



ANNUAL REPORT 2022

BANK OF AMERICA



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Company Performance



A letter from Chair and CEO Brian Moynihan

To our shareholders,

Our company adopted Responsible Growth in 2014, and fully discussed its core tenets in our Annual Report the following year. These tenets have served as the foundation for our strong performance and progress.

We have seen Responsible Growth work in the relative calm of 2015 to 2019, the pandemic tumult of 2020 and 2021, and the inflationary period of 2022. In each of these periods, our company benefited from our long-term consistency and adherence to the tenets of Responsible Growth.

Responsible Growth has served us well under varied conditions

The core tenets of Responsible Growth have served our company and you, our shareholders, well during good times and stress.

Responsible Growth served us well through the period from 2015 to 2019, when the economies of the world settled into normalized growth rates and interest rates rose in the U.S. with the Federal Reserve's tightening cycle.

As the pandemic hit in early 2020, a major economic crisis ensued and your company performed well once again, even as we met our clients' borrowing demands, built reserves, traded through uncertain markets, and helped our employees, clients and our communities deal with the pandemic and its aftermath. Again, Responsible Growth served us well.

During 2022, the U.S. and the world continued to face civil tensions from the pandemic and lockdowns, social and racial conflicts, a war in Europe and energy supply disruptions, and inflation.

Responsible Growth

1. Win in the market, no excuses.
2. Grow with a customer-focused strategy.
3. Grow with the right risk principles.
4. Grow in a sustainable manner: Be the best place to work, share our success with our communities and drive Operational Excellence.

The strength of our balance sheet, risk management, organic growth, and expense management became a catalyst that drove our financial performance.

Let's take a look at highlights of our performance in each of these periods, beginning with 2015 to 2019 as the U.S. economy set a record for one of the longest periods of economic growth. The Federal Reserve started a tightening cycle in 2016, raising interest rates reflecting the strength of the U.S. economy. Here's how we did:

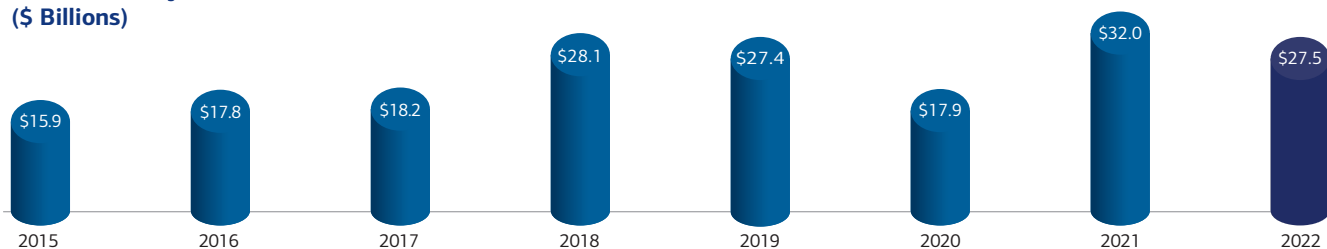
	YE 2015	YE 2019	% change
Loans	\$897 B	\$983 B	10%
Deposits	\$1.2 T	\$1.4 T	20%
Net interest income	\$39.0 B	\$49.0 B	25%
Expenses	\$57.6 B	\$54.9 B	-5%
Net charge-offs	\$ 4.3 B	\$ 3.6 B	-16%
Earnings	\$15.9 B	\$27.4 B	72%
Headcount	216 K	208 K	-4%
Number of shares	10.4 B	8.8 B	-15%
Book value per share	\$22.53	\$27.32	21%
Active digital customers	32 MM	38 MM	21%
Customer satisfaction	74%	85%	15%
Employee satisfaction	76%*	85%	12%

Then came the pandemic, which brought with it 15% U.S. unemployment, a 30% drop in U.S. GDP annualized growth rate, huge fiscal stimuli, supply chain disruptions, and an instantaneous drop to 0% rates. After the recovery was assured by early 2021, a period of inflation set in resulting in the steepest interest rate increase path we have seen in the U.S. in the past 40 years. Here is how the company performed from 2019 to 2022:

	YE 2019	YE 2022	% change
Loans	\$983 B	\$1.0 T	6%
Deposits	\$1.4 T	\$1.9 T	35%
Net interest income	\$49.0 B	\$52.5 B	7%
Expenses	\$54.9 B	\$61.4 B	12%
Net charge-offs	\$3.6 B	\$2.2 B	-40%
Earnings	\$27.4 B	\$27.5 B	0%
Headcount	208 K	217 K	4%
Number of shares	8.8 B	8.0 B	-9%
Book value per share	\$27.32	\$30.61	12%
Active digital customers	38 MM	44 MM	15%
Customer satisfaction	85%	87%	2%
Employee satisfaction	85%	85%	0%

As a side note, the total cumulative charge-offs at Bank of America from 2015 to 2022, reflecting Responsible Growth, were less than the charge-offs recorded in the single year 2010 despite a recession, a pandemic, unprecedented monetary policy changes, and war occurring in these years.

8 consecutive years of more than \$15B in net income (\$ Billions)



*2014 Employee Engagement Index Score; survey was not conducted in 2015
Source: FactSet and SNL Financial. Reflects calendar year net income.

We are positioned well for the future. In the post-pandemic period we have reestablished our organic growth engine.

For the entirety of the period from 2015 to 2022, we have seen the stock price double; we have produced \$185 billion in after-tax earnings; and we have invested heavily in our franchise to better serve our customers and clients. Responsible Growth worked in all those environments and produced strong results on an enormous scale.

A simple way to think about this is only four U.S. companies have earned more than \$15 billion in GAAP after-tax income in each of these eight years. Your company is one of them.

More importantly, we are positioned well for the future. In the post-pandemic period we have reestablished our organic growth engine. We have delivered revenue growth, while controlling expense, in a highly volatile environment. You will note increased costs for 2019 to 2022 above. First, we had cost increases for special pandemic programs and to take care of our team. Then, inflation added to costs. But in the end, we have just delivered our sixth straight quarter of operating leverage in the fourth quarter of 2022.

We have strong credit quality, capital ratios in excess of constantly increased regulatory minimums, a highly-respected brand, high employee satisfaction and loyalty, and incredible customers we are honored to serve. We have built and improved upon digital capabilities across every line of business to serve these customers, which embed the most effective capabilities of a fintech into the strength and stability of a well-regulated company.

While we review and learn from the past, we don't live there. What we are excited about is how our proven operating model sets us up for the future. Our team relishes the work ahead to continue to deliver for you. So, as we look forward to the years ahead, we are poised to continue to drive Responsible Growth, no matter what comes at us.

Thank you to our Team and our Directors

Before I share more highlights of our results in 2022, I want to thank my Management Team and our Board of Directors for continuing to represent the needs of our clients, teammates, shareholders, and the communities we serve. You will see more about these leaders on pages 12 and 13.

I especially want to recognize Lead Independent Director Lionel Nowell, who was named as “Independent Director of the Year” by Corporate Board Member magazine. Lionel shares his perspective on our company on page 11.

We welcomed José (Joe) E. Almeida, who joined your Board in September. We also give our appreciation to David Yost, a director since 2012, who is retiring due to age guidelines and will not stand for reelection at our annual shareholders’ meeting. We thank Dave for his leadership, oversight, and prudent stewardship.

Thank you as well to my 217,000 teammates who join me every day at our company to fulfill our purpose of making financial lives better. In a year that began with many of us once again working from home, we are pleased to have our teammates back together, collaborating in person to serve our clients and deliver the full breadth of our capabilities, as you’ll see highlighted throughout this Annual Report.

A deeper look at 2022

In 2022, we earned \$27.5 billion after-tax, a decline from our record-level earnings in 2021, primarily due to increases in credit costs due to the absence of reserve releases. We earned \$3.19 per diluted share, on \$95 billion in revenue. Our pre-tax, pre-provision income, which adjusts for the provision expense, was up 14%* from 2021, driven by organic growth across our lines of business, higher interest rates, and prudent management of expenses. This helped us achieve operating leverage in 2022.

Total assets declined slightly to \$3.05 trillion driven by a decrease in deposits due to withdrawal of monetary accommodation. These deposits remain at a healthy \$1.9 trillion level. Deposits in the banking industry are shrinking, the natural and intended outcome of the Federal Reserve’s monetary actions to fight inflation.

At the same time, even as the economy weakened during 2022, loan demand increased as loans grew \$67 billion to more than \$1.04 trillion. Asset quality remained strong as net charge-offs remained near the historically low range experienced in 2021.

Overall, our balance sheet continued to be supported by high levels of capital and liquidity, enabling us to continue to grow our business with customers, while meeting additional regulatory requirements, and repurchasing shares.


Rising inflation also took its toll on the equities market. For the year, our stock price decreased 24%, directionally in line with the S&P 500 and the broader bank index.

This followed a strong 2021 performance that saw our stock outperform and increase 47%. Book value per share and tangible book value per share both increased in 2022.

We also addressed increased regulatory changes in our capital requirements. Our common equity tier 1 capital (CET1) grew 5% in 2022 to more than \$180 billion, and our CET1 ratio of 11.2% remained well above our new minimum requirements. Even while growing capital, our common dividend per share increased 10% from 2021 and, in the aggregate, in 2022 we returned \$13.6 billion in capital to shareholders through dividends and share repurchases. Our first use of our capital generation is to grow our company by supporting our customers’ needs and pay our dividend. But in the end, we end up with more than we need for those purposes. Share repurchases allow long-term holders to own more of our company.

In addition, we continued investments to enhance being a Great Place to Work for teammates. We established a multi-faceted approach to workplace flexibility, provided free lunch for several months to help employees create informal connections and welcome them back fully to work, and continued our competitive pay packages to reward our employees for serving our clients and targeted our efforts at building long careers at Bank of America.

For our communities and the broader needs of society, we also remain attentive to areas where we can direct the talent, innovation, and resources of our company and its role in capitalism. For example, we are working alongside our clients toward a clean energy, sustainable future. This is also why we invest in partners and programs in our local markets: to help create economic opportunity and prosperity in underserved communities where the needs can be greatest.


Euromoney named Bank of America the World’s Best Bank for the second time in five years. We’re also pleased to be named America’s most “JUST” Company by JUST Capital.

For all of this and more, Euromoney named Bank of America the World’s Best Bank for the second time in five years. In announcing this prestigious ranking, the publication stated: “In an increasingly volatile and uncertain environment, Euromoney recognized Bank of America’s performance not only in retail banking, loan growth, capital markets trading and wealth management, but also its behavior as a corporate citizen.”

We’re also pleased to be named as America’s Most “JUST” Company by JUST Capital. This ranking evaluates how companies invest in employees, communities, and customers, along with other issues JUST Capital has identified as important to Americans today.

*Pre-tax, pre-provision income is a non-GAAP financial measure calculated by adjusting consolidated pre-tax income to add back provision for credit loss. For 2022 and 2021, reported pre-tax income was \$31.0 billion and \$34.0 billion, and reported provision (benefit) for credit losses was \$2.5 billion and \$(4.6) billion, resulting in pre-tax, pre-provision income of \$33.5 billion and \$29.4 billion.



I am proud of all that your company, and our team, achieved in 2022. We once again delivered both profits and purpose — the genius of the AND as we call it — and we did it by delivering on the tenets of Responsible Growth. Throughout this letter, I will share with you examples about how we executed against each. The rest of this report discusses that work in greater detail, and we also make available a clear set of financial and non-financial disclosures so you can see for yourself how we measure our progress and determine where we have more work to do.

We are capitalists at Bank of America

At the core of the progress is our conviction that capitalism is embedded in how Responsible Growth delivers opportunity for our clients, our teammates, the communities we serve, and for you, our shareholders. I've sometimes been surprised to be asked — including at Congressional hearings — “Are you a capitalist?” Your company is one of the most profitable companies in the world, whose purpose is to help our customers and clients live their financial lives, effectively helping them benefit in the capitalist system. Therefore, you might also find the question unusual. Of course, I answered, “Yes.”

But I understand the thoughts behind the question. I think the questions and the concerns some may have about capitalism are about opportunity. About whether companies are sharing profits or paying people fairly and equitably. At Bank of America, we look at it in this straightforward way: How can we rely on and help the innovation and energy of capitalism to address the priorities of our communities and society AND benefit our shareholders? Capitalism provides the money, the creativity, and the expertise to solve the needs of society. We enable our customers to drive capitalism. It is what we do.

• We once again delivered both profits and purpose — the genius of the AND as we call it — and we did it by delivering on the tenets of Responsible Growth.

Throughout this report we provide details about how we do this: How we help transmit the economy by lending, investing, and working alongside our clients to help them succeed. About all we do to support our teammates and be a Great Place to Work for them. The many ways we partner in local markets to help support community priorities. And, at the same time, How we deliver for you, our shareholders.

All these activities reflect our view that capitalism creates opportunity — for our customers and clients at every stage of their progress; for our teammates to advance their careers at Bank of America and support their families; for those in our local communities who may need help accessing our economic system to achieve their own goals; and for our millions of investors, a chance to share in our success through their ownership.

To do this, we align our day-to-day business activities to the work. We bring our \$3 trillion balance sheet to the task. We bring our \$273 billion in equity. We bring our capital markets and lending capabilities, raising trillions for our clients. We bring the invested assets of our wealth management clients. Of course, we also bring the nearly \$360 million of philanthropy we commit. That is how we think of it: capitalism creates opportunity and prosperity, addressing important societal challenges along the way. And we measure our success. See below for how we measure.

• \$27.5B
net income

• \$3T
balance sheet

• \$273B
equity

• ~\$360M
in philanthropy

Delivering Responsible Growth in 2022

Let's look at how we executed against each of the four tenets of Responsible Growth in 2022.

Grow and win in the market, no excuses. In 2022, we acquired new clients and deepened our relationships with existing ones. The strongest underlying evidence of winning in the marketplace is through market share, as illustrated by organic growth activity with our clients.

We drive Responsible Growth through our eight lines of business. Our client teams deliver the unique capabilities and offerings of each business to each client. We also focus in each market on bringing the entire company to every customer or client. We track how well we deliver these integrated capabilities by the number of client referrals between our lines of business in our local markets.

In 2022, we saw more than 7.5 million total referrals among our operating units. I want to thank our 97 market presidents across the U.S. and the nearly 30 country executives around the globe who serve as chief executive for Bank of America in their markets. They lead an integrated team to help us deliver one company for clients, teammates, you, our shareholders, and the broader communities served by your company. In this report on page 32, you will see how that comes to life in just one of these communities through our local leadership.

∴ *In 2022, we saw more than
∴ 7.5 million total referrals among
∴ our operating units.*

In 2022, we helped consumer clients to open a record one million net new checking accounts. We also opened 465,000 Consumer

Investment accounts through our online investment platform, Merrill Edge, resulting in \$28 billion in net client flows. And we added more than a million new consumer credit card accounts in three of the four quarters in 2022.

Preferred Rewards—our flagship loyalty program that recognizes and rewards clients for doing business with us across all products—recorded another strong year of growth, with 10.2 million total clients enrolled. This represents a 9% year-over-year increase, with the program retaining its best-in-class 99% annualized membership retention rate.

Small business owners benefited from Bank of America's products, scale and expertise at our retail financial centers across the U.S.—including Business Advantage specialists in more than 2,600 financial centers, as well as our expansive ATM network, and access to local client professionals available to discuss their business priorities. We also are available to serve our small business clients digitally with the latest videoconferencing, chat and phone technology. Thanks to all of this and more, we continue to maintain our position among the nation's largest small business lenders, ending 2022 with \$36 billion in total outstanding loans under \$1 million and a 5% increase in Small Business checking accounts. And these small business clients have entrusted us with managing approximately \$175 billion of deposits to pay their employees and build their businesses.

Our Merchant Services platform also recorded a strong year supporting financial solutions for merchants, adding new clients and volume while achieving a #1 client experience rating from J.D. Power.

Our wealth management business is comprised of Merrill and The Private Bank, which supported clients through last year's turbulent markets. The business added nearly 28,000 net new relationships as well as more than 800 wealth advisors in the second half of the year. This aided in gathering \$87 billion in client flows for

wealth management clients. Together, the team helped clients open more than 119,000 new bank accounts in 2022. And we saw average loan and lease growth of 10% year-over-year—the 51st consecutive quarter of growth as we continue to deliver our full suite of products and services in a way that sets us apart from competitors and meets client needs.

In our Global Banking business, serving commercial and corporate clients, we added more than 1,110 clients to the company in 2022 and grew average loans and leases 14% year-over-year to \$375 billion. We also delivered \$10.4 billion in Global Transaction Services revenue, up 38% over 2021. We moved up to #3 in the investment banking fees market share worldwide.

Our Global Markets business once again had a very strong year despite market volatility. The team grew year-over-year sales and trading revenue by 9%, and had the highest full-year tally since 2010. This included investment in our macro trading business, which had revenues that were up 38% for the year. Overall Global Markets average trading-related assets were up 9% and average loans of \$117 billion increased 28%.

Responsible Growth means growing with a focus on the customer—and that means that our products and services must evolve in line with our clients' unique financial needs.

Grow with a customer focus. Responsible Growth means growing with a focus on our customers and clients—and that means that our products and services must evolve in line with our clients' unique financial needs. Consumer customers continue to tell us they value our digital capabilities. In 2022, your company:

- Added three million active digital banking users, improving upon a record performance in 2021
- Had 56 million verified users with 44 million active and engaged in the past 90 days
- Experienced 11.6 billion digital logins
- Grew digital sales 22%, representing nearly 50% of overall consumer sales

Erica®, our artificial intelligence (AI)-based virtual financial assistant, also continues to attract increased client engagement as it has proven to be a critical channel to help us deliver important information to clients and address their questions and concerns in real-time. Erica handled roughly 145 million interactions in the fourth quarter and recently passed a billion interactions since its introduction.

Among the most significant digital-driven changes in banking is how our clients want to send and receive money. In the fourth quarter of 2022, the number of consumer clients who are active Zelle®

users increased 15% to 18.2 million. These active users sent and received 273 million transfers worth \$81 billion, up 25% and 24% year-over-year, respectively. Zelle-sent transactions exceed checks written by our consumers. This shows our customers' preference for digital convenience. This allows us to see strong customer scores and loyalty, while reducing our costs of operation in our consumer business as a percentage of deposits to 117 basis points.

Our wealth clients also expect digital innovation, and we are providing it. For example:

- In the fourth quarter of 2022, Erica interactions in the Merrill Wealth Management business increased 23% and Zelle transactions by Private Bank clients increased 39%.
- Merrill clients are 82% digitally active while our Private Bank clients are now 86% digitally active—new highs for both.
- Digital check deposit rates for Merrill and Private Bank clients stand at 75% and 76%, respectively.
- Merrill now has 77% of households enrolled in eDelivery, with 223,000 planning reports generated—up 26% from the end of the previous year.
- Merrill Lynch advisors sent 1.4 million secure messages to our clients in the fourth quarter of 2022 alone.

Our commercial clients also continue to adopt our easy-to-use CashPro app, and along with that use, we're seeing an increasing percentage of credit documents uploaded digitally, saving clients time. As of late 2022, 75% of clients are digitally active on the CashPro and BA360 platforms across commercial, corporate, and business banking. The fourth quarter of 2022 saw record quarterly CashPro App engagement, with active users increasing 25% and sign-ins increasing 50%, in turn driving a record 40% increase in quarterly CashPro App payment approvals with a value of \$186 billion. We know we can increase these award-winning capabilities even more, driven by client demand.

56M
verified digital
users in 2022

11.6B
digital logins
in 2022

The case for continued development of our digital platforms is simple: clients tell us they clearly appreciate the value and convenience it provides—so we will continue to provide and expand it.

We continue to take the steps necessary to fully digitally enable all products to drive growth and maximize the client experience. That's why we invested \$3.6 billion in 2022 for new technology initiatives, to build a powerful, more secure, and scalable technology platform with market-leading capabilities. That sum is up from 2021 and is expected to be higher again in 2023. And through continuous investment we have spent more than \$30 billion over the past decade on new technology initiatives.

At the same time, we also continued to focus on delivering expert support and guidance across our high-touch physical network, opening 58 new financial centers, and renovating 784 more in 2022. We ended the year with 3,900 financial centers and 15,500 ATMs. This network also includes our phone, offices, and chat capabilities. We are pleased by the results in our new markets, where we are growing from no financial centers there to become top 10 or above in deposit market share in just a few years.

Together, our combined high-tech and high-touch approach to serving clients has led to record-high levels of customer satisfaction for Bank of America in 2022 and, in turn, contributed to our growth. Simply put, more satisfied clients do more business with us.

Another recent example of our customer-focus is the continued evolution of our overdraft services and solutions — work that had been underway for more than a dozen years to reduce clients' reliance on overdrafts and provide alternatives to help clients manage their deposit accounts and avoid fees. You can see in our Retail Banking update on page 16 that these fees are down over 90% from 2009.

We believe that these fees are not sustainable for a good customer relationship, and by eliminating them we are able to increase satisfaction and deepen relationships to create a more stable source of revenues, while reducing costs for our company.

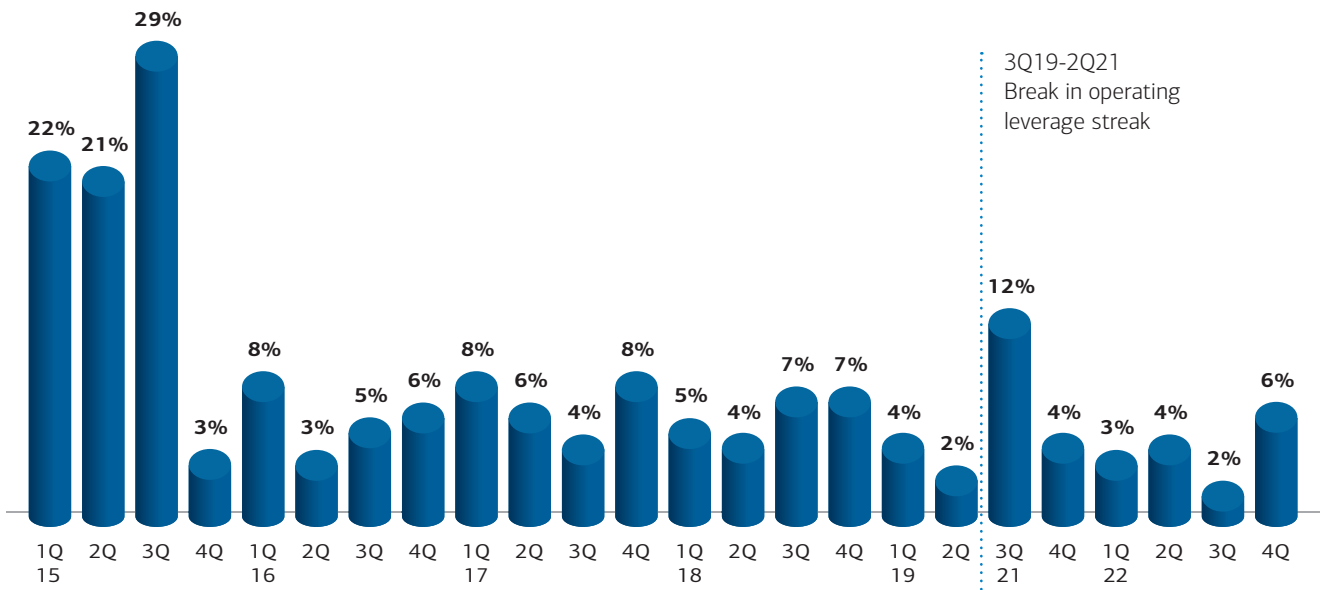
This work benefitted from the important insights and guidance from our National Community Advisory Council (NCAC), a group of external advisors, analysts, and consumer advocates that we established 17 years ago. The NCAC provides important external perspective to help us understand, design, and deliver products to help meet the needs of our communities — particularly those in the low- to moderate-income sphere.

Grow within our risk framework. The third tenet of Responsible Growth is to grow within our well-managed risk framework — a framework that allowed us to be a source of strength to clients during the health crisis and that has continued to allow us to grow during the current volatile market environment.

Our discipline around risk has us well-prepared for a severe economic stress scenario, as illustrated by Bank of America having the lowest stressed credit loss rates among major banks in nine out of the past 10 CCAR exams conducted by the Federal Reserve Board. As we cited earlier, credit quality continues to be better than 2019, which was the last year before the pandemic and represented a very strong year for credit at banks.

In addition to being effective, our risk management is also agile — when regulatory capital ratio requirements for banks changed with little advance notice in 2022, we made moves so that we had a buffer to those requirements quickly. Importantly, we did that as we continued to support clients, return capital to shareholders, and strengthen our strong balance sheet.

Continued quarterly operating leverage¹ streak in 2022



Note: Amounts may not total due to rounding.

¹ Operating leverage is calculated as the year-over-year percentage change in revenue, net of interest expense, less the percentage change in noninterest expense.

Grow in a sustainable manner. Responsible Growth requires us to grow in a sustainable manner. This has three components.

First, we drive Operational Excellence (OpEx). This allows us to create savings, which we can then reinvest — in our capabilities, our teammates, our communities and in capital returns to shareholders. Second, we want to be a Great Place to Work for our teammates. This provides us a competitive edge to attract the best new teammates to serve our clients and retain them once they've joined the team. Third, we share our success so we can support the communities in which we work and live and help to address the biggest challenges facing communities today.

Driving Operational Excellence. OpEx is how we create the means to reduce costs by striving to eliminate inefficiencies in our processes across our platform and reinvest savings into the things that are important to us: our team, our capabilities, our client experience, our communities, and our shareholders.

By pursuing OpEx, we drive continuous improvement, reduce risk, and identify faster, simpler, and more efficient ways of working and serving our clients.

In 2022, our fourth quarter operating leverage was 6%. Simply put, operating leverage is the percentage growth in revenue minus the percent growth in expenses. By looking for continuous process improvements and savings through OpEx, we have delivered operating leverage for the past six consecutive quarters — picking back up on the 18-quarter streak we had developed prior to the pandemic-driven economic slowdown.

In Retail Banking, OpEx and a more digitized customer base helped pay for investments that allowed us to improve that business's efficiency ratio to 47% in the most recent quarter, an impressive 600 basis point improvement over the year-ago fourth quarter.

Across the company, we have implemented more than 12,000 employee-sourced suggestions since 2014 to simplify our work and create greater efficiency. In addition to making it easier to serve our clients, these ideas have resulted in nearly \$5 billion in expense savings and 13 million hours of capacity saved. Whatever challenges the future may hold, your company's focus on OpEx will help deliver for clients while investing in the future of our people, communities and driving great returns to you, our shareholders. In 2022, our expenses were \$61 billion, which is more than \$10 billion lower than a decade ago.

Central to driving Responsible Growth is being a Great Place to Work for our teammates. In 2022, we continued this long-standing commitment.

Making our company a Great Place to Work. Central to driving Responsible Growth is being a Great Place to Work for our teammates. In 2022, we continued this long-standing commitment, including delivering a range of some of the best benefits in corporate America, supporting the development of our employees, and maintaining a workplace where every individual can thrive.

Our goal continues to be a company where people want to work today and build a career. The reward for our shareholders is lower turnover costs. You can read more about how we are investing in teammates in our Human Capital Management update on pages 42–57.

 ~\$46K
minimum wage for full-time employees per year

Highlights include:

- We increased our U.S. minimum hourly wage to \$22 in our next step toward \$25 by 2025. This means that any employee who works full-time for our company makes at least ~\$46,000 per year as well as some of the most comprehensive benefits available.
- In addition to normal merit, we delivered a mid-year increase to annual base salaries for all U.S. employees who currently receive annual total compensation below \$100,000 and have been employed with the company since 2021 or earlier. The percentage increase for eligible employees ranged from 3% to 7%, increasing with years of service.
- In recognition of the important achievements made by our employees in 2022, our Management Team, Board of Directors and I once again recognized teammates with our Sharing Success compensation award. This is the sixth time teammates will receive this award, totaling more than \$4 billion since its inception. Approximately 96% of our teammates received an award this year, with the vast majority receiving it in the form of Bank of America stock to help them share in our long-term success.
- We also launched a new sabbatical program for employees celebrating milestones of 15 years or more beginning in 2023, and doubled the number of confidential, face-to-face counseling sessions available through our Employee Assistance Program.
- We increased our childcare benefits, which provide eligible employees making less than \$100,000 per year a reimbursement of up to \$275 a month per child for the cost of childcare.
- We also continued to have no, or below our cost, increases in health benefits for most of our teammates to help them care for their families.



We continue to recruit, develop, and retain a diverse and inclusive workplace. We know that when our workforce reflects the communities we serve, we can better serve our clients while also creating an environment where people want to perform their best. Our diversity and inclusion (D&I) policies drive transparency, accountability, and continued progress while encouraging all teammates to bring their full and authentic selves to work each day. Third parties validate our equal pay for equal work efforts, and we continue to survey our teammates annually on how we are doing in the D&I space. As in recent years, the 2022 employee survey D&I index scores remained high.

Sharing our success. At Bank of America, sharing success includes giving and volunteering, as well as helping to address issues affecting clients and communities. When our communities fare well, we fare well, and our brand reflects it.

In 2022, we made nearly \$360 million in philanthropic investments to strengthen our communities. Our teammates also donated money, as well as their time, to share success. Charitable giving by our teammates in 2022, combined with matching gifts from Bank of America, totaled more than \$65 million. Our teammates also reported nearly two million volunteer hours for the year. I am proud to share this proof of their commitment to our communities with you.

To help support health and safety, and address food insecurity in our local markets, we ran two campaigns to encourage employees to get vaccinated and/or boosted against COVID-19 and the flu, donating to hunger relief organizations for each employee who took those actions. Combined, the campaigns donated more than \$18 million for hunger organizations across the country. Since 2015 we have donated nearly \$184 million toward hunger relief efforts.

We also create opportunity in our communities through employment. We are in our second commitment to hire 10,000 teammates from low- and moderate-income communities, having completed the first in three years versus the five pledged. Similarly, to recognize our service men and women, we have hired over 15,000 veterans in the last eight years. We work with other companies to expand the principles of skills-based hiring to large companies. This gives an employee a great start with great benefits.

We continue to help drive sustainability through our work with clients to help them transition to a secure, low-carbon economy. We are committed to helping facilitate that just energy transition, with clean energy that is affordable, sustainable and secure. That's why in 2020 we set a goal to mobilize and deploy \$1.5 trillion by 2030 to advance the sustainable development goals (SDGs) 193 countries agreed to in 2015, with \$1 trillion of that focused on helping our clients transition to a low-carbon future. From 2021 through 2022, we mobilized and deployed a cumulative total of \$410 billion in sustainable finance, with more than \$235 billion of that focused on helping drive affordable clean energy and related priorities. At the same time, we are helping catalyze efforts globally by playing a lead role in multiple global organizations to give private companies from all sectors the opportunity to exchange ideas and consider transactions and investments that can help accelerate the transition.

Our approach to sustainable finance is to help our clients make the transition they seek. It is great business and great for society. For more, see page 38.

We issued our third Equality Progress Sustainability Bond for \$2 billion. The use of proceeds from the bond offering is designed to advance racial and gender equality, economic opportunity, and environmental sustainability.

We also created additional opportunity for diverse and women entrepreneurs and business owners.

Over the last few years, we have invested in 23 minority depository institutions. We also have helped seed more than 130 private equity funds run by women and diverse private equity entrepreneurs. These private equity funds have funded more than 1,000 operating companies owned by like cohorts. We also recognize the value to our business—and to society—of supply chain diversity. In 2022, approximately \$2 billion of our nearly \$19 billion in annual spend was with diverse suppliers. You can read more about how we are investing in diverse entrepreneurs on page 36.

Measuring our positive impact at home and around the world—how capitalism delivers

I was asked by a teammate with a college-age daughter how we might be more convincing that capitalism is doing what society wants from it. My response: We don't leave it to interpretation, we disclose what we do for all to see. What we show in the metrics in this report is the progress we are making as well as the alignment to what society wants from capitalism—to produce profits and purpose. That perpetual motion machine of capitalism can continuously invest in progress on the goals described below. Charity is wonderful, but it doesn't provide enough money. Governments are large spenders, but they are short on cash and run huge deficits, so they really don't have the money to drive sustained progress. Government policies shift and therefore long-term change is hard to achieve. Companies around the world, when aligned to the tasks generate activity that dwarfs the efforts of other sectors. It is sustained by the profits, which draw more capital. So the straightforward answer to the teammate was—if we want to be successful at what society wants, we should all cheer capitalism on.

However, it is important to measure progress to prove capitalism is working. In the U.S. and globally, companies can track their performance in areas that include equality of opportunity, affordable housing, prosperity, access to clean water, sustainable, clean, secure energy, and other priorities.

We do so through reporting a set of universal Stakeholder Capitalism Metrics (SCM). The SCMs span the breadth of global industry, giving a consistent framework to measure and disclose how companies are addressing societal priorities and the SDGs through their business activities and operations. Nearly 200 companies around the world have committed to reporting SCMs—and about 140 have already begun to do so. The metrics were developed with the expertise of the global Big Four accounting firms.

You can find our 2022 Stakeholder Capitalism Metrics on page 60. This is the third consecutive year we have published these metrics in our Annual Report, in addition to our financial disclosures. We believe this provides the most relevant, useful and transparent information. This disclosure is comprehensive and straightforward, allowing you, our shareholders, to assess your company. Many observers express different views on disclosures; for example, there are multiple shareholder proposals in our proxy statement, each

expressing different views on what is the right disclosure or action. We encourage you to review our SCMs and all the other disclosures we reference in this Annual Report and proxy statement. We don't need to spend more of your money on inconsistent and redundant standards; we need to keep driving our performance.

The last year has underscored once again that change is constant in our world. A successful company must be able to operate in any environment. And I am proud to say your company has done that, despite the volatility and uncertainty in the economy.

Responsible Growth has worked, again.

On behalf of my teammates, our Management Team and the Board of Directors, I thank you for your support of Bank of America.



Brian Moynihan

March 1, 2023



Letter from our Lead Independent Director

It is an honor to serve as your Board's Lead Independent Director and work alongside my fellow directors to provide diverse and independent perspectives that help create long-term sustainable value for our shareholders and stakeholders.

In partnership with Brian and the talented men and women of the Management Team, we have led the company with a common focus on driving Responsible Growth.

Bank of America's focus on Responsible Growth is delivering results for you and helping us succeed through changing markets, as we continue to diligently serve our clients and help them achieve their short- and long-term financial goals.

This Annual Report and the 2022 Proxy Statement are full of examples illustrating how our focus on Responsible Growth continues to provide Bank of America with the ability to deliver strong returns today, and the resilience to consistently serve our stakeholders in the future.


In support of this endeavor, your Board conducts ongoing, fulsome discussions with the company's senior Management Team—and each other—to ensure Bank of America's strategic alignment to Responsible Growth. This includes meeting with the Management Team to review and approve the company's strategy, and conducting a year-round strategic assessment

and planning process to provide additional oversight of Bank of America's strategic execution. Board members also oversee other key areas, such as Bank of America's enterprise risk management, human capital development, and external initiatives developed to strengthen the communities we serve around the world.

To help fulfill our duties and responsibilities, I and each member of the Board regularly stay informed of opportunities and challenges in the markets, the economy and the world that could impact Bank of America. We also engage on a year-round basis with our shareholders to listen to your thoughts and perspectives. We encourage your views and inputs because they provide valuable insights that help ensure your voice is an integral part of our ongoing discussions and governance of the company.

Thank you for choosing to invest in Bank of America. We remain committed to delivering for you, as well as our clients, teammates, and communities.

Sincerely,



Lionel Nowell III

March 1, 2023

Board of Directors

COMPANY PERFORMANCE

Brian T.
Moynihan

Chair of the Board and
Chief Executive Officer



Lionel L.
Nowell III

Lead Independent
Director



Sharon L. Allen



José (Joe)
E. Almeida



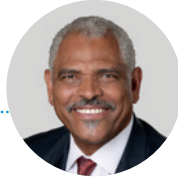
Frank P.
Bramble, Sr.



Pierre J. P.
de Weck



Arnold W.
Donald



Linda P. Hudson



Monica C.
Lozano



Denise L.
Ramos



Clayton S. Rose



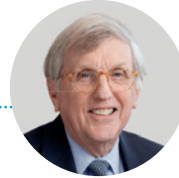
Michael D.
White



Thomas D.
Woods



R. David Yost



Maria T. Zuber



Our Board of Directors sets the tone at the top by overseeing our corporate strategy. In addition, the heads of our eight lines of business as well as key leadership for International and our institutional client base make up our Executive Management Team.

Executive Management Team

**Brian T.
Moynihan**

Chair of the Board and
Chief Executive Officer



Raul A. Anaya

President, Business
Banking



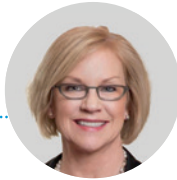
**Dean C.
Athanasia**

President, Regional
Banking



**Catherine P.
Bessant**

Vice Chair, Global
Strategy



Aditya Bhasin

Chief Technology and
Information Officer



D. Steve Boland

Chief Administrative
Officer



**Alastair M.
Borthwick**

Chief Financial Officer



**Sheri B.
Bronstein**

Chief Human Resources
Officer



James P. DeMare

President, Global
Markets



**Paul M.
Donofrio**

Vice Chair



**Geoffrey S.
Greener**

Chief Risk Officer



**Christine P.
Katziff**

Chief Audit Executive



**Kathleen A.
Knox**

President, The Private
Bank



**Matthew M.
Koder**

President, Global
Corporate & Investment
Banking



Aron D. Levine

President, Preferred
Banking



**Bernard A.
Mensah**

President, International;
CEO, Merrill Lynch
International



**Lauren
Mogensen**

Global General Counsel



**Thong M.
Nguyen**

Vice Chair, Head of Global
Strategy & Enterprise
Platforms



Holly O'Neill

President, Retail Banking



**Tom M.
Scrivener**

Chief Operations
Executive



Andrew M. Sieg

President, Merrill Wealth
Management



**Wendy H.
Stewart**

President, Global
Commercial Banking



**Bruce R.
Thompson**

Vice Chair, Head of
Enterprise Credit



Eight Lines of Business

Going to market through our eight lines of business

By delivering capabilities through eight lines of business, we provide a unique advantage to each customer and client: the powerful expertise of one team, working together to deliver on our purpose to help make financial lives better through our focus on Responsible Growth.

CONSUMER BANKING

RETAIL BANKING

Serves mass market U.S. consumers with a full range of financial products and services through award-winning digital banking capabilities and financial center network.

This business is led by **Holly O'Neill**.

Retail Banking is part of the Consumer Banking segment reporting to **Dean Athanasia**, president of Regional Banking.

PREFERRED BANKING

Provides personalized solutions, valuable rewards, and advice and guidance for clients with more complex banking, borrowing and investing needs as well as for entrepreneurs and small businesses with revenues of up to \$5 million.

This business is led by **Aron Levine**.

Preferred Banking is part of the Consumer Banking segment reporting to **Dean Athanasia**, president of Regional Banking.

GLOBAL WEALTH & INVESTMENT MANAGEMENT

MERRILL

Serves high net worth and ultra-high net worth clients. Our personal advisor relationships allow us to help individual investors and their families plan for and achieve their unique financial goals.

This business is led by **Andy Sieg**.

PRIVATE BANK

Provides comprehensive wealth and estate planning, investment management, and banking and lending solutions to ultra-high net worth clients with investable assets of more than \$3 million.

This business is led by **Katy Knox**.

GLOBAL BANKING

BUSINESS BANKING

Locally based client relationship teams provide advisory and banking services for credit, treasury, trade, foreign exchange, equipment finance and merchant services to more than 21,000 small and mid-sized U.S. companies with annual revenues of \$5 million to \$50 million.

This business is led by **Raul Anaya**.

Business Banking is part of the Global Banking segment reporting to **Dean Athanasia**, president of Regional Banking.

GLOBAL COMMERCIAL BANKING

Provides treasury, lending, leasing, advisory, and debt and equity underwriting services to middle market companies with revenues of \$50 million to \$2 billion across all major industries. It brings clients the full capabilities of the company paired with local service.

This business is led by **Wendy Stewart**.

Global Commercial Banking is part of the Global Banking segment reporting to **Dean Athanasia**, president of Regional Banking.

GLOBAL CORPORATE & INVESTMENT BANKING

Provides clients around the world and across all major industries with solutions for treasury services, lending, leasing, advisory, and debt and equity underwriting. Serves corporate clients with more than \$2 billion in revenues, financial institutions and government agencies.

This business is led by **Matthew Koder**.

GLOBAL MARKETS

GLOBAL MARKETS

Provides services across the world's debt, equity, commodity and foreign exchange markets. This includes liquidity, hedging strategies, industry-leading insights, analytics and competitive pricing for corporate, commercial, government and institutional investor clients.

This business is led by **Jim DeMare**.



Helping our clients thrive today and in the future

EIGHT LINES OF BUSINESS

In Retail Banking, we support the financial health of nearly 68 million U.S. consumer clients through our financial center locations, ATMs and award-winning digital banking capabilities, including Online and Mobile Banking platforms, Erica® and Zelle®.

Under the leadership of Holly O'Neill, our Retail Banking teammates provide a personalized experience that supports clients on their financial journey — as they budget, spend, save and borrow to help meet their goals. We offer simple-to-use financial solutions for individuals and families, such as:

- **Bank of America Advantage SafeBalance™ Banking**, an account that helps prevent overdraft fees
- **BankAmericard® Secured Card**, a credit card to establish, build and strengthen credit history
- **Keep the Change®**, to build savings automatically when making debit purchases
- **Balance Assist™**, a low-cost solution for clients to manage their short-term liquidity needs
- **Balance Connect™**, for overdraft protection
- **Life Plan**, to help set and track clients' financial goals based on their life priorities

Our focus remains on helping clients wherever and however they prefer to bank, serving our diverse communities and supporting financial education. Our approach has led to more clients choosing to bank with us, including 6.6 million new consumer clients in 2022, up 13% over 2021 — the largest increase in five years.

Powering a more personalized experience through digital

As a world-class digital bank — backed by a network of approximately 3,900 financial centers — we provide clients ease of service, choice and support through access to products, solutions and expertise anytime, from anywhere. Nearly 73% of overall households were digitally active in 2022. Additionally, client interactions with Erica were up 23% and Zelle transactions were up 26% over 2021.

Protecting our clients' information is a top priority — our online Security Center provides tools and resources to help clients keep their financial information safe and secure. It was visited nearly 25 million times in 2022. We also introduced mobile live chat through our secure mobile app, so clients can easily message live agents when they're on the go.

6.6M
new clients
in 2022¹

Advancing economic mobility in low- and moderate-income (LMI) communities

LMI individuals and small businesses have access to core banking products, services, loans, technology, capital and jobs.

Approximately 29% of our financial centers and 31% of our ATMs are in LMI neighborhoods, and 44% are in majority-minority markets. Within these locations, we've designated some financial centers for community banking programs, staffed with employees from local neighborhoods who are trained to provide the right solutions to help clients build financial resiliency and wellbeing.



To support sound financial habits, in 2022, we eliminated non-sufficient funds (NSF) fees, reduced overdraft fees from \$35 to \$10 and eliminated the transfer fee associated with our overdraft protection service, Balance Connect™, resulting in a decrease of more than 90% in overdraft fees since 2009.

4.4M
new credit card
accounts, up 22%
year-over-year¹

23%
increase in
Erica client interactions
year-over-year¹

26%
increase in
Zelle transactions
year-over-year¹

Creating generational wealth and making affordable homeownership a reality

We're continuing our multi-year \$15 billion Bank of America Community Homeownership Commitment[®] that helps make homeownership more affordable and sustainable, including a low down payment mortgage and significant down payment and closing cost grants. Through year-end, the program has provided more than \$10 billion in lending and \$383 million in grants, assisting approximately 39,000 families.

\$10B+
in lending through
Bank of America Community Homeownership Commitment
through 2022

Providing education for a stronger financial future

We provide extensive, personalized support to help clients and community members gain the knowledge they need to make confident financial decisions. Our Better Money Habits[®] program offers free, easy-to-understand tools and resources with hundreds of engaging videos, workshops and articles, accessible in English and Spanish.

We're building on our strong foundation of excellence as Retail Banking continues to drive Responsible Growth to help provide exceptional care to our clients and communities on their journey to financial health and economic mobility.



RETAIL BANKING

Led by: **Holly O'Neill**

Offering a wide range of products and services to millions of U.S. consumers.

- **Continued core client growth** with an all-time record **35.9M Consumer Checking accounts**
- **Recognized as Best Consumer Digital Bank in the U.S.** (Global Finance Magazine)
- **Recognized in 2022 by J.D. Power** for outstanding customer satisfaction with financial health support



¹Represents our Consumer Banking segment, including Retail Banking and Preferred Banking

PREFERRED BANKING

Delivering personalized advice and solutions to clients and small businesses

Whether using their mobile phones or visiting a financial center, our millions of mass affluent clients and small business owners can rely on Preferred Banking to help with their banking, borrowing and investing needs. By combining our leading digital capabilities, best-in-class solutions and access to personalized guidance and advice, we're able to help clients pursue their financial goals during every stage of life.

Helping clients with all their financial needs where and when they want

Led by Aron Levine, our team provides clients with a full range of financial solutions.

We take an integrated approach to serving clients through the convenience of our award-winning digital platform and our national network of ATMs, financial centers and centralized contact centers where more than 32,000 professionals provide advice and guidance to clients.

Clients continue to use our 3,900 financial centers to meet with specialists. We invested in state-of-the-art functionality and expanded our presence in several key growth markets in 2022. These efforts also highlight our investment in our teammates to help them grow professionally and continue enhancing our clients' experiences.

Delivering for clients throughout their financial life cycle

We help clients as their financial needs expand from banking transactions to self-directed investments to managed investment portfolios.

Our Merrill Edge® Self-Directed platform offers clients a personalized investing experience that provides insights and tools to help them confidently put their investing ideas into action when and how they want. For those who prefer to not go it alone but want to use online tools, Merrill Guided Investing provides a goals-based advisory program with investment portfolios built, rebalanced and monitored by Merrill investment professionals. And, for those who want one-on-one guidance to pursue their goals, Merrill Guided Investing provides clients the option to work with an advisor to help them define an investment strategy and periodically review their progress.

We're also achieving growth in our Employee Banking and Investing Program, which offers employees of companies access to products and services to help them manage and improve their financial lives. In 2022, we added 86 new companies, reaching a total of 282, while growing the number of eligible employees to more than three million.

Clients continue to use our 3,900 financial centers to meet with specialists. We invested in state-of-the-art functionality and expanded our presence in several key growth markets in 2022.

Opened

58

new financial centers and renovated nearly 800 in 2022

32K+

teammates providing advice and guidance to clients



3.5M

consumer investment accounts

282

total companies in our Employee Banking and Investing Program



PREFERRED BANKING

Led by: **Aron Levine**

Providing personalized solutions, valuable rewards and advice and guidance to clients with more complex banking, borrowing and investing needs as well as for small businesses.

- **No. 1 in estimated U.S. consumer deposits¹** at more than \$1T, up 8% in 2022²
- Merrill Edge Self-Directed named one of the **Best Online Stock Brokers for Beginners** by **NerdWallet** (2023)
- Merrill Edge Self-Directed awarded **No. 1 Overall Client Experience** (6th consecutive year) from **StockBrokers.com** 2023 Annual Broker Review
- **Leading small business lender**, with \$23B in total outstanding loans at the end of 2022

Rewarding clients for their loyalty

Our Preferred Rewards program, which recently surpassed 10 million members, rewards consumer and small business clients for growing their relationship. This industry-leading loyalty program offers numerous benefits, including lower interest rates, cash bonuses and discounts. Members have a 99% client retention rate and earn an average of \$500 each year, resulting in a total of over \$3.5 billion in rewards annually.

Enabling business owners to achieve success

We continue to be among the nation's largest small business lenders, ending the year with \$23 billion in loans. In 2022, we launched new solutions to help clients grow their businesses, including the Business Advantage Credit Line and Unlimited Cash Rewards Secured credit card for entrepreneurs just starting out.

Our expertise in helping clients achieve business success has led entrepreneurs to rely on us for industry insights. Last year, we published our 10th annual Small Business Owner Report, sharing trends and data on entrepreneurs' business outlook and economic confidence, as well as key indicators of their success and community involvement. We also maintain the Bank of America Access to Capital Directory platform focused on women- and minority-owned businesses.



10M+
clients enrolled in Preferred Rewards³



¹ Based on June 30, 2022 Federal Deposit Insurance Corporation (FDIC) deposit data

² Represents our Consumer Banking segment, including Retail Banking and Preferred Banking

³ Includes clients in Consumer Banking, Small Business and Global Wealth & Investment Management as of November 2022

Gaining momentum with modern Merrill

EIGHT LINES OF BUSINESS

During 2022, Merrill Wealth Management delivered record revenue thanks to our ongoing commitment to helping clients manage every aspect of their financial lives. Led by Andy Sieg, Merrill provides a one-stop shop of financial solutions and access to the full capabilities of Bank of America through an advisor relationship and industry-leading digital solutions.



The power of our modern Merrill strategy helps us drive growth and client satisfaction through our advisors' insights and knowledge, innovation and diverse perspectives.

Providing comprehensive, personalized wealth management advice, planning and services

Today's investors place a premium on financial advice from a trusted advisor. Merrill advisors work closely with clients to clearly define their financial goals and then deliver what matters most — from sharing our thought leadership and insights to financial planning and investing with access to banking and lending. In 2022, we made enhancements to Personal Wealth Analysis™, our proprietary tool advisors use in discussions with clients to define and prioritize goals and create personalized, comprehensive plans. As a result of our ongoing financial planning discussions, client satisfaction reached 92% in 2022. These conversations increased by 40% over 2021 and rose to a five-year high.



Merrill is focused on helping advisors succeed at every stage of their careers and recognizes the importance of carrying forward the traditions of today's advisors who, time and again, win top industry rankings.

Growing our business responsibly

The strength of our diversified business is demonstrated through robust growth of net new households —135,000 from 2018 through 2022. Record revenue of \$18.1 billion and \$2.8 trillion in client balances at year-end further underscore the success of our modern Merrill strategy.

Our financial advisors help clients across all 50 U.S. states, the District of Columbia and several U.S. territories.



Leading the industry in innovation

Merrill introduced new high-tech, high-touch ways for advisors to serve clients, manage their practices and acquire new business in 2022, and by year-end, 82% of clients were digitally active.

One of this year's highlights was the launch of Merrill Advisor Match—a new digital platform that helps take the guesswork out of finding the right advisor by connecting people seeking financial advice with advisors who fit their needs. Since its launch in October 2022, more than 6,600 Merrill advisors have completed their Merrill Advisor Match profile and new clients have moved tens of millions in assets.

Achieving greater diversity of people and perspectives

As demographics and centers of wealth across America continue to change, Merrill seeks to grow a diverse client base that is more reflective of the communities we serve. We are committed to becoming the firm of choice for women, Black/African Americans, Hispanic-Latinos, Asian Americans and members of the LGBTQ+ community.

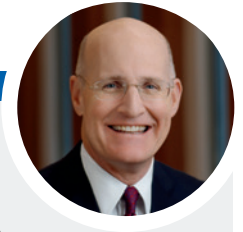
To help achieve this, we have set ambitious goals for more diverse leadership, advisors and clients.

Training the modern advisor

Training the next generation of Merrill advisors continues to be a top priority, and we are increasing our emphasis on training in 2023. Following the relaunch of our Advisor Development Program in mid-2021, we now have more than 1,000 trainees participating, and the first class will graduate in mid-2023.

