment that they do not owe compensatory damages of €990 million to Citibank. On November 5, 2020, Citibank joined the proceedings, seeking dismissal of the declaratory judgment application. Additional information concerning this action is publicly available in court filings under the docket number 8611/2020.

Payment Protection Insurance

Regulators and courts in the U.K. have scrutinized the selling of payment protection insurance (PPI) by financial institutions for several years. Citibank continues to review customer claims relating to the sale of PPI in the U.K., to grant redress in accordance with the requirements of the U.K. Financial Conduct Authority, and to defend claims filed in U.K. courts.

Revlon Credit Facility Litigation

On August 12, 2020, Citibank 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 UMB BANK, NATIONAL ASSOCIATION v. REVLOX, INC., ET AL. Plaintiff alleged that, with respect to a 2016 credit agreement between Revlon and various lenders for which Citibank served as administrative and collateral agent, the defendants deprived lenders of the collateral securing loans they made to Revlon under the credit agreement. On November 8, 2020, plaintiffs withdrew the case

without prejudice. Additional information concerning this action is publicly available in court filings under the docket number 20-CV-6352 (S.D.N.Y.) (Schofield, J.).

Revlon-related Wire Transfer Litigation

On August 17, 18, and 20, 2020, Citibank filed actions in the United States District Court for the Southern District of New York, which have been consolidated under the caption IN RE CITIBANK AUGUST 11, 2020 WIRE TRANSFERS. The actions relate to a payment erroneously made by Citibank on August 11, 2020, in its capacity as administrative agent for a Revlon credit facility. The action seeks the return of the erroneously transferred funds from certain fund managers. Citibank has asserted claims for unjust enrichment, conversion, money had and received, and payment by mistake. The court issued temporary restraining orders related to the subject funds. A trial was held in December 2020. On February 16, 2021, the court issued a judgment in favor of the defendants. Additional information concerning this action is publicly available in court filings under the docket number 20-CV-6539 (S.D.N.Y.) (Furman, J.).

Shareholder Derivative and Securities Litigation

Beginning on October 16, 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 Citigroup's current directors and certain former directors. On December 3, 2020, the actions were consolidated under the caption IN RE CITIGROUP INC. SHAREHOLDER DERIVATIVE LITIGATION. On December 24, 2020, plaintiffs filed a consolidated complaint asserting 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. Additional information concerning this action is publicly available in court filings under the docket number 1:20-cv-09438 (S.D.N.Y.) (Nathan, J.).

Beginning on December 4, 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 Citigroup's current directors, certain former directors, and certain current and former officers. The actions are captioned P. ALEXANDER ATAI v. CORBAT, ET AL. and ASHLEY IKEDA v. CORBAT, ET AL. The complaints assert claims for breach of fiduciary duty and unjust enrichment in connection with defendants' alleged failures to implement adequate internal controls. Additional information concerning these actions is publicly available in court filings under the docket numbers 656759/2020 (N.Y. Sup. Ct.) and 657086/2020 (N.Y. Sup. Ct.).

Beginning on October 30, 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 are captioned CITY OF SUNRISE FIREFIGHTERS' PENSION FUND v. CITIGROUP INC., ET AL., CITY OF STERLING HEIGHTS GENERAL EMPLOYEES' RETIREMENT SYSTEM v. CITIGROUP INC., ET AL., and TIMOTHY LIM v. CITIGROUP INC., ET AL. Additional information concerning these actions is publicly available in court filings under the docket numbers 1:20-CV-9132 (S.D.N.Y.) (Nathan, J.), 1:20-CV-09573 (S.D.N.Y.) (Nathan, J.), and 1:20-CV-10360 (S.D.N.Y.) (Nathan, J.).

Sovereign Securities Matters

Regulatory Actions: Government and regulatory agencies in the U.S. and in other jurisdictions are conducting investigations or making inquiries regarding Citigroup's sales and trading activities in connection with sovereign and other government-related securities. Citigroup is cooperating with these investigations and inquiries.

Antitrust and Other 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. In 2017, a consolidated amended complaint was filed, alleging 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. The complaint asserts claims under antitrust laws, and seeks damages, including treble damages where authorized by statute, and injunctive relief. In February 2018, defendants moved to dismiss the complaint. Additional information concerning this action is publicly available in court filings under the docket number 15-MD-2673 (S.D.N.Y.) (Gardphe, J.).