The program provides comprehensive training to our new advisors and is designed to support their development by leveraging the entire bank's resources, insights and capabilities.

Our growth story reflects the transformative power and momentum of modern Merrill and our tremendous opportunity to deliver differentiated advice, service and solutions for generations to come.



MERRILL

Led by: **Andy Sieg**

Serving high net worth and ultra-high net worth clients. Our personal advisor relationships allow us to help each individual investor plan for and achieve their unique financial goals.

- **No. 1 on Forbes' Best-in-State Wealth Advisors**, Top Women Wealth Advisors, Top Women Wealth Advisors Best-in-State and Top Next-Gen Advisors lists (2022)
- **No. 1 on Barron's Top 100 Women Advisors** list
- **No. 1 on Financial Planning's Top 40 Advisors Under 40** list
- **82% of Merrill households** digitally active across the enterprise (year-end 2022)

135K
net new households added
from 2018 through 2022

\$18.1B
record revenue in 2022



\$2.8T
total client balances
at year-end 2022

PRIVATE BANK

Providing comprehensive wealth management solutions for ultra-high net worth clients

Led by Katy Knox, The Private Bank has more than 100 offices in 41 U.S. markets. Through our local market approach, we serve the unique financial needs of our clients with dedicated teams of experienced advisors, award-winning digital solutions and the strength of Bank of America's broad capabilities.

We help our clients navigate their complex needs by providing customized products and solutions, including wealth planning, trust and estate administration, cash management, banking and lending, investment management and philanthropy.

Committed to Responsible Growth

The Private Bank continued to acquire new clients and deepen existing relationships in 2022. We ended the year with total client balances of \$564 billion and added nearly 2,600 net new relationships.

We grew responsibly by continuing to expand our partnerships with other lines of business across the company to serve a wide range of needs. Our partnership with Consumer Investments to place dedicated Financial Solutions Advisors (FSAs) in our offices continues to yield benefits for clients, helping us serve entire families by delivering the full spectrum of our banking and brokerage capabilities to each relationship.



100+
offices in 41 U.S. markets

Driving innovation

We continuously strive to serve our clients with greater speed, security and convenience. In 2022, we launched new online and mobile features, such as expanded e-signature capabilities and digital wire transfers, to help clients more easily transact and access a growing number of products and services online. Today, we're proud to have a record 86% of clients digitally active at year-end 2022 and are working to introduce new features to help clients digitally open accounts and more seamlessly move money. We also continue to invest in technology to modernize our service platform as part of our commitment to deliver a fully integrated and tailored client experience.



PRIVATE BANK

Led by: **Katy Knox**

The Private Bank is the largest provider of personal trust and fiduciary administration in the U.S. and a leader in philanthropic services, art services, banking and credit solutions.

- **Named Best Private Bank for Philanthropic Services** (Global; 2nd consecutive year) and **Best Private Bank for Digital Solutions for Clients** (North America) by Global Finance Magazine
- **Named Best Private Bank for Customer Service** (3rd consecutive year) and **Best Private Bank in the U.S. for Philanthropy Services** by Professional Wealth Management

In 2022, we added approximately 75 new advisors and core client team members to help grow and support our clients, with many graduating from our Advisor Development Program for early- and mid-career professionals.

\$564B
client balances
at year-end 2022

2.6K
net new relationships
added in 2022

Developing top talent

Wealth demographics in the U.S. are changing as the Baby Boom generation focuses on transferring wealth to heirs and supporting philanthropic causes. Our research shows that younger Americans have different approaches than their parents to investing, giving and wealth planning. In 2022, we added approximately 75 new advisors and core client team members to help grow and support our client relationships, with many graduating from our Advisor Development Program for early- and mid-career professionals. Today, we're focused on developing top talent at all levels — continuously investing in education, programs and resources to build skills and support professional growth.

Building momentum

With our team's commitment and expertise, combined with continued investments in our platform, people and capabilities, The Private Bank is building momentum by driving Responsible Growth.



Delivering the power of our company to growing businesses

Business Banking provides advice and a full range of commercial financial services to U.S.-based mid-sized businesses. Clients benefit from our industry-leading thought leadership, along with financial products including credit, treasury management, merchant services, foreign exchange and equipment financing.

Led by Raul Anaya, our client teams also partner with specialists in The Private Bank and Merrill to deliver personal wealth solutions to clients.

Recognized for client experience

With the growing demand for our services, we added 150 relationship managers in 2022, enabling our expert teams to deepen relationships with clients and prospects and to capitalize on untapped market opportunities. To help our new teammates best serve our clients, we worked with The Academy at Bank of America to introduce a robust onboarding program.

This investment has enabled us to increase the number of in-person client meetings, even as we grew our client base.

In 2022, J.D. Power Certified Customer Service Program recognized Bank of America's Corporate, Global Commercial and Business Banking Services for providing "An Outstanding Customer Service Experience" (13th consecutive year).

To further improve the client experience and take advantage of market opportunities, this year we began to focus on specific client segments, such as government contractors, not-for-profit and healthcare businesses, and emerging growth business segments, to advise on their unique individual needs. This effort joins our Community Business Strategy focused on Asian American, Black/African American, Hispanic-Latino, veteran- and women-owned businesses and their opportunity for growth.

To further improve the client experience and take advantage of market opportunities, this year we began to focus on specific client segments.



160+

cities throughout the U.S.

150

new relationship managers added in 2022

The digital journey continues

Businesses of all sizes are rapidly adopting innovative tools and continuing to explore more digital capabilities to improve their operations. While meeting with clients, our experts focus on how their businesses are transforming and demonstrate how our digital tools can help them manage many aspects of their business finances. More than 80% of clients transacted with us digitally in 2022 through the Business Advantage 360 (BA360) and CashPro[®] platforms, and demand for solutions continues to accelerate.



As part of the continuing transition to digital processes, we moved our client onboarding and document exchange online and are using digital platforms to manage client accounts. These changes save time on more basic functions, freeing up our team to spend more time on in-depth discussions about client needs.

As their businesses change over time and grow in revenue, we believe clients view us as their advisory banking partner, poised to provide everything they need to run their businesses, from start-up to global player.

Driving opportunity through each stage of growth

As their businesses change over time and grow in revenue, we believe clients view us as their advisory banking partner, poised to provide everything they need to run their businesses, from start-up to global player.

We see the importance of our role as advisors, providing guidance to clients on how to navigate the ever-changing business operating environment. As an example, clients aligned to Business Banking and Global Commercial Banking seek support from our sustainability team to plan for the transition to net zero greenhouse gas emissions. The team partners across Bank of America to help companies define their approach to a sustainable future.

Bank of America's thought leadership resources and global expertise allow us to help clients better understand the business case for sustainability and support them as they navigate the transition to a low-carbon economy. Our clients welcome these conversations, leading to opportunities for us to deepen our relationships.



BUSINESS BANKING

Led by: **Raul Anaya**

Locally based client teams serve thousands of U.S.-based business clients, each with revenues between \$5 million and \$50 million.

- **Our dedicated team of relationship managers**, based in more than 160 local communities, meet with clients often at their place of business
- **Named North America's Best Bank for Small and Medium-Sized Enterprises** by Euromoney magazine (2022, 7th consecutive year)
- **Serves approximately 1 in 7 U.S. businesses**



Serving as a trusted advisor to companies and organizations

Global Commercial Banking (GCB) serves as a trusted advisor to middle-market companies primarily in the U.S. and Canada — including their international subsidiaries — delivering integrated financial services and business planning tools.

Led by Wendy Stewart, GCB offers companies and organizations lending and financing solutions, including commercial loans and leases, commitment facilities, trade finance, commercial real estate lending and asset-based lending. We also offer treasury solutions, such as cash management, foreign exchange, merchant services and short-term investing options as well as valuable solutions for clients' employees, including 401(k) and other financial life benefits.

In 2022, we saw a 9% year-over-year increase in commercial loan volume and attracted hundreds of new commercial clients to Bank of America. In addition, Bank of America Community Development Banking provides financing for affordable housing and economic development across the U.S. In 2022, we provided nearly \$8 billion in debt and equity financing, creating more than 10,000 units of affordable housing.

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Digital solutions that make running a business easier

We are committed to making business easier for clients with our award-winning digital banking platform, CashPro®. Clients use CashPro as a single point of access to manage loans, deposits, payments, receivables, trade finance and reporting.

In 2022, we launched several new features to optimize how clients manage their business. Innovations included patented quick-response (QR) sign-in technology in the CashPro App for added security and convenience, an expanded Application Programming Interface (API) allowing clients to access more than 350 payment types and digitized self-service capabilities enabling clients to chat with experts using the CashPro App.



Almost one-third of Fortune 1,000 companies are GCB clients

The CashPro App was recognized by Celent in 2022 as the Model Bank for Corporate Digital Banking.

Advising clients on the green economy and other key focus areas

In keeping with our company's goal to achieve net zero greenhouse gas emissions before 2050, GCB educates clients about our commitments and works with emerging green companies. Over the last several years, in support of Bank of America's initial 2030 targets for reducing greenhouse gas emissions associated with financing activities, we have built a sustainability team to help companies plan for the transition to net zero. The 2022 Bank of America Task Force on Climate-related Financial Disclosures (TCFD) report, which outlines how we continue to manage and mitigate climate-related financial risks, is a key tool in these conversations.

We also provide advisory services to specialized businesses, including commercial real estate, technology, healthcare, educational institutions, not-for-profit organizations, restaurant groups, automotive/vehicle companies as well as sports leagues, teams and stadiums. Clients also rely on us for insights on digital transformation, talent acquisition and other industry trends.

Building banker effectiveness

To help deliver exceptional service, we continually invest in our team. In 2022, The Academy at Bank of America introduced training to enhance banker effectiveness. Areas of focus range from the art of dialogue and client acquisition to advisory excellence and how to discuss sustainability with clients.

We provide advisory services to specialized businesses, including commercial real estate, technology, healthcare, educational institutions, not-for-profit organizations, restaurant groups, automotive/vehicle companies as well as sports leagues, teams and stadiums. Clients also rely on us for insights on digital transformation, talent acquisition and other industry trends.

In addition, we are improving how our bankers connect with clients, including by providing our teams with outreach and marketing tools to better customize their client and prospect communications and meetings.

As a result of our efforts to support the client experience, for 13 consecutive years, J.D. Power has recognized us for providing “An Outstanding Customer Service Experience.” Euromoney Awards for Excellence 2022 named us North America’s Best Bank for Corporate Responsibility and, for seven consecutive years, North America’s Best Bank for Small and Medium-Sized Enterprises.



GLOBAL COMMERCIAL BANKING

Led by: **Wendy Stewart**

Global Commercial Banking serves approximately one in five U.S. middle-market companies with revenues of \$50 million to \$2 billion.

- **Almost one-third of Fortune 1,000 companies are GCB clients**
- Provides relationship management coverage in **more than 100 U.S. cities and all 50 U.S. states**
- **Recognized by J.D. Power Certified Customer Service Program** for providing “An Outstanding Customer Service Experience” (2022, 13th consecutive year)



9%

increase in **commercial loan volume** year-over-year

350+

client payment types and **digitized self-service capabilities**

75%

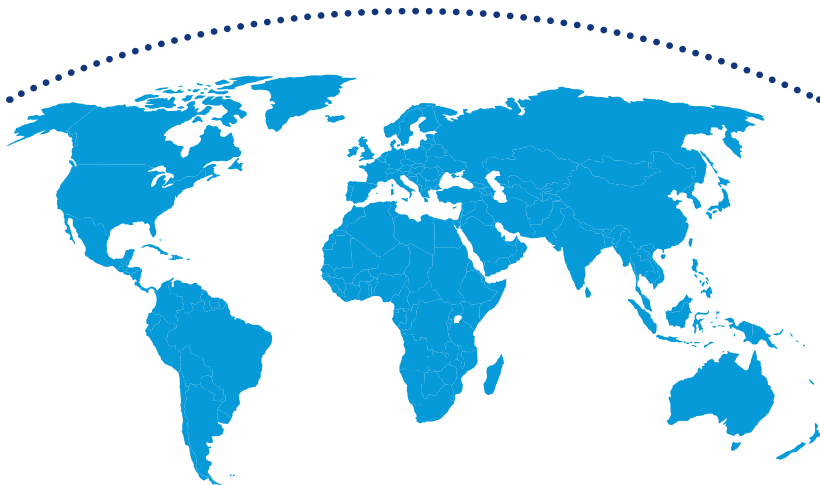
of clients **digitally active¹** at year-end 2022

¹Represents commercial, corporate and business banking clients across our CashPro and BA360 platforms as of November 2022

Delivering for clients in a changing economic environment

Global Corporate & Investment Banking (GCIB) delivers integrated financial solutions, capital markets execution and advice to large corporate clients, middle-market firms and emerging growth companies.

 We operate in **35+ countries** around the world.



Led by Matthew Koder, GCIB provides clients solutions that span the entire capital structure, including loans, leases, bonds, convertibles, initial public offerings (IPOs), follow-on offerings, private capital fundraising and mergers and acquisitions. We also provide best-in-class global liquidity and treasury management solutions.

Driving Responsible Growth

While 2022 was a strong year for Bank of America as a whole, GCIB revenue was down slightly from the record year of 2021 as a result of rising interest rates and challenging market conditions. This led to a slowdown in investment banking activity throughout the year, as the needs of our clients shifted in response to these developments.

In the face of these market headwinds, GCIB remained a steadfast and trusted partner committed to delivering for our clients, a hallmark of our client-first culture. Clients sought advice and market insights offered by our experienced banking teams to help them address strategic decisions, financing transactions and day-to-day execution. We continue to deepen these relationships to help clients achieve their goals.

One key to GCIB's continuing success in delivering for our clients, teammates, communities and shareholders in any environment is our breadth of offerings and flexibility:

- In investment banking, where the market reflected weaker industrywide underwriting activity, we were No. 3 in investment banking fees for 2022 (Dealogic), with our global activities covering more than 4,000 capital markets and advisory transactions (Dealogic).
- In corporate banking, we increased our loan and lease balances while maintaining client deposits, despite the higher interest rate environment.
- Revenues from our global transaction services business significantly increased by 38% year-over-year.

GCIB ultimately achieved our second-best revenue year on record in 2022, behind only our record year in 2021, showcasing how Responsible Growth helps enable us to manage for the long term and prepare ourselves for challenging economic environments.

Driving innovation and improving experiences

We continue enhancing interactions with our clients to help them increase efficiency, extract insights from their data and manage risk well using our cutting-edge technology. With the growing trend toward the "consumerization of wholesale" in 2022, our award-winning digital platform, CashPro®, offered clients a way to take greater control of their treasury operations through enhanced personalized, proactive and predictive solutions. This innovative platform sets the bar on elevating the client experience and ease of doing business by providing efficiency through automation and integration with their existing systems. Recent recognition includes awards for World's Best Bank in Payments and Treasury (Euromoney), Model Bank for Corporate Digital Banking (Celent) and No. 1 Overall Digital Channels Module (Coalition Greenwich).

To help enhance the employee experience, we launched a new proprietary global knowledge management platform in 2022 to provide our teammates access to

resources and deal execution tools through a consolidated, one-stop portal. Advances like this help create efficiencies and streamline work processes, ultimately providing added value to both our employees and clients.

Helping clients with environmental, social and governance (ESG) and transition to net zero greenhouse gas emissions

The transition to a low-carbon economy requires a significant flow of capital across markets and sectors. In 2022, we added resources globally to provide deep expertise on ESG issues that impact our clients' funding needs, valuations and strategic decisions by enhancing our Sustainable Banking Solutions Group. By building and training the team, intensifying client engagement and committing to net zero and ESG-related governance, we expanded our capabilities in this area. In 2022, GCIB was No. 1 globally in ESG debt issuance volumes — and we are well-positioned to continue advising clients on how best to achieve their sustainability goals.

Working to enhance diversity in the workplace

GCIB is focused on creating a diverse and inclusive working environment through internal mobility, career development and networking. We seek top talent at every level and provide all employees with exposure, mentorship and new opportunities. We devote significant resources and use personal connections and networks to help build a diverse pipeline of talent and help create a sustainable, proactive and personalized approach to talent sourcing. By bringing more people into the process, we've enhanced the engagement and accountability of all our teams, which helps build that pipeline and improve representation gaps.

Building for the future

Looking ahead, we will continue our relentless drive to help clients succeed. Delivering for our clients — and growing with them — is vital to being a dedicated and dependable partner, and we will continue leveraging the full breadth of Bank of America to deliver for them.



GLOBAL CORPORATE & INVESTMENT BANKING

Led by: **Matthew Koder**

Providing advisory, underwriting and banking services to thousands of large corporate clients, middle-market firms and emerging growth companies worldwide.

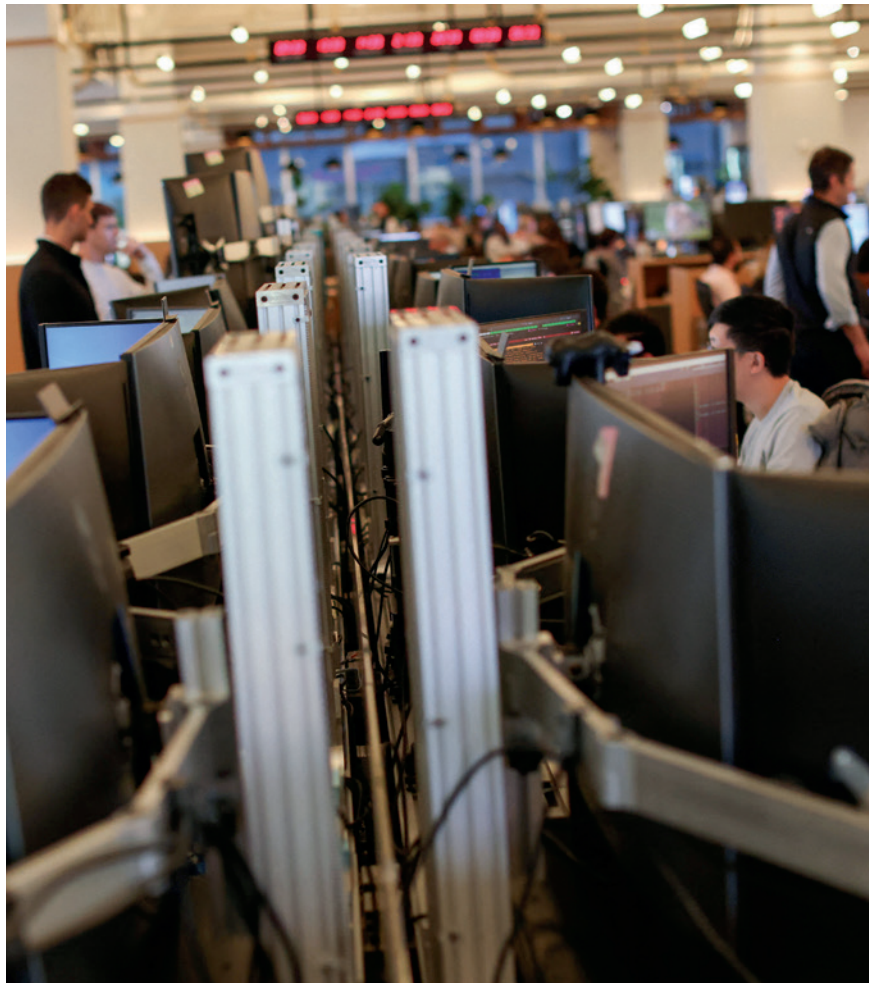
- **Ranked No. 1 among global lead banks** for investment grade and leveraged finance capital raised in 2022 (Dealogic)
- Named by Global Finance as **2022 Outstanding Financial Innovator — Global**
- Conducts business with approximately **70% of the 2022 Fortune Global 500**



GLOBAL MARKETS

Providing a diversified business model for our clients globally

Global Markets provides services across the world's debt, equity, commodity and foreign exchange markets to approximately 8,000 clients consisting of asset managers, hedge funds, pensions and insurance, corporates, governments and other financial institutions.



Creating value through our platform

Led by Jim DeMare, our sales and trading platform offers market-making, financing, securities-clearing and settlement services to our clients in support of their investing and trading activities globally. To further support our clients, nearly 700 analysts in Bank of America's award-winning BofA Global Research organization provide industry-leading research and insights. Their expertise combined with our platform is at the core of the value we deliver to help our clients make informed trading decisions and achieve their investment goals.

Global Markets sits at a unique intersection across Bank of America's broad client base, enabling business synergies across our lines of business. In partnership with teammates across the company, we work with corporate, commercial, government and institutional investor clients to provide capital raising and risk management solutions.

Helping clients navigate the economic environment

In a year marked by accelerated central bank tightening, persistent inflationary pressures and geopolitical tensions, we believe we successfully delivered Responsible Growth. While 2022 saw a broad decline in asset prices across both fixed income and equities, coupled with mixed volatility, our dedicated teams helped clients navigate these challenging market conditions by leveraging the breadth of our platform, while delivering for our shareholders, deepening existing relationships and adding nearly 600 new institutional clients.

700
analysts in BofA Global
Research organization

600
new institutional clients
in 2022

On a full-year basis, market conditions and client business activities drove sales and trading revenue of \$16.5 billion, our highest performance since 2010, while capital markets fees decreased as companies were reluctant to come to market. In this mixed environment, our diversified business model continued to work as expected. Our Equities franchise in particular achieved record sales and trading revenue, while our Fixed Income, Currencies and Commodities (FICC) businesses achieved its highest sales and trading revenue since 2011. Over the past two years, we invested in our FICC Macro products capabilities, including currencies, interest rates and commodities products, yielding a sales and trading revenue increase of 38% year-over-year.

Enhancing our capabilities and driving innovation

Our focus remains on providing consistent, stable coverage and world-class capabilities to better serve our clients. Prioritizing our investment in technology and data continues to drive our business forward.

In 2022, building on our successful equities e-trading platform, our fixed income algorithms responded to approximately 90% of electronic tickets globally in some of the deepest bond markets, such as U.S. Treasuries, European government bonds and U.S. investment grade corporate bonds. Additionally, in an already highly electronic market, our franchise foreign exchange (FX) algorithmic volumes increased 27% globally.

By strengthening our core offerings and embracing next-generation technology, we continue to drive operational efficiencies and automate workflows to reduce expenses. In 2022, we incorporated newer technologies, such as natural language processing, distributed ledger technology, low code solutions and operational bots, to automate and strengthen workflows and operations.

By strengthening our core offerings and embracing next-generation technology, we continue to drive operational efficiencies and automate workflows to reduce expenses.

Being a great place to work

In 2022, we successfully launched our Financial Innovation program globally. Under the guidance of a mentor, junior-level teammates in the program are encouraged to bring their unique perspectives together and work collaboratively on a business-identified challenge to drive actionable innovation and solutions. With more than 130 alumni to date, the program has provided an innovation framework and fueled a culture of continuous improvement.

In addition to this program and others focused on our mid-level talent, the Global Markets Women's Leadership Series features external distinguished women business leaders to encourage diverse perspectives and inspire our teams to reach greater heights in their own career progression and client services.

In partnership with our teammates across the enterprise, we remain committed to making Bank of America a great place to work while delivering a world-class experience for our clients and Responsible Growth for shareholders.



GLOBAL MARKETS

Led by: **Jim DeMare**

Providing solutions across the debt, equity, commodity and foreign exchange markets to corporate, commercial, government and institutional investor clients around the world.

- **Employee presence in 29 markets**, serving a global franchise
- **Americas Derivatives House of the Year and Americas House of the Year for Equity Derivatives, FX Derivatives, Interest Rate Derivatives and Commodities Derivatives** (GlobalCapital, 2022)
- **Interest Rate Derivatives House of the Year** (Risk.net, 2022)
- **Global Leader for Sustainable Project Finance** (Global Finance, 2022)

\$16.5B
in sales and trading revenue — record high since 2010

9%
increase in total sales and trading revenue year-over-year

130+
alumni of our Financial Innovation program, launched globally in 2022

Local & Digital Spotlights



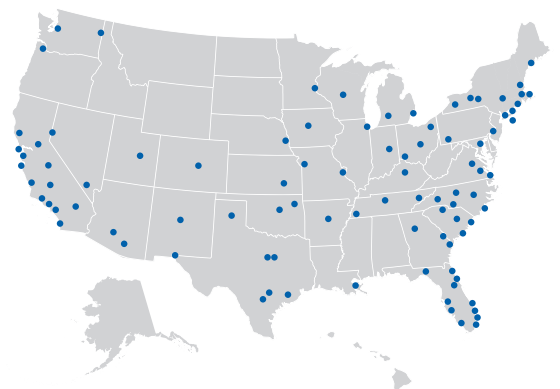
LOCAL MARKETS ORGANIZATION

Delivering for our clients and communities through our market presidents

Our market presidents deliver Responsible Growth by providing the full range of our capabilities across nearly 100 communities.

Our presence in different U.S. markets makes us accessible and knowledgeable for our customers from coast to coast. As part of the local landscape, we're familiar with an area's unique traits, as well as its organizations and resources. As part of each local community, we understand its economy, culture, strengths and challenges. We strive to deliver effective solutions and service by matching the right resources to our clients' individual needs.

Leading the way in these communities are Bank of America market presidents, who oversee integrated business teams to help deliver the full capabilities of our company to each client and lead our interactions with nonprofit partners.



Spotlighting our Chicago market

Our teammates bring together the company's network of professionals and resources across every line of business to help improve clients' financial lives, strengthen where we live and work and support employees in their professional growth.

An example of this strategy in action is our Chicago market, where we've had a presence for more than 160 years and continue to grow market share by delivering for clients. Today, more than 5,200 teammates support our clients and communities in the area. Across all our lines of business, we provide solutions through a local network of more than 130 financial centers, 470 ATMs and nearly 15 combined Merrill and The Private Bank offices. We also recently opened our new Bank of America Tower along the Chicago River, the tallest commercial office building completed in the city in the past 30 years.

In 2022, the team in Chicago worked with clients to help achieve their financial goals, which translated to \$448 million in loans to small businesses, \$14 billion in loans to commercial businesses, \$937 million in home loans and \$61 billion in total FDIC deposits.

"What sets us apart in Chicago, and how we are growing organically in the market, is the combination of our local knowledge and global resources to help our clients and partners achieve their goals," said Rita S. Cook, president of Bank of America Chicago. "We have incredible integration across the business to bring forward digital tools, personalized solutions and local experts, and to deploy capital to help solve some of Chicagoland's most pressing needs."

One example of integrated delivery of the company's capabilities is the recent collaboration between The Private Bank, Global Markets and Global Commercial Banking to provide our Corporate Employee Banking & Investing program to a Chicago-based financial services client. Another example is Merrill, with

\$89 billion in client balances in the market at year-end 2022, which connected Small Business Banking to a wealth management client to seamlessly transition banking services for a wholesale manufacturing goods company they had recently purchased.

The team is deeply embedded in the fabric of Chicagoland. The market directed \$13 million in funding to more than 100 area nonprofit organizations working to drive economic opportunity for individuals and families in underserved communities in 2022. Chicago employees also personally support local nonprofits and community needs, including contributing more than 228,000 volunteer hours since 2018 to the causes they care about.

One partner is the Chicago Community Loan Fund, which provides flexible financing and technical assistance to initiatives for low- and moderate-income neighborhoods, families and individuals. Its president, Calvin Holmes, was also recognized with the Bank of America Neighborhood Builders® Racial Equality Award for his contributions to breaking racial barriers and creating opportunities for people of color.

The team also drives positive impact through the Bank of America Chicago Distance Series, including the 8K, half marathon and marathon events.

The Bank of America Chicago Marathon alone generates more than \$386 million in economic impact to Chicagoland annually, while providing the equivalent of more than 2,800 jobs at a time of year when tourism in the city would otherwise experience a seasonal decline.

Additionally, thousands of runners participate in the race's Charity Program, raising a record-breaking \$27.6 million in 2022.

This commitment to local delivery is replicated in each of our local markets across the country, helping us deliver Responsible Growth for our clients, teammates and communities.

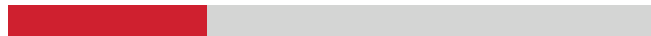


Placing digital at the center of our client relationships

LOCAL & DIGITAL SPOTLIGHTS

We've disrupted traditional banking to offer award-winning digital experiences for consumer, wealth management and business clients. Consistent investment in financial technology, plus a sustained focus on delivering timely and relevant digital solutions with the client top-of-mind, has fueled growth in digital engagement and satisfaction across most lines of business.

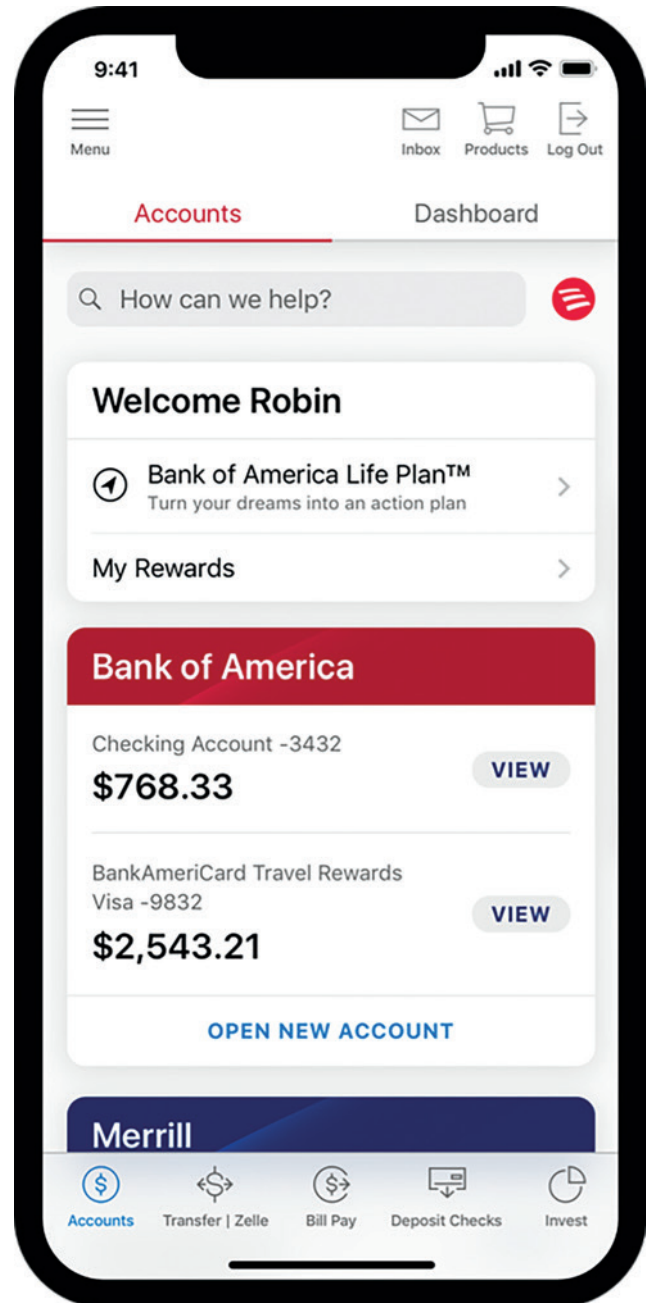
With a record 11.6 billion digital logins and 56 million verified digital users in 2022 — up 3% year-over-year — there are increasingly more digital touchpoints to make clients feel valued and in control of their financial wellbeing. From Erica®, our virtual financial assistant that makes it easier for consumers to manage day-to-day finances, to digital tools that modernize and streamline business operations, we're constantly innovating to deliver next-generation features and solutions that help clients manage their financial lives with increased ease, convenience and security.

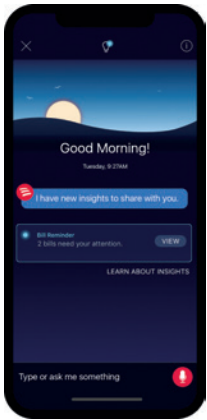


Bank of America mobile app

Clients can manage their banking, investment, retirement and wealth relationships from a single platform.

- Record 35.5M active mobile users in Q4 2022
- 87% mobile client satisfaction in 2022
- 7.8B+ record mobile logins in 2022

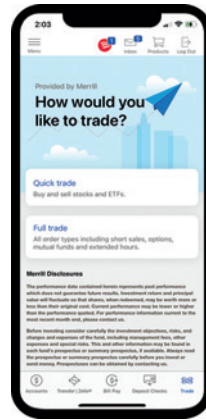




Erica®

Our popular virtual financial assistant, Erica, excels at resolving client inquiries, helping clients get the help and find the answers they need.

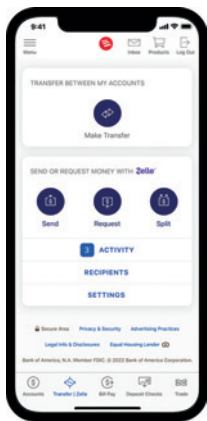
- Assisted 33.5M total users with nearly 1.2B interactions since launch



Merrill Guided Investing

Our goals-based advisory program provides clients advice and a portfolio monitored and rebalanced by Merrill professionals — all at a low cost.

- Total assets under management grew from \$0 to \$15.9B in under 6 years.



Payments & Zelle®

More and more, clients are using our digital platforms to move money, including fast, free and convenient options to pay family, friends and a growing number of small businesses.

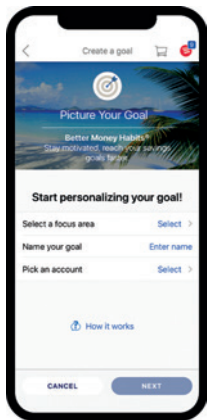
- \$2.8T moved by clients across our platforms in 2022 (up 13% year-over-year) — more than cash and check combined — to accept and send payments



Merrill Advisor Match

Prospective clients answer a series of questions — ranging from goals, communication style and personality — to match them with a customized list of Financial Advisors.

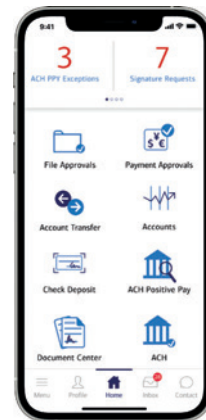
- Nearly 7K advisors have enrolled in the program since launch in fall 2022.



Life Plan

Bank of America Life Plan® helps clients set and track financial goals, integrating banking, savings, lending and investing solutions with personalized insights and guidance.

- Nearly 9.4M clients have created a Life Plan since 2020 — an increase of more than 3M clients year-over-year.



CashPro® & BA360

Our powerful and innovative digital platforms help businesses gain efficiencies with tools that fit seamlessly into their workflow.

- 75% of commercial, corporate and business banking clients are digitally active across our CashPro and BA360 platforms, as of November 2022.

Community Impact



DIVERSE ENTREPRENEURS

Helping diverse entrepreneurs drive economic opportunity

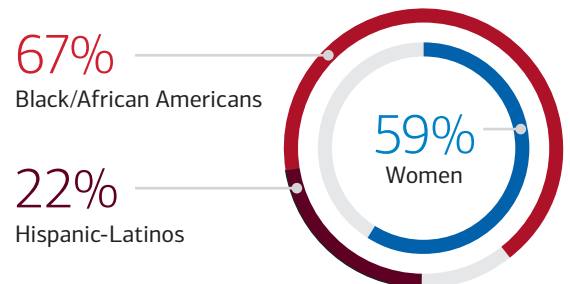
We continue to support our communities by investing in local businesses.

Some estimate that less than 2% of venture capital funds are allocated to startups with diverse leaders. Our sustained commitment to providing funds for under-resourced business owners and entrepreneurs is helping women entrepreneurs and entrepreneurs of color establish and grow their businesses locally, generating economic opportunities that create jobs and build wealth.

To power this investment, we provide capital for funds led by diverse managers, as well as growth equity funding for the minority entrepreneurs they support, to help diminish the barriers that make it difficult for Black/African American, Hispanic-Latino, Asian American, Native American and other underrepresented minority and women entrepreneurs to access start-up and growth capital.

We've committed \$421 million to more than 130 funds which are approximately 67% Black/African American owned/led, 22% Hispanic-Latino owned/led and 59% women owned/led, and are ultimately expected to invest in an estimated 2,000-plus minority- and women-led companies over five years.

We've committed \$421M to 130+ funds owned or led by diverse entrepreneurs, including:



\$200M

low-cost deposit program in minority depository institutions —doubling our commitment

We also work with an established network of community partners that provides capital or serves as depository institutions. For instance, in 2022 we doubled our low-cost deposit program in minority depository institutions to \$200 million, which will in turn provide more access to capital for minority and low- and moderate-income entrepreneurs and communities.

Additionally, we launched the Bank of America Access to Capital Directory for Black Entrepreneurs and Hispanic-Latino Entrepreneurs, which has more than 440 sources of capital, ranging from grants to equity investments to loans. The directory is also available in Spanish and builds on ongoing work with partners to connect entrepreneurs to capital, including the Tory Burch and Bank of America Capital Program and the Bank of America Loan Fund for Women Entrepreneurs at Kiva.

Diverse entrepreneurs also need additional resources and opportunities to manage and scale a successful business. In 2022, we announced an expansion of the Bank of America Institute for Women's Entrepreneurship at Cornell, bringing the total enrollment of small business owners to 100,000, 90% of whom identify as women of color. Through our Global Ambassadors Program, we continue to support Vital Voices, investing in emerging women leaders around the world, and the Cherie Blair Foundation for Women, helping to enable women in developing economies to build business skills and access capital.

Through these programs, we've provided nearly one million hours of training and mentoring to women from over 140 countries, enabling more than 130,000 women entrepreneurs to grow their businesses.

These commitments are part of our longstanding work to help advance racial equality and economic opportunity, invest in women and economically empower our communities around the world.

"Bank of America has always been a part of my life—from opening a savings account as a child to my first credit card and, now, to being partners in a shared vision of financial inclusion. VamosVentures believes a strong and competitive America requires finding and supporting the best talent and ideas, wherever they may be. As an Angelino, Latino and American, I'm proud of the work we're doing, and I'm proud to call Bank of America a partner."

Marcos C. Gonzalez
Founder and Managing Partner
VamosVentures



"It takes diverse investors to identify the overlooked opportunities where value will be created over the next decade. Bank of America's investment in emerging managers substantiates the return potential and allows for the next generation of innovators to thrive."

Heather Hartnett
Founding Partner and CEO
Human Ventures



"Bank of America's commitment accelerated our investments in women and minority founders nationwide and also allowed us to attract a broader audience of investors. More importantly, Bank of America has been a true partner, helping us evaluate several companies in our portfolio for potential business relationships and partnerships."

Nitin Rai
Founder and Managing Partner
Elevate Capital



"Bank of America's commitment to Black-led funds was instrumental in BTN.vc's early success. Leveraging the bank's purposeful investment and powerful brand allowed BTN.vc to quickly reach a \$25 million first close in 2021 towards a \$50 million goal. We've now been able to fund a portfolio of 100% diverse, high-potential software companies—currently 80% Black and 80% women."

Kelauni Jasmyn
General Partner
Black Tech Nation Ventures



Financing a secure energy future

COMMUNITY IMPACT

In 2021, we set a goal to achieve net zero greenhouse gas emissions in our financing, operations and supply chain before 2050.

We are already carbon neutral in our operations, procure all of our electricity from renewable sources and, in 2022, announced 2030 targets for reducing emissions associated with financing activities related to auto manufacturing, energy and power generation.

We work across our company and with our clients to support society's transition to a secure, low-carbon economy while also helping catalyze efforts globally by playing a leading role in forums focused on accelerating and scaling climate finance in a targeted and equitable manner. These include the Sustainable Markets Initiative (SMI), which was launched by His Majesty King Charles III in his former role as His Royal Highness The Prince of Wales. CEO Brian Moynihan, who serves as SMI chair, convened the 200 active CEO members throughout 2022, including at the 27th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP27), to help drive collective creativity, innovation and capital mobilization towards a sustainable future.

Our clients, suppliers and partners have their own plans to address the need for energy affordability, sustainability and security. As a global financial institution, we support clients in every industry through these transitions with comprehensive financial solutions, including lending, capital raising, advisory and investment services. We mobilized capital through our asset-based lending, tax equity and placement activities across clean energy sub-sectors like wind, solar, distributed generation and associated infrastructure. And, we are developing tailored financial solutions for emerging clean energy technologies that will augment traditional renewable energy sources and help achieve a clean, secure energy future.

The transition will require a significant investment: some estimates are as high as \$275 trillion over the next 30 years. This is an important business opportunity for Bank of America and for our clients that we expect to lead to job creation, economic activity and technological innovation. Working with our clients in every industry, we've made significant progress on our 2021 target to mobilize and deploy \$1.5 trillion in sustainable finance by 2030, \$1 trillion of which is aligned to the environmental transition and \$500 billion to inclusive social development.

We are also one of the largest U.S. corporate issuers of ESG-themed bonds. In 2022, we issued our third **Equality Progress Sustainability Bond** for \$2 billion, designed to help advance racial and gender equality, economic opportunity and environmental sustainability.

While environmental investments are critical, we also have a strong focus on social inclusive development, including investments in affordable housing and community banks.

Through the **SMI** and other forums, such as the **Net-Zero Banking Alliance**, **First Movers Coalition** and **Breakthrough Energy Catalyst**, we partner with governments, regional lenders, development finance institutions (DFIs) and philanthropies to bridge the funding gap and mobilize private capital toward sustainable development in emerging markets:

- We're exploring opportunities with DFIs to structure a blended finance loan facility for **CrossBoundary Energy** to support their development pipeline of solar and wind generation and storage projects in Africa.
- We're deepening our relationship with **InterEnergy** by providing a loan facility in partnership with a multilateral development bank to support the construction and operation of eligible renewable energy and clean transportation infrastructure projects located in Small Island Developing States in the Caribbean.
- We're supporting **Just Energy Transition Partnership** with both Indonesia and Vietnam as part of a coalition working toward the facilitation and mobilization of public and private financing to help with the transition of each country's power sector toward renewable energy and increase investment in transition-aligned jobs and industries of the future.



Helping make rewarding jobs more accessible

Developing workforce potential is key to supporting sustainable, thriving communities.

We help do this by investing in local communities to connect low- and moderate-income (LMI) and diverse individuals to family-sustaining, high-demand jobs that fuel economic opportunity. A meaningful job opportunity goes beyond the paycheck—it's a pathway to reduce student debt, obtain health care and retirement benefits and, ultimately, build wealth and economic mobility for an individual, their family and their community.

We recognize the opportunity to help make connections between employers and skills-building institutions, such as community colleges, to improve an individual's ability to obtain the qualifying skills for a family-sustaining job. We bridge this gap by directly connecting employers and skills-building partners to ultimately support career pathways to livable-wage jobs.

We connect employers and skills-building partners to ultimately support career pathways.

Our approach focuses on the specific workforce requirements of actual employers and delivering the necessary training and programming with partners able to fill that need. This is driven by convening nonprofit organizations and academic institutions, creating tailored solutions to fit each of our local markets, hiring through external community partnerships, and the training and professional development available internally from The Academy, our award-winning onboarding, education and professional development organization.

2022 HIGHLIGHTS

In 2022, we invested \$99 million in workforce development, including:

- **\$9.6 million with 50 national workforce training partners** to help fill in-demand jobs in growth industries
- **\$7.7 million toward signature programs** as part of a four-year, \$31 million effort to increase diverse talent pipelines in high-growth careers
- **Nearly \$44 million since 2011 in support of summer jobs** for over 27,000 low-income youth in more than 80 communities. We also worked with nonprofit organizations that provide support for diverse student success.
- Engaging with employers through **209 employer forums**
- **Working alongside 990 employers** contributing to local initiatives through employer forums, academic institutions and/or nonprofit partners
- **Working to provide opportunities for those with barriers to employment**, including those formerly incarcerated and persons with disabilities

In our own hiring, we help provide career opportunities to LMI individuals through partnerships with organizations like the national OneTen coalition and local apprenticeship, leadership and mentorship programs.

We partner with nearly 200 external organizations to train and identify diverse talent, including:

- Designing a **16-week course to prepare students for entry-level careers** as relationship bankers
- Developing a **two-year skills-based curriculum to supplement science, technology, engineering and math (STEM) curriculum** for 40 students to help prepare them for entry-level roles in global technology and operations
- Leveraging our Better Money Habits® resources to build a **certificate program with curated content for high schools, community colleges and partners**

With the resources of The Academy, our award-winning onboarding, education and professional development organization, we've introduced skills-building for community members, leveraging educational content we've developed for teammates to build on the many ways we help connect people to jobs. Notably:

- **The Academy's educational offerings help prepare individuals for a career in any profession** through skill-specific learning and training, fostering economic mobility and inspiring career confidence.
- The Academy also has conducted **live sessions with more than 1,200 participants** and provided support to **more than 1,000 external participants** to prepare them for a position at Bank of America or another employer.

OTHER HIGHLIGHTS IN 2022

Supporting economic opportunity for diverse people and communities

We help support sustainable communities by providing access to lending and capital for homeowners, business owners and entrepreneurs. Specifically, we've committed:

- **\$15 billion to an affordable homeownership program** to help 60,000 individuals and families purchase a home. Since the program launched in 2019, we have helped more than 39,000 individuals and families with more than \$10 billion in affordable lending to purchase a home and provided nearly \$383 million in down payment and closing cost grants.
- **\$44 million to 23 minority depository institutions (MDIs)**
- **\$421 million to more than 130 equity funds** to provide capital to diverse entrepreneurs and small business owners

 **\$15B**
to affordable homeownership



Supporting our teammates' health and safety and fighting hunger in our local markets

We donated more than \$18 million to fight hunger with a donation for each teammate who received a flu and/or coronavirus vaccination or booster. That's in addition to our ongoing commitment to address hunger relief, totaling \$35 million in 2022.

 **\$35M**
to fight hunger in 2022



Sustainable finance

We work across our company and with our clients to help transition to a secure, low-carbon economy. We're also helping catalyze efforts globally by convening and participating in several global forums focused on driving and accelerating progress.

- We've made tremendous progress to scale and accelerate capital to drive environmental and social change, having mobilized and deployed approximately **\$410 billion since 2021 as part of our \$1.5 trillion by 2030 sustainable finance target**.
- We originated **more than \$263 million in loans and investments to Community Development Financial Institutions (CDFIs)** that finance affordable housing, economic development, small businesses, healthcare centers, charter schools and other community services. With a total portfolio of \$2 billion at year-end, Bank of America continues to be the largest investor in CDFIs in the United States.
- We provided a record **\$7.9 billion in loans, tax credit equity investments and other real estate development solutions** through Community Development Banking to finance affordable housing and economic development. Between 2005 and 2022, we financed more than 238,000 affordable housing units.¹

 **\$1.5T**
sustainable finance target by 2030



¹Based on estimated number of affordable housing units at the time of credit application. These numbers were not updated to reflect actual once the project was completed.

Listening to valuable external perspectives

To better understand the needs of our clients and communities, we seek outside perspectives. In 2005, we formed our **National Community Advisory Council (NCAC)**, a forum made up of senior leaders from social justice, consumer advocacy, community development, environmental and research organizations that provide external perspectives, guidance and feedback on our business policies and practices.



Arts, culture and heritage

Our programs support both local and global nonprofit institutions to help communities thrive, make the arts more inclusive and promote cultural sustainability. In 2022, we invested more than \$41 million in support of programs like the **Art Conservation Project, Art in our Communities®** and **Museums on Us®**.



••••• **\$41M+**
••••• in support of **arts programs**

Philanthropic giving

In 2022, we provided nearly **\$360 million in philanthropic investments to help drive economic mobility** in the communities we serve, including more than \$99 million in support of workforce development and jobs, \$80 million for community development and affordable housing, and more than \$90 million for basic needs, including nearly \$4 million for natural disaster and humanitarian needs.



••••• Nearly **\$360M**
••••• in **philanthropic investments**

Impacting local neighborhoods

We continue to invest in our signature philanthropic programs, **Neighborhood Builders®**, **Neighborhood Champions**, **Student Leaders®** and **summer youth employment**, which recognize the community leadership and service of nonprofit organizations and students across the U.S. To date, these programs have supported more than 1,600 local nonprofits and the leadership development of approximately 3,000 nonprofit executives. In 2022, the programs supported workforce development of more than 4,000 students across 92 markets.

Employee giving and volunteering

We continued both in-person and virtual volunteering across the globe, promoting opportunities for our employees to serve in the communities where we live and work. Over the course of the year, **employees contributed nearly two million volunteer hours and directed more than \$65 million** in combined individual giving and the bank's matching gifts, volunteer grants and other employee-directed giving programs, impacting more than 40,000 nonprofits around the world.

••••• **2M**
••••• **volunteer**
••••• **hours**

••••• **\$65M+**
••••• **combined**
••••• **giving**

Better Money Habits®

Through Better Money Habits, we connect people to guidance and tools that help them take control of their finances. Since launching in 2013, **free financial education on our Better Money Habits platform has been viewed more than 3.5 billion times** across all platforms, including approximately 7.4 million site visits in 2022. Additionally, consumers clicked to make an appointment with a financial center specialist nearly 27,000 times. Visits to our Spanish site, Mejores Hábitos Financieros™, are up 30% from 2021 to 2022.



••••• **3.5B+**
••••• **Better Money Habits platform views**

Supplier diversity and responsible sourcing

We spend **\$2 billion with diverse suppliers** across our global company annually. As part of our goal, we have a target to have 70% of global suppliers, by spend, set greenhouse gas emissions reduction or renewable energy targets by 2030.

Human Capital Management Update



A letter from Sheri Bronstein

One of the hallmarks of Bank of America — and what I believe truly sets us apart — is our culture of caring, compassion and support for one another.

This was apparent once again in 2022 as we continued to focus on health and safety and the changing face of wellness. We expanded our programs to support skills and career development, while also welcoming tens of thousands of new teammates to our company. And, we continued to support an inclusive environment where our teammates can bring their whole selves to work.

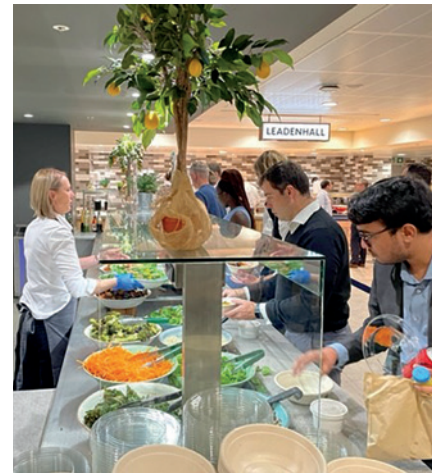


With the world gradually moving from pandemic to endemic, health and safety was again a major priority. Throughout the year, we continued to offer onsite vaccination and booster clinics for both the coronavirus and flu. We also encouraged teammates to invest in their health by getting a coronavirus vaccine or booster and flu vaccine. In return, we donated \$50 to their local food bank, along with a company match. In total, we provided nearly \$19 million across 145 local food banks in recognition of our employees who took care of their health.





One of the highlights of 2022 was that we were able to do so much together in person again. Across the world, our teammates celebrated the ability to reconnect and collaborate. One way we supported this was by providing free lunch to all teammates across the globe in September, October and November. Teammates shared hundreds of photos of their lunch gatherings, as well as other occasions and celebrations throughout the year.



The investments we've made in our teammates has positioned us to continue building on our foundation. We will continue to use this report as a way to illustrate and measure our efforts in being a great place for our teammates to work.

“With a great appreciation for the importance of mental health and the toll the pandemic took on many, we expanded our emotional wellness resources to provide more opportunities and resources for employees to access help for themselves and their family members.”