In 2016 and 2017, actions by putative classes of direct purchasers of supranational, sub-sovereign and agency (SSA) bonds filed against Citigroup, Citibank, CGMI, CGML and other defendants were consolidated, under the caption IN RE SSA BONDS ANTITRUST LITIGATION, in the United States District Court for the Southern District of New York. In 2018, a second amended consolidated complaint was filed, alleging that defendants, as market makers and traders of SSA bonds, colluded to fix the price at which they bought and sold SSA bonds in the secondary market. The complaint asserts claims under the antitrust laws and unjust enrichment, and seeks damages, including treble damages where authorized by statute, and disgorgement. In 2019, the court granted defendants' motion to dismiss certain defendants, including CGML. On June 1, 2020, plaintiffs appealed to the United States Court of Appeals for the Second Circuit from the district court's grant of defendants' remaining motion to dismiss the second amended consolidated complaint. Additional information concerning this action is publicly available in court filings under the docket numbers 16 Civ. 3711 (S.D.N.Y.) (Ramos, J.) and 20-1759 (2d Cir.).

In 2017, purchasers of SSA bonds filed a proposed class action on behalf of direct and indirect purchasers of SSA

bonds against Citigroup, Citibank, CGMI, CGML, Citibank Canada, Citigroup Global Markets Canada, Inc. and other defendants, captioned JOSEPH MANCINELLI, ET AL. v. BANK OF AMERICA CORPORATION, ET AL., in the Federal Court in Canada. In October 2019, plaintiffs filed an amended claim. The complaint alleges that defendants manipulated, and colluded to manipulate, the SSA bonds market, asserts claims for breach of the Competition Act, breach of foreign law, civil conspiracy, unjust enrichment, waiver of tort, and breach of contract, and seeks compensatory and punitive damages, among other relief. Additional information concerning this action is publicly available in court filings under the docket number T-1871-17 (Fed. Ct.).

In 2019, the State of Louisiana filed an action against CGMI and other defendants, captioned STATE OF LOUISIANA v. BANK OF AMERICA, N.A., ET AL., in the United States District Court for the Middle District of Louisiana. The complaint alleges that defendants conspired to manipulate the market for bonds issued by U.S. government-sponsored agencies. The complaint asserts a claim for a violation of the Sherman Act, and seeks treble damages and injunctive relief. Additional information concerning this action is publicly available in court filings under the docket number 19 Civ. 638 (M.D. La.) (Dick, C.J.).

In 2019, the City of Baton Rouge and related plaintiffs filed a substantially similar action against CGMI and other defendants, captioned CITY OF BATON ROUGE, ET AL. v. BANK OF AMERICA, N.A., ET AL., in the United States District Court for the Middle District of Louisiana. Additional information concerning this action is publicly available in court filings under the docket number 19 Civ. 725 (M.D. La.) (Dick, C.J.).

On April 1, 2020, the Louisiana Asset Management Pool filed a substantially similar action against CGMI and other defendants, captioned LOUISIANA ASSET MANAGEMENT POOL v. BANK OF AMERICA CORPORATION, ET AL., in the United States District Court for the Eastern District of Louisiana, which was subsequently transferred to the United States District Court for the Middle District of Louisiana. Additional information concerning this action is publicly available in court filings under the docket number 21 Civ. 0003 (M.D. La.) (Dick, C.J.).

On September 21, 2020, the City of New Orleans and related entities filed a substantially similar action against CGMI and other defendants, captioned CITY OF NEW ORLEANS, ET AL. v. BANK OF AMERICA CORPORATION, ET AL., in the United States District Court for the Eastern District of Louisiana. Additional information concerning this action is publicly available in court filings under the docket number 20 Civ. 2570 (E.D. La.) (Vitter, J.).

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 and any other U.S. Citi affiliates. The amended complaint alleges a conspiracy to fix prices in the Mexican sovereign bond market from January 1, 2006 to April 19, 2017, and asserts antitrust and unjust enrichment claims, and seeks treble damages, restitution and injunctive relief. On February 21, 2020, certain defendants, including Citibanamex, moved to dismiss the amended, which the court later granted. Additional information concerning this action is publicly available in court filings under the docket number 18 Civ. 2830 (S.D.N.Y.) (Oetken, J.).