Sheri Bronstein
Chief Human Resources Officer

We also took steps to offer medical care that continues to be accessible for our teammates. We have held medical plan premiums flat for the 10th consecutive year for employees earning less than \$50,000 a year.

With a great appreciation of the importance of mental health and the toll the pandemic took on many, we expanded our emotional wellness resources to provide more ways for employees to access help for themselves and family members. We doubled the number of free in-person consultations through our Employee Assistance Program (from six to 12) on top of unlimited phone consultations. We continued to offer virtual behavioral health consultations through our telehealth provider in the U.S. Additionally, we announced a new global sabbatical program to start in 2023 that recognizes employees who have built their career with us, offering 4–6 weeks of paid time off starting at 15 years of service to recharge and refocus.

In a year with one of the most challenging labor markets in recent history, we showed Bank of America is a company where you can grow and thrive throughout your career. We expanded The Academy at Bank of America to provide world-class onboarding and skill development. And, we welcomed 39,000 new teammates and helped 30,000 existing employees stay with the company and move to new roles. We continue to be a leader in establishing a minimum rate of pay for U.S. hourly employees, and, in 2022, we moved to \$22 per hour as part of our commitment to reach \$25 by 2025.



BENEFITS OVERVIEW

Supporting the physical, emotional and financial wellness of our people

We provide employees with access to leading benefits and programs that help teammates be well — physically, emotionally and financially.

It's core to our values and to Responsible Growth, and we continue to evolve our benefits and programs over time to meet teammates where they are in their careers and personal lives. When our employees have the tools and resources to manage their life and career, they can better deliver for our clients, communities and each other.

Physical wellness

To help our employees be physically well, we offer health insurance plans that provide access to virtual care, condition management and specialty programs and tools that help employees prevent illness and maintain wellness.

COMPREHENSIVE MEDICAL PLANS

Employees have plan options with three national carriers and prescription drug coverage. We've also held medical plan premiums flat for the 10th year in a row for U.S. employees earning less than \$50,000 a year. For the sixth straight year, employees earning between \$50,000 and less than \$100,000 saw premium increases below the national average.

TELADOC HEALTH AND 24/7 NURSE LINE

Employees have round-the-clock access to health care through our U.S. national medical plans. More than 60,000 no-cost virtual medical and behavioral health consultations were completed with Teladoc in 2022.



We've held medical premiums flat for the 10th year in a row for U.S. employees earning less than \$50,000 per year, and preventive prescription medications are available to employees at no cost.

FAMILY SUPPORT PROGRAM

This benefit offers expert pregnancy, adoption, fertility, infancy, egg freezing, surrogacy and postpartum support at no cost for new or future parents enrolled in a national U.S. bank medical plan for up to five years after welcoming a child.

CANCER SUPPORT

We partner with Memorial Sloan Kettering in support of U.S. teammates who are fighting cancer to help schedule expedited appointments, coordinate care, recommend a local facility and more. We also signed on to the #WorkingWithCancer pledge to affirm our support to create a more open, recovery-forward culture at work for our teammates with cancer.

GET ACTIVE! FITNESS CHALLENGE

In 2022, approximately 39,000 teammates took nearly 9 billion steps and learned more about the importance of physical activity, nutrition, stress reduction and sleep as a result of our annual program.

VACCINATION

Onsite vaccination clinics for flu and coronavirus helped 25,000 teammates maintain their health. We also provided up to eight hours of paid time off to receive a coronavirus vaccine or booster through other venues.

25K teammates attended onsite vaccination clinics for flu and coronavirus in 2022

Emotional wellness

Helping our teammates be emotionally well means providing resources to help handle stress, manage conflicts and adversity, and deal with grief in positive, healthy ways.

EMPLOYEE ASSISTANCE PROGRAM

We expanded in-person confidential counseling through our Employee Assistance Program by adding onsite benefits counselors in some of our large locations.

We also doubled the number of free in-person confidential counseling sessions to 12, and expanded virtual options to provide free unlimited, confidential 24/7 phone access to specialists for counseling.

LIFE EVENT SERVICES (LES)

In 2022, LES supported teammates nearly 200,000 times in the moments that mattered most, providing personalized connections to resources by tapping experts inside and outside the company for assistance with significant events, such as domestic violence, natural disasters, terminal illness, retiring from the company, survivor support and more.

SABBATICAL PROGRAM

Announced in 2022, our industry-leading sabbatical program provides employees the opportunity to take four to six weeks additional paid time off beginning at 15 years of continuous service to recharge and refocus as they best see fit.

Announced in 2022, our industry-leading sabbatical program provides employees the opportunity to take 4-6 weeks additional paid time off beginning at 15 years of continuous service to recharge and refocus.



BACK-UP CHILDCARE AND ELDERCARE

We continued to provide 50 days of back-up childcare and eldercare when regular arrangements aren't available. This benefit provided more than 58,000 days of back-up care — at a value of more than \$13 million — for thousands of U.S. teammates.

PARENTAL LEAVE

We provide 26 weeks of parental leave for the birth or adoption of a child, 16 weeks of which are fully paid for eligible teammates. Annually, we have more than 6,000 employees take advantage of this time with a new family member.

50
days of back-up
childcare and
eldercare

26
weeks of parental leave
for the birth or adoption
of a child

RESILIENCY SKILLS

We continued to offer additional resources from Thrive Global, including digital programs, in-person training and daily guided mindfulness, with a goal of continuing to help our teammates around the globe navigate evolving work and home routines.

BENEFITS OVERVIEW

Financial wellness

Having financial wellness means developing and maintaining good money habits, planning for short-term and long-term expenses and setting aside savings for goals or emergencies. We support teammates in reaching financial wellness with retirement savings plans and other programs, and also provide access to self-guided tools and expert advice.

5% matching 401(k) contribution, plus 2%–3% annual contribution

401(k)

We automatically enroll teammates into the 401(k) plan to help with saving for retirement. Based on service for eligible U.S. teammates, we make an annual contribution of 2%–3% and offer matching contributions of up to 5% of eligible pay.

FINANCIAL PLANNING TOOLS

We continue to offer free financial planning tools to help teammates plan for their short- and long-term financial goals:

- Our Benefits Education & Planning Center offers personalized, confidential guidance with an independent planner to help teammates get the most out of their employee benefits.
- The Financial Wellness Tracker helps teammates assess their financial health and provides personalized suggestions for developing an action plan and connecting with additional resources and guidance.
- Better Money Habits®, an educational resource co-developed by our company, helps teammates and community members improve their financial wellness.

\$17M in tuition assistance for more than 5K teammates



TUITION ASSISTANCE

We provided \$17 million in tuition assistance for more than 5,000 teammates in 2022. Employees are eligible to receive up to \$7,500 per year to help with academic degrees or certifications, with the flexibility of payment through reimbursement or pre-paid voucher.

COLLEGE ADMISSIONS

We also offer free, one-on-one expert college admissions coaching for teammates and their children in school grades 8–12 to help plan for and navigate the college admissions and financial aid process.

FAMILY PLANNING REIMBURSEMENT PROGRAM

This program offers teammates the flexibility to choose reimbursement for eligible adoption, fertility and/or surrogacy expenses, up to a collective \$20,000 lifetime maximum over the course of their career at the company.

\$20K in collective reimbursement for eligible adoption, fertility and/or surrogacy expenses

EMPLOYEE RELIEF FUND

In 2022, this program provided \$5.7 million in grants to employees through the Employee Relief Fund. The program provides employees up to \$2,500 in relief per event for a qualified disaster and up to \$5,000 for an unexpected emergency hardship. Employees can receive up to \$10,000 in total grants in a rolling 12-month period.

GLOBAL ELECTRIC VEHICLE PROGRAM

We provide a \$4,000 reimbursement to eligible teammates purchasing a new all-electric passenger vehicle or a \$2,000 reimbursement for a new lease (or local currency equivalent). In 2022, we provided more than 800 reimbursements totaling approximately \$3.4 million.

Note: Specific programs vary by region. U.S. programs shown.

\$5.7M in grants paid from the Employee Relief Fund

\$4K electric vehicle purchase reimbursement

RECOGNIZING & REWARDING PERFORMANCE

Recognizing & rewarding teammate performance

Our pay-for-performance compensation approach strives to recognize and reward performance with competitive and fair pay for the work done, at all levels of our company.

We have long been a leader in establishing a minimum rate of U.S. pay.

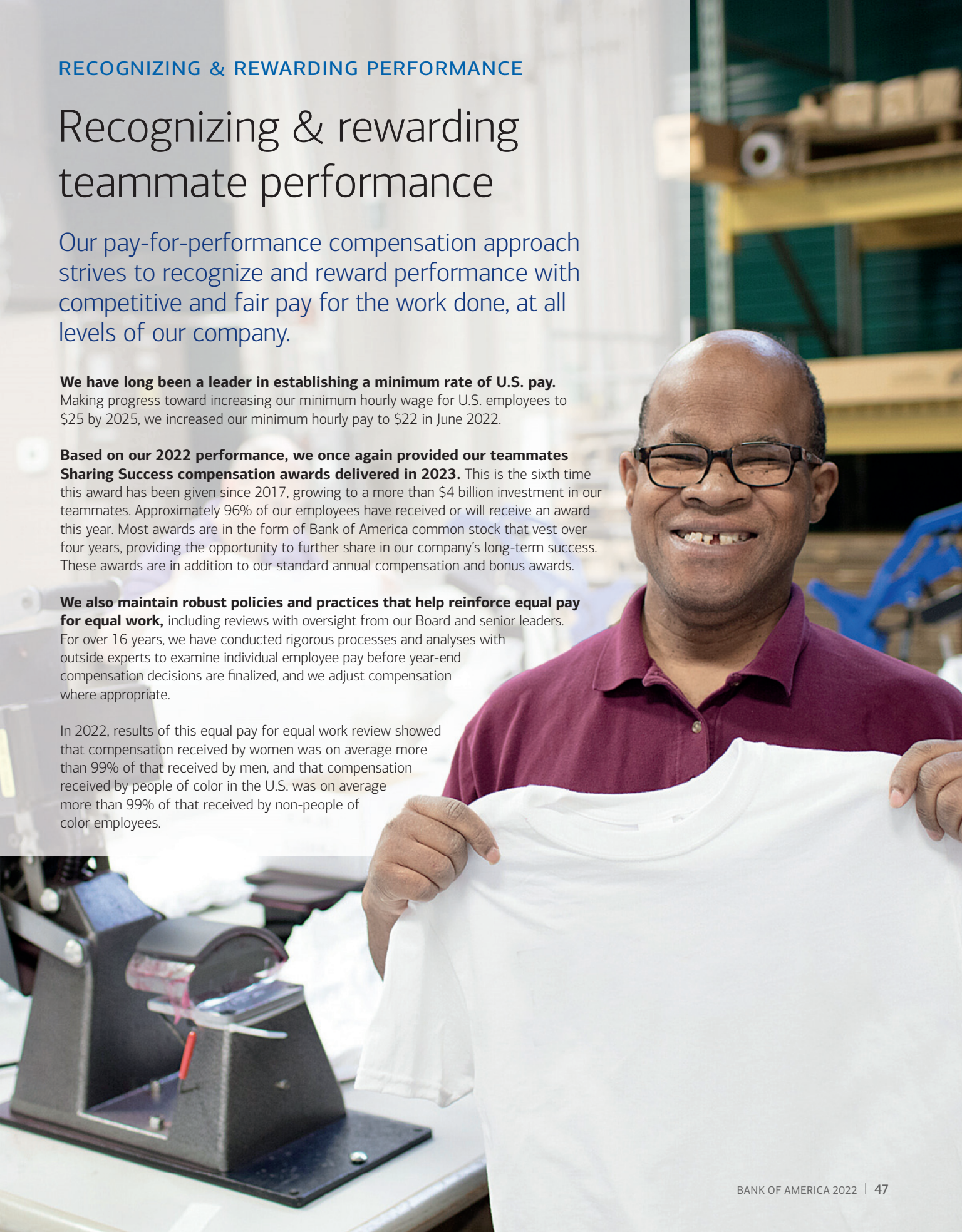
Making progress toward increasing our minimum hourly wage for U.S. employees to \$25 by 2025, we increased our minimum hourly pay to \$22 in June 2022.

Based on our 2022 performance, we once again provided our teammates Sharing Success compensation awards delivered in 2023. This is the sixth time this award has been given since 2017, growing to a more than \$4 billion investment in our teammates. Approximately 96% of our employees have received or will receive an award this year. Most awards are in the form of Bank of America common stock that vest over four years, providing the opportunity to further share in our company's long-term success. These awards are in addition to our standard annual compensation and bonus awards.

We also maintain robust policies and practices that help reinforce equal pay for equal work, including reviews with oversight from our Board and senior leaders.

For over 16 years, we have conducted rigorous processes and analyses with outside experts to examine individual employee pay before year-end compensation decisions are finalized, and we adjust compensation where appropriate.

In 2022, results of this equal pay for equal work review showed that compensation received by women was on average more than 99% of that received by men, and that compensation received by people of color in the U.S. was on average more than 99% of that received by non-people of color employees.



Recruiting and developing talented teammates

A key aspect of Responsible Growth is attracting and retaining exceptional talent from around the world.

This starts with how we recruit new teammates and extends to the many ways we support their professional development and career growth once they're here. That's why we provide a variety of resources to help teammates grow in their current roles and build new skills.

Attracting exceptional talent

Building a strong pipeline of talent means finding candidates who are committed to our purpose and have a passion for serving our clients and communities. This spans programs from entry-level hiring through more senior-level recruiting.

We partner with more than 450 universities across the globe to provide entry-level opportunities through our campus program. To help our talent pipeline reflect the diversity of the communities we serve and support local economic vitality, we have developed partnerships with nearly 30 Hispanic-Serving Institutions (HSIs) and Historically Black Colleges and Universities (HBCUs), as well as 30 community colleges. We also partner with many nonprofit organizations to create pathways to employment — including Road to Hire, Unidos, Urban Alliance and Year Up.

In 2022, we believe we continued to drive progress in the strength and diversity of our employees:

ENTRY-LEVEL PROGRAMS

We expanded our outreach and onboarded 1,800 full-time campus hires, with 44% women and 59% people of color.

EDUCATION AND TRAINING

We contributed \$9.6 million in 2022 to 50 national workforce training partners and nearly \$31 million toward programs focused on increasing diverse talent in high-growth areas.

MILITARY HIRING

We hired more than 5,100 U.S. teammates with a military background.

PATHWAYS

We are making progress on our commitment to hire an additional 10,000 low- and moderate-income (LMI) hires by 2025, bringing the total to 20,000 LMI hires. We surpassed our initial goal of 10,000 hires three years early.



Developing our workforce through The Academy at Bank of America

Retaining talent is core to how our company drives Responsible Growth, including our commitment to being a great place to work. That's why we're investing in teammates' career growth and success through The Academy at Bank of America, our award-winning onboarding, education and professional development organization. We started The Academy in 2017 to support the learning and development needs of our consumer banking business. Over time, we've expanded our investment in The Academy, which is now a core function of our Global Human Resources organization, to offer programs to all lines of business. Employees can develop their skills for their current role or a role they want to pursue in the future.

The Academy team is focused on world-class onboarding, upskilling, high-tech and high-touch experiences, serving our communities and furthering a culture of integrity. In 2022, The Academy launched work to implement a consistent, simplified and improved onboarding experience available across the company for new teammates and those moving into new positions. By improving the overall onboarding experience, we drive connection to our culture and values, create efficiencies and reduce operational risk.

⋮ *We recognize that retaining talent is core to how our company drives Responsible Growth.*

We value our teammates' varied experiences and learning styles. Through our personalized approach, we offer learning and development programs to help all teammates access the resources they need to advance their careers. Our Learning Marketplace provides tailored experiences for employees in each line of business and support function, helping employees access learning opportunities for their role, build industry knowledge and enhance professional skills.

BROAD ENGAGEMENT

We engaged nearly 121,000 participants across the full range of structured programs.

TRAINING SESSIONS

Our teammates completed more than 11 million training hours, including our regulatory-required sessions.

NEW ROLE SUPPORT

We supported 36,000 employees who were new to their role, 50% of which were internal moves.

SIMULATION TRAINING

We delivered nearly 624,000 high-tech simulations through immersive technology, such as virtual reality training, to help teammates build proficiency in their jobs and better serve clients.

COMMUNITY OUTREACH

We developed programs for nonprofit partners to support our communities, with a focus on financial literacy, career readiness, skill-specific learning and industry certifications.

Investing in the growth of our leaders and managers

For our leaders and managers, we offer a range of development programs to help cultivate their skills. These programs provide assessments, professional coaching and tactics to help leaders progress in their careers and strengthen our leader pipeline for future roles.

Our manager curriculum was created in response to employee feedback and designed to build manager capabilities to lead their teams more effectively to drive Responsible Growth. Launched in 2021, eight manager training modules were fully delivered in 2022 and have been well-received. The manager curriculum focuses on what it means to be a successful manager at the company, from championing diversity and inclusion to being a financial steward. It culminates in a capstone experience that enables managers to come together to integrate the eight manager expectations and build an action plan to further their learning.

MANAGER CURRICULUM PARTICIPATION

About 90% of our managers have participated in at least one module of the series, and nearly 60% of managers have completed all eight modules.

MANAGER EXCELLENCE COMMUNITY

Community and monthly sessions continue to engage more than 20,000 managers through interactive conversations.

ONE-ON-ONE COACHING

Our Manager Excellence Consultants provide virtual or in-person sessions to help managers build their skills and connect everyday decisions to enterprise priorities.

DIVERSITY & INCLUSION

Building a diverse and inclusive workplace

Our diversity — in thought, style, gender, sexual orientation, gender identity, race, ethnicity, culture, religion, age, ability, military status and experience — makes us stronger and is essential for us to serve our clients, fulfill our purpose and drive Responsible Growth.

Commitment and accountability

Leadership at every level is engaged in, and accountable for, driving diversity and inclusion. This includes our Board of Directors, its committees and our CEO, who all play a key role in the oversight of our culture, expecting management to be accountable for ethical and professional conduct and our commitment to being a great place to work.

Each management team member has business-specific, action-oriented diversity goals that are included in their quarterly business review process, talent planning and scorecards reviewed by the Board. Management team members cascade these goals to help drive accountability for diverse representation and an

inclusive culture across the company. Leaders understand that making progress toward diversity and inclusion goals and metrics is fundamental to managing their teams, and employees have access to feedback channels to raise questions and share input.

Our Global Diversity & Inclusion Council sponsors and supports business, operating unit, and regional diversity and inclusion councils to help align to enterprise diversity strategies and goals. The global council consists of senior executives from every line of business, every region and our local markets, and has been chaired by CEO Brian Moynihan since 2007 — he has never missed a meeting.

Continued progress

We believe the diversity of our management team reflects the progress we've made, with 55% diverse members, including seven women, two Asian, two Black/African American and one Hispanic-Latino leaders. We have worked hard to help narrow the gaps at leadership levels across the company, with improvements in representation of Asian, Black/African American and Hispanic-Latino teammates across key categories, such as management levels 1–3, managers, executive/senior level and mid-level.

We invest in talent acquisition programs and community partnerships to create a strong and diverse talent pipeline, which has helped increase representation of women and people of color, and advance racial equality and economic opportunity in communities.

Our latest measures show improvement in the diversity of our leadership, management and global workforce:

53%
of our **Board** is diverse, including **33%** women.

55%
of our **management team** is diverse, including **32%** women.

50%
of our **global workforce** are women, and **50%** of our U.S. workforce are people of color.

Since 2009, representation of people of color in our **campus classes** has increased **64%**.

People of color in **executive/senior level** individual and management positions have increased by **67%** since 2015.

Since 2015, representation of people of color in our **top three management levels** has increased **73%**.

We've made strong progress against our aspirational goal for our workforce to mirror the clients and communities we serve at all levels of the company.

An inclusive culture where teammates bring their whole selves to work

Our focus on advancing diversity and inclusion is core to being a great place to work, and it's something we help drive across the communities we serve, as well. The partnerships we forge with organizations around the world are helping address some of society's biggest challenges, and we're able to share what we're doing as a company with our teammates to create dialogue, build knowledge and overcome challenges.



In 2022, we continued our series of courageous conversations and inclusion learning and development programs, providing teammates with opportunities to discuss topics central to who we are, including racial equality, economic opportunity, gender, sexual orientation, disability status, military service, mental health and more. The opportunities include:

- **Let's Get Real...®**, courageous conversations on issues impacting our communities and open dialogue to provide greater understanding and appreciation for one another
- **myD&I Development Program**, diversity and inclusion learning sessions for individual contributors and employee network members
- **Inclusion Manager Series**, helping equip managers to better address bias and drive inclusion deep within their teams
- **Diversity & Inclusion Pathways**, driving inclusion in the workplace and improving individual cultural competency
- **Executive development programs**, including our Diverse Leader Sponsorship Program, targeting diverse high-potential/top-performing leaders

We recognize cultural days and heritage observances that are meaningful for our teammates, reflecting the diversity of our communities and with the understanding that knowledge of these holidays, celebrations and significant moments can strengthen our diverse and inclusive culture.

Community partners help build our expertise

We work with nearly 200 external partners — including NPower, Urban Alliance, National Association of Black Accountants, Association of Latino Professionals for America, National Association of Asian American Professionals, Paradigm for Parity, Hiring Our Heroes, Neurodiversity in the Workplace, National Center for American Indian Enterprise Development and Out for Undergrad — and more than 600 colleges, universities and community colleges, including HBCUs, HSIs and tribal colleges — to identify diverse talent and expand our impact.

Recruiting diverse talent

We also focus on recruiting military and veterans, LGBTQ+ individuals and people with disabilities. For example, we:

- **Hired more than 5,100 individuals with a military background** — more than 16% of all U.S. external hires for the year.
- **Attract and develop LGBTQ+ talent** through targeted partnerships with organizations such as Out & Equal Workplace Advocates, Lesbians Who Tech, Trans Can Work and Reaching Out.
- **Continue to expand our dedicated Support Services team**, a team of more than 300 employees with cognitive and developmental disabilities who work with every line of business and function across multiple locations.
- **Invite employees to share more about who they are through our Count Me In program**, including their gender identity, sexual orientation, and disability and military statuses, to help us develop programs and benefits to meet their diverse needs and drive our inclusive culture.

DIVERSITY & INCLUSION

Diversity Leadership Councils & Employee Networks

Our Diversity Leadership Councils and Employee Networks provide guidance and help enable employee engagement, working to drive diverse representation, discuss strategies to improve advocacy, sponsorship and retention, address unique obstacles to career advancement and grow client relationships.

DIVERSITY LEADERSHIP COUNCILS

- Black Executive Leadership Council
- Hispanic-Latino Executive Council
- Asian Advisory Council
- Investing in Women Council
- LGBTQ+ Executive Leadership Council
- Disability Advisory Council
- Military Advisory Panel



7

Diversity Leadership Councils

 A large white circle with a blue border containing a blue lightbulb icon above the number 7. Below the circle, the text "Diversity Leadership Councils" is written in blue.

EMPLOYEE NETWORKS

- Asian Leadership Network
- Black Professional Group
- Disability Action Network
- Hispanic/Latino Organization for Leadership & Advancement
- Inter-Generational Employee Network
- LEAD (Leadership, Education, Advocacy and Development) for Women
- Lesbian, Gay, Bisexual, Transgender and Queer (LGBTQ+) Pride
- Military Support & Assistance Group
- Multicultural Leadership Network
- Native American Professional Network
- Parents and Caregivers Network



360

Employee Network
chapters



276K

Employee Network
memberships
worldwide

EMPLOYEE ENGAGEMENT & TURNOVER

Employee engagement and turnover

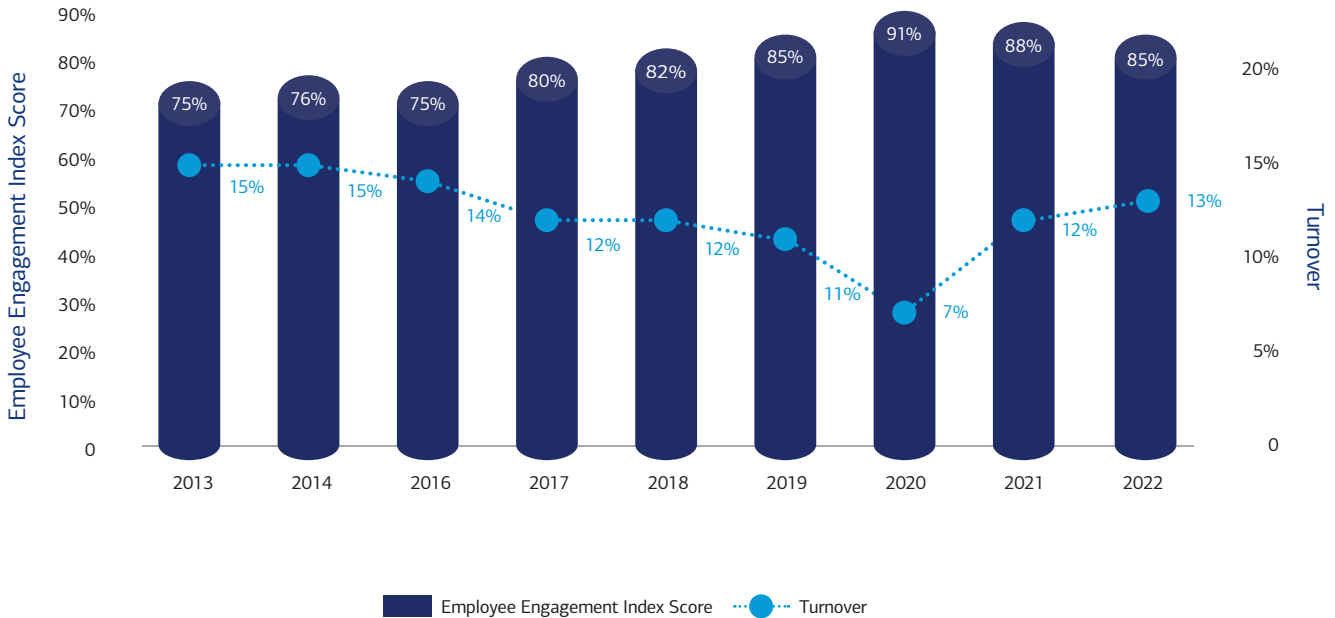
Each year, our Employee Engagement Survey gathers the voice of teammates across the company to shape and inform our work going forward.

More than 170,000 teammates shared ideas and feedback by participating in our 2022 survey. Our Employee Engagement Index score reflects a strong trend over time — increasing 10 percentage points during the last decade. We also measure an internal Diversity & Inclusion Index¹ that gives us feedback on how we measure inclusion at the company. It is up 8 percentage points during the same time, and index scores are strong relative to industry benchmarks over time.

The results of the survey and the process of continuous improvement that ensues is discussed with the Board at least annually. Our efforts reflect our progress in being a great place to work. We believe our employee turnover reflects the strength of our employee engagement results and how our teammates view Bank of America as an employer of choice.

Over the past decade, our turnover rate has been among the lowest in the industry. In that time, we have experienced vastly different labor markets, the pandemic and return to office. With the tight labor market in 2022, we saw a slight increase in turnover in the first half of the year, and in the second half dropped back to pre-pandemic record lows, resulting in a 13% annualized turnover rate — a strong result for a company of our size and scale.

With our variety of resources and programs that support career growth and development, we’re helping teammates have long-term careers with our company. We also continue to enhance our internal mobility practices, which has led to nearly 45% of our open roles being filled by internal candidates.



¹Our Diversity & Inclusion Index measures core areas like how comfortable teammates feel sharing different opinions without fear of negative consequences, whether or not they feel they are being treated fairly, their impression of how well Bank of America has done in creating an environment where people of diverse backgrounds can succeed and how Bank of America values the unique experiences our teammates bring to the workplace. Survey was not conducted in 2015.

Workforce diversity metrics

Board diversity¹	53% diverse	33% women
Management team diversity	55% diverse	32% women
Global workforce	50% women	50% POC²

Management levels 1-3	2015	2022	% change
Women	33%	42%	27%
People of color (POC)	15%	26%	73%
Asian	7%	11%	57%
Black / African American	4%	8%	100%
Hispanic / Latino	4%	6%	50%

Managers	2015	2022	% change
Women	42%	42%	0%
POC	32%	42%	31%
Asian	11%	14%	27%
Black / African American	8%	10%	25%
Hispanic / Latino	11%	16%	45%

EEO executive/senior level	2015	2022	% change
Women	32%	38%	19%
POC	15%	25%	67%
Asian	7%	11%	57%
Black / African American	4%	6%	50%
Hispanic / Latino	4%	6%	50%

EEO first/mid-level	2015	2022	% change
Women	49%	52%	6%
POC	33%	42%	27%
Asian	12%	12%	0%
Black / African American	9%	11%	22%
Hispanic / Latino	11%	16%	45%

Campus	2009	2022	% change
Women	32%	44%	38%
POC	36%	59%	64%
Asian	17%	25%	47%
Black / African American	9%	14%	56%
Hispanic / Latino	6%	16%	167%

¹Includes women and people of color

²U.S. only

Note: CEO included in Board diversity stats

Equal Employment Opportunity (EEO) diversity statistics

2022 EEO (by number of teammates)

U.S. Employee Diversity in 2022									
Job category	Gender	White	Black/ African American	Hispanic/ Latino	Asian	American Indian/ Alaska Native	Native Hawaiian/ Other Pacific Islander	Two or more races	Total by gender
Executive/Senior level officials and managers	Male	2,367	151	165	384	5	1	37	3,110
	Female	1,431	152	123	186	2	2	27	1,923
	Total	3,798	303	288	570	7	3	64	5,033
First/Mid-level officials and managers	Male	6,089	879	1,464	1,542	29	34	206	10,243
	Female	6,361	1,497	1,911	1,100	50	35	220	11,174
	Total	12,450	2,376	3,375	2,642	79	69	426	21,417
Professionals	Male	26,009	3,086	3,646	7,453	102	89	861	41,246
	Female	14,242	3,317	2,550	5,242	95	76	535	26,057
	Total	40,251	6,403	6,196	12,695	197	165	1,396	67,303
Technicians	Male	561	271	199	512	5	7	37	1,592
	Female	238	156	88	667	3	2	20	1,174
	Total	799	427	287	1,179	8	9	57	2,766
Sales workers	Male	736	47	75	142	3	2	31	1,036
	Female	373	37	57	89	3	4	14	577
	Total	1,109	84	132	231	6	6	45	1,613
Administrative support	Male	8,920	3,950	6,990	1,848	106	104	763	22,681
	Female	18,025	11,148	14,851	4,066	231	208	1,400	49,929
	Total	26,945	15,098	21,841	5,914	337	312	2,163	72,610
Operatives	Male	56	68	21	37	0	1	3	186
	Female	18	40	23	14	1	0	1	97
	Total	74	108	44	51	1	1	4	283
Service workers	Male	18	3	2	0	0	0	0	23
	Female	7	0	2	0	0	0	0	9
	Total	25	3	4	0	0	0	0	32
Total	Male	44,756	8,455	12,562	11,918	250	238	1,938	80,117
	Female	40,695	16,347	19,605	11,364	385	327	2,217	90,940
	Total	85,451	24,802	32,167	23,282	635	565	4,155	171,057

*EEO table does not include job categories in which the company does not have employees (craft workers, and laborers & helpers)

2022 employee training hours

Average training hours by segment	
Per person	53
Women	55
People of color	61
Asian	42
Black/African American	62
Hispanic/Latino	73

2022 external hiring

% of hires by segment	
Women	48%
Men	52%
People of color	62%
Asian	15%
Black/African American	20%
Hispanic/Latino	23%
% of hires by region	
United States	73%
Asia Pacific	23%
Europe, Middle East & Africa	3%
Latin America	0%
Canada	0%

2022 employee turnover

% of turnover by segment	
Women	13%
Men	13%
People of color	14%
Asian	13%
Black/African American	14%
Hispanic/Latino	14%
% of turnover by region	
United States	13%
Asia Pacific	14%
Europe, Middle East & Africa	9%
Latin America	7%
Canada	17%

2022 EEO (by percentage of teammates)

U.S. Employee Diversity in 2022

Job category	Gender	White	Black/ African American	Hispanic/ Latino	Asian	American Indian/ Alaska Native	Native Hawaiian/ Other Pacific Islander	Two or more races	Total by gender
Executive/Senior level officials and managers	Male	47.0%	3.0%	3.3%	7.6%	0.1%	0.0%	0.7%	61.8%
	Female	28.4%	3.0%	2.4%	3.7%	0.0%	0.0%	0.5%	38.2%
	Total	75.5%	6.0%	5.7%	11.3%	0.1%	0.1%	1.3%	
First/Mid-level officials and managers	Male	28.4%	4.1%	6.8%	7.2%	0.1%	0.2%	1.0%	47.8%
	Female	29.7%	7.0%	8.9%	5.1%	0.2%	0.2%	1.0%	52.2%
	Total	58.1%	11.1%	15.8%	12.3%	0.4%	0.3%	2.0%	
Professionals	Male	38.6%	4.6%	5.4%	11.1%	0.2%	0.1%	1.3%	61.3%
	Female	21.2%	4.9%	3.8%	7.8%	0.1%	0.1%	0.8%	38.7%
	Total	59.8%	9.5%	9.2%	18.9%	0.3%	0.2%	2.1%	
Technicians	Male	20.3%	9.8%	7.2%	18.5%	0.2%	0.3%	1.3%	57.6%
	Female	8.6%	5.6%	3.2%	24.1%	0.1%	0.1%	0.7%	42.4%
	Total	28.9%	15.4%	10.4%	42.6%	0.3%	0.3%	2.1%	
Sales workers	Male	45.6%	2.9%	4.6%	8.8%	0.2%	0.1%	1.9%	64.2%
	Female	23.1%	2.3%	3.5%	5.5%	0.2%	0.2%	0.9%	35.8%
	Total	68.8%	5.2%	8.2%	14.3%	0.4%	0.4%	2.8%	
Administrative support	Male	12.3%	5.4%	9.6%	2.5%	0.1%	0.1%	1.1%	31.2%
	Female	24.8%	15.4%	20.5%	5.6%	0.3%	0.3%	1.9%	68.8%
	Total	37.1%	20.8%	30.1%	8.1%	0.5%	0.4%	3.0%	
Operatives	Male	19.8%	24.0%	7.4%	13.1%	0.0%	0.4%	1.1%	65.7%
	Female	6.4%	14.1%	8.1%	4.9%	0.4%	0.0%	0.4%	34.3%
	Total	26.1%	38.2%	15.5%	18.0%	0.4%	0.4%	1.4%	
Service workers	Male	56.3%	9.4%	6.3%	0.0%	0.0%	0.0%	0.0%	71.9%
	Female	21.9%	0.0%	6.3%	0.0%	0.0%	0.0%	0.0%	28.1%
	Total	78.1%	9.4%	12.5%	0.0%	0.0%	0.0%	0.0%	
Total	Male	26.2%	4.9%	7.3%	7.0%	0.1%	0.1%	1.1%	46.8%
	Female	23.8%	9.6%	11.5%	6.6%	0.2%	0.2%	1.3%	53.2%
	Total	50.0%	14.5%	18.8%	13.6%	0.4%	0.3%	2.4%	

*EEO table does not include job categories in which the company does not have employees (craft workers, and laborers & helpers)

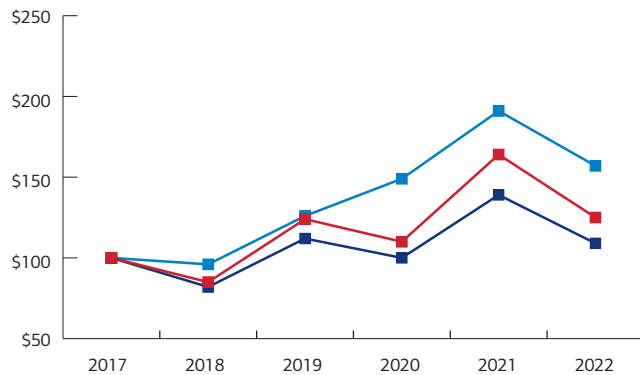
FINANCIAL HIGHLIGHTS

Bank of America Corporation (NYSE: BAC) is headquartered in Charlotte, North Carolina. As of December 31, 2022, we operated across the United States, its territories and more than 35 countries. Through our bank and various nonbank subsidiaries throughout the United States and in international markets, we provide a diversified range of banking and nonbank financial services and products through four business segments comprising eight lines of business: Consumer Banking (includes Retail and Preferred Banking), Global Wealth & Investment Management (includes Merrill and The Private Bank), Global Banking (includes Business Banking, Commercial Banking and Global Corporate & Investment Banking) and Global Markets.

Financial highlights (\$ in millions, except per share information)

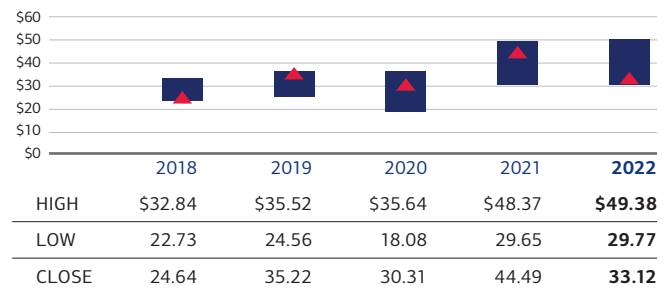
For the year	2022	2021	2020
Revenue, net of interest expense	\$ 94,950	\$ 89,113	\$ 85,528
Net income	27,528	31,978	17,894
Earnings per common share	3.21	3.60	1.88
Diluted earnings per common share	3.19	3.57	1.87
Dividends paid per common share	0.86	0.78	0.72
Return on average assets	0.88%	1.05%	0.67%
Return on average common equity	10.75%	12.23%	6.76%
Return on average tangible common shareholders' equity ¹	15.15	17.02	9.48
Efficiency ratio	64.71	67.03	64.55
Average diluted common shares issued and outstanding	8,167	8,558	8,797
At year-end	2022	2021	2020
Total loans and leases	\$ 1,045,747	\$ 979,124	\$ 927,861
Total assets	3,051,375	3,169,948	2,819,627
Total deposits	1,930,341	2,064,446	1,795,480
Total shareholders' equity	273,197	270,066	272,924
Book value per common share	30.61	30.37	28.72
Tangible book value per common share ¹	21.83	21.68	20.60
Market capitalization	264,853	359,383	262,206
Market price per common share	33.12	44.49	30.31
Common shares issued and outstanding	7,997	8,078	8,651
Common equity ratio	8.0	7.7	8.8
Tangible common equity ratio ¹	5.9	5.7	6.5

Total Cumulative Shareholder Return² Five-Year Period Ending December 31, 2022

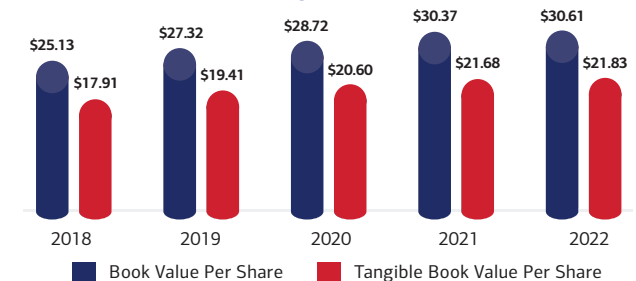


December 31	2017	2018	2019	2020	2021	2022
Bank of America Corporation	\$100	\$85	\$124	\$110	\$164	\$125
S&P 500	100	96	126	149	191	157
KBW Bank Sector Index	100	82	112	100	139	109

BAC Five-Year Stock Performance



Book Value Per Share/Tangible Book Value Per Share¹



¹Represents a non-GAAP financial measure. For more information on these measures and ratios, and a corresponding reconciliation to GAAP financial measures, see Supplemental Financial Data on page 79 and Non-GAAP Reconciliations on page 132 of the 2022 Financial Review section.

²This graph compares the yearly change in the Corporation's total cumulative shareholder return on its common stock with (i) the Standard & Poor's 500 Index and (ii) the KBW Bank Index for the years ended December 31, 2017 through 2022. The graph assumes an initial investment of \$100 at the end of 2017 and the reinvestment of all dividends during the years indicated.

RECOGNITION

We are honored to be recognized by organizations and media around the world for driving Responsible Growth for our clients, teammates and communities.

In 2022, we were named World's Best Bank by Euromoney, America's Most JUST Company by JUST Capital and CNBC, and one of the 100 Best Companies to Work For by Fortune. Below is a summary of our most recent recognition.¹

ASIA SOCIETY

Corporate Citizenship Award (2022)

BARRON'S

100 Most Sustainable Companies (2022, 2021, 2020)
Top 100 Women Advisors (2022)
recognized for 17 consecutive years
America's Top 1,200 Financial Advisors (2022)
recognized for 14 consecutive years

BLOOMBERG

Gender-Equality Index (2023, 2022, 2021, 2020)

BRANDON HALL

23 Human Capital Management Excellence Awards (2022)

COALITION GREENWICH

#1 Share Leader for U.S. Large Corporate Banking (2022, 2021)
#1 Share Leader for U.S. Large Corporate Cash Management (2022 — tied, 2021)
#1 Overall Digital Channels Module, Digital Transformation Benchmarking Study

DAVE THOMAS FOUNDATION FOR ADOPTION

100 Best Adoption-Friendly Workplace (2022, 2021, 2020)

DISABILITY:IN

Disability Equality Index (2022, 2021, 2020)
scored 100%
Named one of the best places for Disability Inclusion (2022, 2021, 2020)

ENVIRONMENTAL FINANCE

Net Zero Progression of the Year — Americas (2022)

EQUILEAP

U.S. and Global Gender Equality Reports (2022, 2021)

EUROMONEY

World's Best Bank (2022)
Best Bank in the U.S. (2022)
World's Best Bank for Corporate Responsibility (2021, 2020)
World's Best Bank for Payments and Treasury (2022, 2021)
Excellence in Leadership — North America (2020)
Best Digital Bank — North America (2020)
Best Bank for Small and Medium-Sized Enterprises — North America (2022)
recognized for seven consecutive years
Best Bank for Corporate Responsibility — North America (2022, 2021)
Best Bank for Transaction Services — North America (2022, 2021, 2020)
Best Bank for Transaction Services — Latin America (2022)
Best Investment Bank — Latin America (2022, 2021)
Best Investment Bank — Colombia and Peru (2022)

FAMILY WEALTH REPORT

Best National and Regional Private Bank (2022)

FORBES

America's Best Employers for Diversity (2022)
World's Best Employers (2023, 2022, 2021)
World's Top Female-Friendly Companies (2022, 2021)
America's Best Employers for Veterans (2022, 2021)
America's Best Large Employers (2023)
America's Best Employers for New Grads (2022, 2021)
America's Best Employers for Women (2022, 2021)

FORTUNE

100 Best Companies to Work For (2022, 2021, 2020)
Best Large Workplaces for Women (2022, 2021, 2020)
Best Workplaces for Parents (2022) *recognized for 6 consecutive years*
Best Large Workplaces in Financial Services and Insurance (2022, 2021, 2020)
Best Large Workplaces for Millennials (2022, 2021)
World's Most Admired Companies (2023, 2022, 2021, 2020) *first ranking Megabank in 2022*

GLOBAL FINANCE MAGAZINE

Global Best Bank for Payments & Collections (2022)
Most Innovative Digital Bank — North America (2022)
Outstanding Innovations in Payments, Treasury and Supply Chain Finance (2022)
Best Global Trade Finance FX (2023)
World's Best Bank for Supply Chain Financing (2023)
Best Bank for Payments and Collections (2022)
Best Bank — North America (2022)
Overall Leader for North America in Sustainable Finance (2022, 2021)
Best Bank for Payments and Collections — North America (2023)
Best Bank in the United States (2022, 2021, 2020)
Best Consumer Digital Bank in the United States (2022, 2021, 2020)
Best Private Bank for Digital (2023) and Philanthropy (2023, 2022)
Best Bank for Treasury and Cash Management — United States (2022)

GLOBAL PRIVATE BANKING

Best Private Bank — North America (2022)

HUMAN RIGHTS CAMPAIGN

Corporate Equality Index (2022, 2021) *scored 100%*
Named one of the Best Places to Work for LGBTQ+ Equality (2022, 2021)

INSTITUTIONAL INVESTOR

#2 Global Research Firm (2022)

J.D. POWER

Ranked #1 in U.S. Merchant Services Satisfaction (2023, 2022)
Ranked #1 in U.S. Online Banking and U.S. Banking Mobile App Satisfaction (2021)
Ranked #1 in U.S. Retail Banking Advice Satisfaction (2021)
Certified Customer Service — Phone — Retirement & Benefits contact center (2022) *recognized for 18 consecutive years*

Certified Customer Service — Phone — Corporate, Global Commercial and Business Banking contact centers (2022) *recognized for 13 consecutive years*

JUST CAPITAL

Named #1 on America's Most JUST Companies (2023)
Named to America's Most JUST Companies (2022, 2021, 2020)
#1 Industry Leader — Banks (2023, 2022)

LATINA STYLE

Top 50 Best Companies for Latinas to Work For in the U.S. (2022) *recognized for 23 consecutive years*
Top 15 Employee Resource Groups of the Year — Hispanic/Latino Organization for Leadership & Advancement (2022, 2021)

LINKEDIN

50 Top Companies in the U.S. (2022, 2021)

MILITARY TIMES

Best for Vets: Employers (2022, 2021, 2020)

NATIONAL LGBT CHAMBER OF COMMERCE

Corporation of the Year (2022)

NEWSWEEK

America's Greatest Workplaces for Diversity (2023)

PEOPLE MAGAZINE

Companies that Care (2022, 2021, 2020)

SERAMOUNT (FORMERLY WORKING MOTHER MEDIA)

100 Best Companies (2022) *recognized for 34 consecutive years*
Best Companies for Multicultural Women (2022, 2021, 2020)
Best Companies for Dads (2022, 2021, 2020)
Top Companies for Executive Women (2022, 2021, 2020)
Inclusion Index (2022, 2021, 2020)

THE ASIAN BANKER

Best International Transaction Bank (2022)

THE BANKER

Transaction Banking — Best in Region for Latin America (2022)
Transaction Banking — Best in Product Globally for Supply Chain Finance (2022, 2021)

UNITED STATES HISPANIC CHAMBER OF COMMERCE

Corporation of the Year (2022)

WOMEN'S BUSINESS ENTERPRISE NATIONAL COUNCIL

Top Corporations for Women's Business Enterprises (2023) *recognized for 12 consecutive award years*

¹The recognitions referenced above represent awards given to various affiliates of Bank of America. Specific details around those awards can be provided by visiting the websites of the companies that provided the awards or by visiting newsroom.bankofamerica.com/awards for further detail.

STAKEHOLDER CAPITALISM METRICS

This index includes Bank of America Corporation’s (the Corporation) disclosures using the Stakeholder Capitalism Metrics developed by the International Business Council (IBC) of the World Economic Forum and the Sustainability Accounting Standards Board.* Separately we satisfy requirements of the United Nations Global Compact (UNGC). We believe this disclosure helps to demonstrate how our sustainable business model drives progress towards inclusive capitalism and the U.N.’s Sustainable Development Goals. In this index, we either reference existing disclosures or respond directly. We evaluate and select the metrics we believe are most relevant to our business model and will continue to review. All reported data is as of and for year-end December 31, 2022, unless otherwise noted. See page 70 for Cautionary Information and Forward-Looking Statements regarding Stakeholder Capitalism Metrics.

INDICATES CORE IBC METRIC

Principles of Governance

THEME	METRIC/QUESTION	RESPONSE/Framework ALIGNMENT
Governing purpose	<p>Setting Purpose: The company’s stated purpose, as the expression of the means by which a business proposes solutions to economic, environmental, and social issues. Corporate purpose should create value for all stakeholders, including shareholders.</p> <hr/> <p>Purpose-led management: How the company’s stated purpose is embedded in company strategies, policies, and goals.</p> <hr/> <p>Description of proxy voting and investee engagement policies and procedures</p>	<p>How we operate to drive responsible growth as discussed in this 2022 Annual Report and our 2023 Proxy Statement articulates how our purpose and Corporate Social Responsibility leadership creates stakeholder value.</p> <p>IBC</p> <hr/> <p>Merrill Lynch and Merrill Private Wealth Management clients enrolled in our investment advisory programs directly determine how to vote their proxies. Through our investment advisory agreement, clients may delegate proxy voting authority directly to institutional shareholder services (ISS) or elect to vote proxies themselves. As part of delegating to ISS, clients may, at their discretion, choose among the ISS Benchmark, ISS Socially Responsible Investing, and ISS Catholic proxy voting guidelines. Managed Account Advisors (MAA) and Merrill Lynch, Pierce, Fenner & Smith (MLPF&S) perform due diligence on ISS to determine that it has the capacity and competency to adequately analyze proxy issues and can make such voting recommendations in an impartial manner and in the best interests of clients. For matters over which ISS has a conflict or is otherwise unable to vote (called Specified Investments), the proxy committee of MAA or MLPF&S, as applicable, will have the authority to vote proxies in accordance with its proxy voting policies and procedures. MAA or MLPF&S does not assume proxy voting authority for securities except with respect to Specified Investments. For proxies neither covered by ISS nor included as Specified Investments, the client will retain the right to vote those proxies. Generally, Bank of America The Private Bank (The Private Bank) clients delegate authority to The Private Bank to vote proxies on their behalf. The Private Bank has a fiduciary focused proxy voting policy and custom guidelines and employs Glass Lewis to execute the votes. For investment management accounts where The Private Bank is not the trustee or other named fiduciary, clients may delegate proxy authority directly to Glass Lewis (or other proxy advisor as determined by The Private Bank) via their investment advisory agreement, as described above. Clients may also withhold this delegation and vote themselves if they choose to do so.</p> <p>SASB: FN-AC-410a.3</p>
Quality of governing body	<p>Governing Body Composition: Composition of the highest governance body and its committees by: competencies relating to economic, environmental, and social topics; executive or non-executive; independence; tenure on the governance body; number of each individual’s other significant positions and commitments and the nature of the commitments; gender; membership of underrepresented social groups and stakeholder representation.</p>	<p>Refer to “Proposal 1: Electing directors” in our 2023 Proxy Statement on the Bank of America Investor Relations website at www.bankofamerica.com/investor.</p> <p>IBC SASB.FN-AC-330a.1 SASB.FN-IB-330a.1</p>

*In August 2022, the International Financial Reporting Standards (IFRS) Foundation assumed responsibility for SASB Standards. These standards are expected to be replaced by IFRS Sustainability Disclosure Standards in the future.

THEME	METRIC/QUESTION	RESPONSE/Framework ALIGNMENT
Quality of governing body (continued)	Progress against strategic milestones: Disclosure of the material strategic economic, environmental, and social milestones expected to be achieved in the following year, such milestones achieved from the previous year, and how those milestones are expected to or have contributed to long-term value.	Refer to our 2022 Task Force on Climate-related Financial Disclosures report (www.bankofamerica.com/TCFD) for our financed emissions targets, operational environmental performance and other goals; and other highlights from this Annual Report for details on our \$1.5 trillion Sustainable Finance commitment. Since June 2020, we have committed \$760 million against our incremental \$1.25 billion commitment to racial equality and economic opportunity including jobs, affordable housing, small business success and health. We also continued progress toward our \$15 billion Community Homeownership Commitment, helping 39,000 low- and moderate-income people purchase a home. Additionally, we have issued three \$2 billion Equality Progress Sustainability Bonds, the use of proceeds from which are designed to advance racial and gender equality, economic opportunity and environmental sustainability.
	Remuneration: 1. How performance criteria in the remuneration policies relate to the highest governance body's and senior executives' objectives for economic, environmental and social topics, as connected to the company's stated purpose, strategy and long-term value. 2. Remuneration policies for the highest governance body and senior executives for the following types of remuneration: Fixed pay and variable pay, including performance-based pay, equity-based pay, bonuses, and deferred or vested shares, Sign-on bonuses or recruitment incentive payments, termination payments, clawback and retirement benefits.	Refer to the "Compensation discussion and analysis" section in our 2023 Proxy Statement available on the Bank of America Investor Relations website at www.bankofamerica.com/investor . IBC
Ethical behavior	Anti-corruption: 1. Total percentage of governance body members, employees and business partners who have received training on the organization's anti-corruption policies and procedures, broken down by region. 2. (a) Total number and nature of incidents of corruption confirmed during the current year but related to previous years and (b) Total number and nature of incidents of corruption confirmed during the current year, related to this year. 3. Discussion of initiatives and stakeholder engagement to improve the broader operating environment and culture, in order to combat corruption.	1. 100% of Bank of America employees are required to take training on anti-bribery and anti-corruption policies as part of Bank of America's Code of Conduct training. 2. For disclosure of certain legal proceedings, see Note 12—Commitments and Contingencies, starting on page 180 of the 2022 Financial Review found at www.bankofamerica.com/investor.bankofamerica.com/annual-reports-and-proxy-statements . 3. Refer to page 21 of our Code of Conduct available at www.bankofamerica.com/investor . IBC
	Protected ethics advice and reporting mechanisms: A description of internal and external mechanisms for: 1. Seeking advice about ethical and lawful behaviour and organizational integrity 2. Reporting concerns about unethical or lawful behaviour and organizational integrity SASB: Description of approach to ensuring professional integrity, including duty of care	Refer to page 17 of our Code of Conduct available on the Bank of America Investor Relations website at www.bankofamerica.com/investor . Refer to our Code of Conduct for further information on professional integrity. Additionally, refer to the Our company section of the Corporation's website, in particular the responsible growth and our Business practices sections. IBC SASB.FN-AC-270a.1; SASB.FN-AC-510a.2; SASB.FN-CB-510a.2 SASB.FN-CF-270a.1; SASB.FN-IB-510a.2; SASB.FN-MF-270a.1
	Monetary losses from unethical behaviour: Total amount of monetary losses as a result of legal proceedings associated with: fraud, insider trading, anti-trust, anti-competitive behaviour, market manipulation, malpractice, or violations of other related industry laws or regulations.	For disclosure of certain legal proceedings, see Note 12—Commitments and Contingencies on page 180 of the 2022 Financial Review. IBC
	Alignment of strategy and policies to lobbying: The significant issues that are the focus of the company's participation in public policy development and lobbying; the company's strategy relevant to these areas of focus; and any differences between its lobbying positions, purpose, and any stated policies, goals or other public positions.	Refer to our Political Activities disclosure available on the Bank of America Investor Relations website at www.bankofamerica.com/investor . IBC
	Description of whistleblower policies and procedures	Refer to our Code of Conduct available at www.bankofamerica.com/investor for policies and procedures related to reporting ethical misconduct. SASB: FN-CB-510A. 2, FN-IB-510A. 2, FN-AC-510A. 2
Customer treatment	Transparent Information & Fair Advice for Customers: Description of approach to informing customers about products and services	Refer to the What we Offer page within the Our company section of our website for the Corporation's approach to serving its clients. Further, refer to our Responsible Growth section within the Our company section of our website to read about how our Corporation is a simpler, more efficient company that combines two crucial areas: growing the economy while creating tangible value for our business, our clients and the communities we serve. SASB: FN-AC-270a.3

THEME	METRIC/QUESTION	RESPONSE/Framework ALIGNMENT
Risk and opportunity oversight	Integrating risk and opportunity into business process: Company risk factor and opportunity disclosures that clearly identify the principal material risks and opportunities facing the company specifically (as opposed to generic sector risks), the company appetite in respect of these risks, how these risks and opportunities have moved over time and the response to those changes. These opportunities and risks should integrate material economic, environmental, and social issues, including climate change and data stewardship.	Refer to the Bank of America Environmental and Social Risk Policy Framework available at www.bankofamerica.com/ESRPF . IBC SASB.FN-AC-550a.1; SASB.FN-AC-550a.2 SASB.FN-AC-550a.3; SASB.FN-AC-550a.4 SASB.FN-CB-230a.1; SASB.FN-CB-230a.2 SASB.FN-CB-550a.1; SASB.FN-CB-550a.2 SASB.FN-CF-230a.1; SASB.FN-CF-230a.3 SASB.FN-IB-550a.1; SASB.FN-IB-550a.2 SASB.FN-MF-450a.1; SASB.FN-MF-450a.2; SASB.FN-MF-450a.3
	Economic, environmental, and social topics in capital allocation framework: How the highest governance body considers economic, environmental, and social issues when overseeing major capital allocation decisions, such as expenditures, acquisitions and divestures	Bank of America's Board of Directors (the Board) oversees the development and execution of the Corporation's strategic direction. The Board oversees the execution of that strategy through regular engagement with Corporation leadership, including through management reports evaluating future opportunities and risks and monitoring how the Corporation's direction and decisions align to the four tenets of responsible growth. Responsible growth has four straightforward tenets, including "we must grow in a sustainable manner." Bank of America focuses on responsible growth by: (1) sharing its success with the communities it serves, including through its wide-ranging ESG activities; (2) being a great place to work for its teammates; and (3) driving operational excellence so that it can continue to invest in its employees and capabilities.
Data security	Description of approach to identifying and addressing data security risks	Refer to our Information Security and Privacy Policies available on the Governance page of our corporate website and the Compliance and Operational Risk Management section on pages 127-128 of the 2022 Financial Review for detail on our approach to data security risks. SASB: FN-CB-230a.2; FN-CF-230a.3
Systemic risk management	Global Systemically Important Bank (G-SIB) score, by category	Our G-SIB surcharge is 2.5%. Refer to the Regulatory Capital subsection on page 97 of the 2022 Financial Review for further detail. Additionally, refer to our Banking Organization Systematic Risk Report FR Y-15 filing for further information that factors into our calculation. SASB: FN-CB-550a.1; FN-IB-550a.1
	Description of approach to incorporation of results of mandatory and voluntary stress tests into capital adequacy planning, long-term corporate strategy, and other business activities	We conduct various scenario analyses, included as part of the Comprehensive Capital Analysis and Review (CCAR) stress tests, as well as our resolution and recovery planning. For more information, see the Corporation-wide Stress Testing section on page 95 and the Capital Management section on page 96 of the 2022 Financial Review. SASB: FN-CB-550a.2; FN-IB-550a.2
Stakeholder engagement	Material issues impacting stakeholders: A list of the topics that are material to key stakeholders and the company, how the topics were identified, and how the stakeholders were engaged.	Stakeholders are engaged in part through our National Community Advisory Council (NCAC), a forum made of senior leaders from social justice, consumer advocacy, community development, environmental and research organizations who provide external perspectives, guidance and feedback on our business policies and practices. Refer to our ESG Materiality disclosure available at www.bankofamerica.com/ESGMateriality for more information. IBC
Incorporation of environmental, social, and governance factors in credit analysis	Commercial and industrial credit exposure, by industry	Refer to the Industry Concentrations subsection on pages 115-116 of the 2022 Financial Review for additional information. SASB: FN-CB-410a.1
	Description of approach to incorporation of environmental, social, and governance (ESG) factors in credit analysis, in investment banking and brokerage activities and in wealth management processes and strategies	Refer to the Bank of America Corporation Environmental and Social Risk Policy Framework at www.bankofamerica.com/ESRPF for information on our approach to incorporating ESG factors into our risk management activities. SASB: FN-CB-410a.2; FN-IB-410a.3; FN-AC-410a.2
	(1) Number and (2) total value of investments and loans incorporating integration of environmental, social, and governance (ESG) factors, by industry	Refer to page 14 of the ESG Performance Data Summary available at www.bankofamerica.com/ESGdata2021 for more information on our investment in Economic and Social Progress and Environmental Sustainability. SASB: FN-IB-410a.2
	Amount of assets under management, by asset class, that employ (1) integration of environmental, social, and governance (ESG) issues, (2) sustainability themed investing, and (3) screening	As of December 31, 2022, Bank of America had \$45.5 billion of client balances in Sustainable & Impact Investments which we define as investment strategies that intentionally integrate environmental, social or governance factors in order to avoid harm by reducing negative social or environmental effects or managing risk by limiting certain exposures, benefit stakeholders by supporting positive social or environmental practices, or contribute to solutions that address specific and measurable sustainability outcomes or impact. SASB FN-AC-410a.1

THEME	METRIC/QUESTION	RESPONSE/Framework ALIGNMENT
Customer privacy	Number of account holders whose information is used for secondary purposes	Bank of America is committed to collecting, using and sharing personal information responsibly. Refer to www.bankofamerica.com/privacy for information on how we process personal information and choices customers have to control the use and sharing of their personal information. SASB: FN-CF-220a.1

Planet*

THEME	METRIC/QUESTION	RESPONSE/Framework ALIGNMENT
Climate change	<p>Greenhouse Gas (GHG) emissions: For all relevant greenhouse gases (e.g. carbon dioxide, methane, nitrous oxide, F-gases etc.), report in metric tonnes of carbon dioxide equivalent (tCO₂e) GHG Protocol Scope 1 and Scope 2 emissions. Estimate and report material upstream and downstream (GHG Protocol Scope 3) emissions where appropriate.</p>	<p>Bank of America's 2021 greenhouse gas emissions (tCO₂e) are set forth below. Since 2010, we have reduced location-based emissions 60% globally. For more information, refer to our ESG Performance Data Summary (2021) available at www.bankofamerica.com/ESGData2021.</p> <ul style="list-style-type: none"> • Scope 1 Direct: 57,076 • Location-based Scope 2 Indirect: 601,906 • Market-Based Scope 2 Indirect: 13,886 • Total net Scope 1 and Market-Based Scope 2: 0 • Scope 3 Purchased Goods and Services: 1,436,100 • Scope 3 Capital Goods: 46,183 • Scope 3 Fuel- and Energy-Related Activities: 141,748 • Scope 3 Upstream Transportation and Distribution: 124,780 • Scope 3 Waste (Traditional Disposal): 11,757 • Scope 3 Business Travel: 18,822 • Scope 3 Net Business Travel: 18,822 • Scope 3 Employee Commuting: 144,625 • Scope 3 Downstream Transportation and Distribution: 1,000,000 • Scope 3 Use of Sold Products: 3,000 • Scope 3 End of Life Treatment of Sold Products: 9,000 <p>IBC</p>
	<p>TCFD implementation: Fully implement the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). If necessary, disclose a timeline of at most three years for full implementation. Disclose whether you have set, or have committed to set GHG emissions targets that are in line with the goals of the Paris Agreement—to limit global warming to well-below 2°C above pre-industrial levels and pursue efforts to limit warming to 1.5°C—and to achieve net-zero emissions before 2050.</p>	<p>In 2022, Bank of America released its second Task Force on Climate-related Financial Disclosures (TCFD) Report which included financed emissions baseline data for three sectors. More information is available at www.bankofamerica.com/TCFD and www.bankofamerica.com/NetZero.</p> <p>IBC</p>
	<p>Paris-aligned GHG emissions targets: Define and report progress against time-bound science-based GHG emissions targets that are in line with the goals of the Paris Agreement – to limit global warming to well-below 2°C above pre-industrial levels and pursue efforts to limit warming to 1.5°C. This should include defining a date before 2050 by which you will achieve net-zero greenhouse gas emissions and interim reduction targets based on the methodologies provided by the Science Based Targets initiative if applicable.</p>	<p>Building on our history of climate leadership, we are working towards 2030 targets for our operations and supply chain. Our Net Zero before 2050 goal includes operations, supply chain and financing activities (i.e., Scope 1, Scope 2 and material Scope 3). As a next step in our path to achieve Net Zero, we published our Approach to Zero™ strategy in 2022, outlining our 2030 science-aligned targets for reducing emissions associated with financing activities for three key sectors: Auto Manufacturing, Energy and Power Generation. These targets were set using the International Energy Agency's Net Zero 2050 1.5° aligned scenario. We published our baseline (2019) and latest available (2020) emissions for these three portfolios in our 2022 TCFD report. For more information, refer to www.bankofamerica.com/NetZero, our Task Force on Climate-Related Financial Disclosures Report (www.bankofamerica.com/TCFD) and ESG Performance Data Summary (www.bankofamerica.com/ESGdata2021).</p> <p>IBC</p>
	<p>Impact of Greenhouse gas emissions: Report wherever material along the value chain (GHG protocol scopes 1,2&3), the valued societal impact of greenhouse gas emissions. Disclose the estimate of the social/societal cost of carbon used and the source or basis for this estimate.</p>	<p>The societal impact of Bank of America's Scope 1, Scope 2 (location-based), and Scope 3 (Categories 1-7, 9, 11-12) emissions in 2021 was estimated to be \$183 million. This figure was calculated using the EPA's 2020 social cost of carbon of \$51/metric ton CO₂ (3% discount rate, reported in 2020 USD).</p> <p>IBC</p>

THEME	METRIC/QUESTION	RESPONSE/Framework ALIGNMENT
Fresh water availability	Water consumption and withdrawal in water-stressed areas: Report for operations where material, mega litres of water withdrawn, mega litres of water consumed and the percentage of each in regions with high or extremely high baseline water stress according to WRI Aqueduct water risk atlas tool. Estimate and report the same information for the full value chain (upstream and downstream) where appropriate.	In 2021, Bank of America withdrew 6,325 and consumed 1,492 megaliters of water across our global operations. Withdrawals include all of the water we use per year, including some reclaimed water.* We consider our irrigation water use as our water consumption. 41% of our withdrawals and 46% of our consumption were from regions with high or extremely high baseline water stress according to the WRI Aqueduct Water Risk Atlas tool. IBC
Nature loss	Land use and ecological sensitivity: Report the number and area (in hectares) of sites owned, leased or managed in or adjacent to protected areas and/or key biodiversity areas (KBA).	In 2021, Bank of America had 10 active U.S. sites that intersected with areas protected for biodiversity. The area of these buildings is approximately 7,120 square meters. Only U.S. sites are included in this analysis. U.S. sites make up over 90% of Bank of America's real estate footprint. Sites were overlaid on the U.S. Geological Survey's Protected Areas Database to understand intersection with protected areas. IBC
Air pollution	Air pollution: Report wherever material along the value chain: Nitrogen oxides (NOx), sulphur oxides (SOx), particulate matter and other significant air emissions. Wherever possible, estimate the proportion of specified emissions that occur in or adjacent to urban/densely populated areas.	Bank of America's 2021 air pollution emissions (metric tons) are set forth below. These air pollution emissions are from all of our sites globally and are not specific to urban/densely populated areas. For more information, refer to our ESG Performance Data Summary (2021) available at www.bankofamerica.com/ESGData2021 . <ul style="list-style-type: none"> • SO_x: 1 • NO_x: 19 • Carbon Monoxide (CO): 27 • Volatile Organic Compound (VOC): 2 • Particulate Matter (PM): 3 IBC
	Impact of air pollution: Report wherever material along the value chain, the valued impact of air pollution, including nitrogen oxides (NOx), sulfur oxides (SOx), particulate matter and other significant air emissions.	The valued impact of Bank of America's air pollution (SO _x , NO _x , CO, VOCs, and PM) in 2021 was estimated to be \$134,000. This figure was calculated using the social cost factors of each pollutant as reported in the World Resources Institute's Transport Emissions & Social Cost Assessment Tool v1.0. These social cost factors are weighted averages based on a research process that merges the findings of independent academic studies to calculate an overall or "absolute" effect. IBC
Environmental risk to mortgaged properties	(1) Number and (2) value of mortgage loans in 100-year flood zones.	As of December 31, 2022, the Corporation had 40,399 loans with a book value of \$11.8 billion in 100-year flood zones according to the Federal Emergency Management Agency (FEMA) definition. SASB: FN-MF-450a.1
	(1) Total expected loss and (2) Loss Given Default (LGD) attributable to mortgage loan default and delinquency due to weather related natural catastrophes, by geographic region.	The Corporation currently does not have a process in place to estimate future losses specific to natural catastrophes. We have monitored natural disasters in the last few years and given our robust insurance requirements, client selection process and portfolio asset quality (borrower's equity), we have experienced no material losses. We understand this may change based on severity and location of future events. Refer to the Climate Risk Management subsection on page 128 of the 2022 Financial Review for additional information. See our Task Force on Climate-related Financial Disclosures (www.bankofamerica.com/TCFD) report for details on scenario analysis and stress testing. SASB: FN-MF-450a.2
	Description of how climate change and other environmental risks are incorporated into mortgage origination and underwriting.	Recognizing that certain sectors are more sensitive to climate-related and environmental risks, we undertake enhanced due diligence to analyze lending activities in these sectors to evaluate the associated credit risks. Evaluation of environmental matters may include land and water use impacts, a remediation/reclamation track record (if applicable), climate risk reporting, community and stakeholder engagement and overall transparency. For acute physical risk, which are event-driven extreme weather events such as cyclones, hurricanes, or floods, the Corporation follows Federal flood insurance regulations and the industry's mortgage hazard insurance (including fire/wind coverage) during underwriting. Flood insurance requirements are based on flood zones determined by FEMA. Insurance coverage amounts require replacement value of property with policy parameters following industry standards for minimum/maximum. SASB: FN-MF-450a.3

*Water that is reclaimed from a variety of sources then treated and reused for beneficial purposes such as irrigation and groundwater reclamation.

Prosperity

THEME	METRIC/QUESTION	RESPONSE/Framework ALIGNMENT												
Employment and wealth generation	Absolute number and rate of employment: 1. Total number and rate of new employee hires during the reporting period, by age group, gender, other indicators of diversity and region. 2. Total number and rate of employee turnover during the reporting period, by age group, gender, other indicators of diversity and region.	In 2022, turnover was up slightly from 2021, and attrition rates at Bank of America are consistent across all genders. For more information, refer to the Human Capital Management section of this Annual Report. IBC SASB.FN-IB-550b.1; SASB.FN-IB-550b.2; SASB.FN-IB-550b.3												
	Economic Contribution: 1. Direct economic value generated and distributed (EVG&D)—on an accrual basis, covering the basic components for the organization's global operations, ideally split out by: a. Revenue b. Operating Costs c. Employee wages and benefits d. Payments to providers of capital e. Payments to government f. Community Investment 2. Financial assistance received from the government— Total monetary value of financial assistance received by the organization from any government during the reporting period.	1a–d. Refer to Financial Statements and Notes beginning on page 133 of the 2022 Financial Review. 1e. Refer to Total Tax Paid metric below. 1f. 2022 Total philanthropic giving was \$360 MM 2. No financial assistance received from the government; the Corporation does not consider income tax credits to be applicable. See the Corporation's response for the Total Tax Paid metric below for more information. IBC												
Wealth creation and employment	Financial investment contribution disclosure: 1. Total capital expenditures (CapEx) minus depreciation supported by narrative to describe the company's investment strategy. 2. Share buybacks plus dividend payments supported by narrative to describe the company's strategy for returns of capital to shareholders.	1. Bank of America's current investment strategy heavily prioritizes its technology and real estate infrastructure. The Corporation invests annually to improve operational efficiencies for the Corporation and innovate for our customers. We continue to invest in projects to achieve Leadership in Energy and Environmental Design (LEED) certification throughout our real estate footprint, including efficiency, solar energy and modernization of our financial center network. Sustainable investments also include the transition to an electric vehicle fleet. 2. For more information outlining our return of capital to shareholders, see Note 13— Shareholders' Equity on page 184 of the 2022 Financial Review. IBC												
Community and social vitality	Total tax paid: The total global tax borne by the company, including corporate income taxes, property taxes, non-creditable VAT and other sales taxes, employer-paid payroll taxes and other taxes that constitute costs to the company, by category of taxes.	IBC The table set forth below reflects the approximate amount of each category of tax paid by the Corporation globally. U.S. income tax law provides investors in affordable housing projects, renewable energy projects and other activities that further ESG principles and important societal goals with credits that can reduce income taxes otherwise owed. The amount shown in the table for Corporate Income Taxes paid would have been approximately \$3.5 billion higher were it not for these credits, reflecting our support of these projects and activities.												
		Global Tax Paid in 2022 (\$ in billions)												
		<table border="1"> <tbody> <tr> <td>Corporate Income Taxes</td> <td style="text-align: right;">2.3</td> </tr> <tr> <td>Property Taxes</td> <td style="text-align: right;">0.2</td> </tr> <tr> <td>Non-creditable Value-added Tax (VAT) and Other Sales Taxes</td> <td style="text-align: right;">0.4</td> </tr> <tr> <td>Employer-paid Payroll Taxes</td> <td style="text-align: right;">1.9</td> </tr> <tr> <td>Other Taxes</td> <td style="text-align: right;">0.9</td> </tr> <tr> <td>Total</td> <td style="text-align: right;">5.7</td> </tr> </tbody> </table>	Corporate Income Taxes	2.3	Property Taxes	0.2	Non-creditable Value-added Tax (VAT) and Other Sales Taxes	0.4	Employer-paid Payroll Taxes	1.9	Other Taxes	0.9	Total	5.7
Corporate Income Taxes	2.3													
Property Taxes	0.2													
Non-creditable Value-added Tax (VAT) and Other Sales Taxes	0.4													
Employer-paid Payroll Taxes	1.9													
Other Taxes	0.9													
Total	5.7													
Innovation in better products and services	Total R&D expenses (\$): Total costs related to research and development. Innovation is key to prosperity and total costs relating to R&D can be regarded as a basic indication of a company's efforts to innovate new products and services and be fit for the future. This can also provide insights into the capacity of the company to create new offerings, generate social or environmental benefits and more detailed specific disclosure could demonstrate progress against the SDGs.	Given the nature of the Corporation's work and our mission to deliver responsible growth to our stakeholders, Bank of America heavily invests in software development through R&D. We do this in the spirit of innovation, operational excellence, product improvement, security, and regulatory compliance. While R&D expenses are indicative of the Corporation's investment in innovation and producing better products and services for their clients, it is not the only way to measure the Corporation's efforts to be fit for the future. We continue to mobilize financing toward our \$1.5 trillion Sustainable Finance commitment to advance a low-carbon economy. Refer to this Annual Report and www.bankofamerica.com/ESGdata2021 for more information.												

THEME	METRIC/QUESTION	RESPONSE/Framework ALIGNMENT
Financial inclusion	(1) Number and (2) amount of loans outstanding qualified to programs designed to promote small business and community development	We extended approximately \$9 billion in low- to moderate-income (LMI) loans to small businesses in 2022. Refer to pages 10-12 of our 2021 Environmental, Social, and Governance (ESG) Performance Data Summary for more information on small business and community support available at www.bankofamerica.com/ESGData2021 SASB: FN-CB-240a.1 SASB: FN-CB-240a.2
	Number of no-cost retail checking accounts provided to previously unbanked or underbanked customers	As of year-end 2022, we had 4.6 million SafeBalance Banking accounts. SafeBalance, a no overdraft fee account, is a low-cost deposit service provided to our customers and Bank On certified since 2017. Students under age 25 are eligible for a waiver of the monthly maintenance fee. SASB: FN-CB-240a.3
	Number of participants in financial literacy initiatives for unbanked, underbanked, or underserved customers	We provide financial literacy to all of our customers through the Better Money Habits financial education platform. Better Money Habits is a resource that helps individuals and families build know-how on topics ranging from budgeting and saving to home ownership and retirement—designed for the way people want to learn today. In 2022, this platform was accessed approximately 7.4 million times. SASB: FN-CB-240a.4

People

THEME	METRIC/QUESTION	RESPONSE/Framework ALIGNMENT
Dignity and equality	Diversity and inclusion (%) : Percentage of employees per employee category, per age group, gender and other indicators of diversity (e.g. ethnicity). Percentage of gender and racial/ethnic group representation for (1) executive management, (2) non-executive management, (3) professionals, and (4) all other employees	Refer to the Human Capital Management section of this Annual Report. IBC SASB: FN-IB -330A. 1, FN-AC-330A. 1
	Pay equality : Ratio of the basic salary and remuneration for each employee category by significant locations of operation for priority areas of equality: women to men; minor to major ethnic groups; and other relevant equality areas. SASB : Percentage of total remuneration that is variable for Material Risk Takers (MRTs); Percentage of variable remuneration of Material Risk Takers (MRTs) to which malus or clawback provisions were applied; Discussion of policies around supervision, control, and validation of traders' pricing of Level 3 assets and liabilities	Refer to the Equal Pay for Equal Work Section in our 2023 Proxy Statement available on the Bank of America Investor Relations website at www.bankofamerica.com/investor . We conduct rigorous analysis with outside experts to examine individual employee pay before year-end compensation decisions are finalized adjusting compensation where appropriate. The results of our equal pay for equal work review are disclosed in the Proxy Statement. Our analysis focuses on total compensation and includes geographies where we have significant operations for women and covers the U.S. for people of color. SASB answers : Variable incentive remuneration awards (both annual and deferred) are subject to distinct features that can result in the cancellation of awards or clawback of prior payments in the event of certain detrimental conduct or financial losses. We believe these features encourage appropriate behavior and manage risk in our compensation program. For individual Material Risk Takers in the Investment Bank & Brokerage sector, 100% of deferred variable compensation is subject to clawback. For 2022 compensation, approximately 76% of total remuneration was variable, of which 67% was deferred and therefore subject to clawback. Refer to the Complex Accounting Estimates section on pages 129-131 and Notes 1 and 20 of the 2022 Financial Review on pages 141-149 and 195-204. IBC SASB: FN-IB -550b.1, FN-IB -550b.2, FN-IB -550b.3

THEME	METRIC/QUESTION	RESPONSE/Framework ALIGNMENT
Dignity and equality (continued)	Wage level (%): 1. Ratios of standard entry-level wage by gender compared to local minimum wage 2. Ratio of CEO's total annual compensation to median total annual compensation of all employees (excluding the CEO)	1. We are an industry leader in establishing an internal minimum rate of pay above all mandated minimums for our U.S. hourly teammates, and have made regular increases over the past several years. Our minimum hourly wage for U.S. teammates was raised to \$22 in 2022, building toward \$25 per hour by 2025. We compare our average U.S. hourly pay and benefits to living wage standards utilizing Massachusetts Institute of Technology's Living Wage Calculator. The Living Wage calculator is a market based approach that measures the basic needs of a family including items such as food, childcare, health insurance and housing costs. We are above the living wage for a family in all of our U.S. markets when we consider our average hourly pay plus benefits in alignment with the living wage definition. 2. Refer to the section entitled "CEO pay ratio" in our 2023 Proxy Statement available on the Bank of America Investor Relations website at www.bankofamerica.com/investor . IBC
	Risk for incidents of child, forced or compulsory labor: An explanation of the operations and suppliers considered to have significant risk for incidents of child labor, forced or compulsory labor. Such risks could emerge in relation to type of operation (such as manufacturing plant) and type of supplier; or countries or geographic areas with operations and suppliers considered at risk.	Refer to our Modern Slavery Act Statement, available at www.bankofamerica.com/ModernSlaveryAct , which is updated annually. IBC
	Freedom of Association and Collective Bargaining at Risk (%): 1. Percentage of active workforce covered under collective bargaining agreements 2. An explanation of the assessment performed on suppliers for which the right to freedom of association and collective bargaining is at risk including measures taken by the organization to address these risks.	1. No U.S.-based employees are subject to collective bargaining agreements. 2. We do not currently conduct this assessment. IBC
Human rights	Human rights review, grievance impact & modern slavery (#, %) 1. Total number and percentage of operations that have been subject to human rights reviews or human rights impact assessments, by country. 2. Number and type of grievances reported with associated impacts related to a salient human rights issue in the reporting period and an explanation on type of impacts. 3. Number and percentage of operations and suppliers considered to have significant risk for incidents of child labour, forced or compulsory labour. Such risks could emerge in relation to: a) type of operation (such as manufacturing plant) and type of supplier; and b) countries or geographic areas with operations and suppliers considered at risk.	3. 320, or 7% of our suppliers are in industries which are considered to have risk for incidents of child labour, forced or compulsory labour. For more information on how we address suppliers in these industries, refer to our Modern Slavery Act Statement available at www.bankofamerica.com/ModernSlaveryAct . Our Human Rights statement and Supplier Code of Conduct also outline our position on human rights. IBC
Health and well being	Health and Safety (%): 1. The number and rate of fatalities as a result of work-related injury; high-consequence work-related injuries (excluding fatalities); recordable work-related injuries, main types of work-related injury; and the number of hours worked. 2. An explanation of how the organization facilitates workers' access to non-occupational medical and healthcare services and the scope of access provided for employees and workers.	1. This metric is not material for the banking industry. 2. Refer to the Human Capital Management section of this Annual Report. IBC
Skills for the future	Training provided (#, \$): 1. Average hours of training per person that the organization's employees have undertaken during the reporting period, by gender and employee category (total number of trainings provided to employees divided by the number of employees). 2. Average training and development expenditure per full time employee.	Refer to the Human Capital Management section of this Annual Report for training hours and expenditure data.
	Number of unfilled "Skilled" positions (#, %): 1. Number of Unfilled "Skilled" positions (#) 2. Percentage of unfilled "Skilled" positions for which the company will hire unskilled candidates and train them. (%)	Bank of America is committed to creating opportunities for our current and prospective employees to grow and develop, including reskilling for specialized jobs. We're working toward an additional goal to hire more than 10,000 teammates from LMI neighborhoods through our Pathways career programs by 2025, bringing our total to 20,000 LMI hires. Pathways works with expanded partnerships with community colleges and local organizations such as Year Up, Road to Hire, UnidosUS and the Urban Alliance. For more information on how we attract and develop talent, refer to the Human Capital Management section of this Annual Report. IBC

SASB Activity Metrics/Other

Our responses to the SASB Activity Metrics referenced below can be found within our 2022 Financial Review. We have provided the specific page numbers and location (where appropriate) where each response to the Activity Metric can be located.

Reference	Response	
FN-CB-000.B, FN-IB-000.A, FN-MF-000.A	Refer to Note 5 on pages 161-171 for disclosure of our Loans and Leases.	
FN-IB-000.C, FN-AC-000.A FN-AC-000.B	Refer to the Global Markets tables on pages 91-92 and additional information on page 88 for this data.	
FN-CB-000.A FN-CB-000.B	For more on consumer and small business deposits, refer to the Business Segment Operations section of the 2022 Financial Review, pages 84-93. Our Consumer Banking segment deposit information includes Small Business.	
FN-IB-510b.3; FN-AC-270a.2; FN-CF-220A.2, FN-MF-270a.3, FN-CF-270a.5, FN-MF-270b.2	Refer to the disclosure of certain legal proceedings in Note 12 of the 2022 Financial Review.	
FN-MF-000.A	(1) Number and (2) value of (a) underwriting, (b) advisory, and (c) securitization transactions	Refer to the Global Investment Banking section on page 90 of the 2022 Financial Review for disclosure of our Investment Banking activity and Note 6 on pages 171-175 of the 2022 Financial Review for disclosure regarding our securitizations.
FN-IB-000.C	(1) Number and (2) value of market making transactions in (a) fixed income, (b) equity, (c) currency, (d) derivatives, and (e) commodity products	Refer to the Global Markets tables and discussion on pages 91-92 of the 2022 Financial Review for disclosure of the financial results associated with the Corporation's market making transactions.
FN-AC-000.A	(1) Total registered and (2) total unregistered assets under management (AUM)	Refer to the Corporation's Global Wealth & Investment Management Key Indicators and Metrics on page 87-88 of the 2022 Financial Review for our total Assets Under Management. Additionally, refer to the same table and the Client Balances subsection for further detail on the Corporation's client balances under management.
FN-AC-000.B	Total assets under custody and supervision	Refer to the Corporation's Global Wealth & Investment Management Key Indicators and Metrics on page 87-88 of the 2022 Financial Review for our total Assets Under Management. Additionally, refer to the same table and the Client Balances subsection for further detail on the Corporation's client balances under management.

*2022 Environmental Data will be published in Q2 2023.

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Cautionary Information and Forward-Looking Statements

This report, including the Stakeholder Capitalism Metrics section, contains certain statements regarding Responsible Growth and environmental, social and governance information and opinions, including metrics, aspirations, targets, goals, commitments, cumulative values and sustainability strategy (collectively, the Sustainability Information). The Sustainability Information included in this report may consider disclosure recommendations and broader definitions of materiality used by certain voluntary external frameworks and reporting guidelines that differ from mandatory regulatory reporting, including the U.S. Securities and Exchange Commission (SEC). Accordingly, any such Sustainability Information may be presented from a different perspective and in more detail than in Bank of America's regulatory reporting, and materiality and any use of the term "material" in the context of the Sustainability Information may be distinct from such term as defined for SEC reporting purposes. Any inclusion of Sustainability Information in this report is not an indication that the subject or information is material to Bank of America for SEC reporting purposes.

Additionally, Sustainability Information may be based on current or historic goals, targets, commitments, estimates, assumptions, standards, methodologies and internal control frameworks and currently available data, which continue to evolve and develop, and such statements are not guarantees or promises that any such metrics, aspirations, targets, goals or commitments will be met. The Sustainability Information is as of the date referenced, subject to change without notice and may be regarded as indicative and for illustrative purposes only. The Sustainability Information may vary based on applicable laws, rules and regulations and in different geographic areas. Such Sustainability Information may also include the use of non-financial metrics and other information that are subject to significant measurement uncertainties, which may include the methodology, collection and verification of data, various estimates and assumptions and/or underlying data that is obtained from third parties, some of which we cannot independently verify.

Certain statements contained in this report may constitute "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, including statements about our future financial performance and business and Sustainability Information, which may evolve over time. We use words such as "anticipates," "targets," "expects," "hopes," "estimates," "intends," "plans," "goals," "believes," "continue" and other similar expressions or future or conditional verbs such as "will," "may," "might," "should," "would" and "could" to identify forward-looking statements. Forward-looking statements reflect management's current expectations, plans or forecasts, are not guarantees of future results or performance, involve certain known and unknown risks, uncertainties and assumptions that are difficult to predict and often beyond our control and are inherently uncertain. You should not place undue reliance on any forward-looking statement. Actual outcomes and results may differ materially from those expressed in, or implied by any of these forward-looking statements due to a variety of factors, including global socio-demographic and economic trends, energy prices, technological innovations and advances, climate-related conditions and weather events, legislative and regulatory changes, public policies, engagement with clients, suppliers, investors, government officials and other stakeholders and other unforeseen events or conditions, as well as the uncertainties and risks discussed in Bank of America Corporation's 2022 Annual Report on Form 10-K and subsequent SEC filings. Forward-looking statements speak only as of the date they are made, and Bank of America Corporation undertakes no obligation to update or revise any forward-looking statement to reflect the impact of circumstances or events that arise after the date the forward-looking statement was made.

Website references and/or links throughout this report are provided for convenience only, and the content on the referenced websites is not incorporated by reference into this report.

2022 Financial Review

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Management's Discussion and Analysis of Financial Condition and Results of Operations

Bank of America Corporation (the Corporation) and its management may make certain statements that constitute "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. These statements can be identified by the fact that they do not relate strictly to historical or current facts. Forward-looking statements often use words such as "anticipates," "targets," "expects," "hopes," "estimates," "intends," "plans," "goals," "believes," "continue" and other similar expressions or future or conditional verbs such as "will," "may," "might," "should," "would" and "could." Forward-looking statements represent the Corporation's current expectations, plans or forecasts of its future results, revenues, provision for credit losses, expenses, efficiency ratio, capital measures, strategy and future business and economic conditions more generally, and other future matters. These statements are not guarantees of future results or performance and involve certain known and unknown risks, uncertainties and assumptions that are difficult to predict and are often beyond the Corporation's control. Actual outcomes and results may differ materially from those expressed in, or implied by, any of these forward-looking statements.

You should not place undue reliance on any forward-looking statement and should consider the following uncertainties and risks, as well as the risks and uncertainties more fully discussed under Item 1A. Risk Factors of our 2022 Annual Report on Form 10-K: and in any of the Corporation's subsequent Securities and Exchange Commission filings: the Corporation's potential judgments, orders, settlements, penalties, fines and reputational damage resulting from pending or future litigation and regulatory investigations, proceedings and enforcement actions, including as a result of our participation in and execution of government programs related to the Coronavirus Disease 2019 (COVID-19) pandemic, such as the processing of unemployment benefits for California and certain other states; the possibility that the Corporation's future liabilities may be in excess of its recorded liability and estimated range of possible loss for litigation, and regulatory and government actions; the possibility that the Corporation could face increased claims from one or more parties involved in mortgage securitizations; the Corporation's ability to resolve representations and warranties repurchase and related claims; the risks related to the discontinuation of the London Interbank Offered Rate and other reference rates, including increased expenses and litigation and the effectiveness of hedging strategies; uncertainties about the financial stability and growth rates of non-U.S. jurisdictions, the risk that those jurisdictions may face difficulties servicing their sovereign debt, and related stresses on financial markets, currencies and trade, and the Corporation's exposures to such risks, including direct, indirect and operational; the impact of U.S. and global interest rates, inflation, currency exchange rates, economic conditions, trade policies and tensions, including tariffs, and potential geopolitical instability; the impact of the interest rate, inflationary and macroeconomic environment on the Corporation's business, financial condition and results of operations; the possibility that future credit losses may be higher than currently expected due to changes in economic assumptions, customer behavior, adverse developments with respect to U.S. or global economic conditions and other uncertainties, including the impact of supply chain disruptions, inflationary pressures and labor shortages on economic conditions and our business; potential losses related to the Corporation's concentration of credit risk; the Corporation's ability to achieve its expense targets and expectations regarding revenue, net interest income, provision for credit losses, net

charge-offs, effective tax rate, loan growth or other projections; adverse changes to the Corporation's credit ratings from the major credit rating agencies; an inability to access capital markets or maintain deposits or borrowing costs; estimates of the fair value and other accounting values, subject to impairment assessments, of certain of the Corporation's assets and liabilities; the estimated or actual impact of changes in accounting standards or assumptions in applying those standards; uncertainty regarding the content, timing and impact of regulatory capital and liquidity requirements; the impact of adverse changes to total loss-absorbing capacity requirements, stress capital buffer requirements and/or global systemically important bank surcharges; the potential impact of actions of the Board of Governors of the Federal Reserve System on the Corporation's capital plans; the effect of changes in or interpretations of income tax laws and regulations; the impact of implementation and compliance with U.S. and international laws, regulations and regulatory interpretations, including, but not limited to, recovery and resolution planning requirements, Federal Deposit Insurance Corporation assessments, the Volcker Rule, fiduciary standards, derivatives regulations and the Coronavirus Aid, Relief, and Economic Security Act and any similar or related rules and regulations; a failure or disruption in or breach of the Corporation's operational or security systems or infrastructure, or those of third parties, including as a result of cyber-attacks or campaigns; the risks related to the transition and physical impacts of climate change; our ability to achieve environmental, social and governance goals and commitments or the impact of any changes in the Corporation's sustainability strategy or commitments generally; the impact of any future federal government shutdown and uncertainty regarding the federal government's debt limit or changes in fiscal, monetary or regulatory policy; the emergence or continuation of widespread health emergencies or pandemics, including the magnitude and duration of the COVID-19 pandemic and its impact on U.S. and/or global financial market conditions and our business, results of operations, financial condition and prospects; the impact of natural disasters, extreme weather events, military conflict (including the Russia/Ukraine conflict, the possible expansion of such conflict and potential geopolitical consequences), terrorism or other geopolitical events; and other matters.

Forward-looking statements speak only as of the date they are made, and the Corporation undertakes no obligation to update any forward-looking statement to reflect the impact of circumstances or events that arise after the date the forward-looking statement was made.

Notes to the Consolidated Financial Statements referred to in the Management's Discussion and Analysis of Financial Condition and Results of Operations (MD&A) are incorporated by reference into the MD&A. Certain prior-year amounts have been reclassified to conform to current-year presentation. Throughout the MD&A, the Corporation uses certain acronyms and abbreviations which are defined in the Glossary.

Executive Summary

Business Overview

The Corporation is a Delaware corporation, a bank holding company (BHC) and a financial holding company. When used in this report, "Bank of America," "the Corporation," "we," "us" and "our" may refer to Bank of America Corporation individually, Bank of America Corporation and its subsidiaries, or certain of Bank of America Corporation's subsidiaries or affiliates. Our

principal executive offices are located in Charlotte, North Carolina. Through our various bank and nonbank subsidiaries throughout the U.S. and in international markets, we provide a diversified range of banking and nonbank financial services and products through four business segments: *Consumer Banking*, *Global Wealth & Investment Management (GWIM)*, *Global Banking* and *Global Markets*, with the remaining operations recorded in *All Other*. We operate our banking activities primarily under the Bank of America, National Association (Bank of America, N.A. or BANA) charter. At December 31, 2022, the Corporation had \$3.1 trillion in assets and a headcount of approximately 217,000 employees.

As of December 31, 2022, we served clients through operations across the U.S., its territories and more than 35 countries. Our retail banking footprint covers all major markets in the U.S., and we serve approximately 67 million consumer and small business clients with approximately 3,900 retail financial centers, approximately 16,000 ATMs, and leading digital banking platforms (www.bankofamerica.com) with approximately 44 million active users, including approximately 35 million active mobile users. We offer industry-leading support to approximately three million small business households. Our GWIM businesses, with client balances of \$3.4 trillion, provide tailored solutions to meet client needs through a full set of investment management, brokerage, banking, trust and retirement products. We are a global leader in corporate and investment banking and trading across a broad range of asset classes serving corporations, governments, institutions and individuals around the world.

Recent Developments

Capital Management

On February 1, 2023, the Corporation's Board of Directors (the Board) declared a quarterly common stock dividend of \$0.22 per share, payable on March 31, 2023 to shareholders of record as of March 3, 2023.

For more information on our capital resources, see Capital Management on page 96.

Changes in U.S. Tax Law

On August 16, 2022, the U.S. enacted the Inflation Reduction Act of 2022, which contained a number of tax-related provisions. The tax changes included the extension and expansion of renewable energy tax credit programs, the establishment of a new 15 percent alternative minimum tax (AMT) on adjusted financial statement income for large corporations and a one percent excise tax on stock repurchases. For more information, see Financial Highlights – Income Tax Expense on page 76.

Russia/Ukraine Conflict

Due to the Russia/Ukraine conflict, there has been significant volatility in financial and commodities markets, and multiple jurisdictions have implemented various economic sanctions. At December 31, 2022 and 2021, our direct net country exposure to Russia was \$443 million and \$733 million, primarily consisting of outstanding loans and leases totaling \$391 million and \$686 million, and our net country exposure to Ukraine was not significant. While the Corporation's direct exposure to Russia is limited, the potential duration, course and impact of the Russia/Ukraine conflict remain uncertain and could adversely affect macroeconomic and geopolitical conditions, which could negatively impact the Corporation's businesses, results of operations and financial position. For more

information on the risks related to the Russia/Ukraine conflict, see the Market, Credit and Geopolitical sections in Item 1A. Risk Factors of our 2022 Annual Report on Form 10-K.

LIBOR and Other Benchmark Rates

After December 31, 2021, ICE Benchmark Administration (IBA) ceased publishing British Pound Sterling (GBP), Euro, Swiss Franc, and Japanese Yen (JPY) London Interbank Offered Rate (LIBOR) settings and one-week and two-month U.S. dollar (USD) LIBOR settings, subject to the continued publication of certain non-representative LIBOR settings based on a modified calculation (i.e., on a "synthetic" basis). The remaining USD LIBOR settings (i.e., overnight, one month, three month, six month and 12 month) will cease or become non-representative immediately after June 30, 2023, although the Financial Conduct Authority (FCA) has issued a consultation seeking views on whether to compel publication of the one-month, three-month and six-month USD LIBOR settings on a "synthetic" basis for a short time after June 30, 2023 (i.e., through September 30, 2024). Separately, the Federal Reserve, the Office of the Comptroller of the Currency and the Federal Deposit Insurance Corporation (FDIC) issued supervisory guidance encouraging banks to cease entering into new contracts that use USD LIBOR as a reference rate by December 31, 2021, subject to certain regulatory-approved exceptions (USD LIBOR Guidance).

As a result, a major transition has been and continues to be in progress in the global financial markets with respect to the replacement of Interbank Offered Rates (IBORs). This has been and continues to be a complex process impacting a variety of our businesses and operations. IBORs have historically been used in many of the Corporation's products and contracts, including derivatives, consumer and commercial loans, mortgages, floating-rate notes and other adjustable-rate products and financial instruments. In response, the Corporation established an enterprise-wide IBOR transition program, with active involvement of senior management and regular reports to the Management Risk Committee (MRC) and Enterprise Risk Committee (ERC). The program continues to drive the Corporation's industry and regulatory engagement, client and financial contract changes, internal and external communications, technology and operations modifications, including updates to its operational models, systems and processes, introduction of new products, migration of existing clients, and program strategy and governance.

As of December 31, 2021, the Corporation transitioned or otherwise addressed IBOR-based products and contracts referencing the rates that ceased or became non-representative after December 31, 2021, including LIBOR-linked commercial loans, LIBOR-based adjustable-rate consumer mortgages, LIBOR-linked derivatives and interdealer trading of certain USD LIBOR and other interest rate swaps, and related hedging arrangements. Additionally, in accordance with the USD LIBOR Guidance, the Corporation has ceased entering into new contracts that use USD LIBOR as a reference rate, subject to limited exceptions, including those consistent with supervisory guidance.

The Corporation launched capabilities and services to support the issuance of and trading in products indexed to various alternative reference rates (ARRs) and developed employee training programs as well as other internal and external sources of information on the various challenges and opportunities that the replacement of IBORs has presented and continues to present. The Corporation continues to monitor a variety of market scenarios as part of its transition efforts, including risks associated with insufficient preparation by

individual market participants or the overall market ecosystem, ability of market participants to meet regulatory and industry-wide recommended milestones, and access and demand by clients and market participants to liquidity in certain products, including LIBOR products.

With respect to the transition of LIBOR products referencing USD LIBOR settings ceasing or becoming non-representative as of June 30, 2023, a significant majority of the Corporation's notional contractual exposure to such LIBOR settings, of which the significant majority is derivatives contracts, have been remediated (i.e., updated to include fallback provisions to ARRs based on market-driven protocols, regulatory guidance and industry-recommended fallback provisions and related mechanisms), and the Corporation is continuing to remediate the remaining USD LIBOR exposure. For example, during the first half of 2023, certain central counterparties (CCPs) expect to complete processes to convert outstanding USD LIBOR-cleared derivatives to ARR positions. The remaining exposure, a majority of which is made up of derivatives and commercial loans and which represents a small minority of outstanding USD LIBOR notional contractual exposure of the Corporation, requires active dialogue with clients to modify the contracts. For any residual exposures after June 2023 that continue to have no fallback provisions, the Corporation continues to assess and plans to leverage relevant contractual and statutory solutions, including the Adjustable Interest Rate (LIBOR) Act in the U.S. (as implemented by the Federal Reserve) and "synthetic" USD LIBOR (if the FCA compels such publication), to transition such exposure.

While there remain risks to the Corporation associated with the transition from IBORs (as discussed under Item 1A. Risk Factors of our 2022 Annual Report on Form 10-K), such risks have been monitored and, where applicable, managed through the Corporation's efforts and dedicated operational resources to date. In the Corporation's view, the potential likelihood and/or impact of transition-related risks has lessened over time, and the Corporation anticipates it has devoted appropriate resources to remaining transition efforts and will be able to continue to appropriately monitor and manage such risks as the transition process continues. The Corporation expects transition-related risks to further diminish as certain market developments occur prior to June 30, 2023.

The Corporation has implemented regulatory, tax and accounting changes and continues to monitor current and potential impacts of the transition, including Internal Revenue Service tax regulations and guidance and Financial Accounting Standards Board guidance. In addition, the Corporation has engaged impacted clients in connection with the transition by providing education on ARRs and the timing of transition events. The Corporation is also working actively with global regulators, industry working groups and trade associations.

For more information on the expected replacement of LIBOR and other benchmark rates, see Item 1A. Risk Factors of our 2022 Annual Report on Form 10-K.

Financial Highlights

Table 1 Summary Income Statement and Selected Financial Data

(Dollars in millions, except per share information)	2022	2021
Income statement		
Net interest income	\$ 52,462	\$ 42,934
Noninterest income	42,488	46,179
Total revenue, net of interest expense	94,950	89,113
Provision for credit losses	2,543	(4,594)
Noninterest expense	61,438	59,731
Income before income taxes	30,969	33,976
Income tax expense	3,441	1,998
Net income	27,528	31,978
Preferred stock dividends and other	1,513	1,421
Net income applicable to common shareholders	\$ 26,015	\$ 30,557
Per common share information		
Earnings	\$ 3.21	\$ 3.60
Diluted earnings	3.19	3.57
Dividends paid	0.86	0.78
Performance ratios		
Return on average assets ⁽¹⁾	0.88 %	1.05 %
Return on average common shareholders' equity ⁽¹⁾	10.75	12.23
Return on average tangible common shareholders' equity ⁽²⁾	15.15	17.02
Efficiency ratio ⁽¹⁾	64.71	67.03
Balance sheet at year end		
Total loans and leases	\$ 1,045,747	\$ 979,124
Total assets	3,051,375	3,169,495
Total deposits	1,930,341	2,064,446
Total liabilities	2,778,178	2,899,429
Total common shareholders' equity	244,800	245,358
Total shareholders' equity	273,197	270,066

⁽¹⁾ For definitions, see Key Metrics on page 214.

⁽²⁾ Return on average tangible common shareholders' equity is a non-GAAP financial measure. For more information and a corresponding reconciliation to the most closely related financial measures defined by accounting principles generally accepted in the United States of America (GAAP), see Non-GAAP Reconciliations on page 132.

Net income was \$27.5 billion, or \$3.19 per diluted share in 2022 compared to \$32.0 billion, or \$3.57 per diluted share in 2021. The decrease in net income was primarily due to an increase in provision for credit losses, lower noninterest income and higher noninterest expense, partially offset by higher net interest income.

For discussion and analysis of our consolidated and business segment results of operations for 2021 compared to 2020, see Financial Highlights and Business Segment Operations sections in the MD&A of the Corporation's 2021 Annual Report on Form 10-K.

Net Interest Income

Net interest income increased \$9.5 billion to \$52.5 billion in 2022 compared to 2021. Net interest yield on a fully taxable-equivalent (FTE) basis increased 30 basis points (bps) to 1.96 percent for 2022. The increase was primarily driven by benefits from higher interest rates, including lower premium amortization expense, and loan growth, partially offset by a lower amount of accelerated net capitalized loan fees due to Paycheck Protection Program (PPP) loan forgiveness, which primarily occurred in 2021. For more information on net interest yield and the FTE basis, see Supplemental Financial Data on page 79, and for

more information on interest rate risk management, see Interest Rate Risk Management for the Banking Book on page 126.

Noninterest Income

Table 2 Noninterest Income

(Dollars in millions)	2022	2021
Fees and commissions:		
Card income	\$ 6,083	\$ 6,218
Service charges	6,405	7,504
Investment and brokerage services	15,901	16,690
Investment banking fees	4,823	8,887
Total fees and commissions	33,212	39,299
Market making and similar activities	12,075	8,691
Other income	(2,799)	(1,811)
Total noninterest income	\$ 42,488	\$ 46,179

Noninterest income decreased \$3.7 billion to \$42.5 billion for 2022 compared to 2021. The following highlights the significant changes.