Transaction Tax Matters

Citigroup and Citibank are engaged in litigation or examinations with non-U.S. tax authorities, including in the U.K., India, and Germany, concerning the payment of transaction taxes and other non-income tax matters.

Tribune Company Bankruptcy

Certain Citigroup affiliates (along with numerous other parties) have been named as defendants in adversary proceedings related to the Chapter 11 cases of Tribune Company (Tribune) filed in the United States Bankruptcy Court for the District of Delaware, asserting claims arising out of the approximately \$11 billion leveraged buyout of Tribune in 2007. The actions were consolidated as IN RE TRIBUNE COMPANY FRAUDULENT CONVEYANCE LITIGATION and transferred to the United States District Court for the Southern District of New York.

In the adversary proceeding captioned KIRSCHNER v. FITZSIMONS, ET AL., the litigation trustee, as successor plaintiff to the unsecured creditors committee, seeks to avoid and recover as actual fraudulent transfers the transfers of Tribune stock that occurred as a part of the leveraged buyout. Several Citigroup affiliates, along with numerous other parties, were named as shareholder defendants and were alleged to have tendered Tribune stock to Tribune as a part of the buyout. In 2017, the United States District Court for the Southern District of New York dismissed the actual fraudulent transfer claim against the shareholder defendants, including the Citigroup affiliates. In 2019, the litigation trustee filed an appeal to the United States Court of Appeals for the Second Circuit.

Several Citigroup affiliates, along with numerous other parties, are named as defendants in certain actions brought by Tribune noteholders, which seek to recover the transfers of Tribune stock that occurred as a part of the leveraged buyout, as state-law constructive fraudulent conveyances. The noteholders' claims were previously dismissed and the dismissal was affirmed on appeal. In 2018, the United States Court of Appeals for the Second Circuit withdrew its 2016 transfer of jurisdiction to the district court to reconsider its decision in light of a recent United States Supreme Court decision. In 2019, the Court of Appeals issued an amended decision again affirming the dismissal. In January 2020, the noteholders filed a petition for rehearing. On July 6, 2020, the noteholders filed a petition for a writ of certiorari in the United States Supreme Court. On October 5, 2020, the Supreme

Court called for the views of the Acting Solicitor General on whether the petition should be granted.

CGMI was named as a defendant in a separate action, *KIRSCHNER v. CGMI*, in connection with its role as advisor to Tribune. In 2019, the court dismissed the action, which the litigation trustee has appealed to 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 08-13141 (Bankr. D. Del.) (Carey, J.), 11 MD 02296 (S.D.N.Y.) (Cote, J.), 12 MC 2296 (S.D.N.Y.) (Cote, J.), 13-3992 (2d Cir.), 19-0449 (2d Cir.), 19-3049 (2d Cir.), 16-317 (U.S.), and 20-8 (U.S. Supreme Court).

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. 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 19-CV-2667 (S.D.N.Y.) (Furman, J.).

Settlement Payments

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

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28. CONDENSED CONSOLIDATING FINANCIAL STATEMENTS

Citigroup amended its Registration Statement on Form S-3 on file with the SEC (File No. 33-192302) to add its wholly owned subsidiary, Citigroup Global Markets Holdings Inc. (CGMHI), as a co-registrant. Any securities issued by CGMHI under the Form S-3 will be fully and unconditionally guaranteed by Citigroup.

The following are the Condensed Consolidating Statements of Income and Comprehensive Income for the years ended December 31, 2020, 2019 and 2018, Condensed Consolidating Balance Sheet as of December 31, 2020 and 2019 and Condensed Consolidating Statement of Cash Flows for the years ended December 31, 2020, 2019 and 2018 for Citigroup Inc., the parent holding company (Citigroup parent company), CGMHI, other Citigroup subsidiaries and eliminations and total consolidating adjustments. "Other Citigroup subsidiaries and eliminations" includes all other subsidiaries of Citigroup, intercompany eliminations and income (loss) from discontinued operations. "Consolidating adjustments" includes Citigroup parent company elimination of distributed and undistributed income of subsidiaries and investment in subsidiaries.