- Service charges decreased \$1.1 billion primarily driven by the impact of non-sufficient funds and overdraft policy changes as well as lower treasury service charges.
- Investment and brokerage services decreased \$789 million primarily driven by lower market valuations and declines in assets under management (AUM) pricing, partially offset by positive AUM flows.
- Investment banking fees decreased \$4.1 billion primarily driven by a decline in demand resulting in lower equity and debt issuance fees and lower advisory fees.
- Market making and similar activities increased \$3.4 billion primarily driven by improved performance across macro products in fixed income, currencies and commodities (FICC) and by the impact of higher interest rates on client financing activities in Equities.
- Other income decreased \$988 million primarily due to certain valuation adjustments.

Provision for Credit Losses

The provision for credit losses increased \$7.1 billion to \$2.5 billion for 2022 compared to 2021. The provision for credit losses for 2022 was primarily driven by loan growth and a dampened macroeconomic outlook, partially offset by a reserve release for reduced COVID-19 pandemic (the pandemic) uncertainties. For the same period in the prior year, the benefit in the provision for credit losses was due to an improved macroeconomic outlook. For more information on the provision for credit losses, see Allowance for Credit Losses on page 120.

Noninterest Expense

Table 3 Noninterest Expense

(Dollars in millions)	2022	2021
Compensation and benefits	\$ 36,447	\$ 36,140
Occupancy and equipment	7,071	7,138
Information processing and communications	6,279	5,769
Product delivery and transaction related	3,653	3,881
Marketing	1,825	1,939
Professional fees	2,142	1,775
Other general operating	4,021	3,089
Total noninterest expense	\$ 61,438	\$ 59,731

Noninterest expense increased \$1.7 billion to \$61.4 billion in 2022 compared to 2021. The increase was primarily due to higher investments in people and technology, expense associated with the settlement of the legacy monoline insurance litigation and expense related to certain regulatory matters, partially offset by lower net COVID-19 related costs.

Income Tax Expense

Table 4 Income Tax Expense

(Dollars in millions)	2022	2021
Income before income taxes	\$ 30,969	\$ 33,976
Income tax expense	3,441	1,998
Effective tax rate	11.1%	5.9%

Income tax expense was \$3.4 billion for 2022 compared to \$2.0 billion in 2021 resulting in an effective tax rate of 11.1 percent compared to 5.9 percent.

The effective tax rates for 2022 and 2021 were primarily driven by our recurring preference benefits. Also included in the effective tax rate for 2021 was the impact of the 2021 U.K. tax law change further discussed in this section. For more information on our recurring tax preference benefits, see Note 19 - Income Taxes to the Consolidated Financial Statements. Absent environmental, social and governance (ESG) tax credits and discrete tax benefits, the effective tax rates would have been approximately 25 percent.

On August 16, 2022, the U.S. enacted the Inflation Reduction Act of 2022, which contained a number of tax-related provisions, including the extension and expansion of renewable energy tax credit programs. In particular, partnerships are no longer solely limited to an Investment Tax Credit, but can now also elect a Production Tax Credit for solar energy production facilities placed in service after December 31, 2021.

Other notable tax law changes include the establishment of a new 15 percent AMT on adjusted financial statement income for large corporations and a one percent excise tax on net stock repurchases, both of which were effective for tax years beginning on or after January 1, 2023. The tax law changes for the new AMT permit business credits, including those from ESG investments in renewable energy and affordable housing, to offset potential AMT liability. The Corporation has assessed the potential impacts of these two U.S. tax law changes and does not expect the changes to have a significant effect on its future effective tax rate.

On June 10, 2021, the U.K. enacted the 2021 Finance Act, which increased the U.K. corporation income tax rate to 25 percent from 19 percent. This change is effective April 1, 2023 and unfavorably affects income tax expense on future U.K. earnings. As a result, during the three months ended June 30, 2021, the Corporation recorded a positive income tax adjustment of approximately \$2.0 billion with a corresponding write-up of U.K. net deferred tax assets, which reflected a reversal of previously recorded write-downs of net deferred tax assets for prior changes in the U.K. corporation income tax rate.

Balance Sheet Overview

Table 5 Selected Balance Sheet Data

(Dollars in millions)	December 31		\$ Change	% Change
	2022	2021		
Assets				
Cash and cash equivalents	\$ 230,203	\$ 348,221	\$ (118,018)	(34)%
Federal funds sold and securities borrowed or purchased under agreements to resell	267,574	250,720	16,854	7
Trading account assets	296,108	247,080	49,028	20
Debt securities	862,819	982,627	(119,808)	(12)
Loans and leases	1,045,747	979,124	66,623	7
Allowance for loan and lease losses	(12,682)	(12,387)	(295)	2
All other assets	361,606	374,110	(12,504)	(3)
Total assets	\$ 3,051,375	\$ 3,169,495	\$ (118,120)	(4)
Liabilities				
Deposits	\$ 1,930,341	\$ 2,064,446	\$ (134,105)	(6)
Federal funds purchased and securities loaned or sold under agreements to repurchase	195,635	192,329	3,306	2
Trading account liabilities	80,399	100,690	(20,291)	(20)
Short-term borrowings	26,932	23,753	3,179	13
Long-term debt	275,982	280,117	(4,135)	(1)
All other liabilities	268,889	238,094	30,795	13
Total liabilities	2,778,178	2,899,429	(121,251)	(4)
Shareholders' equity	273,197	270,066	3,131	1
Total liabilities and shareholders' equity	\$ 3,051,375	\$ 3,169,495	\$ (118,120)	(4)

Assets

At December 31, 2022, total assets were approximately \$3.1 trillion, down \$118.1 billion from December 31, 2021. The decrease in assets was primarily due to lower debt securities and cash and cash equivalents, partially offset by an increase in loans and leases, trading account assets and federal funds sold and securities borrowed or purchased under agreements to resell.

Cash and Cash Equivalents

Cash and cash equivalents decreased \$118.0 billion primarily driven by lower deposits and continued loan growth.

Federal Funds Sold and Securities Borrowed or Purchased Under Agreements to Resell

Federal funds transactions involve lending reserve balances on a short-term basis. Securities borrowed or purchased under agreements to resell are collateralized lending transactions utilized to accommodate customer transactions, earn interest rate spreads and obtain securities for settlement and for collateral. Federal funds sold and securities borrowed or

purchased under agreements to resell increased \$16.9 billion primarily due to client activity within *Global Markets*.

Trading Account Assets

Trading account assets consist primarily of long positions in equity and fixed-income securities including U.S. government and agency securities, corporate securities and non-U.S. sovereign debt. Trading account assets increased \$49.0 billion primarily due to client activity within *Global Markets*.

Debt Securities

Debt securities primarily include U.S. Treasury and agency securities, mortgage-backed securities (MBS), principally agency MBS, non-U.S. bonds, corporate bonds and municipal debt. We use the debt securities portfolio primarily to manage interest rate and liquidity risk and to leverage market conditions that create economically attractive returns on these investments. Debt securities decreased \$119.8 billion primarily driven by lower deposits and continued loan growth. For more information on debt securities, see *Note 4 – Securities* to the Consolidated Financial Statements.

Loans and Leases

Loans and leases increased \$66.6 billion primarily driven by growth in commercial loans, higher credit card spending and higher residential mortgages due to lower paydowns and continued originations. For more information on the loan portfolio, see Credit Risk Management on page 106.

Allowance for Loan and Lease Losses

The allowance for loan and lease losses increased \$295 million primarily driven by loan growth and a dampened macroeconomic outlook, partially offset by a reserve release for reduced pandemic uncertainties. For more information, see Allowance for Credit Losses on page 120.

All Other Assets

All other assets decreased \$12.5 billion primarily driven by a decline in margin loans and loans held-for-sale (LHFS).

Liabilities

At December 31, 2022, total liabilities were approximately \$2.8 trillion, down \$121.3 billion from December 31, 2021, primarily due to lower deposits.

Deposits

Deposits decreased \$134.1 billion primarily due to an increase in customer spending and a shift to higher yielding accounts.

Federal Funds Purchased and Securities Loaned or Sold Under Agreements to Repurchase

Federal funds transactions involve borrowing reserve balances on a short-term basis. Securities loaned or sold under agreements to repurchase are collateralized borrowing transactions utilized to accommodate customer transactions, earn interest rate spreads and finance assets on the balance sheet. Federal funds purchased and securities loaned or sold under agreements to repurchase increased \$3.3 billion primarily driven by an increase in repurchase agreements to support liquidity.

Trading Account Liabilities

Trading account liabilities consist primarily of short positions in equity and fixed-income securities including U.S. Treasury and agency securities, non-U.S. sovereign debt and corporate securities. Trading account liabilities decreased \$20.3 billion primarily due to lower levels of short positions within *Global Markets*.

Short-term Borrowings

Short-term borrowings provide an additional funding source and primarily consist of Federal Home Loan Bank (FHLB) short-term borrowings, notes payable and various other borrowings that generally have maturities of one year or less. Short-term borrowings increased \$3.2 billion primarily due to an increase in FHLB advances and commercial paper to manage liquidity needs. For more information on short-term borrowings, see *Note 10 – Securities Financing Agreements, Short-term Borrowings, Collateral and Restricted Cash* to the Consolidated Financial Statements.

Long-term Debt

Long-term debt decreased \$4.1 billion primarily due to maturities, redemptions and valuation adjustments, partially offset by issuances. For more information on long-term debt, see *Note 11 – Long-term Debt* to the Consolidated Financial Statements.

All Other Liabilities

All other liabilities increased \$30.8 billion primarily driven by *Global Markets* client activity.

Shareholders' Equity

Shareholders' equity increased \$3.1 billion primarily due to net income and the issuance of preferred stock, partially offset by market value decreases on derivatives and debt securities, and returns of capital to shareholders through common and preferred stock dividends and common stock repurchases.

Cash Flows Overview

The Corporation's operating assets and liabilities support our global markets and lending activities. We believe that cash flows from operations, available cash balances and our ability to generate cash through short- and long-term debt are sufficient to fund our operating liquidity needs. Our investing activities primarily include the debt securities portfolio and loans and leases. Our financing activities reflect cash flows primarily related to customer deposits, securities financing agreements, long-term debt and common and preferred stock. For more information on liquidity, see Liquidity Risk on page 101.

Supplemental Financial Data

Non-GAAP Financial Measures

In this Form 10-K, we present certain non-GAAP financial measures. Non-GAAP financial measures exclude certain items or otherwise include components that differ from the most directly comparable measures calculated in accordance with GAAP. Non-GAAP financial measures are provided as additional useful information to assess our financial condition, results of operations (including period-to-period operating performance) or compliance with prospective regulatory requirements. These non-GAAP financial measures are not intended as a substitute for GAAP financial measures and may not be defined or calculated the same way as non-GAAP financial measures used by other companies.

We view net interest income and related ratios and analyses on an FTE basis, which when presented on a consolidated basis are non-GAAP financial measures. To derive the FTE basis, net interest income is adjusted to reflect tax-exempt income on an equivalent before-tax basis with a corresponding increase in income tax expense. For purposes of this calculation, we use the federal statutory tax rate of 21 percent and a representative state tax rate. Net interest yield, which measures the basis points we earn over the cost of funds, utilizes net interest income on an FTE basis. We believe that presentation of these items on an FTE basis allows for comparison of amounts from both taxable and tax-exempt sources and is consistent with industry practices.

We may present certain key performance indicators and ratios excluding certain items (e.g., debit valuation adjustment (DVA) gains (losses)), which result in non-GAAP financial measures. We believe that the presentation of measures that exclude these items is useful because such measures provide additional information to assess the underlying operational performance and trends of our businesses and to allow better comparison of period-to-period operating performance.

We also evaluate our business based on certain ratios that utilize tangible equity, a non-GAAP financial measure. Tangible equity represents shareholders' equity or common shareholders' equity reduced by goodwill and intangible assets (excluding mortgage servicing rights (MSRs)), net of related deferred tax liabilities ("adjusted" shareholders' equity or common shareholders' equity). These measures are used to evaluate our use of equity. In addition, profitability, relationship and investment models use both return on average tangible

common shareholders' equity and return on average tangible shareholders' equity as key measures to support our overall growth objectives. These ratios are:

- Return on average tangible common shareholders' equity measures our net income applicable to common shareholders as a percentage of adjusted average common shareholders' equity. The tangible common equity ratio represents adjusted ending common shareholders' equity divided by total tangible assets.
- Return on average tangible shareholders' equity measures our net income as a percentage of adjusted average total shareholders' equity. The tangible equity ratio represents adjusted ending shareholders' equity divided by total tangible assets.
- Tangible book value per common share represents adjusted ending common shareholders' equity divided by ending common shares outstanding.

We believe ratios utilizing tangible equity provide additional useful information because they present measures of those assets that can generate income. Tangible book value per common share provides additional useful information about the level of tangible assets in relation to outstanding shares of common stock.

The aforementioned supplemental data and performance measures are presented in Tables 6 and 7.

For more information on the reconciliation of these non-GAAP financial measures to the corresponding GAAP financial measures, see Non-GAAP Reconciliations on page 132.

Key Performance Indicators

We present certain key financial and nonfinancial performance indicators (key performance indicators) that management uses when assessing our consolidated and/or segment results. We believe they are useful to investors because they provide additional information about our underlying operational performance and trends. These key performance indicators (KPIs) may not be defined or calculated in the same way as similar KPIs used by other companies. For information on how these metrics are defined, see Key Metrics on page 214.

Our consolidated key performance indicators, which include various equity and credit metrics, are presented in Table 1 on page 75, Table 6 on page 80 and Table 7 on page 81.

For information on key segment performance metrics, see Business Segment Operations on page 84.

Table 6 Selected Annual Financial Data

(In millions, except per share information)	2022	2021	2020
Income statement			
Net interest income	\$ 52,462	\$ 42,934	\$ 43,360
Noninterest income	42,488	46,179	42,168
Total revenue, net of interest expense	94,950	89,113	85,528
Provision for credit losses	2,543	(4,594)	11,320
Noninterest expense	61,438	59,731	55,213
Income before income taxes	30,969	33,976	18,995
Income tax expense	3,441	1,998	1,101
Net income	27,528	31,978	17,894
Net income applicable to common shareholders	26,015	30,557	16,473
Average common shares issued and outstanding	8,113.7	8,493.3	8,753.2
Average diluted common shares issued and outstanding	8,167.5	8,558.4	8,796.9
Performance ratios			
Return on average assets ⁽¹⁾	0.88 %	1.05 %	0.67 %
Return on average common shareholders' equity ⁽¹⁾	10.75	12.23	6.76
Return on average tangible common shareholders' equity ^(1, 2)	15.15	17.02	9.48
Return on average shareholders' equity ⁽¹⁾	10.18	11.68	6.69
Return on average tangible shareholders' equity ^(1, 2)	13.76	15.71	9.07
Total ending equity to total ending assets	8.95	8.52	9.68
Common equity ratio ⁽¹⁾	8.02	7.74	8.81
Total average equity to total average assets	8.62	9.02	9.96
Dividend payout ⁽¹⁾	26.77	21.51	38.18
Per common share data			
Earnings	\$ 3.21	\$ 3.60	\$ 1.88
Diluted earnings	3.19	3.57	1.87
Dividends paid	0.86	0.78	0.72
Book value ⁽¹⁾	30.61	30.37	28.72
Tangible book value ⁽²⁾	21.83	21.68	20.60
Market capitalization			
	\$ 264,853	\$ 359,383	\$ 262,206
Average balance sheet			
Total loans and leases	\$ 1,016,782	\$ 920,401	\$ 982,467
Total assets	3,135,894	3,034,623	2,683,122
Total deposits	1,986,158	1,914,286	1,632,998
Long-term debt	246,479	237,703	220,440
Common shareholders' equity	241,981	249,787	243,685
Total shareholders' equity	270,299	273,757	267,309
Asset quality			
Allowance for credit losses ⁽³⁾	\$ 14,222	\$ 13,843	\$ 20,680
Nonperforming loans, leases and foreclosed properties ⁽⁴⁾	3,978	4,697	5,116
Allowance for loan and lease losses as a percentage of total loans and leases outstanding ⁽⁴⁾	1.22 %	1.28 %	2.04 %
Allowance for loan and lease losses as a percentage of total nonperforming loans and leases ⁽⁴⁾	333	271	380
Net charge-offs	\$ 2,172	\$ 2,243	\$ 4,121
Net charge-offs as a percentage of average loans and leases outstanding ⁽⁴⁾	0.21 %	0.25 %	0.42 %
Capital ratios at year end ⁽⁵⁾			
Common equity tier 1 capital	11.2 %	10.6 %	11.9 %
Tier 1 capital	13.0	12.1	13.5
Total capital	14.9	14.1	16.1
Tier 1 leverage	7.0	6.4	7.4
Supplementary leverage ratio	5.9	5.5	7.2
Tangible equity ⁽²⁾	6.8	6.4	7.4
Tangible common equity ⁽²⁾	5.9	5.7	6.5

⁽¹⁾ For definition, see Key Metrics on page 214.

⁽²⁾ Tangible equity ratios and tangible book value per share of common stock are non-GAAP financial measures. For more information on these ratios and corresponding reconciliations to GAAP financial measures, see Supplemental Financial Data on page 79 and Non-GAAP Reconciliations on page 132.

⁽³⁾ Includes the allowance for loan and leases losses and the reserve for unfunded lending commitments.

⁽⁴⁾ Balances and ratios do not include loans accounted for under the fair value option. For additional exclusions from nonperforming loans, leases and foreclosed properties, see Consumer Portfolio Credit Risk Management – Nonperforming Consumer Loans, Leases and Foreclosed Properties Activity on page 110 and corresponding Table 27 and Commercial Portfolio Credit Risk Management – Nonperforming Commercial Loans, Leases and Foreclosed Properties Activity on page 115 and corresponding Table 34.

⁽⁵⁾ For more information, including which approach is used to assess capital adequacy, see Capital Management on page 96.

Table 7 Selected Quarterly Financial Data

(In millions, except per share information)	2022 Quarters				2021 Quarters			
	Fourth	Third	Second	First	Fourth	Third	Second	First
Income statement								
Net interest income	\$ 14,681	\$ 13,765	\$ 12,444	\$ 11,572	\$ 11,410	\$ 11,094	\$ 10,233	\$ 10,197
Noninterest income	9,851	10,737	10,244	11,656	10,650	11,672	11,233	12,624
Total revenue, net of interest expense	24,532	24,502	22,688	23,228	22,060	22,766	21,466	22,821
Provision for credit losses	1,092	898	523	30	(489)	(624)	(1,621)	(1,860)
Noninterest expense	15,543	15,303	15,273	15,319	14,731	14,440	15,045	15,515
Income before income taxes	7,897	8,301	6,892	7,879	7,818	8,950	8,042	9,166
Income tax expense	765	1,219	645	812	805	1,259	(1,182)	1,116
Net income	7,132	7,082	6,247	7,067	7,013	7,691	9,224	8,050
Net income applicable to common shareholders	6,904	6,579	5,932	6,600	6,773	7,260	8,964	7,560
Average common shares issued and outstanding	8,088.3	8,107.7	8,121.6	8,136.8	8,226.5	8,430.7	8,620.8	8,700.1
Average diluted common shares issued and outstanding	8,155.7	8,160.8	8,163.1	8,202.1	8,304.7	8,492.8	8,735.5	8,755.6
Performance ratios								
Return on average assets ⁽¹⁾	0.92 %	0.90 %	0.79 %	0.89 %	0.88 %	0.99 %	1.23 %	1.13 %
Four-quarter trailing return on average assets ⁽²⁾	0.88	0.87	0.89	0.99	1.05	1.04	0.97	0.79
Return on average common shareholders' equity ⁽¹⁾	11.24	10.79	9.93	11.02	10.90	11.43	14.33	12.28
Return on average tangible common shareholders' equity ⁽³⁾	15.79	15.21	14.05	15.51	15.25	15.85	19.90	17.08
Return on average shareholders' equity ⁽¹⁾	10.38	10.37	9.34	10.64	10.27	11.08	13.47	11.91
Return on average tangible shareholders' equity ⁽³⁾	13.98	13.99	12.66	14.40	13.87	14.87	18.11	16.01
Total ending equity to total ending assets	8.95	8.77	8.65	8.23	8.52	8.83	9.15	9.23
Common equity ratio ⁽¹⁾	8.02	7.82	7.71	7.40	7.74	8.07	8.37	8.41
Total average equity to total average assets	8.87	8.73	8.49	8.40	8.56	8.95	9.11	9.52
Dividend payout ⁽¹⁾	25.71	27.06	28.68	25.86	25.33	24.10	17.25	20.68
Per common share data								
Earnings	\$ 0.85	\$ 0.81	\$ 0.73	\$ 0.81	\$ 0.82	\$ 0.86	\$ 1.04	\$ 0.87
Diluted earnings	0.85	0.81	0.73	0.80	0.82	0.85	1.03	0.86
Dividends paid	0.22	0.22	0.21	0.21	0.21	0.21	0.18	0.18
Book value ⁽¹⁾	30.61	29.96	29.87	29.70	30.37	30.22	29.89	29.07
Tangible book value ⁽³⁾	21.83	21.21	21.13	20.99	21.68	21.69	21.61	20.90
Market capitalization	\$ 264,853	\$ 242,338	\$ 250,136	\$ 332,320	\$ 359,383	\$ 349,841	\$ 349,925	\$ 332,337
Average balance sheet								
Total loans and leases	\$1,039,247	\$1,034,334	\$1,014,886	\$ 977,793	\$ 945,062	\$ 920,509	\$ 907,900	\$ 907,723
Total assets	3,074,289	3,105,546	3,157,885	3,207,702	3,164,118	3,076,452	3,015,113	2,879,221
Total deposits	1,925,544	1,962,775	2,012,079	2,045,811	2,017,223	1,942,705	1,888,834	1,805,747
Long-term debt	243,871	250,204	245,781	246,042	248,525	248,988	232,034	220,836
Common shareholders' equity	243,647	241,882	239,523	242,865	246,519	252,043	250,948	249,648
Total shareholders' equity	272,629	271,017	268,197	269,309	270,883	275,484	274,632	274,047
Asset quality								
Allowance for credit losses ⁽⁴⁾	\$ 14,222	\$ 13,817	\$ 13,434	\$ 13,483	\$ 13,843	\$ 14,693	\$ 15,782	\$ 17,997
Nonperforming loans, leases and foreclosed properties ⁽⁵⁾	3,978	4,156	4,326	4,778	4,697	4,831	5,031	5,299
Allowance for loan and lease losses as a percentage of total loans and leases outstanding ⁽⁵⁾	1.22 %	1.20 %	1.17 %	1.23 %	1.28 %	1.43 %	1.55 %	1.80 %
Allowance for loan and lease losses as a percentage of total nonperforming loans and leases ⁽⁵⁾	333	309	288	262	271	279	287	313
Net charge-offs	\$ 689	\$ 520	\$ 571	\$ 392	\$ 362	\$ 463	\$ 595	\$ 823
Annualized net charge-offs as a percentage of average loans and leases outstanding ⁽⁵⁾	0.26 %	0.20 %	0.23 %	0.16 %	0.15 %	0.20 %	0.27 %	0.37 %
Capital ratios at period end ⁽⁶⁾								
Common equity tier 1 capital	11.2 %	11.0 %	10.5 %	10.4 %	10.6 %	11.1 %	11.5 %	11.8 %
Tier 1 capital	13.0	12.8	12.3	12.0	12.1	12.6	13.0	13.3
Total capital	14.9	14.7	14.2	14.0	14.1	14.7	15.1	15.6
Tier 1 leverage	7.0	6.8	6.5	6.3	6.4	6.6	6.9	7.2
Supplementary leverage ratio	5.9	5.8	5.5	5.4	5.5	5.6	5.9	7.0
Tangible equity ⁽³⁾	6.8	6.6	6.5	6.2	6.4	6.7	7.0	7.0
Tangible common equity ⁽³⁾	5.9	5.7	5.6	5.3	5.7	5.9	6.2	6.2
Total loss-absorbing capacity and long-term debt metrics								
Total loss-absorbing capacity to risk-weighted assets	29.0 %	28.9 %	27.8 %	27.2 %	26.9 %	27.7 %	27.7 %	26.8 %
Total loss-absorbing capacity to supplementary leverage exposure	13.2	13.0	12.6	12.2	12.1	12.4	12.5	14.1
Eligible long-term debt to risk-weighted assets	15.2	15.2	14.7	14.4	14.1	14.4	14.1	13.0
Eligible long-term debt to supplementary leverage exposure	6.9	6.8	6.6	6.5	6.3	6.4	6.3	6.8

⁽¹⁾ For definitions, see Key Metrics on page 214.⁽²⁾ Calculated as total net income for four consecutive quarters divided by annualized average assets for four consecutive quarters.⁽³⁾ Tangible equity ratios and tangible book value per share of common stock are non-GAAP financial measures. For more information on these ratios and corresponding reconciliations to GAAP financial measures, see Supplemental Financial Data on page 79 and Non-GAAP Reconciliations on page 132.⁽⁴⁾ Includes the allowance for loan and lease losses and the reserve for unfunded lending commitments.⁽⁵⁾ Balances and ratios do not include loans accounted for under the fair value option. For additional exclusions from nonperforming loans, leases and foreclosed properties, see Consumer Portfolio Credit Risk Management – Nonperforming Consumer Loans, Leases and Foreclosed Properties Activity on page 111 and corresponding Table 27 and Commercial Portfolio Credit Risk Management – Nonperforming Commercial Loans, Leases and Foreclosed Properties Activity on page 115 and corresponding Table 34.⁽⁶⁾ For more information, including which approach is used to assess capital adequacy, see Capital Management on page 96.

Table 8 Average Balances and Interest Rates - FTE Basis

	Average	Interest	Yield/	Average	Interest	Yield/	Average	Interest	Yield/
	Balance	Income/ Expense ⁽¹⁾	Rate	Balance	Income/ Expense ⁽¹⁾	Rate	Balance	Income/ Expense ⁽¹⁾	Rate
	2022			2021			2020		
(Dollars in millions)									
Earning assets									
Interest-bearing deposits with the Federal Reserve, non-U.S. central banks and other banks	\$ 195,564	\$ 2,591	1.32 %	\$ 255,595	\$ 172	0.07 %	\$ 253,227	\$ 359	0.14 %
Time deposits placed and other short-term investments	9,209	132	1.44	7,603	15	0.19	8,840	29	0.33
Federal funds sold and securities borrowed or purchased under agreements to resell ⁽²⁾	292,799	4,560	1.56	267,257	(90)	(0.03)	309,945	903	0.29
Trading account assets	158,102	5,586	3.53	147,891	3,823	2.58	148,076	4,185	2.83
Debt securities	922,730	17,207	1.86	905,169	12,433	1.38	532,266	9,868	1.87
Loans and leases ⁽³⁾									
Residential mortgage	227,604	6,375	2.80	216,983	5,995	2.76	236,719	7,338	3.10
Home equity	27,364	959	3.50	31,014	1,066	3.44	38,251	1,290	3.37
Credit card	83,539	8,408	10.06	75,385	7,772	10.31	85,017	8,759	10.30
Direct/Indirect and other consumer	107,050	3,317	3.10	96,472	2,276	2.36	89,974	2,545	2.83
Total consumer	445,557	19,059	4.28	419,854	17,109	4.08	449,961	19,932	4.43
U.S. commercial	366,748	12,251	3.34	324,795	8,606	2.65	344,095	9,712	2.82
Non-U.S. commercial	125,222	3,702	2.96	99,584	1,752	1.76	106,487	2,208	2.07
Commercial real estate ⁽⁴⁾	65,421	2,595	3.97	60,303	1,496	2.48	63,428	1,790	2.82
Commercial lease financing	13,834	473	3.42	15,865	462	2.91	18,496	559	3.02
Total commercial	571,225	19,021	3.33	500,547	12,316	2.46	532,506	14,269	2.68
Total loans and leases	1,016,782	38,080	3.75	920,401	29,425	3.20	982,467	34,201	3.48
Other earning assets	105,674	4,847	4.59	112,512	2,321	2.06	83,078	2,539	3.06
Total earning assets	2,700,860	73,003	2.70	2,616,428	48,099	1.84	2,317,899	52,084	2.25
Cash and due from banks	28,029			31,214			31,885		
Other assets, less allowance for loan and lease losses	407,005			386,981			333,338		
Total assets	\$ 3,135,894			\$ 3,034,623			\$ 2,683,122		
Interest-bearing liabilities									
U.S. interest-bearing deposits									
Demand and money market deposits	\$ 987,247	\$ 3,145	0.32 %	\$ 925,970	\$ 314	0.03 %	\$ 829,719	\$ 977	0.12 %
Time and savings deposits	166,490	818	0.49	161,512	170	0.11	170,750	734	0.43
Total U.S. interest-bearing deposits	1,153,737	3,963	0.34	1,087,482	484	0.04	1,000,469	1,711	0.17
Non-U.S. interest-bearing deposits	80,951	755	0.93	82,769	53	0.06	77,046	232	0.30
Total interest-bearing deposits	1,234,688	4,718	0.38	1,170,251	537	0.05	1,077,515	1,943	0.18
Federal funds purchased and securities loaned or sold under agreements to repurchase	214,369	4,117	1.92	210,848	461	0.22	188,511	1,229	0.65
Short-term borrowings and other interest-bearing liabilities ⁽²⁾	137,277	2,861	2.08	106,975	(819)	(0.77)	104,955	(242)	(0.23)
Trading account liabilities	51,208	1,538	3.00	54,107	1,128	2.08	41,386	974	2.35
Long-term debt	246,479	6,869	2.79	237,703	3,431	1.44	220,440	4,321	1.96
Total interest-bearing liabilities	1,884,021	20,103	1.07	1,779,884	4,738	0.27	1,632,807	8,225	0.50
Noninterest-bearing sources									
Noninterest-bearing deposits	751,470			744,035			555,483		
Other liabilities ⁽⁵⁾	230,104			236,947			227,523		
Shareholders' equity	270,299			273,757			267,309		
Total liabilities and shareholders' equity	\$ 3,135,894			\$ 3,034,623			\$ 2,683,122		
Net interest spread			1.63 %			1.57 %			1.75 %
Impact of noninterest-bearing sources			0.33			0.09			0.15
Net interest income/yield on earning assets ⁽⁶⁾		\$ 52,900	1.96 %		\$ 43,361	1.66 %		\$ 43,859	1.90 %

⁽¹⁾ Includes the impact of interest rate risk management contracts. For more information, see Interest Rate Risk Management for the Banking Book on page 126.

⁽²⁾ For more information on negative interest, see Note 1 – Summary of Significant Accounting Principles to the Consolidated Financial Statements.

⁽³⁾ Nonperforming loans are included in the respective average loan balances. Income on these nonperforming loans is generally recognized on a cost recovery basis.

⁽⁴⁾ Includes U.S. commercial real estate loans of \$61.1 billion, \$56.5 billion and \$59.8 billion, and non-U.S. commercial real estate loans of \$4.3 billion, \$3.8 billion and \$3.6 billion for 2022, 2021 and 2020, respectively.

⁽⁵⁾ Includes \$30.7 billion, \$30.4 billion and \$34.3 billion of structured notes and liabilities for 2022, 2021 and 2020, respectively.

⁽⁶⁾ Net interest income includes FTE adjustments of \$438 million, \$427 million and \$499 million for 2022, 2021 and 2020, respectively.

Table 9 Analysis of Changes in Net Interest Income - FTE Basis

(Dollars in millions)	Due to Change in ⁽¹⁾			Due to Change in ⁽¹⁾		
	Volume	Rate	Net Change	Volume	Rate	Net Change
	From 2021 to 2022			From 2020 to 2021		
Increase (decrease) in interest income						
Interest-bearing deposits with the Federal Reserve, non-U.S. central banks and other banks	\$ (35)	\$ 2,454	\$ 2,419	\$ (1)	\$ (186)	\$ (187)
Time deposits placed and other short-term investments	2	115	117	(4)	(10)	(14)
Federal funds sold and securities borrowed or purchased under agreements to resell	2	4,648	4,650	(128)	(865)	(933)
Trading account assets	256	1,507	1,763	—	(362)	(362)
Debt securities	301	4,473	4,774	7,059	(4,494)	2,565
Loans and leases						
Residential mortgage	287	93	380	(612)	(731)	(1,343)
Home equity	(125)	18	(107)	(245)	21	(224)
Credit card	841	(205)	636	(994)	7	(987)
Direct/Indirect and other consumer	250	791	1,041	185	(454)	(269)
Total consumer			1,950			(2,823)
U.S. commercial	1,113	2,532	3,645	(553)	(553)	(1,106)
Non-U.S. commercial	452	1,498	1,950	(147)	(309)	(456)
Commercial real estate	126	973	1,099	(89)	(205)	(294)
Commercial lease financing	(59)	70	11	(80)	(17)	(97)
Total commercial			6,705			(1,953)
Total loans and leases			8,655			(4,776)
Other earning assets	(144)	2,670	2,526	904	(1,122)	(218)
Net increase (decrease) in interest income			\$ 24,904			\$ (3,985)
Increase (decrease) in interest expense						
U.S. interest-bearing deposits						
Demand and money market deposits	\$ (18)	\$ 2,849	\$ 2,831	\$ 134	\$ (797)	\$ (663)
Time and savings deposits	13	635	648	(39)	(525)	(564)
Total U.S. interest-bearing deposits			3,479			(1,227)
Non-U.S. interest-bearing deposits	(4)	706	702	16	(195)	(179)
Total interest-bearing deposits			4,181			(1,406)
Federal funds purchased and securities loaned or sold under agreements to repurchase	11	3,645	3,656	142	(910)	(768)
Short-term borrowings and other interest-bearing liabilities	(238)	3,918	3,680	(4)	(573)	(577)
Trading account liabilities	(63)	473	410	298	(144)	154
Long-term debt	118	3,320	3,438	338	(1,228)	(890)
Net increase (decrease) in interest expense			15,365			(3,487)
Net increase (decrease) in net interest income ⁽²⁾			\$ 9,539			\$ (498)

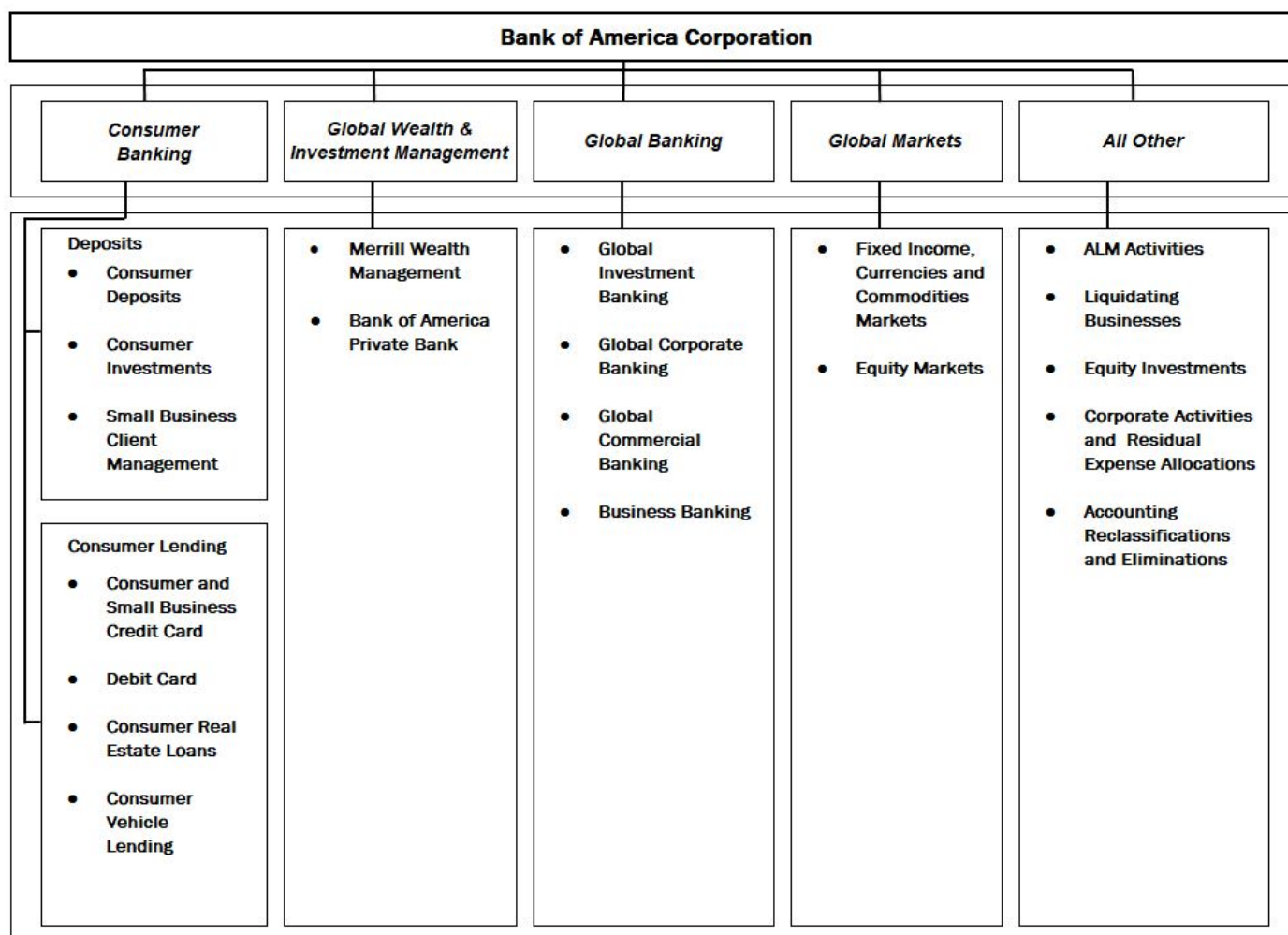
⁽¹⁾ The changes for each category of interest income and expense are divided between the portion of change attributable to the variance in volume and the portion of change attributable to the variance in rate for that category. The unallocated change in rate or volume variance is allocated between the rate and volume variances.

⁽²⁾ Includes an increase (decrease) in FTE basis adjustments of \$11 million from 2021 to 2022 and \$(72) million from 2020 to 2021.

Business Segment Operations

Segment Description and Basis of Presentation

We report our results of operations through the following four business segments: *Consumer Banking*, *GWIM*, *Global Banking* and *Global Markets*, with the remaining operations recorded in *All Other*. We manage our segments and report their results on an FTE basis. The primary activities, products and businesses of the business segments and *All Other* are shown below.



We periodically review capital allocated to our businesses and allocate capital annually during the strategic and capital planning processes. We utilize a methodology that considers the effect of regulatory capital requirements in addition to internal risk-based capital models. Our internal risk-based capital models use a risk-adjusted methodology incorporating each segment's credit, market, interest rate, business and operational risk components. For more information on the nature of these risks, see *Managing Risk* on page 93. The capital allocated to the business segments is referred to as allocated capital. Allocated equity in the reporting units is comprised of allocated capital plus capital for the portion of goodwill and intangibles specifically assigned to the reporting unit. For more information, including the definition of a reporting unit, see *Note 7 - Goodwill and Intangible Assets* to the Consolidated Financial Statements.

For more information on our presentation of financial information on an FTE basis, see Supplemental Financial Data on page 79, and for reconciliations to consolidated total revenue, net income and year-end total assets, see *Note 23 - Business Segment Information* to the Consolidated Financial Statements.

Key Performance Indicators

We present certain key financial and nonfinancial performance indicators that management uses when evaluating segment results. We believe they are useful to investors because they provide additional information about our segments' operational performance, customer trends and business growth.

Consumer Banking

	Deposits		Consumer Lending		Total Consumer Banking		% Change
	2022	2021	2022	2021	2022	2021	
(Dollars in millions)							
Net interest income	\$ 19,254	\$ 14,358	\$ 10,791	\$ 10,571	\$ 30,045	\$ 24,929	21 %
Noninterest income:							
Card income	(36)	(28)	5,205	5,200	5,169	5,172	—
Service charges	2,703	3,535	3	3	2,706	3,538	(24)
All other income	478	223	237	143	715	366	95
Total noninterest income	3,145	3,730	5,445	5,346	8,590	9,076	(5)
Total revenue, net of interest expense	22,399	18,088	16,236	15,917	38,635	34,005	14
Provision for credit losses	564	240	1,416	(1,275)	1,980	(1,035)	n/m
Noninterest expense	12,393	11,650	7,684	7,640	20,077	19,290	4
Income before income taxes	9,442	6,198	7,136	9,552	16,578	15,750	5
Income tax expense	2,314	1,519	1,748	2,340	4,062	3,859	5
Net income	\$ 7,128	\$ 4,679	\$ 5,388	\$ 7,212	\$ 12,516	\$ 11,891	5
Effective tax rate ⁽¹⁾					24.5 %	24.5 %	
Net interest yield	1.82 %	1.48 %	3.72 %	3.77 %	2.73 %	2.45 %	
Return on average allocated capital	55	39	20	27	31	31	
Efficiency ratio	55.33	64.41	47.32	48.00	51.96	56.73	
Balance Sheet							
Average							
Total loans and leases	\$ 4,161	\$ 4,431	\$ 288,205	\$ 279,630	\$ 292,366	\$ 284,061	3 %
Total earning assets ⁽²⁾	1,057,531	973,018	289,719	280,080	1,099,410	1,016,751	8
Total assets ⁽²⁾	1,090,692	1,009,387	296,499	285,532	1,139,351	1,058,572	8
Total deposits	1,056,783	976,093	5,778	6,934	1,062,561	983,027	8
Allocated capital	13,000	12,000	27,000	26,500	40,000	38,500	4
Year End							
Total loans and leases	\$ 4,148	\$ 4,206	\$ 300,613	\$ 282,305	\$ 304,761	\$ 286,511	6 %
Total earning assets ⁽²⁾	1,043,049	1,048,009	300,787	282,850	1,085,079	1,090,331	—
Total assets ⁽²⁾	1,077,203	1,082,449	308,007	289,220	1,126,453	1,131,142	—
Total deposits	1,043,194	1,049,085	5,605	5,910	1,048,799	1,054,995	(1)

⁽¹⁾ Estimated at the segment level only.

⁽²⁾ In segments and businesses where the total of liabilities and equity exceeds assets, we allocate assets from *All Other* to match the segments' and businesses' liabilities and allocated shareholders' equity. As a result, total earning assets and total assets of the businesses may not equal total *Consumer Banking*.

n/m = not meaningful

Consumer Banking, comprised of Deposits and Consumer Lending, offers a diversified range of credit, banking and investment products and services to consumers and small businesses. Deposits and Consumer Lending include the net impact of migrating customers and their related deposit, brokerage asset and loan balances between Deposits, Consumer Lending and *GWIM*, as well as other client-managed businesses. Our customers and clients have access to a coast-to-coast network including financial centers in 38 states and the District of Columbia. As of December 31, 2022, our network includes approximately 3,900 financial centers, approximately 16,000 ATMs, nationwide call centers and leading digital banking platforms with more than 44 million active users, including approximately 35 million active mobile users.

Consumer Banking Results

Net income for *Consumer Banking* increased \$625 million to \$12.5 billion due to higher revenue, partially offset by an increase in provision for credit losses and higher noninterest expense. Net interest income increased \$5.1 billion to \$30.0 billion primarily driven by higher interest rates and the benefits of higher deposit and loan balances, partially offset by a lower amount of accelerated net capitalized loan fees due to PPP loan forgiveness, which primarily occurred in 2021. Noninterest income decreased \$486 million to \$8.6 billion primarily driven by the impact of non-sufficient funds and overdraft policy changes, partially offset by a gain on the sale of an affinity card loan portfolio in the fourth quarter of 2022.

The provision for credit losses increased \$3.0 billion to \$2.0 billion primarily driven by loan growth and a dampened

macroeconomic outlook in 2022, compared to a benefit in 2021 due to an improved macroeconomic outlook. Noninterest expense increased \$787 million to \$20.1 billion primarily driven by continued investments for business growth, including marketing, technology and people, as well as increased client activity, partially offset by an impairment charge for real estate rationalization and the contribution to the Bank of America Foundation in the prior year.

The return on average allocated capital was 31 percent, unchanged from 2021. For more information on capital allocated to the business segments, see Business Segment Operations on page 84.

Deposits

Deposits includes the results of consumer deposit activities that consist of a comprehensive range of products provided to consumers and small businesses. Our deposit products include noninterest- and interest-bearing checking accounts, money market savings accounts, traditional savings accounts, CDs and IRAs, as well as investment accounts and products. Net interest income is allocated to deposit products using our funds transfer pricing process that matches assets and liabilities with similar interest rate sensitivity and maturity characteristics. Deposits generates fees such as account service fees and ATM fees, as well as investment and brokerage fees from Consumer Investment accounts. Consumer Investments serves investment client relationships through the Merrill Edge integrated investing and banking service platform, providing investment advice and guidance, client brokerage asset services, self-directed online investing and key banking capabilities including access to the

Corporation's network of financial centers and ATMs.

Net income for Deposits increased \$2.4 billion to \$7.1 billion due to higher revenue, partially offset by higher noninterest expense and an increase in provision for credit losses. Net interest income increased \$4.9 billion to \$19.3 billion primarily due to higher interest rates and the benefit of higher deposit balances. Noninterest income decreased \$585 million to \$3.1 billion primarily driven by the impact of non-sufficient funds and overdraft policy changes, partially offset by higher other service charges due to increased client activity.

The provision for credit losses increased \$324 million to \$564 million primarily driven by increased overdraft losses due to higher payment activity related to checking accounts. The benefit in the prior year was due to an improved macroeconomic outlook. Noninterest expense increased \$743 million to \$12.4 billion primarily driven by continued investments for business growth and increased client activity, partially offset by an impairment charge for real estate rationalization in the prior year.

Average deposits increased \$80.7 billion to \$1.1 trillion primarily due to net inflows of \$46.8 billion in checking and \$34.9 billion in money market savings largely driven by strong organic growth.

The table below provides key performance indicators for Deposits. Management uses these metrics, and we believe they are useful to investors because they provide additional information to evaluate our deposit profitability and digital/mobile trends.

Key Statistics – Deposits

	2022	2021
Total deposit spreads (excludes noninterest costs) ⁽¹⁾	1.86%	1.69%
Year End		
Consumer investment assets (in millions) ⁽²⁾	\$319,648	\$368,831
Active digital banking users (in thousands) ⁽³⁾	44,054	41,365
Active mobile banking users (in thousands) ⁽⁴⁾	35,452	32,980
Financial centers	3,913	4,173
ATMs	15,528	16,209

⁽¹⁾ Includes deposits held in Consumer Lending.

⁽²⁾ Includes client brokerage assets, deposit sweep balances and AUM in *Consumer Banking*.

⁽³⁾ Represents mobile and/or online active users over the past 90 days.

⁽⁴⁾ Represents mobile active users over the past 90 days.

Consumer investment assets decreased \$49.2 billion to \$319.6 billion driven by market performance, partially offset by client flows. Active mobile banking users increased approximately two million, reflecting continuing changes in our clients' banking preferences. We had a net decrease of 260 financial centers and 681 ATMs as we continue to optimize our consumer banking network.

Consumer Lending

Consumer Lending offers products to consumers and small businesses across the U.S. The products offered include debit and credit cards, residential mortgages and home equity loans, and direct and indirect loans such as automotive, recreational vehicle and consumer personal loans. In addition to earning net interest spread revenue on its lending activities, Consumer Lending generates interchange revenue from debit and credit card transactions, late fees, cash advance fees, annual credit card fees, mortgage banking fee income and other miscellaneous fees. Consumer Lending products are available to our customers through our retail network, direct telephone, and online and mobile channels. Consumer Lending results also include the impact of servicing residential mortgages and home

equity loans, including loans held on the balance sheet of Consumer Lending and loans serviced for others.

Net income for Consumer Lending decreased \$1.8 billion to \$5.4 billion primarily due to an increase in provision for credit losses. Net interest income increased \$220 million to \$10.8 billion primarily due to higher interest rates and loan balances, largely offset by a lower amount of accelerated net capitalized loan fees due to PPP loan forgiveness, which primarily occurred in 2021. Noninterest income increased \$99 million to \$5.4 billion primarily driven by a gain on the sale of an affinity card loan portfolio in the fourth quarter of 2022.

The provision for credit losses increased \$2.7 billion to \$1.4 billion primarily driven by loan growth and a dampened macroeconomic environment in 2022 compared to a benefit in 2021 due to an improved macroeconomic outlook. Noninterest expense increased \$44 million to \$7.7 billion largely driven by continued investments for business growth and increased client activity, partially offset by the contribution to the Bank of America Foundation in the prior year.

Average loans increased \$8.6 billion to \$288.2 billion primarily driven by an increase in credit card loans and first mortgage loans, partially offset by a decline in PPP loans.

The table below provides key performance indicators for Consumer Lending. Management uses these metrics, and we believe they are useful to investors because they provide additional information about loan growth and profitability.

Key Statistics – Consumer Lending

(Dollars in millions)	2022	2021
Total credit card ⁽¹⁾		
Gross interest yield ⁽²⁾	10.42 %	10.17 %
Risk-adjusted margin ⁽³⁾	10.06	10.17
New accounts (in thousands)	4,397	3,594
Purchase volumes	\$356,588	\$311,571
Debit card purchase volumes	\$503,583	\$473,770

⁽¹⁾ Includes *GWIM*'s credit card portfolio.

⁽²⁾ Calculated as the effective annual percentage rate divided by average loans.

⁽³⁾ Calculated as the difference between total revenue, net of interest expense, and net credit losses divided by average loans.

During 2022, the total risk-adjusted margin decreased 11 bps primarily driven by lower net interest margin and lower fee income, partially offset by lower net credit losses. Total credit card purchase volumes increased \$45.0 billion to \$356.6 billion and debit card purchase volumes increased \$29.8 billion to \$503.6 billion, reflecting higher levels of consumer spending.

Key Statistics – Loan Production ⁽¹⁾

(Dollars in millions)	2022	2021
<i>Consumer Banking</i> :		
First mortgage	\$ 20,981	\$ 45,976
Home equity	7,988	3,996
Total ⁽²⁾ :		
First mortgage	\$ 44,765	\$ 79,692
Home equity	9,591	4,895

⁽¹⁾ The loan production amounts represent the unpaid principal balance of loans and, in the case of home equity, the principal amount of the total line of credit.

⁽²⁾ In addition to loan production in *Consumer Banking*, there is also first mortgage and home equity loan production in *GWIM*.

First mortgage loan originations for *Consumer Banking* and the total Corporation decreased \$25.0 billion and \$34.9 billion during 2022 primarily driven by changes in demand.

Home equity production in *Consumer Banking* and the total Corporation increased \$4.0 billion and \$4.7 billion during 2022 primarily driven by higher demand.

Global Wealth & Investment Management

(Dollars in millions)	2022	2021	% Change
Net interest income	\$ 7,466	\$ 5,664	32 %
Noninterest income:			
Investment and brokerage services	13,561	14,312	(5)
All other income	721	772	(7)
Total noninterest income	14,282	15,084	(5)
Total revenue, net of interest expense	21,748	20,748	5
Provision for credit losses	66	(241)	(127)
Noninterest expense	15,490	15,258	2
Income before income taxes	6,192	5,731	8
Income tax expense	1,517	1,404	8
Net income	\$ 4,675	\$ 4,327	8
Effective tax rate	24.5 %	24.5 %	
Net interest yield	1.95	1.51	
Return on average allocated capital	27	26	
Efficiency ratio	71.23	73.54	
Balance Sheet			
Average			
Total loans and leases	\$ 219,810	\$ 196,899	12 %
Total earning assets	383,352	374,273	2
Total assets	396,167	386,918	2
Total deposits	351,329	340,124	3
Allocated capital	17,500	16,500	6
Year end			
Total loans and leases	\$ 223,910	\$ 208,971	7
Total earning assets	355,461	425,112	(16)
Total assets	368,893	438,275	(16)
Total deposits	323,899	390,143	(17)

GWIM consists of two primary businesses: Merrill Wealth Management and Bank of America Private Bank.