These Condensed Consolidating Financial Statements have been prepared and presented in accordance with SEC Regulation S-X Rule 3-10, "Financial Statements of Guarantors and Issuers of Guaranteed Securities Registered or Being Registered."

These Condensed Consolidating Financial Statements schedules are presented for purposes of additional analysis, but should be considered in relation to the Consolidated Financial Statements of Citigroup taken as a whole.

Condensed Consolidating Statements of Income and Comprehensive Income

Year ended December 31, 2020

<i>In millions of dollars</i>	Citigroup parent company	CGMHI	Other Citigroup subsidiaries and eliminations	Consolidating adjustments	Citigroup consolidated
Revenues					
Dividends from subsidiaries	\$ 2,355	\$ —	\$ —	\$ (2,355)	\$ —
Interest revenue	—	5,364	52,725	—	58,089
Interest revenue—intercompany	4,162	920	(5,082)	—	—
Interest expense	4,992	1,989	7,560	—	14,541
Interest expense—intercompany	502	2,170	(2,672)	—	—
Net interest revenue	\$ (1,332)	\$ 2,125	\$ 42,755	\$ —	\$ 43,548
Commissions and fees	\$ —	\$ 6,216	\$ 5,169	\$ —	\$ 11,385
Commissions and fees—intercompany	(36)	290	(254)	—	—
Principal transactions	(1,254)	(4,252)	19,391	—	13,885
Principal transactions—intercompany	693	9,064	(9,757)	—	—
Other revenue	(127)	706	4,901	—	5,480
Other revenue—intercompany	111	23	(134)	—	—
Total non-interest revenues	\$ (613)	\$ 12,047	\$ 19,316	\$ —	\$ 30,750
Total revenues, net of interest expense	\$ 410	\$ 14,172	\$ 62,071	\$ (2,355)	\$ 74,298
Provisions for credit losses and for benefits and claims	\$ —	\$ (1)	\$ 17,496	\$ —	\$ 17,495
Operating expenses					
Compensation and benefits	\$ (5)	\$ 4,941	\$ 17,278	\$ —	\$ 22,214
Compensation and benefits—intercompany	191	—	(191)	—	—
Other operating	37	2,393	18,527	—	20,957
Other operating—intercompany	15	2,317	(2,332)	—	—
Total operating expenses	\$ 238	\$ 9,651	\$ 33,282	\$ —	\$ 43,171
Equity in undistributed income of subsidiaries	\$ 9,894	\$ —	\$ —	\$ (9,894)	\$ —
Income from continuing operations before income taxes	\$ 10,066	\$ 4,522	\$ 11,293	\$ (12,249)	\$ 13,632
Provision (benefit) for income taxes	(981)	1,249	2,257	—	2,525
Income from continuing operations	\$ 11,047	\$ 3,273	\$ 9,036	\$ (12,249)	\$ 11,107
Income (loss) from discontinued operations, net of taxes	—	—	(20)	—	(20)
Net income before attribution of noncontrolling interests	\$ 11,047	\$ 3,273	\$ 9,016	\$ (12,249)	\$ 11,087
Noncontrolling interests	—	—	40	—	40
Net income	\$ 11,047	\$ 3,273	\$ 8,976	\$ (12,249)	\$ 11,047
Comprehensive income					
Add: Other comprehensive income (loss)	\$ 4,260	\$ (223)	\$ 4,244	\$ (4,021)	\$ 4,260
Total Citigroup comprehensive income	\$ 15,307	\$ 3,050	\$ 13,220	\$ (16,270)	\$ 15,307
Add: Other comprehensive income attributable to noncontrolling interests	\$ —	\$ —	\$ 26	\$ —	\$ 26
Add: Net income attributable to noncontrolling interests	—	—	40	—	40
Total comprehensive income	\$ 15,307	\$ 3,050	\$ 13,286	\$ (16,270)	\$ 15,373

Condensed Consolidating Statements of Income and Comprehensive Income

	Year ended December 31, 2019				
<i>In millions of dollars</i>	Citigroup parent company	CGMHI	Other Citigroup subsidiaries and eliminations	Consolidating adjustments	Citigroup consolidated
Revenues					
Dividends from subsidiaries	\$ 23,347	\$ —	\$ —	\$ (23,347)	\$ —
Interest revenue	—	10,661	65,849	—	76,510
Interest revenue—intercompany	5,091	1,942	(7,033)	—	—
Interest expense	4,949	7,010	17,204	—	29,163
Interest expense—intercompany	1,038	4,243	(5,281)	—	—
Net interest revenue	\$ (896)	\$ 1,350	\$ 46,893	\$ —	\$ 47,347
Commissions and fees	\$ —	\$ 5,265	\$ 6,481	\$ —	\$ 11,746
Commissions and fees—intercompany	(21)	354	(333)	—	—
Principal transactions	(2,537)	277	11,152	—	8,892
Principal transactions—intercompany	1,252	2,464	(3,716)	—	—
Other revenue	767	832	4,702	—	6,301
Other revenue—intercompany	(55)	102	(47)	—	—
Total non-interest revenues	\$ (594)	\$ 9,294	\$ 18,239	\$ —	\$ 26,939
Total revenues, net of interest expense	\$ 21,857	\$ 10,644	\$ 65,132	\$ (23,347)	\$ 74,286
Provisions for credit losses and for benefits and claims	\$ —	\$ —	\$ 8,383	\$ —	\$ 8,383
Operating expenses					
Compensation and benefits	\$ 32	\$ 4,680	\$ 16,721	\$ —	\$ 21,433
Compensation and benefits—intercompany	134	—	(134)	—	—
Other operating	(16)	2,326	18,259	—	20,569
Other operating—intercompany	20	2,410	(2,430)	—	—
Total operating expenses	\$ 170	\$ 9,416	\$ 32,416	\$ —	\$ 42,002
Equity in undistributed income of subsidiaries	\$ (3,620)	\$ —	\$ —	\$ 3,620	\$ —
Income from continuing operations before income taxes	\$ 18,067	\$ 1,228	\$ 24,333	\$ (19,727)	\$ 23,901
Provision (benefit) for income taxes	(1,334)	176	5,588	—	4,430
Income from continuing operations	\$ 19,401	\$ 1,052	\$ 18,745	\$ (19,727)	\$ 19,471
Income (loss) from discontinued operations, net of taxes	—	—	(4)	—	(4)
Net income (loss) before attribution of noncontrolling interests	\$ 19,401	\$ 1,052	\$ 18,741	\$ (19,727)	\$ 19,467
Noncontrolling interests	—	—	66	—	66
Net income	\$ 19,401	\$ 1,052	\$ 18,675	\$ (19,727)	\$ 19,401
Comprehensive income					
Add: Other comprehensive income (loss)	\$ 852	\$ (651)	\$ 1,600	\$ (949)	\$ 852
Total Citigroup comprehensive income	\$ 20,253	\$ 401	\$ 20,275	\$ (20,676)	\$ 20,253
Add: Other comprehensive income attributable to noncontrolling interests	\$ —	\$ —	\$ —	\$ —	\$ —
Add: Net income attributable to noncontrolling interests	—	—	66	—	66
Total comprehensive income	\$ 20,253	\$ 401	\$ 20,341	\$ (20,676)	\$ 20,319