Merrill Wealth Management's advisory business provides a high-touch client experience through a network of financial advisors focused on clients with over \$250,000 in total investable assets. Merrill Wealth Management provides tailored solutions to meet clients' needs through a full set of investment management, brokerage, banking and retirement products.

Bank of America Private Bank, together with Merrill Wealth Management's Private Wealth Management business, provides comprehensive wealth management solutions targeted to high net worth and ultra high net worth clients, as well as customized solutions to meet clients' wealth structuring, investment management, trust and banking needs, including specialty asset management services.

Net income for GWIM increased \$348 million to \$4.7 billion driven by higher revenue, partially offset by higher provision for credit losses and noninterest expense. The operating margin remained unchanged at 28 percent compared to a year ago.

Net interest income increased \$1.8 billion to \$7.5 billion due to the impacts of higher interest rates, as well as the benefits of higher loan and deposit balances.

Noninterest income, which primarily includes investment and brokerage services income, decreased \$802 million to \$14.3 billion primarily due to the impacts of lower market valuations and declines in AUM pricing, partially offset by the impact of positive AUM flows.

The provision for credit losses increased \$307 million primarily due to a dampened macroeconomic outlook and loan growth in the current-year period, compared to a benefit in the prior-year period due to an improved macroeconomic outlook. Noninterest expense increased \$232 million to \$15.5 billion primarily due to continued investments in the business, partially offset by lower revenue-related incentives.

The return on average allocated capital was 27 percent, up from 26 percent, due to higher net income, partially offset by an increase in allocated capital. For more information on capital allocated to the business segments, see Business Segment Operations on page 84.

Average loans increased \$22.9 billion to \$219.8 billion primarily due to residential mortgage, securities-based lending and custom lending. Average deposits increased \$11.2 billion to \$351.3 billion primarily driven by inflows from new and existing accounts.

Merrill Wealth Management revenue of \$18.1 billion increased four percent primarily driven by the benefits of higher interest rates, as well as higher deposit and loan balances, partially offset by the impact of lower market valuations and declines in AUM pricing.

Bank of America Private Bank revenue of \$3.6 billion increased nine percent primarily driven by the benefits of higher interest rates, as well as higher deposit and loan balances, partially offset by the impact of lower market valuations.

Key Indicators and Metrics

(Dollars in millions)	2022	2021
Revenue by Business		
Merrill Wealth Management	\$ 18,135	\$ 17,448
Bank of America Private Bank	3,613	3,300
Total revenue, net of interest expense	\$ 21,748	\$ 20,748
Client Balances by Business, at year end		
Merrill Wealth Management	\$ 2,822,910	\$ 3,214,881
Bank of America Private Bank	563,931	625,453
Total client balances	\$ 3,386,841	\$ 3,840,334
Client Balances by Type, at year end		
Assets under management	\$ 1,401,474	\$ 1,638,782
Brokerage and other assets	1,482,025	1,655,021
Deposits	323,899	390,143
Loans and leases ⁽¹⁾	226,973	212,251
Less: Managed deposits in assets under management	(47,530)	(55,863)
Total client balances	\$ 3,386,841	\$ 3,840,334
Assets Under Management Rollforward		
Assets under management, beginning of year	\$ 1,638,782	\$ 1,408,465
Net client flows	20,785	66,250
Market valuation/other	(258,093)	164,067
Total assets under management, end of year	\$ 1,401,474	\$ 1,638,782
Total wealth advisors, at year end ⁽²⁾	19,273	18,846

⁽¹⁾ Includes margin receivables which are classified in customer and other receivables on the Consolidated Balance Sheet.

⁽²⁾ Includes advisors across all wealth management businesses in GWIM and Consumer Banking.

Client Balances

Client balances managed under advisory and/or discretion of GWIM are AUM and are typically held in diversified portfolios. Fees earned on AUM are calculated as a percentage of clients' AUM balances. The asset management fees charged to clients per year depend on various factors but are commonly driven by the breadth of the client's relationship. The net client AUM flows represent the net change in clients' AUM balances over a

specified period of time, excluding market appreciation/depreciation and other adjustments.

Client balances decreased \$453.5 billion, or 12 percent, to \$3.4 trillion at December 31, 2022 compared to December 31, 2021. The decrease in client balances was primarily due to the impact of lower market valuations, partially offset by positive client flows.

Global Banking

(Dollars in millions)	2022	2021	% Change
Net interest income	\$ 12,184	\$ 8,511	43 %
Noninterest income:			
Service charges	3,293	3,523	(7)
Investment banking fees	3,004	5,107	(41)
All other income	3,748	3,734	—
Total noninterest income	10,045	12,364	(19)
Total revenue, net of interest expense	22,229	20,875	6
Provision for credit losses	641	(3,201)	(120)
Noninterest expense	10,966	10,632	3
Income before income taxes	10,622	13,444	(21)
Income tax expense	2,815	3,630	(22)
Net income	\$ 7,807	\$ 9,814	(20)
Effective tax rate	26.5 %	27.0 %	
Net interest yield	2.26	1.55	
Return on average allocated capital	18	23	
Efficiency ratio	49.34	50.93	
Balance Sheet			
Average			
Total loans and leases	\$ 375,271	\$ 329,655	14 %
Total earning assets	539,032	549,749	(2)
Total assets	603,273	611,304	(1)
Total deposits	511,804	522,790	(2)
Allocated capital	44,500	42,500	5
Year end			
Total loans and leases	\$ 379,107	\$ 352,933	7 %
Total earning assets	522,539	574,583	(9)
Total assets	588,466	638,131	(8)
Total deposits	498,661	551,752	(10)

Global Banking, which includes Global Corporate Banking, Global Commercial Banking, Business Banking and Global Investment Banking, provides a wide range of lending-related products and services, integrated working capital management and treasury solutions, and underwriting and advisory services through our network of offices and client relationship teams. Our lending products and services include commercial loans, leases, commitment facilities, trade finance, commercial real estate lending and asset-based lending. Our treasury solutions business includes treasury management, foreign exchange, short-term investing options and merchant services. We also provide investment banking services to our clients such as debt and equity underwriting and distribution, and merger-related and other advisory services. Underwriting debt and equity issuances, fixed-income and equity research, and certain market-based activities are executed through our global broker-dealer affiliates, which are our primary dealers in several countries. Within *Global Banking*, Global Corporate Banking clients generally include large global corporations, financial institutions and leasing clients. Global Commercial Banking clients generally include middle-market companies, commercial real estate firms and not-for-profit companies. Business Banking clients include mid-sized U.S.-based businesses requiring customized and integrated financial advice and solutions.

Net income for *Global Banking* decreased \$2.0 billion to \$7.8 billion driven by higher provision for credit losses and noninterest expense, partially offset by higher revenue.

Net interest income increased \$3.7 billion to \$12.2 billion primarily due to the benefits of higher interest rates and loan balances.

Noninterest income decreased \$2.3 billion to \$10.0 billion driven by lower investment banking fees and valuation adjustments on leveraged loans, as well as lower treasury service charges.

The provision for credit losses increased \$3.8 billion to \$641 million primarily driven by a dampened macroeconomic outlook and loan growth, compared to a benefit in the prior year due to an improved macroeconomic outlook.

Noninterest expense increased \$334 million to \$11.0 billion, primarily due to continued investments in the business, including strategic hiring and technology.

The return on average allocated capital was 18 percent, down from 23 percent, due to lower net income and higher allocated capital. For more information on capital allocated to the business segments, see Business Segment Operations on page 84.

Global Corporate, Global Commercial and Business Banking

Global Corporate, Global Commercial and Business Banking each include Business Lending and Global Transaction Services activities. Business Lending includes various lending-related products and services, and related hedging activities, including commercial loans, leases, commitment facilities, trade finance, real estate lending and asset-based lending. Global Transaction Services includes deposits, treasury management, credit card, foreign exchange and short-term investment products.

The following table and discussion present a summary of the results, which exclude certain investment banking and PPP activities in *Global Banking*.

Global Corporate, Global Commercial and Business Banking

(Dollars in millions)	Global Corporate Banking		Global Commercial Banking		Business Banking		Total	
	2022	2021	2022	2021	2022	2021	2022	2021
Revenue								
Business Lending	\$ 4,325	\$ 3,723	\$ 4,316	\$ 3,675	\$ 251	\$ 224	\$ 8,892	\$ 7,622
Global Transaction Services ⁽¹⁾	5,002	3,235	4,166	3,341	1,213	941	10,381	7,517
Total revenue, net of interest expense	\$ 9,327	\$ 6,958	\$ 8,482	\$ 7,016	\$ 1,464	\$ 1,165	\$ 19,273	\$ 15,139
Balance Sheet								
Average								
Total loans and leases	\$ 174,052	\$ 150,159	\$ 187,597	\$ 161,012	\$ 12,743	\$ 12,763	\$ 374,392	\$ 323,934
Total deposits ⁽¹⁾	250,648	252,403	204,893	213,999	56,263	56,354	511,804	522,756
Year end								
Total loans and leases	\$ 174,905	\$ 163,027	\$ 191,051	\$ 175,228	\$ 12,683	\$ 12,822	\$ 378,639	\$ 351,077
Total deposits ⁽¹⁾	262,033	260,826	186,112	233,007	50,516	57,886	498,661	551,719

⁽¹⁾ Prior periods have been revised to conform to current-period presentation.

Business Lending revenue increased \$1.3 billion in 2022 compared to 2021 primarily due to the benefits of higher interest rates and loan balances.

Global Transaction Services revenue increased \$2.9 billion in 2022 compared to 2021 driven by higher interest rates, partially offset by lower treasury service charges.

Average loans and leases increased 16 percent in 2022 compared to 2021 due to higher client demand. Average deposits decreased two percent due to declines in domestic balances.

Global Investment Banking

Client teams and product specialists underwrite and distribute debt, equity and loan products, and provide advisory services and tailored risk management solutions. The economics of certain investment banking and underwriting activities are shared primarily between *Global Banking* and *Global Markets* under an internal revenue-sharing arrangement. *Global Banking* originates certain deal-related transactions with our corporate and commercial clients that are executed and distributed by *Global Markets*. To provide a complete discussion of our

consolidated investment banking fees, the table below presents total Corporation investment banking fees and the portion attributable to *Global Banking*.

Investment Banking Fees

(Dollars in millions)	Global Banking		Total Corporation	
	2022	2021	2022	2021
Products				
Advisory	\$ 1,643	\$ 2,139	\$ 1,783	\$ 2,311
Debt issuance	1,099	1,736	2,523	4,015
Equity issuance	262	1,232	709	2,784
Gross investment banking fees	3,004	5,107	5,015	9,110
Self-led deals	(78)	(93)	(192)	(223)
Total investment banking fees	\$ 2,926	\$ 5,014	\$ 4,823	\$ 8,887

Total Corporation investment banking fees, which exclude self-led deals and are primarily included within *Global Banking* and *Global Markets*, decreased 46 percent to \$4.8 billion primarily due to lower equity issuance, debt issuance and advisory fees.

Global Markets

(Dollars in millions)	2022	2021	% Change
Net interest income	\$ 3,088	\$ 4,011	(23)%
Noninterest income:			
Investment and brokerage services	2,002	1,979	1
Investment banking fees	1,820	3,616	(50)
Market making and similar activities	11,406	8,760	30
All other income	(178)	889	(120)
Total noninterest income	15,050	15,244	(1)
Total revenue, net of interest expense	18,138	19,255	(6)
Provision for credit losses	28	65	(57)
Noninterest expense	12,420	13,032	(5)
Income before income taxes	5,690	6,158	(8)
Income tax expense	1,508	1,601	(6)
Net income	\$ 4,182	\$ 4,557	(8)
Effective tax rate	26.5 %	26.0 %	
Return on average allocated capital	10	12	
Efficiency ratio	68.48	67.68	
Balance Sheet			
Average			
Trading-related assets:			
Trading account securities	\$ 303,587	\$ 291,505	4 %
Reverse repurchases	126,324	113,989	11
Securities borrowed	116,764	100,292	16
Derivative assets	54,128	43,582	24
Total trading-related assets	600,803	549,368	9
Total loans and leases	116,652	91,339	28
Total earning assets	602,889	541,391	11
Total assets	857,637	785,998	9
Total deposits	40,382	51,833	(22)
Allocated capital	42,500	38,000	12
Year end			
Total trading-related assets	\$ 564,769	\$ 491,160	15 %
Total loans and leases	127,735	114,846	11
Total earning assets	587,772	561,135	5
Total assets	812,489	747,794	9
Total deposits	39,077	46,374	(16)

Global Markets offers sales and trading services and research services to institutional clients across fixed-income, credit, currency, commodity and equity businesses. *Global Markets* product coverage includes securities and derivative products in both the primary and secondary markets. *Global Markets* provides market-making, financing, securities clearing, settlement and custody services globally to our institutional investor clients in support of their investing and trading activities. We also work with our commercial and corporate clients to provide risk management products using interest rate, equity, credit, currency and commodity derivatives, foreign exchange, fixed-income and mortgage-related products. As a result of our market-making activities in these products, we may be required to manage risk in a broad range of financial products including government securities, equity and equity-linked securities, high-grade and high-yield corporate debt securities, syndicated loans, MBS, commodities and asset-backed securities. The economics of certain investment banking and underwriting activities are shared primarily between *Global Markets* and *Global Banking* under an internal revenue-sharing arrangement. *Global Banking* originates certain deal-related transactions with our corporate and commercial clients that are executed and distributed by *Global Markets*. For information on investment banking fees on a consolidated basis, see page 90.

The following explanations for year-over-year changes for

Global Markets, including those disclosed under Sales and Trading Revenue, are the same for amounts including and excluding net DVA. Amounts excluding net DVA are a non-GAAP financial measure. For more information on net DVA, see Supplemental Financial Data on page 79.

Net income for *Global Markets* decreased \$375 million to \$4.2 billion. Net DVA gains were \$20 million compared to losses of \$54 million in 2021. Excluding net DVA, net income decreased \$431 million to \$4.2 billion. These decreases were primarily driven by lower revenue, partially offset by lower noninterest expense.

Revenue decreased \$1.1 billion to \$18.1 billion primarily due to lower investment banking fees, partially offset by higher sales and trading revenue. Sales and trading revenue increased \$1.3 billion, and excluding net DVA, sales and trading revenue increased \$1.2 billion. These increases were driven by higher revenue in both FICC and Equities.

Noninterest expense decreased \$612 million to \$12.4 billion primarily driven by the realignment of a liquidating business activity from *Global Markets* to *All Other* in the fourth quarter of 2021 and an acceleration of expenses from incentive compensation award changes in the prior year.

Average total assets increased \$71.6 billion to \$857.6 billion driven by loan growth and commodities activity in FICC. Period-end total assets increased \$64.7 billion to \$812.5 billion

driven by loan growth, an increase in commodities activity, and higher derivative balances due to higher interest rates.

The return on average allocated capital was 10 percent, down from 12 percent, reflecting lower net income and an increase in allocated capital. For more information on capital allocated to the business segments, see Business Segment Operations on page 84.

Sales and Trading Revenue

Sales and trading revenue includes unrealized and realized gains and losses on trading and other assets which are included in market making and similar activities, net interest income, and fees primarily from commissions on equity securities. Sales and trading revenue is segregated into fixed-income (government debt obligations, investment and non-investment grade corporate debt obligations, commercial MBS, residential mortgage-backed securities, collateralized loan obligations, interest rate and credit derivative contracts), currencies (interest rate and foreign exchange contracts), commodities (primarily futures, forwards, swaps and options) and equities (equity-linked derivatives and cash equity activity). The following table and related discussion present sales and trading revenue, substantially all of which is in *Global Markets*, with the remainder in *Global Banking*. In addition, the following table and related discussion also present sales and trading revenue, excluding net DVA, which is a non-GAAP financial measure. For more information on net DVA, see Supplemental Financial Data on page 79.

Sales and Trading Revenue ^(1, 2, 3)

(Dollars in millions)	2022	2021
Sales and trading revenue		
Fixed income, currencies and commodities	\$ 9,917	\$ 8,761
Equities	6,572	6,428
Total sales and trading revenue	\$ 16,489	\$ 15,189

(Dollars in millions)	2022	2021
Sales and trading revenue, excluding net DVA ⁽⁴⁾		
Fixed income, currencies and commodities	\$ 9,898	\$ 8,810
Equities	6,571	6,433
Total sales and trading revenue, excluding net DVA	\$ 16,469	\$ 15,243

⁽¹⁾ For more information on sales and trading revenue, see Note 3 - Derivatives to the Consolidated Financial Statements.

⁽²⁾ Includes FTE adjustments of \$354 million and \$421 million for 2022 and 2021.

⁽³⁾ Includes *Global Banking* sales and trading revenue of \$1.0 billion and \$510 million for 2022 and 2021.

⁽⁴⁾ FICC and Equities sales and trading revenue, excluding net DVA, is a non-GAAP financial measure. FICC net DVA gains (losses) were \$19 million and \$(49) million for 2022 and 2021. Equities net DVA gains (losses) were \$1 million and \$(5) million for 2022 and 2021.

Including and excluding net DVA, FICC revenue increased \$1.2 billion and \$1.1 billion driven by improved trading performance across interest rate and currency products, partially offset by a weaker trading environment for credit products in the current-year period and a gain in commodities from a weather-related event in the prior year. Including and excluding net DVA, Equities revenue increased \$144 million and \$138 million driven by strong performances in derivatives and client financing activities, partially offset by a weaker performance in cash.

All Other

(Dollars in millions)	2022	2021	% Change
Net interest income	\$ 117	\$ 246	(52)%
Noninterest income (loss)	(5,479)	(5,589)	(2)
Total revenue, net of interest expense	(5,362)	(5,343)	—
Provision for credit losses	(172)	(182)	(5)
Noninterest expense	2,485	1,519	64
Loss before income taxes	(7,675)	(6,680)	15
Income tax benefit	(6,023)	(8,069)	(25)
Net income (loss)	\$ (1,652)	\$ 1,389	n/m

Balance Sheet

Average

Total loans and leases	\$ 12,683	\$ 18,447	(31)%
Total assets ⁽¹⁾	139,466	191,831	(27)
Total deposits	20,082	16,512	22

Year end

Total loans and leases	\$ 10,234	\$ 15,863	(35)%
Total assets ⁽¹⁾	155,074	214,153	(28)
Total deposits	19,905	21,182	(6)

⁽¹⁾ In segments where the total of liabilities and equity exceeds assets, which are generally deposit-taking segments, we allocate assets from *All Other* to those segments to match liabilities (i.e., deposits) and allocated shareholders' equity. Average allocated assets were \$1.1 trillion for both 2022 and 2021, and year-end allocated assets were \$1.0 trillion and \$1.2 trillion at December 31, 2022 and 2021.

n/m = not meaningful

All Other primarily consists of asset and liability management (ALM) activities, liquidating businesses and certain expenses not otherwise allocated to a business segment. ALM activities encompass interest rate and foreign currency risk management activities for which substantially all of the results are allocated to our business segments. For more information on our ALM activities, see Note 23 - Business Segment Information to the Consolidated Financial Statements.

Net income decreased \$3.0 billion to a loss of \$1.7 billion primarily due to a lower income tax benefit and higher noninterest expense.

Noninterest expense increased \$966 million primarily driven by the realignment of a liquidating business activity from *Global Markets* to *All Other* in the fourth quarter of 2021, expense associated with the settlement of the legacy monoline insurance litigation and expense related to certain regulatory matters, partially offset by decreases in other expenses.

The income tax benefit was \$6.0 billion in 2022 compared to a benefit of \$8.1 billion in 2021. The decrease in the tax benefit was primarily driven by the impact of the U.K. tax law change in 2021. For more information, see Financial Highlights - Income Tax Expense on page 76. Both periods included income tax benefit adjustments to eliminate the FTE treatment of certain tax credits recorded in *Global Banking* and *Global Markets*.

Managing Risk

Risk is inherent in all our business activities. Sound risk management enables us to serve our customers and deliver for our shareholders. If not managed well, risk can result in financial loss, regulatory sanctions and penalties, and damage to our reputation, each of which may adversely impact our ability to execute our business strategies. We take a comprehensive approach to risk management with a defined Risk Framework and an articulated Risk Appetite Statement, which are approved annually by the ERC and the Board.

The seven key types of risk faced by the Corporation are strategic, credit, market, liquidity, compliance, operational and reputational.

- Strategic risk is the risk to current or projected financial condition arising from incorrect assumptions about external or internal factors, inappropriate business plans, ineffective business strategy execution or failure to respond in a timely manner to changes in the regulatory, macroeconomic or competitive environments in the geographic locations in which we operate.
- Credit risk is the risk of loss arising from the inability or failure of a borrower or counterparty to meet its obligations.
- Market risk is the risk that changes in market conditions adversely impact the value of assets or liabilities or otherwise negatively impact earnings. Market risk is composed of price risk and interest rate risk.
- Liquidity risk is the inability to meet expected or unexpected cash flow and collateral needs while continuing to support our businesses and customers under a range of economic conditions.
- Compliance risk is the risk of legal or regulatory sanctions, material financial loss or damage to the reputation of the Corporation arising from the failure of the Corporation to comply with the requirements of applicable laws, rules and regulations and our internal policies and procedures.
- Operational risk is the risk of loss resulting from inadequate or failed internal processes or systems, people or external events.
- Reputational risk is the risk that negative perception of the Corporation may adversely impact profitability or operations.

The following sections address in more detail the specific procedures, measures and analyses of the major categories of risk. This discussion of managing risk focuses on the current Risk Framework that, as part of its annual review process, was approved by the ERC and the Board.

As set forth in our Risk Framework, a culture of managing risk well is fundamental to our values and our purpose, and how we drive Responsible Growth. It requires us to focus on risk in all activities and encourages the necessary mindset and behavior to enable effective risk management and promote sound risk-taking within our risk appetite. Sustaining a culture of managing risk well throughout the organization is critical to the success of the Corporation and is a clear expectation of our executive management team and the Board.

Our Risk Framework serves as the foundation for the consistent and effective management of risks facing the Corporation. The Risk Framework sets forth roles and responsibilities for the management of risk and provides a blueprint for how the Board, through delegation of authority to committees and executive officers, establishes risk appetite and associated limits for our activities.

Executive management assesses, with Board oversight, the risk-adjusted returns of each business. Management reviews and approves the strategic and financial operating plans, as well as the capital plan and Risk Appetite Statement, and recommends them annually to the Board for approval. Our strategic plan takes into consideration return objectives and financial resources, which must align with risk capacity and risk appetite. Management sets financial objectives for each business by allocating capital and setting a target for return on capital for each business. Capital allocations and operating limits are regularly evaluated as part of our overall governance processes as the businesses and the economic environment in which we operate continue to evolve. For more information regarding capital allocations, see Business Segment Operations on page 84.

The Corporation's risk appetite indicates the amount of capital, earnings or liquidity we are willing to put at risk to achieve our strategic objectives and business plans, consistent with applicable regulatory requirements. Our risk appetite provides a common framework that includes a set of measures to assist senior management and the Board in assessing the Corporation's risk profile against our risk appetite and risk capacity. Our risk appetite is formally articulated in the Risk Appetite Statement, which includes both qualitative statements and quantitative limits.

Our overall capacity to take risk is limited; therefore, we prioritize the risks we take in order to maintain a strong and flexible financial position so we can withstand challenging economic conditions and take advantage of organic growth opportunities. Therefore, we set objectives and targets for capital and liquidity that are intended to permit us to continue to operate in a safe and sound manner at all times, including during periods of stress.

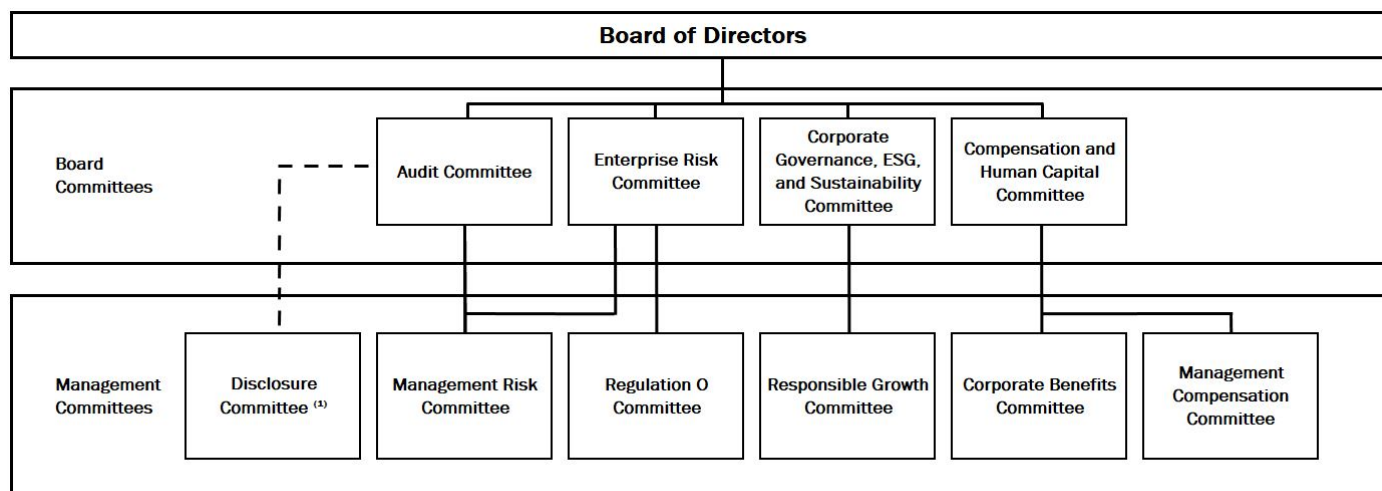
Our lines of business operate with risk limits that align with the Corporation's risk appetite. Senior management is responsible for tracking and reporting performance measurements as well as any exceptions to risk appetite limits. The Board, and its committees when appropriate, oversee financial performance, execution of the strategic and financial operating plans, adherence to risk appetite limits and the adequacy of internal controls.

For a more detailed discussion of our risk management activities, see the discussion below and pages 96 through 129.

Risk Management Governance

The Risk Framework describes delegations of authority whereby the Board and its committees may delegate authority to management-level committees or executive officers. Such delegations may authorize certain decision-making and approval functions, which may be evidenced in documents such as committee charters, job descriptions, meeting minutes and resolutions.

The chart below illustrates the interrelationship among the Board, Board committees and management committees that have the majority of risk oversight responsibilities for the Corporation.



⁽⁴⁾ Reports to the CEO and CFO with oversight by the Audit Committee

Board of Directors and Board Committees

The Board is composed of 15 directors, all but one of whom are independent. The Board authorizes management to maintain an effective Risk Framework and oversees compliance with safe and sound banking practices. In addition, the Board or its committees conduct inquiries of, and receive reports from senior management on, risk-related matters to assess scope or resource limitations that could impede the ability of Global Risk Management (GRM) and/or Corporate Audit to execute its responsibilities. The Board committees discussed below have the principal responsibility for enterprise-wide oversight of our risk management activities. Through these activities, the Board and applicable committees are provided with information on our risk profile and oversee senior management addressing key risks we face. Other Board committees, as described below, provide additional oversight of specific risks.

Each of the committees shown on the above chart regularly reports to the Board on risk-related matters within the committee's responsibilities, which is intended to collectively provide the Board with integrated insight about our management of enterprise-wide risks.

Audit Committee

The Audit Committee oversees the qualifications, performance and independence of the Independent Registered Public Accounting Firm, the performance of our corporate audit function, the integrity of our consolidated financial statements, our compliance with legal and regulatory requirements, and makes inquiries of senior management or the Chief Audit Executive (CAE) to determine whether there are scope or resource limitations that impede the ability of Corporate Audit to execute its responsibilities. The Audit Committee is also responsible for overseeing compliance risks pursuant to the New York Stock Exchange listing standards.

Enterprise Risk Committee

The ERC oversees the Corporation's Risk Framework, risk appetite and senior management's responsibilities for the identification, measurement, monitoring and control of key risks facing the Corporation. The ERC may consult with other Board committees on risk-related matters.

Other Board Committees

Our Corporate Governance, ESG, and Sustainability Committee oversees our Board's governance processes, identifies and reviews the qualifications of potential Board members, leads

Board and committee succession planning and their formal self-evaluation, and reviews our ESG activities, shareholder input and shareholder engagement process.

Our Compensation and Human Capital Committee oversees establishing, maintaining and administering our compensation programs and employee benefit plans, including approving and recommending our Chief Executive Officer's (CEO) compensation to our Board for further approval by all independent directors; reviewing and approving our executive officers' compensation, as well as compensation for non-management directors; and reviewing certain other human capital management topics, including pay equity and diversity and inclusion.

Management Committees

Management committees receive their authority from the Board, a Board committee, or another management committee. Our primary management risk committee is the MRC. Subject to Board oversight, the MRC is responsible for management oversight of key risks facing the Corporation, including an integrated evaluation of risk, earnings, capital and liquidity.

Lines of Defense

We have clear ownership and accountability for managing risk across three lines of defense: Front Line Units (FLUs), GRM and Corporate Audit. We also have control functions outside of FLUs and GRM (e.g., Legal and Global Human Resources). The three lines of defense are integrated into our management-level governance structure. Each of these functional roles is further described in this section.

Executive Officers

Executive officers lead various functions representing the functional roles. Authority for functional roles may be delegated to executive officers from the Board, Board committees or management-level committees. Executive officers, in turn, may further delegate responsibilities, as appropriate, to management-level committees, management routines or individuals. Executive officers review our activities for consistency with our Risk Framework, risk appetite, and applicable strategic, capital and financial operating plans, as well as applicable policies and standards. Executive officers and other employees make decisions individually on a day-to-day basis, consistent with the authority they have been delegated. Executive officers and other employees may also serve on committees and participate in committee decisions.

Front Line Units

FLUs, which include the lines of business as well as Global Technology and Global Operations, are responsible for appropriately assessing and effectively managing all of the risks associated with their activities.

Three organizational units that include FLU activities and control function activities, but are not part of GRM are first, the Chief Financial Officer Group; second, the Chief Administrative Officer Group; and third, Global Strategy and Enterprise Platforms.

Global Risk Management

GRM is part of our control functions and operates as our independent risk management function. GRM, led by the Chief Risk Officer (CRO), is responsible for independently assessing and overseeing risks within FLUs and other control functions. GRM establishes written enterprise policies and procedures outlining how aggregate risks are identified, measured, monitored and controlled.

The CRO has the stature, authority and independence needed to develop and implement a meaningful risk management framework and practices to guide the Corporation in managing risk. The CRO has unrestricted access to the Board and reports directly to both the ERC and the CEO. GRM is organized into horizontal risk teams that cover a specific risk area and vertical CRO teams that cover a particular FLU or control function. These teams work collaboratively in executing their respective duties.

Corporate Audit

Corporate Audit and the CAE maintain their independence from the FLUs, GRM and other control functions by reporting directly to the Audit Committee. The CAE administratively reports to the CEO. Corporate Audit provides independent assessment and validation through testing of key processes and controls across the Corporation. Corporate Audit includes Credit Review, which provides an independent assessment of credit lending decisions and the effectiveness of credit processes across the Corporation's credit platform through examinations and monitoring.

Risk Management Processes

The Risk Framework requires that strong risk management practices are integrated in key strategic, capital and financial planning processes and in day-to-day business processes across the Corporation, thereby ensuring risks are appropriately considered, evaluated and responded to in a timely manner. We employ an effective risk management process, referred to as Identify, Measure, Monitor and Control, as part of our daily activities.

Identify – To be effectively managed, risks must be proactively identified and well understood. Proper risk identification focuses on recognizing and understanding key risks inherent in our business activities or key risks that may arise from external factors. Each employee is expected to identify and escalate risks promptly. Risk identification is an ongoing process that incorporates input from FLUs and control functions. It is designed to be forward-looking and to capture relevant risk factors across all of our lines of business.

Measure – Once a risk is identified, it must be prioritized and accurately measured through a systematic process including qualitative statements and quantitative limits. Risk is measured at various levels, including, but not limited to, risk type, FLU and legal entity, and also on an aggregate basis. This risk measurement process helps to capture changes in our risk profile due to changes in strategic direction,

concentrations, portfolio quality and the overall economic environment. Senior management considers how risk exposures might evolve under a variety of stress scenarios.

Monitor – We monitor risk levels regularly to track adherence to risk appetite, policies and standards. We also regularly update risk assessments and review risk exposures. Through our monitoring, we know our level of risk relative to limits and can take action in a timely manner. We also know when risk limits are breached and have processes to appropriately report and escalate exceptions. This includes timely requests for approval to managers and alerts to executive management, management-level committees or the Board (directly or through an appropriate committee).

Control – We establish and communicate risk limits and controls through policies, standards, procedures and processes. The limits and controls can be adjusted by senior management or the Board when conditions or risk tolerances warrant. These limits may be absolute (e.g., loan amount, trading volume, operational loss) or relative (e.g., percentage of loan book in higher-risk categories). Our FLUs are held accountable for performing within the established limits.

The formal processes used to manage risk represent a part of our overall risk management process. We instill a strong and comprehensive culture of managing risk well through communications, training, policies, procedures and organizational roles and responsibilities. Establishing a culture reflective of our purpose to help make our customers' financial lives better and delivering on Responsible Growth is also critical to effective risk management. We are committed to the highest principles of ethical and professional conduct. Conduct risk is the risk of improper actions, behaviors or practices by the Corporation, its employees or representatives that are illegal, unethical and/or contrary to our core values that could result in harm to the Corporation, our shareholders or our customers, damage the integrity of the financial markets, or negatively impact our reputation. We have established protocols and structures so that conduct risk is governed and reported across the Corporation appropriately. All employees are held accountable for adhering to the Code of Conduct, operating within our risk appetite and managing risk in their daily business activities. In addition, our performance management and compensation practices encourage responsible risk-taking that is consistent with our Risk Framework and risk appetite.

Corporation-wide Stress Testing

Integral to our Capital Planning, Financial Planning and Strategic Planning processes, we conduct capital scenario management and stress forecasting on a periodic basis to better understand balance sheet, earnings and capital sensitivities to certain economic and business scenarios, including economic and market conditions that are more severe than anticipated. These stress forecasts provide an understanding of the potential impacts from our risk profile on the balance sheet, earnings and capital, and serve as a key component of our capital and risk management practices. The intent of stress testing is to develop a comprehensive understanding of potential impacts of on- and off-balance sheet risks at the Corporation and certain subsidiaries and how they impact financial resiliency, which provides confidence to management, regulators and our investors.

Contingency Planning

We have developed and maintain contingency plans that are designed to prepare us in advance to respond in the event of

potential adverse economic, financial or market stress. These contingency plans include our Capital Contingency Plan and Financial Contingency and Recovery Plan, which provide monitoring, escalation, actions and routines designed to enable us to increase capital, access funding sources and reduce risk through consideration of potential options that include asset sales, business sales, capital or debt issuances, and other de-risking strategies. We also maintain a Resolution Plan to limit adverse systemic impacts that could be associated with a potential resolution of Bank of America.

Strategic Risk Management

Strategic risk is embedded in every business and is one of the major risk categories along with credit, market, liquidity, compliance, operational and reputational risks. This risk results from incorrect assumptions about external or internal factors, inappropriate business plans, ineffective business strategy execution, or failure to respond in a timely manner to changes in the regulatory, macroeconomic or competitive environments in the geographic locations in which we operate, such as competitor actions, changing customer preferences, product obsolescence and technology developments.

An aspect of strategic risk is the risk that the Corporation's capital levels are not adequate to meet minimum regulatory requirements and support execution of business activities or absorb losses from risks during normal or adverse economic and market conditions. As such, capital risk is managed in parallel to strategic risk.

We manage strategic risk through the Strategic Risk Enterprise Policy and integration into the strategic planning process, among other activities. Our strategic plan is consistent with our risk appetite, capital plan and liquidity requirements, and specifically addresses strategic risks impacting each business.

On an annual basis, the Board reviews and approves the strategic plan, capital plan, financial operating plan and Risk Appetite Statement. With oversight by the Board, senior management directs the lines of business to execute our strategic plan consistent with our core operating principles and risk appetite. The executive management team monitors business performance throughout the year and provides the Board with regular progress reports on whether strategic objectives and timelines are being met, including reports on strategic risks and if additional or alternative actions need to be considered or implemented. The regular executive reviews focus on assessing forecasted earnings and returns on capital, the current risk profile, current capital and liquidity requirements, staffing levels and changes required to support the strategic plan, stress testing results, and other qualitative factors such as market growth rates and peer analysis.

Significant strategic actions, such as capital actions, material acquisitions or divestitures, and resolution plans are reviewed and approved by the Board. At the business level, processes are in place to discuss the strategic risk implications of new, expanded or modified businesses, products or services and other strategic initiatives, and to provide formal review and approval where required. With oversight by the Board and the ERC, executive management performs similar analyses throughout the year, and evaluates changes to the financial forecast or the risk, capital or liquidity positions as deemed appropriate to balance and optimize achieving the targeted risk appetite, shareholder returns and maintaining the targeted financial strength. Proprietary models are used to measure the capital requirements for credit, country, market, operational and strategic risks. The allocated capital assigned to each business

is based on its unique risk profile. With oversight by the Board, executive management assesses the risk-adjusted returns of each business in approving strategic and financial operating plans. The businesses use allocated capital to define business strategies, and price products and transactions.

Capital Management

The Corporation manages its capital position so that its capital is more than adequate to support its business activities and aligns with risk, risk appetite and strategic planning. Additionally, we seek to maintain safety and soundness at all times, even under adverse scenarios, take advantage of organic growth opportunities, meet obligations to creditors and counterparties, maintain ready access to financial markets, continue to serve as a credit intermediary, remain a source of strength for our subsidiaries, and satisfy current and future regulatory capital requirements. Capital management is integrated into our risk and governance processes, as capital is a key consideration in the development of our strategic plan, risk appetite and risk limits.

We conduct an Internal Capital Adequacy Assessment Process (ICAAP) on a periodic basis. The ICAAP is a forward-looking assessment of our projected capital needs and resources, incorporating earnings, balance sheet and risk forecasts under baseline and adverse economic and market conditions. We utilize periodic stress tests to assess the potential impacts to our balance sheet, earnings, regulatory capital and liquidity under a variety of stress scenarios. We perform qualitative risk assessments to identify and assess material risks not fully captured in our forecasts or stress tests. We assess the potential capital impacts of proposed changes to regulatory capital requirements. Management assesses ICAAP results and provides documented quarterly assessments of the adequacy of our capital guidelines and capital position to the Board or its committees.

We periodically review capital allocated to our businesses and allocate capital annually during the strategic and capital planning processes. For more information, see Business Segment Operations on page 84.

CCAR and Capital Planning

The Federal Reserve requires BHCs to submit a capital plan and planned capital actions on an annual basis, consistent with the rules governing the Comprehensive Capital Analysis and Review (CCAR) capital plan. Based on the results of our 2022 CCAR stress test, our stress capital buffer (SCB) increased to 3.4 percent from 2.5 percent, effective October 1, 2022 through September 30, 2023.

In October 2021, the Board authorized the Corporation's \$25 billion common stock repurchase program. Additionally, the Board authorized common stock repurchases to offset shares awarded under the Corporation's equity-based compensation plans. Pursuant to the Board's authorizations, during 2022, we repurchased \$5.1 billion of common stock, including repurchases to offset shares awarded under equity-based compensation plans.

The timing and amount of common stock repurchases are subject to various factors, including the Corporation's capital position, liquidity, financial performance and alternative uses of capital, stock trading price, regulatory requirements and general market conditions, and may be suspended at any time. Such repurchases may be effected through open market purchases or privately negotiated transactions, including repurchase plans that satisfy the conditions of Rule 10b5-1 of the Securities Exchange Act of 1934, as amended (Exchange Act).

Regulatory Capital

As a financial services holding company, we are subject to regulatory capital rules, including Basel 3, issued by U.S. banking regulators. Basel 3 established minimum capital ratios and buffer requirements and outlined two methods of calculating risk-weighted assets (RWA), the Standardized approach and the Advanced approaches. The Standardized approach relies primarily on supervisory risk weights based on exposure type, and the Advanced approaches determine risk weights based on internal models.

The Corporation's depository institution subsidiaries are also subject to the Prompt Corrective Action (PCA) framework. The Corporation and its primary affiliated banking entity, BANA, are Advanced approaches institutions under Basel 3 and are required to report regulatory risk-based capital ratios and RWA under both the Standardized and Advanced approaches. The lower of the capital ratios under Standardized or Advanced approaches compared to their respective regulatory capital ratio requirements are used to assess capital adequacy, including under the PCA framework. As of December 31, 2022, the common equity tier 1 (CET1), Tier 1 capital and Total capital ratios under the Standardized approach were the binding ratios.

Minimum Capital Requirements

In order to avoid restrictions on capital distributions and discretionary bonus payments, the Corporation must meet risk-based capital ratio requirements that include a capital conservation buffer of 2.5 percent (under the Advanced approaches only), an SCB (under the Standardized approach only), plus any applicable countercyclical capital buffer and a global systemically important bank (G-SIB) surcharge. The buffers and surcharge must be comprised solely of CET1 capital. For the period from October 1, 2021 through September 30, 2022, the Corporation's minimum CET1 capital ratio requirement was 9.5 percent under both the Standardized and Advanced approaches. Based on the results of our 2022 CCAR stress test, the Corporation's SCB increased to 3.4 percent, resulting in a minimum CET1 capital ratio requirement of 10.4 percent under the Standardized approach for the period from October 1, 2022 through September 30, 2023. Our minimum CET1 capital ratio requirement under the Advanced approaches

remains unchanged at 9.5 percent.

The Corporation is required to calculate its G-SIB surcharge on an annual basis under two methods and is subject to the higher of the resulting two surcharges. Method 1 is consistent with the approach prescribed by the Basel Committee's assessment methodology and is calculated using specified indicators of systemic importance. Method 2 modifies the Method 1 approach by, among other factors, including a measure of the Corporation's reliance on short-term wholesale funding. The Corporation's G-SIB surcharge, which is higher under Method 2, is expected to increase to 3.0 percent from 2.5 percent on January 1, 2024, which will increase our minimum CET1 capital ratio requirement. At December 31, 2022, the Corporation's CET1 capital ratio of 11.2 percent under the Standardized approach exceeded its current CET1 capital ratio requirement as well as the minimum requirement expected to be in place as of January 1, 2024 due to an anticipated increase in our G-SIB surcharge.

The Corporation is also required to maintain a minimum supplementary leverage ratio (SLR) of 3.0 percent plus a leverage buffer of 2.0 percent in order to avoid certain restrictions on capital distributions and discretionary bonus payments. Our insured depository institution subsidiaries are required to maintain a minimum 6.0 percent SLR to be considered well capitalized under the PCA framework. The numerator of the SLR is quarter-end Basel 3 Tier 1 capital. The denominator is total leverage exposure based on the daily average of the sum of on-balance sheet exposures less permitted deductions, and applicable temporary exclusions, as well as the simple average of certain off-balance sheet exposures, as of the end of each month in a quarter.

Capital Composition and Ratios

Table 10 presents Bank of America Corporation's capital ratios and related information in accordance with Basel 3 Standardized and Advanced approaches as measured at December 31, 2022 and 2021. For the periods presented herein, the Corporation met the definition of well capitalized under current regulatory requirements.

Table 10 Bank of America Corporation Regulatory Capital under Basel 3

	Standardized Approach ⁽¹⁾	Advanced Approaches ⁽¹⁾	Regulatory Minimum ⁽²⁾
	December 31, 2022		
(Dollars in millions, except as noted)			
Risk-based capital metrics:			
Common equity tier 1 capital	\$ 180,060	\$ 180,060	
Tier 1 capital	208,446	208,446	
Total capital ⁽³⁾	238,773	230,916	
Risk-weighted assets (in billions)	1,605	1,411	
Common equity tier 1 capital ratio	11.2 %	12.8 %	10.4 %
Tier 1 capital ratio	13.0	14.8	11.9
Total capital ratio	14.9	16.4	13.9
Leverage-based metrics:			
Adjusted quarterly average assets (in billions) ⁽⁴⁾	\$ 2,997	\$ 2,997	
Tier 1 leverage ratio	7.0 %	7.0 %	4.0
Supplementary leverage exposure (in billions)		\$ 3,523	
Supplementary leverage ratio		5.9 %	5.0
	December 31, 2021		
Risk-based capital metrics:			
Common equity tier 1 capital	\$ 171,759	\$ 171,759	
Tier 1 capital	196,465	196,465	
Total capital ⁽³⁾	227,592	220,616	
Risk-weighted assets (in billions)	1,618	1,399	
Common equity tier 1 capital ratio	10.6 %	12.3 %	9.5 %
Tier 1 capital ratio	12.1	14.0	11.0
Total capital ratio	14.1	15.8	13.0
Leverage-based metrics:			
Adjusted quarterly average assets (in billions) ⁽⁴⁾	\$ 3,087	\$ 3,087	
Tier 1 leverage ratio	6.4 %	6.4 %	4.0
Supplementary leverage exposure (in billions)		\$ 3,604	
Supplementary leverage ratio		5.5 %	5.0

⁽¹⁾ Capital ratios as of December 31, 2022 and 2021 are calculated using the regulatory capital rule that allows a five-year transition period related to the adoption of the current expected credit losses (CECL) accounting standard on January 1, 2020.

⁽²⁾ The capital conservation buffer and G-SIB surcharge were 2.5 percent at both December 31, 2022 and 2021. The Corporation's SCB applied in place of the capital conservation buffer under the Standardized approach was 3.4 percent at December 31, 2022 and 2.5 percent at December 31, 2021. The countercyclical capital buffer for both periods was zero. The CET1 capital regulatory minimum is the sum of the CET1 capital ratio minimum of 4.5 percent, our G-SIB surcharge of 2.5 percent and our capital conservation buffer of 2.5 percent or the SCB, as applicable, of 3.4 percent at December 31, 2022 and 2.5 percent at December 31, 2021. The SLR regulatory minimum includes a leverage buffer of 2.0 percent.

⁽³⁾ Total capital under the Advanced approaches differs from the Standardized approach due to differences in the amount permitted in Tier 2 capital related to the qualifying allowance for credit losses.

⁽⁴⁾ Reflects total average assets adjusted for certain Tier 1 capital deductions.

At December 31, 2022, CET1 capital was \$180.1 billion, an increase of \$8.3 billion from December 31, 2021, due to earnings, partially offset by dividends, common stock repurchases and higher net unrealized losses on available-for-sale debt securities included in accumulated other comprehensive income (OCI). Tier 1 capital increased \$12.0 billion primarily driven by the same factors as CET1 capital as well as non-cumulative perpetual preferred stock issuances. Total capital under the Standardized approach increased \$11.2 billion primarily due to the same factors driving the increase in

Tier 1 capital and an increase in the adjusted allowance for credit losses included in Tier 2 capital, partially offset by a decrease in subordinated debt. RWA under the Standardized approach, which yielded the lower CET1 capital ratio at December 31, 2022, decreased \$13.0 billion during 2022 to \$1,605 billion primarily due to lower counterparty exposures in *Global Markets* and a decrease in debt securities in the Treasury portfolio, partially offset by loan growth. Supplementary leverage exposure at December 31, 2022 decreased \$80.3 billion primarily due to lower debt securities, driven by lower deposits, partially offset by loan growth.

Table 11 shows the capital composition at December 31, 2022 and 2021.

Table 11 Capital Composition under Basel 3

	December 31	
	2022	2021
(Dollars in millions)		
Total common shareholders' equity	\$ 244,800	\$ 245,358
CECL transitional amount ⁽¹⁾	1,881	2,508
Goodwill, net of related deferred tax liabilities	(68,644)	(68,641)
Deferred tax assets arising from net operating loss and tax credit carryforwards	(7,776)	(7,743)
Intangibles, other than mortgage servicing rights, net of related deferred tax liabilities	(1,554)	(1,605)
Defined benefit pension plan net assets	(867)	(1,261)
Cumulative unrealized net (gain) loss related to changes in fair value of financial liabilities attributable to own creditworthiness, net-of-tax	496	1,400
Accumulated net (gain) loss on certain cash flow hedges ⁽²⁾	11,925	1,870
Other	(201)	(127)
Common equity tier 1 capital	180,060	171,759
Qualifying preferred stock, net of issuance cost	28,396	24,707
Other	(10)	(1)
Tier 1 capital	208,446	196,465
Tier 2 capital instruments	18,751	20,750
Qualifying allowance for credit losses ⁽³⁾	11,739	10,534
Other	(163)	(157)
Total capital under the Standardized approach	238,773	227,592
Adjustment in qualifying allowance for credit losses under the Advanced approaches ⁽³⁾	(7,857)	(6,976)
Total capital under the Advanced approaches	\$ 230,916	\$ 220,616

⁽¹⁾ Includes the impact of the Corporation's adoption of the CECL accounting standard on January 1, 2020 and 25 percent of the increase in reserves since the initial adoption.

⁽²⁾ Includes amounts in accumulated other comprehensive income related to the hedging of items that are not recognized at fair value on the Consolidated Balance Sheet.

⁽³⁾ Includes the impact of transition provisions related to the CECL accounting standard.

Table 12 shows the components of RWA as measured under Basel 3 at December 31, 2022 and 2021.

Table 12 Risk-weighted Assets under Basel 3

	Standardized	Advanced	Standardized	Advanced
	Approach	Approaches	Approach	Approaches
	December 31			
	2022	2021	2022	2021
(Dollars in billions)				
Credit risk	\$ 1,538	\$ 939	\$ 1,549	\$ 913
Market risk	67	67	69	69
Operational risk ⁽¹⁾	n/a	364	n/a	378
Risks related to credit valuation adjustments	n/a	41	n/a	39
Total risk-weighted assets	\$ 1,605	\$ 1,411	\$ 1,618	\$ 1,399

⁽¹⁾ December 31, 2022 includes the effects of an update made to our operational risk RWA model during the fourth quarter of 2022.

n/a = not applicable

Bank of America, N.A. Regulatory Capital

Table 13 presents regulatory capital information for BANA in accordance with Basel 3 Standardized and Advanced approaches as measured at December 31, 2022 and 2021. BANA met the definition of well capitalized under the PCA framework for both periods.

Table 13 Bank of America, N.A. Regulatory Capital under Basel 3

	Standardized Approach ⁽¹⁾	Advanced Approaches ⁽¹⁾	Regulatory Minimum ⁽²⁾
December 31, 2022			
(Dollars in millions, except as noted)			
Risk-based capital metrics:			
Common equity tier 1 capital	\$ 181,089	\$ 181,089	
Tier 1 capital	181,089	181,089	
Total capital ⁽³⁾	194,254	186,648	
Risk-weighted assets (in billions)	1,386	1,087	
Common equity tier 1 capital ratio	13.1 %	16.7 %	7.0 %
Tier 1 capital ratio	13.1	16.7	8.5
Total capital ratio	14.0	17.2	10.5
Leverage-based metrics:			
Adjusted quarterly average assets (in billions) ⁽⁴⁾	\$ 2,358	\$ 2,358	
Tier 1 leverage ratio	7.7 %	7.7 %	5.0
Supplementary leverage exposure (in billions)		\$ 2,785	
Supplementary leverage ratio		6.5 %	6.0
December 31, 2021			
Risk-based capital metrics:			
Common equity tier 1 capital	\$ 182,526	\$ 182,526	
Tier 1 capital	182,526	182,526	
Total capital ⁽³⁾	194,773	188,091	
Risk-weighted assets (in billions)	1,352	1,048	
Common equity tier 1 capital ratio	13.5 %	17.4 %	7.0 %
Tier 1 capital ratio	13.5	17.4	8.5
Total capital ratio	14.4	17.9	10.5
Leverage-based metrics:			
Adjusted quarterly average assets (in billions) ⁽⁴⁾	\$ 2,414	\$ 2,414	
Tier 1 leverage ratio	7.6 %	7.6 %	5.0
Supplementary leverage exposure (in billions)		\$ 2,824	
Supplementary leverage ratio		6.5 %	6.0

⁽¹⁾ Capital ratios as of December 31, 2022 and 2021 are calculated using the regulatory capital rule that allows a five-year transition period related to the adoption of the CECL accounting standard on January 1, 2020.

⁽²⁾ Risk-based capital regulatory minimums at both December 31, 2022 and 2021 are the minimum ratios under Basel 3 including a capital conservation buffer of 2.5 percent. The regulatory minimums for the leverage ratios as of both period ends are the percent required to be considered well capitalized under the PCA framework.

⁽³⁾ Total capital under the Advanced approaches differs from the Standardized approach due to differences in the amount permitted in Tier 2 capital related to the qualifying allowance for credit losses.

⁽⁴⁾ Reflects total average assets adjusted for certain Tier 1 capital deductions.

Total Loss-Absorbing Capacity Requirements

Total loss-absorbing capacity (TLAC) consists of the Corporation's Tier 1 capital and eligible long-term debt issued directly by the Corporation. Eligible long-term debt for TLAC ratios is comprised of unsecured debt that has a remaining maturity of at least one year and satisfies additional requirements as prescribed in the TLAC final rule. As with the

risk-based capital ratios and SLR, the Corporation is required to maintain TLAC ratios in excess of minimum requirements plus applicable buffers to avoid restrictions on capital distributions and discretionary bonus payments. Table 14 presents the Corporation's TLAC and long-term debt ratios and related information as of December 31, 2022 and 2021.

Table 14 Bank of America Corporation Total Loss-Absorbing Capacity and Long-Term Debt

	TLAC ⁽¹⁾	Regulatory Minimum ⁽²⁾	Long-term Debt	Regulatory Minimum ⁽³⁾
(Dollars in millions)				
December 31, 2022				
Total eligible balance	\$ 465,451		\$ 243,833	
Percentage of risk-weighted assets ⁽⁴⁾	29.0 %	22.0 %	15.2 %	8.5 %
Percentage of supplementary leverage exposure	13.2	9.5	6.9	4.5
December 31, 2021				
Total eligible balance	\$ 435,904		\$ 227,714	
Percentage of risk-weighted assets ⁽⁴⁾	26.9 %	22.0 %	14.1 %	8.5 %
Percentage of supplementary leverage exposure	12.1	9.5	6.3	4.5

⁽¹⁾ As of December 31, 2022 and 2021, TLAC ratios are calculated using the regulatory capital rule that allows a five-year transition period related to the adoption of CECL.

⁽²⁾ The TLAC RWA regulatory minimum consists of 18.0 percent plus a TLAC RWA buffer comprised of 2.5 percent plus the Method 1 G-SIB surcharge of 1.5 percent. The countercyclical buffer is zero for both periods. The TLAC supplementary leverage exposure regulatory minimum consists of 7.5 percent plus a 2.0 percent TLAC leverage buffer. The TLAC RWA and leverage buffers must be comprised solely of CET1 capital and Tier 1 capital, respectively.

⁽³⁾ The long-term debt RWA regulatory minimum is comprised of 6.0 percent plus an additional 2.5 percent requirement based on the Corporation's Method 2 G-SIB surcharge. The long-term debt leverage exposure regulatory minimum is 4.5 percent.

⁽⁴⁾ The approach that yields the higher RWA is used to calculate TLAC and long-term debt ratios, which was the Standardized approach as of December 31, 2022 and 2021.

Regulatory Capital and Securities Regulation

The Corporation's principal U.S. broker-dealer subsidiaries are BofA Securities, Inc. (BofAS), Merrill Lynch Professional Clearing Corp. (MLPCC) and Merrill Lynch, Pierce, Fenner & Smith Incorporated (MLPF&S). The Corporation's principal European broker-dealer subsidiaries are Merrill Lynch International (MLI) and BofA Securities Europe SA (BofASE).

The U.S. broker-dealer subsidiaries are subject to the net capital requirements of Rule 15c3-1 under the Exchange Act. BofAS computes its minimum capital requirements as an alternative net capital broker-dealer under Rule 15c3-1e, and MLPCC and MLPF&S compute their minimum capital requirements in accordance with the alternative standard under Rule 15c3-1. BofAS and MLPCC are also registered as futures commission merchants and are subject to Commodity Futures Trading Commission (CFTC) Regulation 1.17. The U.S. broker-dealer subsidiaries are also registered with the Financial Industry Regulatory Authority, Inc. (FINRA). Pursuant to FINRA Rule 4110, FINRA may impose higher net capital requirements than Rule 15c3-1 under the Exchange Act with respect to each of the broker-dealers.

BofAS provides institutional services, and in accordance with the alternative net capital requirements, is required to maintain tentative net capital in excess of \$5.0 billion and net capital in excess of the greater of \$1.0 billion or a certain percentage of its reserve requirement in addition to a certain percentage of securities-based swap risk margin. BofAS must also notify the SEC in the event its tentative net capital is less than \$6.0 billion. BofAS is also required to hold a certain percentage of its customers' and affiliates' risk-based margin in order to meet its CFTC minimum net capital requirement. At December 31, 2022, BofAS had tentative net capital of \$20.9 billion. BofAS also had regulatory net capital of \$17.5 billion, which exceeded the minimum requirement of \$4.1 billion.

MLPCC is a fully-guaranteed subsidiary of BofAS and provides clearing and settlement services as well as prime brokerage and arranged financing services for institutional clients. At December 31, 2022, MLPCC's regulatory net capital of \$7.5 billion exceeded the minimum requirement of \$1.4 billion.

MLPF&S provides retail services. At December 31, 2022, MLPF&S' regulatory net capital was \$6.0 billion, which exceeded the minimum requirement of \$137 million.

Our European broker-dealers are subject to requirements from U.S. and non-U.S. regulators. MLI, a U.K. investment firm, is regulated by the Prudential Regulation Authority and the

Financial Conduct Authority and is subject to certain regulatory capital requirements. At December 31, 2022, MLI's capital resources were \$33.4 billion, which exceeded the minimum Pillar 1 requirement of \$11.6 billion.

BofASE is an authorized credit institution with its head office located in France. Previously, BofASE had been authorized as an investment firm, but following the European Union's adoption of the harmonized Investment Firm Directive and Investment Firm Regulation prudential regime, it was required to apply for reauthorization as a credit institution. The application was approved in November 2022 and became effective on December 8, 2022. BofASE is authorized and regulated by the Autorité de Contrôle Prudentiel et de Résolution and the Autorité des Marchés Financiers, and supervised under the Single Supervisory Mechanism by the European Central Bank. At December 31, 2022, BofASE's capital resources were \$9.0 billion, which exceeded the minimum Pillar 1 requirement of \$3.0 billion.

In addition, MLI and BofASE became conditionally registered with the SEC as security-based swap dealers in the fourth quarter of 2021, and maintained net liquid assets at December 31, 2022 that exceeded the applicable minimum requirements under the Exchange Act.

Liquidity Risk

Funding and Liquidity Risk Management

Our primary liquidity risk management objective is to meet expected or unexpected cash flow and collateral requirements, including payments under long-term debt agreements, commitments to extend credit and customer deposit withdrawals, while continuing to support our businesses and customers under a range of economic conditions. To achieve that objective, we analyze and monitor our liquidity risk under expected and stressed conditions, maintain liquidity and access to diverse funding sources, including our stable deposit base, and seek to align liquidity-related incentives and risks. These liquidity risk management practices have allowed us to effectively manage the market fluctuation from the rising interest rate environment, inflationary pressures and macroeconomic environment.

We define liquidity as readily available assets, limited to cash and high-quality, liquid, unencumbered securities that we can use to meet our contractual and contingent financial obligations as they arise. We manage our liquidity position through line-of-business and ALM activities, as well as through our legal entity funding strategy, on both a forward and current

(including intraday) basis under both expected and stressed conditions. We believe that a centralized approach to funding and liquidity management enhances our ability to monitor liquidity requirements, maximizes access to funding sources, minimizes borrowing costs and facilitates timely responses to liquidity events.

The Board approves our liquidity risk policy and the Financial Contingency and Recovery Plan. The ERC establishes our liquidity risk tolerance levels. The MRC is responsible for overseeing liquidity risks and directing management to maintain exposures within the established tolerance levels. The MRC reviews and monitors our liquidity position and stress testing results, approves certain liquidity risk limits and reviews the impact of strategic decisions on our liquidity. For more information, see *Managing Risk* on page 93. Under this governance framework, we developed certain funding and liquidity risk management practices which include: maintaining liquidity at Bank of America Corporation (Parent) and selected subsidiaries, including our bank subsidiaries and other regulated entities; determining what amounts of liquidity are appropriate for these entities based on analysis of debt maturities and other potential cash outflows, including those that we may experience during stressed market conditions; diversifying funding sources, considering our asset profile and legal entity structure; and performing contingency planning.

NB Holdings Corporation

The Parent, which is a separate and distinct legal entity from our bank and nonbank subsidiaries, has an intercompany arrangement with our wholly-owned holding company subsidiary, NB Holdings Corporation (NB Holdings). We have transferred, and agreed to transfer, additional Parent assets not required to satisfy anticipated near-term expenditures to NB Holdings. The Parent is expected to continue to have access to the same flow of dividends, interest and other amounts of cash necessary to service its debt, pay dividends and perform other obligations as it would have had it not entered into these arrangements and transferred any assets. These arrangements support our preferred single point of entry resolution strategy, under which only the Parent would be resolved under the U.S. Bankruptcy Code.

In consideration for the transfer of assets, NB Holdings issued a subordinated note to the Parent in a principal amount equal to the value of the transferred assets. The aggregate principal amount of the note will increase by the amount of any future asset transfers. NB Holdings also provided the Parent with a committed line of credit that allows the Parent to draw funds necessary to service near-term cash needs. These arrangements support our preferred single point of entry resolution strategy, under which only the Parent would be resolved under the U.S. Bankruptcy Code. These arrangements include provisions to terminate the line of credit, forgive the subordinated note and require the Parent to transfer its remaining financial assets to NB Holdings if our projected liquidity resources deteriorate so severely that resolution of the Parent becomes imminent.

Global Liquidity Sources and Other Unencumbered Assets

We maintain liquidity available to the Corporation, including the Parent and selected subsidiaries, in the form of cash and high-quality, liquid, unencumbered securities. Our liquidity buffer, referred to as Global Liquidity Sources (GLS), is comprised of

assets that are readily available to the Parent and selected subsidiaries, including holding company, bank and broker-dealer subsidiaries, even during stressed market conditions. Our cash is primarily on deposit with the Federal Reserve Bank and, to a lesser extent, central banks outside of the U.S. We limit the composition of high-quality, liquid, unencumbered securities to U.S. government securities, U.S. agency securities, U.S. agency MBS and other investment-grade securities, and a select group of non-U.S. government securities. We can obtain cash for these securities, even in stressed conditions, through repurchase agreements or outright sales. We hold our GLS in legal entities that allow us to meet the liquidity requirements of our global businesses, and we consider the impact of potential regulatory, tax, legal and other restrictions that could limit the transferability of funds among entities.

Table 15 presents average GLS for the three months ended December 31, 2022 and 2021.

Table 15 Average Global Liquidity Sources

	Three Months Ended December 31	
	2022	2021
(Dollars in billions)		
Bank entities	\$ 694	\$ 1,006
Nonbank and other entities ⁽¹⁾	174	152
Total Average Global Liquidity Sources	\$ 868	\$ 1,158

⁽¹⁾ Nonbank includes Parent, NB Holdings and other regulated entities.

Our bank subsidiaries' liquidity is primarily driven by deposit and lending activity, as well as securities valuation and net debt activity. Bank subsidiaries can also generate incremental liquidity by pledging a range of unencumbered loans and securities to certain FHLBs and the Federal Reserve Discount Window. The cash we could have obtained by borrowing against this pool of specifically-identified eligible assets was \$348 billion and \$322 billion at December 31, 2022 and 2021. We have established operational procedures to enable us to borrow against these assets, including regularly monitoring our total pool of eligible loans and securities collateral. Eligibility is defined in guidelines from the FHLBs and the Federal Reserve and is subject to change at their discretion. Due to regulatory restrictions, liquidity generated by the bank subsidiaries can generally be used only to fund obligations within the bank subsidiaries, and transfers to the Parent or nonbank subsidiaries may be subject to prior regulatory approval.

Liquidity is also held in nonbank entities, including the Parent, NB Holdings and other regulated entities. The Parent and NB Holdings liquidity is typically in the form of cash deposited at BANA, which is excluded from the liquidity at bank subsidiaries, and high-quality, liquid, unencumbered securities. Liquidity held in other regulated entities, comprised primarily of broker-dealer subsidiaries, is primarily available to meet the obligations of that entity, and transfers to the Parent or to any other subsidiary may be subject to prior regulatory approval due to regulatory restrictions and minimum requirements. Our other regulated entities also hold unencumbered investment-grade securities and equities that we believe could be used to generate additional liquidity.

Table 16 presents the composition of average GLS for the three months ended December 31, 2022 and December 31, 2021.

Table 16 Average Global Liquidity Sources Composition

(Dollars in billions)	Three Months Ended December 31	
	2022	2021
Cash on deposit	\$ 174	\$ 259
U.S. Treasury securities	252	278
U.S. agency securities, mortgage-backed securities, and other investment-grade securities	427	606
Non-U.S. government securities	15	15
Total Average Global Liquidity Sources	\$ 868	\$ 1,158

Our GLS are substantially the same in composition to what qualifies as High Quality Liquid Assets (HQLA) under the final U.S. Liquidity Coverage Ratio (LCR) rules. However, HQLA for purposes of calculating LCR is not reported at market value, but at a lower value that incorporates regulatory deductions and the exclusion of excess liquidity held at certain subsidiaries. The LCR is calculated as the amount of a financial institution's unencumbered HQLA relative to the estimated net cash outflows the institution could encounter over a 30-day period of significant liquidity stress, expressed as a percentage. Our average consolidated HQLA, on a net basis, was \$605 billion and \$617 billion for the three months ended December 31, 2022 and 2021. For the same periods, the average consolidated LCR was 120 percent and 115 percent. Our LCR fluctuates due to normal business flows from customer activity.

Liquidity Stress Analysis

We utilize liquidity stress analysis to assist us in determining the appropriate amounts of liquidity to maintain at the Parent and our subsidiaries to meet contractual and contingent cash outflows under a range of scenarios. The scenarios we consider and utilize incorporate market-wide and Corporation-specific events, including potential credit rating downgrades for the Parent and our subsidiaries, and more severe events including potential resolution scenarios. The scenarios are based on our historical experience, experience of distressed and failed financial institutions, regulatory guidance, and both expected and unexpected future events.

The types of potential contractual and contingent cash outflows we consider in our scenarios may include, but are not limited to, upcoming contractual maturities of unsecured debt and reductions in new debt issuances; diminished access to secured financing markets; potential deposit withdrawals; increased draws on loan commitments, liquidity facilities and letters of credit; additional collateral that counterparties could call if our credit ratings were downgraded; collateral and margin requirements arising from market value changes; and potential liquidity required to maintain businesses and finance customer activities. Changes in certain market factors, including, but not limited to, credit rating downgrades, could negatively impact potential contractual and contingent outflows and the related financial instruments, and in some cases these impacts could be material to our financial results.

We consider all sources of funds that we could access during each stress scenario and focus particularly on matching available sources with corresponding liquidity requirements by legal entity. We also use the stress modeling results to manage our asset and liability profile and establish limits and guidelines on certain funding sources and businesses.

Net Stable Funding Ratio

The Net Stable Funding Ratio (NSFR) is a liquidity requirement for large banks to maintain a minimum level of stable funding over a one-year period. The requirement is intended to support

the ability of banks to lend to households and businesses in both normal and adverse economic conditions and is complementary to the LCR, which focuses on short-term liquidity risks. The U.S. NSFR applies to the Corporation on a consolidated basis and to our insured depository institutions. At December 31, 2022, the Corporation and its insured depository institutions were in compliance with this requirement.

Diversified Funding Sources

We fund our assets primarily with a mix of deposits, and secured and unsecured liabilities through a centralized, globally coordinated funding approach diversified across products, programs, markets, currencies and investor groups.

The primary benefits of our centralized funding approach include greater control, reduced funding costs, wider name recognition by investors and greater flexibility to meet the variable funding requirements of subsidiaries. Where regulations, time zone differences or other business considerations make Parent funding impractical, certain other subsidiaries may issue their own debt.

We fund a substantial portion of our lending activities through our deposits, which were \$1.93 trillion and \$2.1 trillion at December 31, 2022 and 2021. Deposits are primarily generated by our *Consumer Banking*, *GWIM* and *Global Banking* segments. These deposits are diversified by clients, product type and geography, and the majority of our U.S. deposits are insured by the FDIC. We consider a substantial portion of our deposits to be a stable, low-cost and consistent source of funding. We believe this deposit funding is generally less sensitive to interest rate changes, market volatility or changes in our credit ratings than wholesale funding sources. Our lending activities may also be financed through secured borrowings, including credit card securitizations and securitizations with government-sponsored enterprises (GSE), the Federal Housing Administration (FHA) and private-label investors, as well as FHLB loans.

Our trading activities in other regulated entities are primarily funded on a secured basis through securities lending and repurchase agreements, and these amounts will vary based on customer activity and market conditions. We believe funding these activities in the secured financing markets is more cost-efficient and less sensitive to changes in our credit ratings than unsecured financing. Repurchase agreements are generally short-term and often overnight. Disruptions in secured financing markets for financial institutions have occurred in prior market cycles which resulted in adverse changes in terms or significant reductions in the availability of such financing. We manage the liquidity risks arising from secured funding by sourcing funding globally from a diverse group of counterparties, providing a range of securities collateral and pursuing longer durations, when appropriate. For more information on secured financing agreements, see *Note 10 – Securities Financing Agreements, Short-term Borrowings, Collateral and Restricted Cash* to the Consolidated Financial Statements.

Total long-term debt decreased \$4.1 billion to \$276.0 billion during 2022 primarily due to debt maturities, redemptions and valuation adjustments, partially offset by debt issuances. We may, from time to time, purchase outstanding debt instruments in various transactions, depending on market conditions, liquidity and other factors. Our other regulated entities may also make markets in our debt instruments to provide liquidity for investors.

During 2022, we issued \$66.0 billion of long-term debt consisting of \$44.2 billion of notes issued by Bank of America Corporation, substantially all of which were TLAC compliant,

\$10.0 billion of notes issued by Bank of America, N.A. and \$11.8 billion of other debt. During 2021, we issued \$76.7 billion of long-term debt consisting of \$56.2 billion of notes issued by Bank of America Corporation, substantially all of which were TLAC compliant, \$8 billion of notes issued by Bank of America, N.A. and \$12.5 billion of other debt.

During 2022, we had total long-term debt maturities and redemptions in the aggregate of \$33.3 billion consisting of \$19.8 billion for Bank of America Corporation, \$9.9 billion for Bank of America, N.A. and \$3.6 billion of other debt. During 2021, we had total long-term debt maturities and redemptions in the aggregate of \$46.4 billion consisting of \$24.4 billion for Bank of America Corporation, \$10.4 billion for Bank of America, N.A. and \$11.6 billion of other debt.

At December 31, 2022, Bank of America Corporation's senior notes of \$205.9 billion included \$179.1 billion of outstanding notes that are both TLAC eligible and callable at least one year before their stated maturities. Of these senior notes, \$16.6 billion will be callable and become TLAC ineligible during 2023, and \$21.4 billion, \$21.3 billion, \$16.0 billion and \$24.4 billion will do so during each of 2024 through 2027, respectively, and \$79.4 billion thereafter.

We issue long-term unsecured debt in a variety of maturities and currencies to achieve cost-efficient funding and to maintain an appropriate maturity profile. While the cost and availability of unsecured funding may be negatively impacted by general market conditions or by matters specific to the financial services industry or the Corporation, we seek to mitigate refinancing risk by actively managing the amount of our borrowings that we anticipate will mature within any month or quarter. We may issue unsecured debt in the form of structured notes for client purposes, certain of which qualify as TLAC-eligible debt. During 2022, we issued \$12.5 billion of structured notes, which are debt obligations that pay investors returns linked to other debt or equity securities, indices, currencies or commodities. We typically hedge the returns we are obligated to pay on these liabilities with derivatives and/or investments in the underlying instruments, so that from a funding perspective, the cost is similar to our other unsecured long-term debt. We could be required to settle certain structured note obligations for cash or other securities prior to maturity under certain circumstances, which we consider for liquidity planning purposes. We believe, however, that a portion of such borrowings will remain outstanding beyond the earliest put or redemption date.

Substantially all of our senior and subordinated debt obligations contain no provisions that could trigger a requirement for an early repayment, require additional collateral support, result in changes to terms, accelerate maturity or create additional financial obligations upon an adverse change in our credit ratings, financial ratios, earnings, cash flows or stock price. For more information on long-term debt funding, including issuances and maturities and redemptions, see Note 11 – Long-term Debt to the Consolidated Financial Statements.

We use derivative transactions to manage the duration, interest rate and currency risks of our borrowings, considering the characteristics of the assets they are funding. For more information on our ALM activities, see Interest Rate Risk Management for the Banking Book on page 126.

Uninsured Deposits

The FDIC insures the Corporation's U.S. deposits up to \$250,000 per depositor, per insured bank for each account ownership category, and various country-specific funds insure non-U.S. deposits up to specified limits. Deposits that exceed

insurance limits are uninsured. At December 31, 2022, the Corporation's deposits totaled \$1.9 trillion, of which total estimated uninsured U.S. and non-U.S. deposits were \$617.6 billion and \$102.8 billion. At December 31, 2021, the Corporation's deposits totaled \$2.1 trillion, of which total estimated uninsured U.S. and non-U.S. deposits were \$701.4 billion and \$111.9 billion.

Table 17 presents information about the Corporation's total estimated uninsured time deposits. For more information on our liquidity sources, see Global Liquidity Sources and Other Unencumbered Assets, and for more information on deposits, see Diversified Funding Sources in this section. For more information on contractual time deposit maturities, see Note 9 – Deposits to the Consolidated Financial Statements.

Table 17 Uninsured Time Deposits ⁽¹⁾

(Dollars in millions)	December 31, 2022		
	U.S.	Non-U.S.	Total
Uninsured time deposits with a maturity of:			
3 months or less	\$ 3,721	\$ 7,023	\$ 10,744
Over 3 months through 6 months	2,230	275	2,505
Over 6 months through 12 months	2,712	86	2,798
Over 12 months	686	1,566	2,252
Total	\$ 9,349	\$ 8,950	\$ 18,299

⁽¹⁾ Amounts are estimated based on the regulatory methodologies defined by each local jurisdiction.

Contingency Planning

We maintain contingency funding plans that outline our potential responses to liquidity stress events at various levels of severity. These policies and plans are based on stress scenarios and include potential funding strategies and communication and notification procedures that we would implement in the event we experienced stressed liquidity conditions. We periodically review and test the contingency funding plans to validate efficacy and assess readiness.

Our U.S. bank subsidiaries can access contingency funding through the Federal Reserve Discount Window. Certain non-U.S. subsidiaries have access to central bank facilities in the jurisdictions in which they operate. While we do not rely on these sources in our liquidity modeling, we maintain the policies, procedures and governance processes that would enable us to access these sources if necessary.

Credit Ratings

Our borrowing costs and ability to raise funds are impacted by our credit ratings. In addition, credit ratings may be important to customers or counterparties when we compete in certain markets and when we seek to engage in certain transactions, including over-the-counter (OTC) derivatives. Thus, it is our objective to maintain high-quality credit ratings, and management maintains an active dialogue with the major rating agencies.

Credit ratings and outlooks are opinions expressed by rating agencies on our creditworthiness and that of our obligations or securities, including long-term debt, short-term borrowings, preferred stock and other securities, including asset securitizations. Our credit ratings are subject to ongoing review by the rating agencies, and they consider a number of factors, including our own financial strength, performance, prospects and operations as well as factors not under our control. The rating agencies could make adjustments to our ratings at any

time, and they provide no assurances that they will maintain our ratings at current levels.

Other factors that influence our credit ratings include changes to the rating agencies' methodologies for our industry or certain security types; the rating agencies' assessment of the general operating environment for financial services companies; our relative positions in the markets in which we compete; our various risk exposures and risk management policies and activities; pending litigation and other contingencies or potential tail risks; our reputation; our liquidity position, diversity of funding sources and funding costs; the current and expected level and volatility of our earnings; our capital position and capital management practices; our corporate governance; the sovereign credit ratings of the U.S. government; current or future regulatory and legislative initiatives; and the agencies' views on whether the U.S. government would provide meaningful support to the Corporation or its subsidiaries in a crisis.

On September 19, 2022, Fitch Ratings (Fitch) affirmed the long-term and short-term senior debt ratings of the Corporation. Fitch also affirmed and withdrew the long-term and short-term ratings on certain subsidiaries, as they are no longer considered relevant to the agency's coverage.

On January 23, 2023, Moody's Investors Service (Moody's) placed the long-term rating of the Corporation as well as the long-term rating of its rated subsidiaries, including BANA, on review for upgrade. The agency cited the Corporation's strengthened capital ratios, improved earnings profile and continued commitment to maintaining a restrained risk appetite as drivers of the review. A review for upgrade indicates that those ratings are under consideration for a change in the near term and typically concludes within 90 days. Moody's concurrently affirmed all Prime-1 short-term ratings of the Corporation and rated subsidiaries.

The current ratings and outlooks for the Corporation and its subsidiaries from Standard & Poor's Global Ratings (S&P) were not the subject of any rating actions during 2022 or through February 22, 2023.

Table 18 presents the Corporation's current long-term/short-term senior debt ratings and outlooks expressed by the rating agencies.

Table 18 Senior Debt Ratings

	Moody's Investors Service			Standard & Poor's Global Ratings			Fitch Ratings		
	Long-term	Short-term	Outlook	Long-term	Short-term	Outlook	Long-term	Short-term	Outlook
Bank of America Corporation	A2	P-1	Review for Upgrade	A-	A-2	Positive	AA-	F1+	Stable
Bank of America, N.A.	Aa2	P-1	Review for Upgrade	A+	A-1	Positive	AA	F1+	Stable
Bank of America Europe Designated Activity Company	NR	NR	NR	A+	A-1	Positive	AA	F1+	Stable
Merrill Lynch, Pierce, Fenner & Smith Incorporated	NR	NR	NR	A+	A-1	Positive	AA	F1+	Stable
BofA Securities, Inc.	NR	NR	NR	A+	A-1	Positive	AA	F1+	Stable
Merrill Lynch International	NR	NR	NR	A+	A-1	Positive	AA	F1+	Stable
BofA Securities Europe SA	NR	NR	NR	A+	A-1	Positive	AA	F1+	Stable

NR = not rated

A reduction in certain of our credit ratings or the ratings of certain asset-backed securitizations may have a material adverse effect on our liquidity, potential loss of access to credit markets, the related cost of funds, our businesses and on certain revenues, particularly in those businesses where counterparty creditworthiness is critical. In addition, under the terms of certain OTC derivative contracts and other trading agreements, in the event of downgrades of our or our rated subsidiaries' credit ratings, the counterparties to those agreements may require us to provide additional collateral, or to terminate these contracts or agreements, which could cause us to sustain losses and/or adversely impact our liquidity. If the short-term credit ratings of our Parent, bank or broker-dealer subsidiaries were downgraded by one or more levels, the potential loss of access to short-term funding sources such as repo financing and the effect on our incremental cost of funds could be material.

While certain potential impacts are contractual and quantifiable, the full scope of the consequences of a credit rating downgrade to a financial institution is inherently uncertain, as it depends upon numerous dynamic, complex and inter-related factors and assumptions, including whether any downgrade of a company's long-term credit ratings precipitates downgrades to its short-term credit ratings, and assumptions about the potential behaviors of various customers, investors and counterparties. For more information on potential impacts of credit rating downgrades, see Liquidity Risk – Liquidity Stress

Analysis on page 103.

For more information on additional collateral and termination payments that could be required in connection with certain over-the-counter derivative contracts and other trading agreements in the event of a credit rating downgrade, see *Note 3 – Derivatives* to the Consolidated Financial Statements herein and Item 1A. Risk Factors of our 2022 Annual Report on Form 10-K.

Common Stock Dividends

For a summary of our declared quarterly cash dividends on common stock during 2022 and through February 22, 2023, see *Note 13 – Shareholders' Equity* to the Consolidated Financial Statements.

Finance Subsidiary Issuers and Parent Guarantor

BofA Finance LLC, a Delaware limited liability company (BofA Finance), is a consolidated finance subsidiary of the Corporation that has issued and sold, and is expected to continue to issue and sell, its senior unsecured debt securities (Guaranteed Notes) that are fully and unconditionally guaranteed by the Corporation. The Corporation guarantees the due and punctual payment, on demand, of amounts payable on the Guaranteed Notes if not paid by BofA Finance. In addition, each of BAC Capital Trust XIII, BAC Capital Trust XIV and BAC Capital Trust XV, Delaware statutory trusts (collectively, the Trusts), is a 100 percent owned finance subsidiary of the Corporation that has issued and sold trust preferred securities (the Trust Preferred

Securities) or capital securities (the Capital Securities and, together with the Guaranteed Notes and the Trust Preferred Securities, the Guaranteed Securities), as applicable, that remained outstanding at December 31, 2022. The Corporation guarantees the payment of amounts and distributions with respect to the Trust Preferred Securities and Capital Securities if not paid by the Trusts, to the extent of funds held by the Trusts, and this guarantee, together with the Corporation's other obligations with respect to the Trust Preferred Securities and Capital Securities, effectively constitutes a full and unconditional guarantee of the Trusts' payment obligations on the Trust Preferred Securities or Capital Securities, as applicable. No other subsidiary of the Corporation guarantees the Guaranteed Securities.

BofA Finance and each of the Trusts are finance subsidiaries, have no independent assets, revenues or operations and are dependent upon the Corporation and/or the Corporation's other subsidiaries to meet their respective obligations under the Guaranteed Securities in the ordinary course. If holders of the Guaranteed Securities make claims on their Guaranteed Securities in a bankruptcy, resolution or similar proceeding, any recoveries on those claims will be limited to those available under the applicable guarantee by the Corporation, as described above.

The Corporation is a holding company and depends upon its subsidiaries for liquidity. Applicable laws and regulations and intercompany arrangements entered into in connection with the Corporation's resolution plan could restrict the availability of funds from subsidiaries to the Corporation, which could adversely affect the Corporation's ability to make payments under its guarantees. In addition, the obligations of the Corporation under the guarantees of the Guaranteed Securities will be structurally subordinated to all existing and future liabilities of its subsidiaries, and claimants should look only to assets of the Corporation for payments. If the Corporation, as guarantor of the Guaranteed Notes, transfers all or substantially all of its assets to one or more direct or indirect majority-owned subsidiaries, under the indenture governing the Guaranteed Notes, the subsidiary or subsidiaries will not be required to assume the Corporation's obligations under its guarantee of the Guaranteed Notes.

For more information on factors that may affect payments to holders of the Guaranteed Securities, see Liquidity Risk – NB Holdings Corporation in this section, Item 1. Business of our 2022 Annual Report on Form 10-K and Part I. Item 1A. Risk Factors of our 2022 Annual Report on Form 10-K.

Representations and Warranties Obligations

For information on representations and warranties obligations in connection with the sale of mortgage loans, see *Note 12 – Commitments and Contingencies* to the Consolidated Financial Statements.

Credit Risk Management

Credit risk is the risk of loss arising from the inability or failure of a borrower or counterparty to meet its obligations. Credit risk can also arise from operational failures that result in an erroneous advance, commitment or investment of funds. We define the credit exposure to a borrower or counterparty as the loss potential arising from all product classifications including loans and leases, deposit overdrafts, derivatives, assets held-for-sale and unfunded lending commitments, which include loan commitments, letters of credit and financial guarantees. Derivative positions are recorded at fair value, and assets held-for-sale are recorded at either fair value or the lower of cost or

fair value. Certain loans and unfunded commitments are accounted for under the fair value option. Credit risk for categories of assets carried at fair value is not accounted for as part of the allowance for credit losses but as part of the fair value adjustments recorded in earnings. For derivative positions, our credit risk is measured as the net cost in the event the counterparties with contracts in which we are in a gain position fail to perform under the terms of those contracts. We use the current fair value to represent credit exposure without giving consideration to future mark-to-market changes. The credit risk amounts take into consideration the effects of legally enforceable master netting agreements and cash collateral. Our consumer and commercial credit extension and review procedures encompass funded and unfunded credit exposures. For more information on derivatives and credit extension commitments, see *Note 3 – Derivatives* and *Note 12 – Commitments and Contingencies* to the Consolidated Financial Statements.

We manage credit risk based on the risk profile of the borrower or counterparty, repayment sources, the nature of underlying collateral and other support given current events, conditions and expectations. We classify our portfolios as either consumer or commercial and monitor credit risk in each as discussed below.

We refine our underwriting and credit risk management practices as well as credit standards to meet the changing economic environment. To mitigate losses and enhance customer support in our consumer businesses, we have in place collection programs and loan modification and customer assistance infrastructures. We utilize a number of actions to mitigate losses in the commercial businesses including increasing the frequency and intensity of portfolio monitoring, hedging activity and our practice of transferring management of deteriorating commercial exposures to independent special asset officers as credits enter criticized categories.

During 2022, asset quality generally improved compared to 2021. Our 2022 net charge-off ratio remained near historic lows, and nonperforming loans and commercial reservable criticized utilized exposure decreased compared to 2021, which was partially offset by an increase in reservable criticized exposure associated with our direct exposure to Russia as a result of the Russia/Ukraine conflict. While uncertainty around the pandemic has diminished, uncertainty remains regarding broader economic impacts as a result of inflationary pressures, rising rates and the current geopolitical situation and could lead to adverse impacts to credit quality metrics in future periods.

For information on our credit risk management activities, see Consumer Portfolio Credit Risk Management below, Commercial Portfolio Credit Risk Management on page 111, Non-U.S. Portfolio on page 117, Allowance for Credit Losses on page 120, and *Note 5 – Outstanding Loans and Leases and Allowance for Credit Losses* to the Consolidated Financial Statements. For more information on the factors that may expose us to credit risk, see Part I. Item 1A. Risk Factors of our 2022 Annual Report on Form 10-K.

Consumer Portfolio Credit Risk Management

Credit risk management for the consumer portfolio begins with initial underwriting and continues throughout a borrower's credit cycle. Statistical techniques in conjunction with experiential judgment are used in all aspects of portfolio management including underwriting, product pricing, risk appetite, setting credit limits, and establishing operating processes and metrics to quantify and balance risks and returns. Statistical models are built using detailed behavioral information from external

sources, such as credit bureaus, and/or internal historical experience and are a component of our consumer credit risk management process. These models are used in part to assist in making both new and ongoing credit decisions as well as portfolio management strategies, including authorizations and line management, collection practices and strategies, and determination of the allowance for loan and lease losses and allocated capital for credit risk.

Consumer Credit Portfolio

During 2022, the U.S. unemployment rate continued to decline and home prices increased compared to 2021, although they began to decline in the second half of 2022 as inflationary pressures continued to persist. During 2022, net charge-offs were \$1.9 billion, relatively unchanged compared to 2021. During 2022, nonperforming loans declined primarily due to

decreases from consumer real estate loan sales, partially offset by increases from loans whose prior-period deferrals expired and were modified in troubled debt restructurings (TDRs) during the first quarter of 2022.

The consumer allowance for loan and lease losses increased \$204 million during 2022 to \$7.2 billion. For more information, see Allowance for Credit Losses on page 120.

For more information on our accounting policies regarding delinquencies, nonperforming status, charge-offs and TDRs for the consumer portfolio, see Note 1 – Summary of Significant Accounting Principles and Note 5 – Outstanding Loans and Leases and Allowance for Credit Losses to the Consolidated Financial Statements.

Table 19 presents our outstanding consumer loans and leases, consumer nonperforming loans and accruing consumer loans past due 90 days or more.

Table 19 Consumer Credit Quality

	Outstandings		Nonperforming		Accruing Past Due 90 Days or More	
			December 31			
	2022	2021	2022	2021	2022	2021
(Dollars in millions)						
Residential mortgage ⁽¹⁾	\$ 229,670	\$ 221,963	\$ 2,167	\$ 2,284	\$ 368	\$ 634
Home equity	26,563	27,935	510	630	—	—
Credit card	93,421	81,438	n/a	n/a	717	487
Direct/Indirect consumer ⁽²⁾	106,236	103,560	77	75	2	11
Other consumer	156	190	—	—	—	—
Consumer loans excluding loans accounted for under the fair value option	\$ 456,046	\$ 435,086	\$ 2,754	\$ 2,989	\$ 1,087	\$ 1,132
Loans accounted for under the fair value option ⁽³⁾	339	618				
Total consumer loans and leases	\$ 456,385	\$ 435,704				
Percentage of outstanding consumer loans and leases ⁽⁴⁾	n/a	n/a	0.60 %	0.69 %	0.24 %	0.26 %
Percentage of outstanding consumer loans and leases, excluding fully-insured loan portfolios ⁽⁴⁾	n/a	n/a	0.62	0.71	0.16	0.12

⁽¹⁾ Residential mortgage loans accruing past due 90 days or more are fully-insured loans. At December 31, 2022 and 2021, residential mortgage included \$260 million and \$444 million of loans on which interest had been curtailed by the FHA, and therefore were no longer accruing interest, although principal was still insured, and \$108 million and \$190 million of loans on which interest was still accruing.

⁽²⁾ Outstandings primarily includes auto and specialty lending loans and leases of \$51.8 billion and \$48.5 billion, U.S. securities-based lending loans of \$50.4 billion and \$51.1 billion at December 31, 2022 and 2021, and non-U.S. consumer loans of \$3.0 billion as of both period ends.

⁽³⁾ For more information on the fair value option, see Note 21 – Fair Value Option to the Consolidated Financial Statements.

⁽⁴⁾ Excludes consumer loans accounted for under the fair value option. At December 31, 2022 and 2021, \$7 million and \$21 million of loans accounted for under the fair value option were past due 90 days or more and not accruing interest.

n/a = not applicable

Table 20 presents net charge-offs and related ratios for consumer loans and leases.

Table 20 Consumer Net Charge-offs and Related Ratios

	Net Charge-offs		Net Charge-off Ratios ⁽¹⁾	
	2022	2021	2022	2021
(Dollars in millions)				
Residential mortgage	\$ 72	\$ (28)	0.03 %	(0.01)%
Home equity	(90)	(119)	(0.33)	(0.39)
Credit card	1,334	1,723	1.60	2.29
Direct/Indirect consumer	18	1	0.02	—
Other consumer	521	270	n/m	n/m
Total	\$ 1,855	\$ 1,847	0.42	0.44

⁽¹⁾ Net charge-off ratios are calculated as net charge-offs divided by average outstanding loans and leases, excluding loans accounted for under the fair value option.

n/m = not meaningful

We believe that the presentation of information adjusted to exclude the impact of the fully-insured loan portfolio and loans accounted for under the fair value option is more representative of the ongoing operations and credit quality of the business. As a result, in the following tables and discussions of the residential mortgage and home equity portfolios, we exclude loans accounted for under the fair value option and provide information that excludes the impact of the fully-insured loan portfolio in certain credit quality statistics.

Residential Mortgage

The residential mortgage portfolio made up the largest percentage of our consumer loan portfolio at 50 percent of consumer loans and leases in 2022. Approximately 51 percent of the residential mortgage portfolio was in *Consumer Banking* and 45 percent was in *GWIM*. The remaining portion was in *All Other*.

Outstanding balances in the residential mortgage portfolio increased \$7.7 billion in 2022 as originations were partially offset by paydowns and loan sales.

At December 31, 2022 and 2021, the residential mortgage portfolio included \$11.7 billion and \$12.7 billion of outstanding fully-insured loans, of which both had \$2.2 billion of FHA insurance, with the remainder protected by Fannie Mae long-term standby agreements.

Table 21 presents certain residential mortgage key credit statistics on both a reported basis and excluding the fully-insured loan portfolio. The following discussion presents the residential mortgage portfolio excluding the fully-insured loan portfolio.

Table 21 Residential Mortgage – Key Credit Statistics

	Reported Basis ⁽¹⁾		Excluding Fully-insured Loans ⁽¹⁾	
	December 31			
	2022	2021	2022	2021
(Dollars in millions)				
Outstandings	\$ 229,670	\$ 221,963	\$ 217,976	\$ 209,259
Accruing past due 30 days or more	1,471	1,753	844	866
Accruing past due 90 days or more	368	634	—	—
Nonperforming loans ⁽²⁾	2,167	2,284	2,167	2,284
Percent of portfolio				
Refreshed LTV greater than 90 but less than or equal to 100	1%	1%	1%	1%
Refreshed LTV greater than 100	—	—	—	—
Refreshed FICO below 620	1	2	1	1

⁽¹⁾ Outstandings, accruing past due, nonperforming loans and percentages of portfolio exclude loans accounted for under the fair value option.

⁽²⁾ Includes loans that are contractually current which primarily consist of collateral-dependent TDRs, including those that have been discharged in Chapter 7 bankruptcy and loans that have not yet demonstrated a sustained period of payment performance following a TDR.

Nonperforming outstanding balances in the residential mortgage portfolio decreased \$117 million in 2022 primarily due to decreases from consumer real estate loan sales in the second quarter of 2022, partially offset by increases from loans whose prior-period deferrals expired and were modified in TDRs during the first quarter of 2022. Of the nonperforming residential mortgage loans at December 31, 2022, \$1.4 billion, or 63 percent, were current on contractual payments. Loans accruing past due 30 days or more decreased \$22 million.

Net charge-offs of \$72 million for 2022 increased \$100 million compared to 2021 primarily due to loan sales that occurred in the second quarter of 2022.

Of the \$218.0 billion in total residential mortgage loans outstanding at December 31, 2022, 28 percent were originated as interest-only loans. The outstanding balance of interest-only residential mortgage loans that had entered the amortization period was \$3.4 billion, or six percent, at December 31, 2022. Residential mortgage loans that have entered the amortization period generally experience a higher rate of early stage delinquencies and nonperforming status compared to the residential mortgage portfolio as a whole. At December 31, 2022, \$64 million, or two percent, of outstanding interest-only

residential mortgages that had entered the amortization period were accruing past due 30 days or more compared to \$844 million, or less than one percent, for the entire residential mortgage portfolio. In addition, at December 31, 2022, \$204 million, or six percent, of outstanding interest-only residential mortgage loans that had entered the amortization period were nonperforming, of which \$79 million were contractually current. Loans that have yet to enter the amortization period in our interest-only residential mortgage portfolio are primarily well-collateralized loans to our wealth management clients and have an interest-only period of three to ten years. Approximately 96 percent of these loans that have yet to enter the amortization period will not be required to make a fully-amortizing payment until 2025 or later.

Table 22 presents outstandings, nonperforming loans and net charge-offs by certain state concentrations for the residential mortgage portfolio. The Los Angeles-Long Beach-Santa Ana Metropolitan Statistical Area (MSA) within California represented 14 percent and 15 percent of outstandings at December 31, 2022 and 2021. In the New York area, the New York-Northern New Jersey-Long Island MSA made up 15 percent of outstandings at both December 31, 2022 and 2021.

Table 22 Residential Mortgage State Concentrations

	Outstandings ⁽¹⁾		Nonperforming ⁽¹⁾		Net Charge-offs	
	December 31					
	2022	2021	2022	2021	2022	2021
(Dollars in millions)						
California	\$ 80,878	\$ 77,819	\$ 656	\$ 693	\$ 37	\$ (14)
New York	26,228	24,975	328	358	7	3
Florida	15,225	13,883	145	158	(2)	(8)
Texas	9,399	9,002	88	86	—	—
New Jersey	8,810	8,723	96	117	3	—
Other	77,436	74,857	854	872	27	(9)
Residential mortgage loans	\$ 217,976	\$ 209,259	\$ 2,167	\$ 2,284	\$ 72	\$ (28)
Fully-insured loan portfolio	11,694	12,704				
Total residential mortgage loan portfolio	\$ 229,670	\$ 221,963				

⁽¹⁾ Outstandings and nonperforming loans exclude loans accounted for under the fair value option.

Home Equity

At December 31, 2022, the home equity portfolio made up six percent of the consumer portfolio and was comprised of home equity lines of credit (HELOCs), home equity loans and reverse mortgages. HELOCs generally have an initial draw period of 10

years, and after the initial draw period ends, the loans generally convert to 15- or 20-year amortizing loans. We no longer originate home equity loans or reverse mortgages.

At December 31, 2022, 82 percent of the home equity portfolio was in *Consumer Banking*, nine percent was in *All Other* and the remainder of the portfolio was primarily in *GWIM*.

Outstanding balances in the home equity portfolio decreased \$1.4 billion in 2022 primarily due to paydowns outpacing draws on existing lines and new originations. Of the total home equity portfolio at December 31, 2022 and 2021, \$11.1 billion and \$12.2 billion, or 42 percent and 44 percent, were in first-lien positions. At December 31, 2022, outstanding balances in the home equity portfolio that were in a second-lien or more junior-

lien position and where we also held the first-lien loan totaled \$4.5 billion, or 17 percent of our total home equity portfolio.

Unused HELOCs totaled \$42.4 billion and \$40.5 billion at December 31, 2022 and 2021. The HELOC utilization rate was 38 percent and 39 percent at December 31, 2022 and 2021.

Table 23 presents certain home equity portfolio key credit statistics.

Table 23 Home Equity – Key Credit Statistics ⁽¹⁾

	December 31	
	2022	2021
(Dollars in millions)		
Outstandings	\$ 26,563	\$ 27,935
Accruing past due 30 days or more	96	157
Nonperforming loans ⁽²⁾	510	630
Percent of portfolio		
Refreshed CLTV greater than 90 but less than or equal to 100	—%	—%
Refreshed CLTV greater than 100	—	1
Refreshed FICO below 620	2	3

⁽¹⁾ Outstandings, accruing past due, nonperforming loans and percentages of the portfolio exclude loans accounted for under the fair value option.

⁽²⁾ Includes loans that are contractually current which primarily consist of collateral-dependent TDRs, including those that have been discharged in Chapter 7 bankruptcy, junior-lien loans where the underlying first lien is 90 days or more past due, as well as loans that have not yet demonstrated a sustained period of payment performance following a TDR.

Nonperforming outstanding balances in the home equity portfolio decreased \$120 million to \$510 million at December 31, 2022, primarily driven by loan sales. Of the nonperforming home equity loans at December 31, 2022, \$275 million, or 54 percent, were current on contractual payments. In addition, \$167 million, or 33 percent, of nonperforming home equity loans were 180 days or more past due and had been written down to the estimated fair value of the collateral, less costs to sell. Accruing loans that were 30 days or more past due decreased \$61 million in 2022.

Net recoveries decreased \$29 million to \$90 million in 2022 compared to 2021.

Of the \$26.6 billion in total home equity portfolio outstandings at December 31, 2022, as shown in Table 23, 13 percent require interest-only payments. The outstanding balance of HELOCs that had reached the end of their draw period and entered the amortization period was \$5.2 billion at December 31, 2022. The HELOCs that have entered the amortization period have experienced a higher percentage of early stage delinquencies and nonperforming status when compared to the HELOC portfolio as a whole. At December 31, 2022, \$53 million, or one percent, of outstanding HELOCs that

had entered the amortization period were accruing past due 30 days or more. In addition, at December 31, 2022, \$354 million, or seven percent, were nonperforming.

For our interest-only HELOC portfolio, we do not actively track how many of our home equity customers pay only the minimum amount due on their home equity loans and lines; however, we can infer some of this information through a review of our HELOC portfolio that we service and is still in its revolving period. During 2022, 10 percent of these customers with an outstanding balance did not pay any principal on their HELOCs.

Table 24 presents outstandings, nonperforming balances and net recoveries by certain state concentrations for the home equity portfolio. In the New York area, the New York-Northern New Jersey-Long Island MSA made up 12 percent and 13 percent of the outstanding home equity portfolio at December 31, 2022 and 2021. The Los Angeles-Long Beach-Santa Ana MSA within California made up 11 percent and 10 percent of the outstanding home equity portfolio at December 31, 2022 and 2021.

Table 24 Home Equity State Concentrations

	Outstandings ⁽¹⁾		Nonperforming ⁽¹⁾		Net Charge-offs	
	December 31				2022	2021
	2022	2021	2022	2021	2022	2021
(Dollars in millions)						
California	\$ 7,406	\$ 7,600	\$ 119	\$ 140	\$ (20)	\$ (40)
Florida	2,743	2,977	63	78	(21)	(21)
New Jersey	2,047	2,259	53	69	(3)	(4)
New York	1,806	2,072	80	96	(4)	(1)
Massachusetts	1,347	1,422	23	32	(2)	(3)
Other	11,214	11,605	172	215	(40)	(50)
Total home equity loan portfolio	\$ 26,563	\$ 27,935	\$ 510	\$ 630	\$ (90)	\$ (119)

⁽¹⁾ Outstandings and nonperforming loans exclude loans accounted for under the fair value option.

Credit Card

At December 31, 2022, 97 percent of the credit card portfolio was managed in *Consumer Banking* with the remainder in *GWIM*. Outstandings in the credit card portfolio increased \$12.0 billion during 2022 to \$93.4 billion primarily driven by increased purchase volumes, partially offset by the sale of a \$1.6 billion affinity card loan portfolio. Net charge-offs decreased \$389

million to \$1.3 billion in 2022 compared to 2021, as loss rates remained near historic lows. In addition, the prior year included charge-offs associated with deferrals that expired in 2020. Credit card loans 30 days or more past due and still accruing interest increased \$508 million, and 90 days or more past due and still accruing interest increased \$230 million. Unused lines of credit for credit card increased to \$370.1 billion

at December 31, 2022 from \$361.2 billion at December 31, 2021.

Table 25 presents certain state concentrations for the credit card portfolio.

Table 25 Credit Card State Concentrations

(Dollars in millions)	Outstandings		Accruing Past Due 90 Days or More		Net Charge-offs	
	December 31				2022	2021
	2022	2021	2022	2021	2022	2021
California	\$ 15,363	\$ 13,076	\$ 126	\$ 82	\$ 232	\$ 322
Florida	9,512	8,046	100	71	183	245
Texas	8,125	6,894	72	47	123	158
New York	5,381	4,725	56	35	99	135
Washington	4,844	4,080	21	13	36	39
Other	50,196	44,617	342	239	661	824
Total credit card portfolio	\$ 93,421	\$ 81,438	\$ 717	\$ 487	\$ 1,334	\$ 1,723

Direct/Indirect Consumer

At December 31, 2022, 49 percent of the direct/indirect portfolio was included in *Consumer Banking* (consumer auto and recreational vehicle lending) and 51 percent was included in *GWIM* (principally securities-based lending loans). Outstandings

in the direct/indirect portfolio increased \$2.7 billion in 2022 to \$106.2 billion driven by growth in our auto portfolio.