Condensed Consolidating Statements of Income and Comprehensive Income

Year ended December 31, 2018

<i>In millions of dollars</i>	Citigroup parent company	CGMHI	Other Citigroup subsidiaries and eliminations	Consolidating adjustments	Citigroup consolidated
Revenues					
Dividends from subsidiaries	\$ 22,854	\$ —	\$ —	\$ (22,854)	\$ —
Interest revenue	67	8,732	62,029	—	70,828
Interest revenue—intercompany	4,933	1,659	(6,592)	—	—
Interest expense	4,783	5,430	14,053	—	24,266
Interest expense—intercompany	1,198	3,539	(4,737)	—	—
Net interest revenue	\$ (981)	\$ 1,422	\$ 46,121	\$ —	\$ 46,562
Commissions and fees	\$ —	\$ 5,146	\$ 6,711	\$ —	\$ 11,857
Commissions and fees—intercompany	(2)	237	(235)	—	—
Principal transactions	(1,310)	1,599	8,616	—	8,905
Principal transactions—intercompany	(929)	1,328	(399)	—	—
Other revenue	1,373	710	3,447	—	5,530
Other revenue—intercompany	(107)	143	(36)	—	—
Total non-interest revenues	\$ (975)	\$ 9,163	\$ 18,104	\$ —	\$ 26,292
Total revenues, net of interest expense	\$ 20,898	\$ 10,585	\$ 64,225	\$ (22,854)	\$ 72,854
Provisions for credit losses and for benefits and claims	\$ —	\$ (22)	\$ 7,590	\$ —	\$ 7,568
Operating expenses					
Compensation and benefits	\$ 4	\$ 4,484	\$ 16,666	\$ —	\$ 21,154
Compensation and benefits—intercompany	115	—	(115)	—	—
Other operating	(192)	2,224	18,655	—	20,687
Other operating—intercompany	49	2,312	(2,361)	—	—
Total operating expenses	\$ (24)	\$ 9,020	\$ 32,845	\$ —	\$ 41,841
Equity in undistributed income of subsidiaries	\$ (2,163)	\$ —	\$ —	\$ 2,163	\$ —
Income from continuing operations before income taxes	\$ 18,759	\$ 1,587	\$ 23,790	\$ (20,691)	\$ 23,445
Provision (benefit) for income taxes	714	1,123	3,520	—	5,357
Income from continuing operations	\$ 18,045	\$ 464	\$ 20,270	\$ (20,691)	\$ 18,088
Income (loss) from discontinued operations, net of taxes	—	—	(8)	—	(8)
Net income before attribution of noncontrolling interests	\$ 18,045	\$ 464	\$ 20,262	\$ (20,691)	\$ 18,080
Noncontrolling interests	—	—	35	—	35
Net income	\$ 18,045	\$ 464	\$ 20,227	\$ (20,691)	\$ 18,045
Comprehensive income					
Add: Other comprehensive income (loss)	\$ (2,499)	\$ 257	\$ 3,500	\$ (3,757)	\$ (2,499)
Total Citigroup comprehensive income	\$ 15,546	\$ 721	\$ 23,727	\$ (24,448)	\$ 15,546
Add: Other comprehensive income attributable to noncontrolling interests	\$ —	\$ —	\$ (43)	\$ —	\$ (43)
Add: Net income attributable to noncontrolling interests	—	—	35	—	35
Total comprehensive income	\$ 15,546	\$ 721	\$ 23,719	\$ (24,448)	\$ 15,538

Condensed Consolidating Balance Sheet

December 31, 2020

<i>In millions of dollars</i>	Citigroup parent company	CGMHI	Other Citigroup subsidiaries and eliminations	Consolidating adjustments	Citigroup consolidated
Assets					
Cash and due from banks	\$ —	\$ 628	\$ 25,721	\$ —	\$ 26,349
Cash and due from banks—intercompany	16	6,081	(6,097)	—	—
Deposits with banks, net of allowance	—	5,224	278,042	—	283,266
Deposits with banks—intercompany	4,500	8,179	(12,679)	—	—
Securities borrowed and purchased under resale agreements	—	238,718	55,994	—	294,712
Securities borrowed and purchased under resale agreements— intercompany	—	24,309	(24,309)	—	—
Trading account assets	307	222,278	152,494	—	375,079
Trading account assets—intercompany	723	9,400	(10,123)	—	—
Investments, net of allowance	1	374	446,984	—	447,359
Loans, net of unearned income	—	2,524	673,359	—	675,883
Loans, net of unearned income—intercompany	—	—	—	—	—
Allowance for credit losses on loans (ACLL)	—	—	(24,956)	—	(24,956)
Total loans, net	\$ —	\$ 2,524	\$ 648,403	\$ —	\$ 650,927
Advances to subsidiaries	\$ 152,383	\$ —	\$ (152,383)	\$ —	\$ —
Investments in subsidiaries	213,267	—	—	(213,267)	—
Other assets, net of allowance ⁽¹⁾	12,156	60,273	109,969	—	182,398
Other assets—intercompany	2,781	51,489	(54,270)	—	—
Total assets	\$ 386,134	\$ 629,477	\$ 1,457,746	\$ (213,267)	\$ 2,260,090
Liabilities and equity					
Deposits	\$ —	\$ —	\$ 1,280,671	\$ —	\$ 1,280,671
Deposits—intercompany	—	—	—	—	—
Securities loaned and sold under repurchase agreements	—	184,786	14,739	—	199,525
Securities loaned and sold under repurchase agreements— intercompany	—	76,590	(76,590)	—	—
Trading account liabilities	—	113,100	54,927	—	168,027
Trading account liabilities—intercompany	397	8,591	(8,988)	—	—
Short-term borrowings	—	12,323	17,191	—	29,514
Short-term borrowings—intercompany	—	12,757	(12,757)	—	—
Long-term debt	170,563	47,732	53,391	—	271,686
Long-term debt—intercompany	—	67,322	(67,322)	—	—
Advances from subsidiaries	12,975	—	(12,975)	—	—
Other liabilities, including allowance	2,692	55,217	52,558	—	110,467
Other liabilities—intercompany	65	15,378	(15,443)	—	—
Stockholders' equity	199,442	35,681	178,344	(213,267)	200,200
Total liabilities and equity	\$ 386,134	\$ 629,477	\$ 1,457,746	\$ (213,267)	\$ 2,260,090

(1) *Other assets* for Citigroup parent company at December 31, 2020 included \$29.5 billion of placements to Citibank and its branches, of which \$24.3 billion had a remaining term of less than 30 days.

Condensed Consolidating Balance Sheet

December 31, 2019

<i>In millions of dollars</i>	Citigroup parent company	CGMHI	Other Citigroup subsidiaries and eliminations	Consolidating adjustments	Citigroup consolidated
Assets					
Cash and due from banks	\$ —	\$ 586	\$ 23,381	\$ —	\$ 23,967
Cash and due from banks—intercompany	21	5,095	(5,116)	—	—
Deposits with banks, net of allowance	—	4,050	165,902	—	169,952
Deposits with banks—intercompany	3,000	6,710	(9,710)	—	—
Securities borrowed and purchased under resale agreements	—	195,537	55,785	—	251,322
Securities borrowed and purchased under resale agreements— intercompany	—	21,446	(21,446)	—	—
Trading account assets	286	152,115	123,739	—	276,140
Trading account assets—intercompany	426	5,858	(6,284)	—	—
Investments, net of allowance	1	541	368,021	—	368,563
Loans, net of unearned income	—	2,497	696,986	—	699,483
Loans, net of unearned income—intercompany	—	—	—	—	—
Allowance for credit losses on loans (ACLL)	—	—	(12,783)	—	(12,783)
Total loans, net	\$ —	\$ 2,497	\$ 684,203	\$ —	\$ 686,700
Advances to subsidiaries	\$ 144,587	\$ —	\$ (144,587)	\$ —	\$ —
Investments in subsidiaries	202,116	—	—	(202,116)	—
Other assets, net of allowance ⁽¹⁾	12,377	54,784	107,353	—	174,514
Other assets—intercompany	2,799	45,588	(48,387)	—	—
Total assets	\$ 365,613	\$ 494,807	\$ 1,292,854	\$ (202,116)	\$ 1,951,158
Liabilities and equity					
Deposits	\$ —	\$ —	\$ 1,070,590	\$ —	\$ 1,070,590
Deposits—intercompany	—	—	—	—	—
Securities loaned and sold under repurchase agreements	—	145,473	20,866	—	166,339
Securities loaned and sold under repurchase agreements— intercompany	—	36,581	(36,581)	—	—
Trading account liabilities	1	80,100	39,793	—	119,894
Trading account liabilities—intercompany	379	5,109	(5,488)	—	—
Short-term borrowings	66	11,096	33,887	—	45,049
Short-term borrowings—intercompany	—	17,129	(17,129)	—	—
Long-term debt	150,477	39,578	58,705	—	248,760
Long-term debt—intercompany	—	66,791	(66,791)	—	—
Advances from subsidiaries	20,503	—	(20,503)	—	—
Other liabilities, including allowance	937	51,777	53,866	—	106,580
Other liabilities—intercompany	8	8,414	(8,422)	—	—
Stockholders' equity	193,242	32,759	170,061	(202,116)	193,946
Total liabilities and equity	\$ 365,613	\$ 494,807	\$ 1,292,854	\$ (202,116)	\$ 1,951,158

(1) *Other assets* for Citigroup parent company at December 31, 2019 included \$35.1 billion of placements to Citibank and its branches, of which \$24.9 billion had a remaining term of less than 30 days.