Table 26 presents certain state concentrations for the direct/indirect consumer loan portfolio.

Table 26 Direct/Indirect State Concentrations

(Dollars in millions)	Outstandings		Accruing Past Due 90 Days or More		Net Charge-offs	
	December 31				2022	2021
	2022	2021	2022	2021	2022	2021
California	\$ 15,516	\$ 15,061	\$ 1	\$ 2	\$ 6	\$ 3
Florida	13,783	13,352	—	1	4	1
Texas	9,837	9,505	—	2	3	2
New York	7,891	7,802	—	1	2	3
New Jersey	4,456	4,228	—	—	1	(3)
Other	54,753	53,612	1	5	2	(5)
Total direct/indirect loan portfolio	\$ 106,236	\$ 103,560	\$ 2	\$ 11	\$ 18	\$ 1

Other Consumer

Other consumer primarily consists of deposit overdraft balances. Net charge-offs increased \$251 million in 2022 to \$521 million, primarily driven by overdraft losses due to higher payment activity related to checking accounts.

At December 31, 2022, \$605 million, or 22 percent, of nonperforming loans were 180 days or more past due and had been written down to their estimated property value less costs to sell. In addition, at December 31, 2022, \$1.7 billion, or 61 percent, of nonperforming consumer loans were modified and are now current after successful trial periods, or are current loans classified as nonperforming loans in accordance with applicable policies.

Nonperforming Consumer Loans, Leases and Foreclosed Properties Activity

Table 27 presents nonperforming consumer loans, leases and foreclosed properties activity during 2022 and 2021. During 2022, nonperforming consumer loans decreased \$235 million to \$2.8 billion primarily due to decreases from loan sales, partially offset by increases from loans whose prior-period deferrals expired and were modified in TDRs during the first quarter of 2022.

Foreclosed properties increased \$20 million in 2022 to \$121 million. Nonperforming loans also include certain loans that have been modified in TDRs where economic concessions have been granted to borrowers experiencing financial difficulties.

Table 27 Nonperforming Consumer Loans, Leases and Foreclosed Properties Activity

	2022	2021
(Dollars in millions)		
Nonperforming loans and leases, January 1	\$ 2,989	\$ 2,725
Additions	1,453	2,006
Reductions:		
Paydowns and payoffs	(535)	(625)
Sales	(402)	(4)
Returns to performing status ⁽¹⁾	(661)	(1,037)
Charge-offs	(56)	(64)
Transfers to foreclosed properties	(34)	(12)
Total net additions/(reductions) to nonperforming loans and leases	(235)	264
Total nonperforming loans and leases, December 31	2,754	2,989
Foreclosed properties, December 31 ⁽²⁾	121	101
Nonperforming consumer loans, leases and foreclosed properties, December 31	\$ 2,875	\$ 3,090
Nonperforming consumer loans and leases as a percentage of outstanding consumer loans and leases ⁽³⁾	0.60 %	0.69 %
Nonperforming consumer loans, leases and foreclosed properties as a percentage of outstanding consumer loans, leases and foreclosed properties ⁽³⁾	0.63	0.71

⁽¹⁾ Consumer loans may be returned to performing status when all principal and interest is current and full repayment of the remaining contractual principal and interest is expected, or when the loan otherwise becomes well-secured and is in the process of collection.

⁽²⁾ Foreclosed property balances do not include properties insured by certain government-guaranteed loans, principally FHA-insured, of \$60 million and \$52 million at December 31, 2022 and 2021.

⁽³⁾ Outstanding consumer loans and leases exclude loans accounted for under the fair value option.

Table 28 presents TDRs for the consumer real estate portfolio. Performing TDR balances are excluded from nonperforming loans and leases in Table 27.

Table 28 Consumer Real Estate Troubled Debt Restructurings

	December 31, 2022			December 31, 2021		
	Nonperforming	Performing	Total	Nonperforming	Performing	Total
(Dollars in millions)						
Residential mortgage ^(1, 2)	\$ 1,726	\$ 1,548	\$ 3,274	\$ 1,498	\$ 2,278	\$ 3,776
Home equity ⁽³⁾	324	544	868	254	652	906
Total consumer real estate troubled debt restructurings	\$ 2,050	\$ 2,092	\$ 4,142	\$ 1,752	\$ 2,930	\$ 4,682

⁽¹⁾ At December 31, 2022 and 2021, residential mortgage TDRs deemed collateral dependent totaled \$1.8 billion and \$1.6 billion, and included \$1.6 billion and \$1.4 billion of loans classified as nonperforming and \$183 million and \$279 million of loans classified as performing.

⁽²⁾ At December 31, 2022 and 2021, residential mortgage performing TDRs included \$1.1 billion and \$1.2 billion of loans that were fully-insured.

⁽³⁾ At December 31, 2022 and 2021, home equity TDRs deemed collateral dependent totaled \$411 million and \$370 million, and included \$293 million and \$222 million of loans classified as nonperforming and \$118 million and \$148 million of loans classified as performing.

In addition to modifying consumer real estate loans, we work with customers who are experiencing financial difficulty by modifying credit card and other consumer loans. Credit card and other consumer loan modifications generally involve a reduction in the customer's interest rate on the account and placing the customer on a fixed payment plan not exceeding 60 months.

Modifications of credit card and other consumer loans are made through programs utilizing direct customer contact, but may also utilize external programs. At December 31, 2022 and 2021, our credit card and other consumer TDR portfolio was \$624 million and \$672 million, of which \$540 million and \$599 million were current or less than 30 days past due under the modified terms.

Commercial Portfolio Credit Risk Management

Credit risk management for the commercial portfolio begins with an assessment of the credit risk profile of the borrower or counterparty based on an analysis of its financial position. As part of the overall credit risk assessment, our commercial credit exposures are assigned a risk rating and are subject to approval based on defined credit approval standards. Subsequent to loan origination, risk ratings are monitored on an ongoing basis, and if necessary, adjusted to reflect changes in the financial condition, cash flow, risk profile or outlook of a borrower or counterparty. In making credit decisions, we consider risk rating, collateral, country, industry and single-name concentration limits while also balancing these considerations with the total borrower or counterparty relationship. We use a variety of tools to continuously monitor the ability of a borrower or counterparty to perform under its obligations. We use risk rating aggregations

to measure and evaluate concentrations within portfolios. In addition, risk ratings are a factor in determining the level of allocated capital and the allowance for credit losses.

As part of our ongoing risk mitigation initiatives, we attempt to work with clients experiencing financial difficulty to modify their loans to terms that better align with their current ability to pay. In situations where an economic concession has been granted to a borrower experiencing financial difficulty, we identify these loans as TDRs. For more information on our accounting policies regarding delinquencies, nonperforming status and net charge-offs for the commercial portfolio, see *Note 1 – Summary of Significant Accounting Principles* to the Consolidated Financial Statements.

Management of Commercial Credit Risk Concentrations

Commercial credit risk is evaluated and managed with the goal that concentrations of credit exposure continue to be aligned with our risk appetite. We review, measure and manage concentrations of credit exposure by industry, product, geography, customer relationship and loan size. We also review, measure and manage commercial real estate loans by geographic location and property type. In addition, within our non-U.S. portfolio, we evaluate exposures by region and by country. Tables 33, 36 and 39 summarize our concentrations. We also utilize syndications of exposure to third parties, loan sales, hedging and other risk mitigation techniques to manage the size and risk profile of the commercial credit portfolio. For more information on our industry concentrations, see Table 36

and Commercial Portfolio Credit Risk Management – Industry Concentrations on page 115.

We account for certain large corporate loans and loan commitments, including issued but unfunded letters of credit which are considered utilized for credit risk management purposes, that exceed our single-name credit risk concentration guidelines under the fair value option. Lending commitments, both funded and unfunded, are actively managed and monitored, and as appropriate, credit risk for these lending relationships may be mitigated through the use of credit derivatives, with our credit view and market perspectives determining the size and timing of the hedging activity. In addition, we purchase credit protection to cover the funded portion as well as the unfunded portion of certain other credit exposures. To lessen the cost of obtaining our desired credit protection levels, credit exposure may be added within an industry, borrower or counterparty group by selling protection. These credit derivatives do not meet the requirements for treatment as accounting hedges. They are carried at fair value with changes in fair value recorded in other income.

In addition, we are a member of various securities and derivative exchanges and clearinghouses, both in the U.S. and other countries. As a member, we may be required to pay a pro-rata share of the losses incurred by some of these organizations as a result of another member default and under other loss scenarios. For more information, see Note 12 – Commitments and Contingencies to the Consolidated Financial Statements.

Commercial Credit Portfolio

During 2022, commercial credit quality improved as charge-offs, nonperforming commercial loans and reservable criticized utilized exposure declined. Due to the ongoing Russia/Ukraine conflict, all direct exposure to Russian counterparties was downgraded and reported as reservable criticized exposure, and expected credit losses (ECL) have been incorporated into our estimate of the allowance for credit losses. Outstanding

commercial loans and leases increased \$45.9 billion during 2022 due to growth in commercial and industrial, primarily in *Global Banking*. This increase was partially offset by lower U.S. small business commercial loans due to repayments of PPP loans by the Small Business Administration (SBA) under the terms of the program.

Credit quality of commercial real estate borrowers generally improved from 2021 as pandemic-impacted sectors are recovering. However, many commercial real estate markets, while improving, are still experiencing disruptions in demand, supply chain challenges, tenant difficulties and challenging capital markets. Demand for office space continues to be uncertain as companies evaluate space needs with employment models that utilize a mix of remote and conventional office use.

The commercial allowance for loan and lease losses remained relatively unchanged at \$5.4 billion at December 31, 2022, as loan growth and a dampened macroeconomic outlook were offset by asset quality improvement and a reserve release for reduced pandemic uncertainties. For more information, see Allowance for Credit Losses on page 120.

Total commercial utilized credit exposure increased \$51.3 billion during 2022 to \$704.9 billion primarily driven by higher loans and leases and derivative assets. The utilization rate for loans and leases, standby letters of credit (SBLCs) and financial guarantees, and commercial letters of credit, in the aggregate, was 56 percent at both December 31, 2022 and 2021.

Table 29 presents commercial credit exposure by type for utilized, unfunded and total binding committed credit exposure. Commercial utilized credit exposure includes SBLCs and financial guarantees and commercial letters of credit that have been issued and for which we are legally bound to advance funds under prescribed conditions during a specified time period, and excludes exposure related to trading account assets. Although funds have not yet been advanced, these exposure types are considered utilized for credit risk management purposes.

Table 29 Commercial Credit Exposure by Type

	Commercial Utilized ⁽¹⁾		Commercial Unfunded ^(2, 3, 4)		Total Commercial Committed	
			December 31			
	2022	2021	2022	2021	2022	2021
(Dollars in millions)						
Loans and leases	\$ 589,362	\$ 543,420	\$ 487,772	\$ 454,256	\$ 1,077,134	\$ 997,676
Derivative assets ⁽⁵⁾	48,642	35,344	—	—	48,642	35,344
Standby letters of credit and financial guarantees	33,376	34,389	1,266	639	34,642	35,028
Debt securities and other investments	20,195	19,427	2,551	4,638	22,746	24,065
Loans held-for-sale	6,112	13,185	3,729	16,581	9,841	29,766
Operating leases	5,509	5,935	—	—	5,509	5,935
Commercial letters of credit	973	1,176	28	247	1,001	1,423
Other	698	652	—	—	698	652
Total	\$ 704,867	\$ 653,528	\$ 495,346	\$ 476,361	\$ 1,200,213	\$ 1,129,889

⁽¹⁾ Commercial utilized exposure includes loans of \$5.4 billion and \$7.2 billion accounted for under the fair value option at December 31, 2022 and 2021.

⁽²⁾ Commercial unfunded exposure includes commitments accounted for under the fair value option with a notional amount of \$3.0 billion and \$4.8 billion at December 31, 2022 and 2021.

⁽³⁾ Excludes unused business card lines, which are not legally binding.

⁽⁴⁾ Includes the notional amount of unfunded legally binding lending commitments, net of amounts distributed (i.e., syndicated or participated) to other financial institutions. The distributed amounts were \$10.4 billion and \$10.7 billion at December 31, 2022 and 2021.

⁽⁵⁾ Derivative assets are carried at fair value, reflect the effects of legally enforceable master netting agreements and have been reduced by cash collateral of \$33.8 billion and \$30.8 billion at December 31, 2022 and 2021. Not reflected in utilized and committed exposure is additional non-cash derivative collateral held of \$51.6 billion and \$44.8 billion at December 31, 2022 and 2021, which consists primarily of other marketable securities.

Nonperforming commercial loans decreased \$524 million across all product types. Table 30 presents our commercial loans and leases portfolio and related credit quality information at December 31, 2022 and 2021.

Table 30 Commercial Credit Quality

(Dollars in millions)	Outstandings		Nonperforming		Accruing Past Due	
			December 31		90 Days or More	
	2022	2021	2022	2021	2022	2021
Commercial and industrial:						
U.S. commercial	\$ 358,481	\$ 325,936	\$ 553	\$ 825	\$ 190	\$ 171
Non-U.S. commercial	124,479	113,266	212	268	25	19
Total commercial and industrial	482,960	439,202	765	1,093	215	190
Commercial real estate	69,766	63,009	271	382	46	40
Commercial lease financing	13,644	14,825	4	80	8	8
	566,370	517,036	1,040	1,555	269	238
U.S. small business commercial ⁽¹⁾	17,560	19,183	14	23	355	87
Commercial loans excluding loans accounted for under the fair value option	\$ 583,930	\$ 536,219	\$ 1,054	\$ 1,578	\$ 624	\$ 325
Loans accounted for under the fair value option ⁽²⁾	5,432	7,201				
Total commercial loans and leases	\$ 589,362	\$ 543,420				

⁽¹⁾ Includes card-related products.

⁽²⁾ Commercial loans accounted for under the fair value option includes U.S. commercial of \$2.9 billion and \$4.6 billion and non-U.S. commercial of \$2.5 billion and \$2.6 billion at December 31, 2022 and 2021. For more information on the fair value option, see Note 21 – Fair Value Option to the Consolidated Financial Statements.

Table 31 presents net charge-offs and related ratios for our commercial loans and leases for 2022 and 2021.

Table 31 Commercial Net Charge-offs and Related Ratios

(Dollars in millions)	Net Charge-offs		Net Charge-off Ratios ⁽¹⁾	
	2022	2021	2022	2021
	Commercial and industrial:			
U.S. commercial	\$ 71	\$ (23)	0.02 %	(0.01%)
Non-U.S. commercial	21	35	0.02	0.04
Total commercial and industrial	92	12	0.02	—
Commercial real estate	66	34	0.10	0.06
Commercial lease financing	5	(1)	0.03	—
	163	45	0.03	0.01
U.S. small business commercial	154	351	0.86	1.19
Total commercial	\$ 317	\$ 396	0.06	0.08

⁽¹⁾ Net charge-off ratios are calculated as net charge-offs divided by average outstanding loans and leases, excluding loans accounted for under the fair value option.

Table 32 presents commercial reservable criticized utilized exposure by loan type. Criticized exposure corresponds to the Special Mention, Substandard and Doubtful asset categories as defined by regulatory authorities. Total commercial reservable criticized utilized exposure decreased \$3.1 billion during 2022, which was broad-based across industries. At December 31, 2022 and 2021, 88 percent and 87 percent of commercial reservable criticized utilized exposure was secured.

Table 32 Commercial Reservable Criticized Utilized Exposure ^(1, 2)

(Dollars in millions)	December 31			
	2022		2021	
Commercial and industrial:				
U.S. commercial	\$ 10,724	2.78 %	\$ 11,327	3.20%
Non-U.S. commercial	2,665	2.04	2,582	2.17
Total commercial and industrial	13,389	2.59	13,909	2.94
Commercial real estate	5,201	7.30	7,572	11.72
Commercial lease financing	240	1.76	387	2.61
	18,830	3.13	21,868	3.96
U.S. small business commercial	444	2.53	513	2.67
Total commercial reservable criticized utilized exposure	\$ 19,274	3.12	\$ 22,381	3.91

⁽¹⁾ Total commercial reservable criticized utilized exposure includes loans and leases of \$18.5 billion and \$21.2 billion and commercial letters of credit of \$817 million and \$1.2 billion at December 31, 2022 and 2021.

⁽²⁾ Percentages are calculated as commercial reservable criticized utilized exposure divided by total commercial reservable utilized exposure for each exposure category.

Commercial and Industrial

Commercial and industrial loans include U.S. commercial and non-U.S. commercial portfolios.

U.S. Commercial

At December 31, 2022, 63 percent of the U.S. commercial loan

portfolio, excluding small business, was managed in *Global Banking*, 21 percent in *Global Markets*, 15 percent in *GWIM* (loans that provide financing for asset purchases, business investments and other liquidity needs for high net worth clients) and the remainder primarily in *Consumer Banking*. U.S. commercial loans increased \$32.5 billion, or 10 percent, during

2022 primarily driven by *Global Banking*. Reservable criticized utilized exposure decreased \$603 million, or five percent, driven by decreases across a broad range of industries.

Non-U.S. Commercial

At December 31, 2022, 64 percent of the non-U.S. commercial loan portfolio was managed in *Global Banking*, 35 percent in *Global Markets* and the remainder in *GWIM*. Non-U.S. commercial loans increased \$11.2 billion, or 10 percent, during 2022 due to loan growth in *Global Markets*. Reservable criticized utilized exposure increased \$83 million, or three percent, due to downgrades for direct exposure to Russian counterparties. For information on the non-U.S. commercial portfolio, see Non-U.S. Portfolio on page 117. For more information on the Russia/Ukraine conflict, see Recent Developments on page 74.

Commercial Real Estate

Commercial real estate primarily includes commercial loans secured by non-owner-occupied real estate and is dependent on the sale or lease of the real estate as the primary source of repayment. Outstanding loans increased \$6.8 billion, or 11 percent, during 2022 to \$69.8 billion due to new originations outpacing paydowns and increased utilizations under existing

credit facilities. Reservable criticized utilized exposure decreased \$2.4 billion, or 31 percent, primarily driven by Hotels due to improving vacancy rates and reduced travel restrictions. The portfolio remains diversified across property types and geographic regions. California represented the largest state concentration at 19 percent and 21 percent of the commercial real estate portfolio at December 31, 2022 and 2021. The commercial real estate portfolio is predominantly managed in *Global Banking* and consists of loans made primarily to public and private developers, and commercial real estate firms.

During 2022, we continued to see low default rates and varying degrees of improvement in certain geographic regions and property types of the portfolio. We use a number of proactive risk mitigation initiatives to reduce adversely rated exposure in the commercial real estate portfolio, including transfers of deteriorating exposures for management by independent special asset officers and the pursuit of loan restructurings or asset sales to achieve the best results for our customers and the Corporation.

Table 33 presents outstanding commercial real estate loans by geographic region, based on the geographic location of the collateral, and by property type.

Table 33 Outstanding Commercial Real Estate Loans

	December 31	
	2022	2021
(Dollars in millions)		
By Geographic Region		
Northeast	\$ 15,601	\$ 14,318
California	13,360	13,145
Southwest	8,723	7,510
Southeast	7,713	6,758
Florida	5,374	4,367
Midwest	3,419	3,221
Illinois	3,327	2,878
Midsouth	2,716	2,289
Northwest	1,959	1,709
Non-U.S.	5,518	4,760
Other	2,056	2,054
Total outstanding commercial real estate loans	\$ 69,766	\$ 63,009
By Property Type		
Non-residential		
Office	\$ 18,230	\$ 18,309
Industrial / Warehouse	13,775	10,749
Multi-family rental	10,412	8,173
Shopping centers /Retail	5,830	6,502
Hotel / Motels	5,696	5,932
Unsecured	3,195	3,178
Multi-use	2,403	1,835
Other	9,046	7,238
Total non-residential	68,587	61,916
Residential	1,179	1,093
Total outstanding commercial real estate loans	\$ 69,766	\$ 63,009

U.S. Small Business Commercial

The U.S. small business commercial loan portfolio is comprised of small business card loans and small business loans primarily managed in *Consumer Banking*, and included \$1.0 billion and \$4.7 billion of PPP loans outstanding at December 31, 2022 and 2021. The decline of \$3.7 billion in PPP loans during 2022 was primarily due to repayment of the loans by the SBA under

the terms of the program. Excluding PPP, credit card-related products were 53 percent and 50 percent of the U.S. small business commercial portfolio at December 31, 2022 and 2021 and represented all of the net charge-offs in 2022 compared to 95 percent in 2021. The increase of \$268 million in accruing past due 90 days or more in 2022 was driven by PPP loans, which are fully guaranteed by the SBA.

Nonperforming Commercial Loans, Leases and Foreclosed Properties Activity

Table 34 presents the nonperforming commercial loans, leases and foreclosed properties activity during 2022 and 2021. Nonperforming loans do not include loans accounted for under the fair value option. During 2022, nonperforming commercial loans and leases decreased \$524 million to \$1.1 billion. At

December 31, 2022, 97 percent of commercial nonperforming loans, leases and foreclosed properties were secured, and 65 percent were contractually current. Commercial nonperforming loans were carried at 85 percent of their unpaid principal balance, as the carrying value of these loans has been reduced to the estimated collateral value less costs to sell.

Table 34 Nonperforming Commercial Loans, Leases and Foreclosed Properties Activity ^(1, 2)

(Dollars in millions)	2022	2021
Nonperforming loans and leases, January 1	\$ 1,578	\$ 2,227
Additions	952	1,622
Reductions:		
Paydowns	(825)	(1,163)
Sales	(57)	(199)
Returns to performing status ⁽³⁾	(334)	(264)
Charge-offs	(221)	(254)
Transfers to loans held-for-sale	(39)	(391)
Total net reductions to nonperforming loans and leases	(524)	(649)
Total nonperforming loans and leases, December 31	1,054	1,578
Foreclosed properties, December 31	49	29
Nonperforming commercial loans, leases and foreclosed properties, December 31	\$ 1,103	\$ 1,607
Nonperforming commercial loans and leases as a percentage of outstanding commercial loans and leases ⁽⁴⁾	0.18 %	0.29 %
Nonperforming commercial loans, leases and foreclosed properties as a percentage of outstanding commercial loans, leases and foreclosed properties ⁽⁴⁾	0.19	0.30

⁽¹⁾ Balances do not include nonperforming loans held-for-sale of \$219 million and \$264 million at December 31, 2022 and 2021.

⁽²⁾ Includes U.S. small business commercial activity. Small business card loans are excluded as they are not classified as nonperforming.

⁽³⁾ Commercial loans and leases may be returned to performing status when all principal and interest is current and full repayment of the remaining contractual principal and interest is expected, or when the loan otherwise becomes well-secured and is in the process of collection. TDRs are generally classified as performing after a sustained period of demonstrated payment performance.

⁽⁴⁾ Outstanding commercial loans exclude loans accounted for under the fair value option.

Table 35 presents our commercial TDRs by product type and performing status. U.S. small business commercial TDRs are comprised of renegotiated small business card loans and small business loans. The renegotiated small business card loans are not classified as nonperforming as they are charged off no later

than the end of the month in which the loan becomes 180 days past due. Commercial TDRs increased \$957 million, or 50 percent, during 2022 primarily due to commercial real estate loans that were modified as TDRs during the first half of the year.

Table 35 Commercial Troubled Debt Restructurings

(Dollars in millions)	December 31, 2022			December 31, 2021		
	Nonperforming	Performing	Total	Nonperforming	Performing	Total
Commercial and industrial:						
U.S. commercial	\$ 305	\$ 985	\$ 1,290	\$ 359	\$ 685	\$ 1,044
Non-U.S. commercial	69	238	307	72	8	80
Total commercial and industrial	374	1,223	1,597	431	693	1,124
Commercial real estate	59	1,131	1,190	244	437	681
Commercial lease financing	3	16	19	50	7	57
	436	2,370	2,806	725	1,137	1,862
U.S. small business commercial	—	51	51	—	38	38
Total commercial troubled debt restructurings	\$ 436	\$ 2,421	\$ 2,857	\$ 725	\$ 1,175	\$ 1,900

Industry Concentrations

Table 36 presents commercial committed and utilized credit exposure by industry. Our commercial credit exposure is diversified across a broad range of industries. Total commercial committed exposure increased \$70.3 billion, or six percent, during 2022 to \$1.2 trillion. The increase in commercial committed exposure was concentrated in Asset managers and funds, Global commercial banks and Pharmaceuticals and biotechnology.

Industry limits are used internally to manage industry concentrations and are based on committed exposure that is determined on an industry-by-industry basis. A risk management framework is in place to set and approve industry limits as well as to provide ongoing monitoring.

Asset managers and funds, our largest industry concentration with committed exposure of \$165.1 billion,

increased \$28.2 billion, or 21 percent, during 2022 primarily driven by investment-grade exposures.

Real estate, our second largest industry concentration with committed exposure of \$99.7 billion, increased \$3.5 billion, or four percent, during 2022. For more information on the commercial real estate and related portfolios, see Commercial Portfolio Credit Risk Management – Commercial Real Estate on page 114.

Capital goods, our third largest industry concentration with committed exposure of \$87.3 billion, increased \$3.0 billion, or four percent, during 2022. The increase in committed exposure occurred primarily as a result of increases in the Electrical equipment and Trading companies and distributors, partially offset by a decrease in Building products.

While the U.S. and global economies have shown signs of relief from the pandemic, uncertainty remains as a result of

geopolitical and inflationary pressures, and a number of industries will likely continue to be adversely impacted due to these conditions. We continue to monitor all industries,

particularly higher risk industries that are experiencing or could experience a more significant impact to their financial condition.

Table 36 Commercial Credit Exposure by Industry ⁽¹⁾

(Dollars in millions)	Commercial Utilized		Total Commercial Committed ⁽²⁾	
	December 31			
	2022	2021	2022	2021
Asset managers & funds	\$ 106,842	\$ 89,786	\$ 165,087	\$ 136,914
Real estate ⁽³⁾	72,180	69,384	99,722	96,202
Capital goods	45,580	42,784	87,314	84,293
Finance companies	55,248	59,327	79,546	86,009
Healthcare equipment and services	33,554	32,003	58,761	58,195
Materials	26,304	25,133	55,589	53,652
Retailing	24,785	24,514	53,714	50,816
Government & public education	34,861	37,597	48,134	50,066
Food, beverage and tobacco	23,232	21,584	47,486	45,419
Consumer services	26,980	28,172	47,372	48,052
Individuals and trusts	34,897	29,752	45,572	39,869
Commercial services and supplies	23,628	22,390	41,596	42,451
Utilities	20,292	17,082	40,164	36,855
Energy	15,132	14,217	36,043	34,136
Transportation	22,273	21,079	33,858	32,015
Technology hardware and equipment	11,441	10,159	29,825	26,910
Global commercial banks	27,217	20,062	29,293	21,390
Media	14,781	12,495	28,216	26,318
Pharmaceuticals and biotechnology	7,547	5,608	26,208	19,439
Software and services	12,961	10,663	25,633	27,643
Consumer durables and apparel	10,009	9,740	21,389	21,226
Vehicle dealers	12,909	11,030	20,638	15,678
Insurance	10,224	5,743	19,444	14,323
Telecommunication services	9,679	10,056	17,349	21,270
Automobiles and components	8,774	9,236	16,911	17,052
Food and staples retailing	7,157	6,902	11,908	12,226
Financial markets infrastructure (clearinghouses)	3,913	3,876	8,752	6,076
Religious and social organizations	2,467	3,154	4,689	5,394
Total commercial credit exposure by industry	\$ 704,867	\$ 653,528	\$ 1,200,213	\$ 1,129,889

⁽¹⁾ Includes U.S. small business commercial exposure.

⁽²⁾ Includes the notional amount of unfunded legally binding lending commitments, net of amounts distributed (i.e., syndicated or participated) to other financial institutions. The distributed amounts were \$10.4 billion and \$10.7 billion at December 31, 2022 and 2021.

⁽³⁾ Industries are viewed from a variety of perspectives to best isolate the perceived risks. For purposes of this table, the real estate industry is defined based on the primary business activity of the borrowers or counterparties using operating cash flows and primary source of repayment as key factors.

Risk Mitigation

We purchase credit protection to cover the funded portion as well as the unfunded portion of certain credit exposures. To lower the cost of obtaining our desired credit protection levels, we may add credit exposure within an industry, borrower or counterparty group by selling protection.

At December 31, 2022 and 2021, net notional credit default protection purchased in our credit derivatives portfolio to hedge our funded and unfunded exposures for which we elected the fair value option, as well as certain other credit exposures, was \$9.0 billion and \$2.6 billion. We recorded net losses of \$37 million in 2022 compared to net losses \$91 million in 2021. The gains and losses on these instruments were largely offset by gains and losses on the related exposures. The Value-at-Risk (VaR) results for these exposures are included in the fair value option portfolio information in Table 43. For more information, see Trading Risk Management on page 123.

Tables 37 and 38 present the maturity profiles and the credit exposure debt ratings of the net credit default protection portfolio at December 31, 2022 and 2021.

Table 37 Net Credit Default Protection by Maturity

	December 31	
	2022	2021
Less than or equal to one year	14 %	34 %
Greater than one year and less than or equal to five years	85	62
Greater than five years	1	4
Total net credit default protection	100 %	100 %

Table 38 Net Credit Default Protection by Credit Exposure Debt Rating

	Net		Percent of	
	Notional ⁽¹⁾		Total	
	Net	Percent of	Net	Percent of
	Notional ⁽¹⁾	Total	Notional ⁽¹⁾	Total
December 31				
	2022		2021	
(Dollars in millions)				
Ratings ^(2, 3)				
AAA	\$ (379)	4.0 %	\$ —	— %
AA	(867)	10.0	—	—
A	(3,257)	36.0	(350)	13.4
BBB	(2,476)	28.0	(710)	27.1
BB	(1,049)	12.0	(809)	30.9
B	(676)	7.0	(659)	25.2
CCC and below	(93)	1.0	(35)	1.3
NR ⁽⁴⁾	(182)	2.0	(55)	2.1
Total net credit default protection	\$ (8,979)	100.0 %	\$ (2,618)	100.0 %

⁽¹⁾ Represents net credit default protection purchased.

⁽²⁾ Ratings are refreshed on a quarterly basis.

⁽³⁾ Ratings of BBB- or higher are considered to meet the definition of investment grade.

⁽⁴⁾ NR is comprised of index positions held and any names that have not been rated.

In addition to our net notional credit default protection purchased to cover the funded and unfunded portion of certain credit exposures, credit derivatives are used for market-making activities for clients and establishing positions intended to profit from directional or relative value changes. We execute the majority of our credit derivative trades in the OTC market with large, multinational financial institutions, including broker-dealers and, to a lesser degree, with a variety of other investors. Because these transactions are executed in the OTC market, we are subject to settlement risk. We are also subject to credit risk in the event that these counterparties fail to perform under the terms of these contracts. In order to properly reflect counterparty credit risk, we record counterparty credit risk valuation adjustments on certain derivative assets, including our purchased credit default protection. In most cases, credit derivative transactions are executed on a daily margin basis. Therefore, events such as a credit downgrade, depending on the ultimate rating level, or a breach of credit covenants would typically require an increase in the amount of collateral required by the counterparty, where applicable, and/or allow us to take additional protective measures such as early termination of all

trades. For more information on credit derivatives and counterparty credit risk valuation adjustments, see Note 3 – Derivatives to the Consolidated Financial Statements.

Non-U.S. Portfolio

Our non-U.S. credit and trading portfolios are subject to country risk. We define country risk as the risk of loss from unfavorable economic and political conditions, currency fluctuations, social instability and changes in government policies. A risk management framework is in place to measure, monitor and manage non-U.S. risk and exposures. In addition to the direct risk of doing business in a country, we also are exposed to indirect country risks (e.g., related to the collateral received on secured financing transactions or related to client clearing activities). These indirect exposures are managed in the normal course of business through credit, market and operational risk governance rather than through country risk governance.

Table 39 presents our 20 largest non-U.S. country exposures at December 31, 2022. These exposures accounted for 89 percent of our total non-U.S. exposure at both December 31, 2022 and 2021. Net country exposure for these 20 countries increased \$24.0 billion in 2022 primarily driven by increases in Germany, Japan, Ireland, India and Switzerland, partially offset by decreases in China, Belgium, Australia and Singapore.

Non-U.S. exposure is presented on an internal risk management basis and includes sovereign and non-sovereign credit exposure, securities and other investments issued by or domiciled in countries other than the U.S.

Funded loans and loan equivalents include loans, leases, and other extensions of credit and funds, including letters of credit and due from placements. Unfunded commitments are the undrawn portion of legally binding commitments related to loans and loan equivalents. Net counterparty exposure includes the fair value of derivatives, including the counterparty risk associated with credit default swaps (CDS), and secured financing transactions. Securities and other investments are carried at fair value and long securities exposures are netted against short exposures with the same underlying issuer to, but not below, zero. Net country exposure represents country exposure less hedges and credit default protection purchased, net of credit default protection sold.

Table 39 Top 20 Non-U.S. Countries Exposure

(Dollars in millions)	Funded Loans and Loan Equivalents	Unfunded Loan Commitments	Net Counterparty Exposure	Securities/ Other Investments	Country Exposure at December 31 2022	Hedges and Credit Default Protection	Net Country Exposure at December 31 2022	Increase (Decrease) from December 31 2021
United Kingdom	\$ 29,965	\$ 16,601	\$ 7,243	\$ 2,570	\$ 56,379	\$ (1,034)	\$ 55,345	\$ 376
Germany	32,248	9,431	2,190	2,742	46,611	(885)	45,726	11,901
France	13,888	8,064	2,023	3,604	27,579	(986)	26,593	1,686
Canada	10,992	10,094	1,472	3,383	25,941	(368)	25,573	(738)
Japan	19,239	1,806	1,366	1,502	23,913	(826)	23,087	5,825
Australia	14,412	4,013	568	1,510	20,503	(286)	20,217	(1,087)
Brazil	6,175	1,413	741	4,199	12,528	(28)	12,500	(250)
China	6,489	294	1,378	2,932	11,093	(285)	10,808	(1,774)
India	6,805	589	614	2,841	10,849	(80)	10,769	2,138
Switzerland	7,039	3,063	469	438	11,009	(321)	10,688	2,113
Singapore	4,017	627	126	4,874	9,644	(37)	9,607	(1,058)
Netherlands	3,169	4,892	617	1,402	10,080	(797)	9,283	(313)
South Korea	6,103	927	504	1,664	9,198	(72)	9,126	974
Ireland	7,678	1,157	151	230	9,216	(126)	9,090	3,551
Mexico	4,444	1,753	514	743	7,454	(62)	7,392	930
Hong Kong	5,123	523	466	1,181	7,293	(22)	7,271	(56)
Spain	2,433	2,170	398	1,067	6,068	(227)	5,841	(79)
Italy	3,883	1,777	184	426	6,270	(602)	5,668	464
Saudi Arabia	2,428	1,465	219	15	4,127	(109)	4,018	545
Belgium	1,433	1,489	184	910	4,016	(153)	3,863	(1,168)
Total top 20 non-U.S. countries exposure	\$ 187,963	\$ 72,148	\$ 21,427	\$ 38,233	\$ 319,771	\$ (7,306)	\$ 312,465	\$ 23,980

Our largest non-U.S. country exposure at December 31, 2022 was the United Kingdom with net exposure of \$55.3 billion, which represents an increase of \$376 million from December 31, 2021. The increase was primarily driven by net counterparty exposure with financial institutions, partially offset by a reduction in deposits with the central bank. Our second largest non-U.S. country exposure was Germany with net exposure of \$45.7 billion at December 31, 2022, an increase of \$11.9 billion from December 31, 2021. The increase was driven by higher deposits with the central bank and increased exposure with financial institutions and corporates.

Loan and Lease Contractual Maturities

Table 40 disaggregates total outstanding loans and leases by remaining scheduled principal due dates and interest rates. The amounts provided do not reflect prepayment assumptions or hedging activities related to the loan portfolio. For information on the asset sensitivity of our total banking book balance sheet, see Interest Rate Risk Management for the Banking Book on page 126.

Table 40 Loan and Lease Contractual Maturities ⁽¹⁾

	December 31, 2022				
	Due in One Year or Less	Due After One Year Through Five Years	Due After Five Years Through 15 Years	Due After 15 Years	Total
(Dollars in millions)					
Residential mortgage	\$ 5,660	\$ 32,546	\$ 94,544	\$ 96,991	\$ 229,741
Home equity	251	1,195	5,076	20,309	26,831
Credit card	93,421	—	—	—	93,421
Direct/Indirect consumer	65,877	35,066	4,464	829	106,236
Other consumer	156	—	—	—	156
Total consumer loans	165,365	68,807	104,084	118,129	456,385
U.S. commercial	97,153	242,313	20,343	1,584	361,393
Non-U.S. commercial	49,662	52,826	22,436	2,075	126,999
Commercial real estate	19,199	48,051	1,650	866	69,766
Commercial lease financing	2,737	8,214	1,026	1,667	13,644
U.S. small business commercial	10,615	4,474	2,407	64	17,560
Total commercial loans	179,366	355,878	47,862	6,256	589,362
Total loans and leases	\$ 344,731	\$ 424,685	\$ 151,946	\$ 124,385	\$ 1,045,747

	Amount due in one year or less at:		Amount due after one year at:		Total
	Variable Interest Rates	Fixed Interest Rates	Variable Interest Rates	Fixed Interest Rates	
(Dollars in millions)					
Residential mortgage	\$ 1,007	\$ 4,653	\$ 83,441	\$ 140,640	\$ 229,741
Home equity	203	48	22,438	4,142	26,831
Credit card	88,113	5,308	—	—	93,421
Direct/Indirect consumer	47,240	18,637	2,857	37,502	106,236
Other consumer	—	156	—	—	156
Total consumer loans	136,563	28,802	108,736	182,284	456,385
U.S. commercial	73,593	23,560	223,099	41,141	361,393
Non-U.S. commercial	42,692	6,970	75,355	1,982	126,999
Commercial real estate	18,361	838	49,247	1,320	69,766
Commercial lease financing	229	2,508	3,696	7,211	13,644
U.S. small business commercial	6,363	4,252	109	6,836	17,560
Total commercial loans	141,238	38,128	351,506	58,490	589,362
Total loans and leases	\$ 277,801	\$ 66,930	\$ 460,242	\$ 240,774	\$ 1,045,747

⁽¹⁾ Includes loans accounted for under the fair value option.

Allowance for Credit Losses

The allowance for credit losses increased \$379 million from December 31, 2021 to \$14.2 billion at December 31, 2022, which included a \$202 million reserve increase related to the consumer portfolio and a \$177 million reserve increase related to the commercial portfolio. The increase in the allowance was

primarily driven by loan growth and a dampened macroeconomic outlook, partially offset by a reserve release for reduced pandemic uncertainties.

Table 41 presents an allocation of the allowance for credit losses by product type at December 31, 2022 and 2021.

Table 41 Allocation of the Allowance for Credit Losses by Product Type

	December 31, 2022			December 31, 2021		
	Amount	Percent of Total	Percent of Loans and Leases Outstanding ⁽¹⁾	Amount	Percent of Total	Percent of Loans and Leases Outstanding ⁽¹⁾
(Dollars in millions)						
Allowance for loan and lease losses						
Residential mortgage	\$ 328	2.59 %	0.14 %	\$ 351	2.83 %	0.16 %
Home equity	92	0.73	0.35	206	1.66	0.74
Credit card	6,136	48.38	6.57	5,907	47.70	7.25
Direct/Indirect consumer	585	4.61	0.55	523	4.22	0.51
Other consumer	96	0.76	n/m	46	0.37	n/m
Total consumer	7,237	57.07	1.59	7,033	56.78	1.62
U.S. commercial ⁽²⁾	3,007	23.71	0.80	3,019	24.37	0.87
Non-U.S. commercial	1,194	9.41	0.96	975	7.87	0.86
Commercial real estate	1,192	9.40	1.71	1,292	10.43	2.05
Commercial lease financing	52	0.41	0.38	68	0.55	0.46
Total commercial	5,445	42.93	0.93	5,354	43.22	1.00
Allowance for loan and lease losses	12,682	100.00 %	1.22	12,387	100.00 %	1.28
Reserve for unfunded lending commitments	1,540			1,456		
Allowance for credit losses	\$ 14,222			\$ 13,843		

⁽¹⁾ Ratios are calculated as allowance for loan and lease losses as a percentage of loans and leases outstanding excluding loans accounted for under the fair value option.

⁽²⁾ Includes allowance for loan and lease losses for U.S. small business commercial loans of \$844 million and \$1.2 billion at December 31, 2022 and 2021.

n/m = not meaningful

Net charge-offs for both 2022 and 2021 were \$2.2 billion as credit card losses, which remained near historic lows, were partially offset by higher overdrafts charged off in other consumer due to payment activity related to checking accounts. The provision for credit losses increased \$7.1 billion to an expense of \$2.5 billion during 2022 compared to 2021. The provision for credit losses in 2022 was primarily driven by loan growth and a dampened macroeconomic outlook, partially offset by a reserve release for reduced pandemic uncertainties. The provision for credit losses for the consumer portfolio, including unfunded lending commitments, increased \$3.2 billion to an expense of \$2.0 billion during 2022 compared to 2021. The

provision for credit losses for the commercial portfolio, including unfunded lending commitments, increased \$3.9 billion to an expense of \$495 million for 2022 compared to 2021.

Table 42 presents a rollforward of the allowance for credit losses, including certain loan and allowance ratios for 2022 and 2021. For more information on the Corporation's credit loss accounting policies and activity related to the allowance for credit losses, see *Note 1 - Summary of Significant Accounting Principles* and *Note 5 - Outstanding Loans and Leases and Allowance for Credit Losses* to the Consolidated Financial Statements.

Table 42 Allowance for Credit Losses

(Dollars in millions)	2022	2021
Allowance for loan and lease losses, January 1	\$ 12,387	\$ 18,802
Loans and leases charged off		
Residential mortgage	(161)	(34)
Home equity	(45)	(44)
Credit card	(1,985)	(2,411)
Direct/Indirect consumer	(232)	(297)
Other consumer	(538)	(292)
Total consumer charge-offs	(2,961)	(3,078)
U.S. commercial ⁽¹⁾	(354)	(626)
Non-U.S. commercial	(41)	(47)
Commercial real estate	(75)	(46)
Commercial lease financing	(8)	—
Total commercial charge-offs	(478)	(719)
Total loans and leases charged off	(3,439)	(3,797)
Recoveries of loans and leases previously charged off		
Residential mortgage	89	62
Home equity	135	163
Credit card	651	688
Direct/Indirect consumer	214	296
Other consumer	17	22
Total consumer recoveries	1,106	1,231
U.S. commercial ⁽²⁾	129	298
Non-U.S. commercial	20	12
Commercial real estate	9	12
Commercial lease financing	3	1
Total commercial recoveries	161	323
Total recoveries of loans and leases previously charged off	1,267	1,554
Net charge-offs	(2,172)	(2,243)
Provision for loan and lease losses	2,460	(4,173)
Other	7	1
Allowance for loan and lease losses, December 31	12,682	12,387
Reserve for unfunded lending commitments, January 1	1,456	1,878
Provision for unfunded lending commitments	83	(421)
Other	1	(1)
Reserve for unfunded lending commitments, December 31	1,540	1,456
Allowance for credit losses, December 31	\$ 14,222	\$ 13,843
Loan and allowance ratios ⁽³⁾:		
Loans and leases outstanding at December 31	\$ 1,039,976	\$ 971,305
Allowance for loan and lease losses as a percentage of total loans and leases outstanding at December 31	1.22 %	1.28 %
Consumer allowance for loan and lease losses as a percentage of total consumer loans and leases outstanding at December 31	1.59	1.62
Commercial allowance for loan and lease losses as a percentage of total commercial loans and leases outstanding at December 31	0.93	1.00
Average loans and leases outstanding	\$ 1,010,799	\$ 913,354
Net charge-offs as a percentage of average loans and leases outstanding	0.21 %	0.25 %
Allowance for loan and lease losses as a percentage of total nonperforming loans and leases at December 31	333	271
Ratio of the allowance for loan and lease losses at December 31 to net charge-offs	5.84	5.52
Amounts included in allowance for loan and lease losses for loans and leases that are excluded from nonperforming loans and leases at December 31 ⁽⁴⁾	\$ 6,998	\$ 7,027
Allowance for loan and lease losses as a percentage of total nonperforming loans and leases, excluding the allowance for loan and lease losses for loans and leases that are excluded from nonperforming loans and leases at December 31 ⁽⁴⁾	149 %	117 %

⁽¹⁾ Includes U.S. small business commercial charge-offs of \$203 million in 2022 compared to \$425 million in 2021.

⁽²⁾ Includes U.S. small business commercial recoveries of \$49 million in 2022 compared to \$74 million in 2021.

⁽³⁾ Ratios are calculated as allowance for loan and lease losses as a percentage of loans and leases outstanding excluding loans accounted for under the fair value option.

⁽⁴⁾ Primarily includes amounts related to credit card and unsecured consumer lending portfolios in *Consumer Banking*.

Market Risk Management

Market risk is the risk that changes in market conditions may adversely impact the value of assets or liabilities, or otherwise negatively impact earnings. This risk is inherent in the financial instruments associated with our operations, primarily within our *Global Markets* segment. We are also exposed to these risks in other areas of the Corporation (e.g., our ALM activities). In the event of market stress, these risks could have a material impact on our results. For more information, see Interest Rate Risk Management for the Banking Book on page 126.

Our traditional banking loan and deposit products are non-trading positions and are generally reported at amortized cost for assets or the amount owed for liabilities (historical cost). However, these positions are still subject to changes in economic value based on varying market conditions, with one of the primary risks being changes in the levels of interest rates. The risk of adverse changes in the economic value of our non-trading positions arising from changes in interest rates is managed through our ALM activities. We have elected to account for certain assets and liabilities under the fair value option.

Our trading positions are reported at fair value with changes reflected in income. Trading positions are subject to various changes in market-based risk factors. The majority of this risk is generated by our activities in the interest rate, foreign exchange, credit, equity and commodities markets. In addition, the values of assets and liabilities could change due to market liquidity, correlations across markets and expectations of market volatility. We seek to manage these risk exposures by using a variety of techniques that encompass a broad range of financial instruments. The key risk management techniques are discussed in more detail in the Trading Risk Management section.

GRM is responsible for providing senior management with a clear and comprehensive understanding of the trading risks to which we are exposed. These responsibilities include ownership of market risk policy, developing and maintaining quantitative risk models, calculating aggregated risk measures, establishing and monitoring position limits consistent with risk appetite, conducting daily reviews and analysis of trading inventory, approving material risk exposures and fulfilling regulatory requirements. Market risks that impact businesses outside of *Global Markets* are monitored and governed by their respective governance functions.

Model risk is the potential for adverse consequences from decisions based on incorrect or misused model outputs and reports. Given that models are used across the Corporation, model risk impacts all risk types including credit, market and operational risks. The Enterprise Model Risk Policy defines model risk standards, consistent with our Risk Framework and risk appetite, prevailing regulatory guidance and industry best practice. All models, including risk management, valuation and regulatory capital models, must meet certain validation criteria, including effective challenge of the conceptual soundness of the model, independent model testing and ongoing monitoring through outcomes analysis and benchmarking. The Enterprise Model Risk Committee, a subcommittee of the MRC, oversees that model standards are consistent with model risk requirements and monitors the effective challenge in the model validation process across the Corporation.

Interest Rate Risk

Interest rate risk represents exposures to instruments whose values vary with the level or volatility of interest rates. These instruments include, but are not limited to, loans, debt

securities, certain trading-related assets and liabilities, deposits, borrowings and derivatives. Hedging instruments used to mitigate these risks include derivatives such as options, futures, forwards and swaps.

Foreign Exchange Risk

Foreign exchange risk represents exposures to changes in the values of current holdings and future cash flows denominated in currencies other than the U.S. dollar. The types of instruments exposed to this risk include investments in non-U.S. subsidiaries, foreign currency-denominated loans and securities, future cash flows in foreign currencies arising from foreign exchange transactions, foreign currency-denominated debt and various foreign exchange derivatives whose values fluctuate with changes in the level or volatility of currency exchange rates or non-U.S. interest rates. Hedging instruments used to mitigate this risk include foreign exchange options, currency swaps, futures, forwards, and foreign currency-denominated debt and deposits.

Mortgage Risk

Mortgage risk represents exposures to changes in the values of mortgage-related instruments. The values of these instruments are sensitive to prepayment rates, mortgage rates, agency debt ratings, default, market liquidity, government participation and interest rate volatility. Our exposure to these instruments takes several forms. For example, we trade and engage in market-making activities in a variety of mortgage securities including whole loans, pass-through certificates, commercial mortgages and collateralized mortgage obligations including collateralized debt obligations using mortgages as underlying collateral. In addition, we originate a variety of MBS, which involves the accumulation of mortgage-related loans in anticipation of eventual securitization, and we may hold positions in mortgage securities and residential mortgage loans as part of the ALM portfolio. We also record MSRs as part of our mortgage origination activities. Hedging instruments used to mitigate this risk include derivatives such as options, swaps, futures and forwards as well as securities including MBS and U.S. Treasury securities. For more information, see Mortgage Banking Risk Management on page 127.

Equity Market Risk

Equity market risk represents exposures to securities that represent an ownership interest in a corporation in the form of domestic and foreign common stock or other equity-linked instruments. Instruments that would lead to this exposure include, but are not limited to, the following: common stock, exchange-traded funds, American Depositary Receipts, convertible bonds, listed equity options (puts and calls), OTC equity options, equity total return swaps, equity index futures and other equity derivative products. Hedging instruments used to mitigate this risk include options, futures, swaps, convertible bonds and cash positions.

Commodity Risk

Commodity risk represents exposures to instruments traded in the petroleum, natural gas, power and metals markets. These instruments consist primarily of futures, forwards, swaps and options. Hedging instruments used to mitigate this risk include options, futures and swaps in the same or similar commodity product, as well as cash positions.

Issuer Credit Risk

Issuer credit risk represents exposures to changes in the creditworthiness of individual issuers or groups of issuers. Our portfolio is exposed to issuer credit risk where the value of an asset may be adversely impacted by changes in the levels of credit spreads, by credit migration or by defaults. Hedging instruments used to mitigate this risk include bonds, CDS and other credit fixed-income instruments.

Market Liquidity Risk

Market liquidity risk represents the risk that the level of expected market activity changes dramatically and, in certain cases, may even cease. This exposes us to the risk that we will not be able to transact business and execute trades in an orderly manner which may impact our results. This impact could be further exacerbated if expected hedging or pricing correlations are compromised by disproportionate demand or lack of demand for certain instruments. We utilize various risk mitigating techniques as discussed in more detail in Trading Risk Management.

Trading Risk Management

To evaluate risks in our trading activities, we focus on the actual and potential volatility of revenues generated by individual positions as well as portfolios of positions. Various techniques and procedures are utilized to enable the most complete understanding of these risks. Quantitative measures of market risk are evaluated on a daily basis from a single position to the portfolio of the Corporation. These measures include sensitivities of positions to various market risk factors, such as the potential impact on revenue from a one basis point change in interest rates, and statistical measures utilizing both actual and hypothetical market moves, such as VaR and stress testing. Periods of extreme market stress influence the reliability of these techniques to varying degrees. Qualitative evaluations of market risk utilize the suite of quantitative risk measures while understanding each of their respective limitations. Additionally, risk managers independently evaluate the risk of the portfolios under the current market environment and potential future environments.

VaR is a common statistic used to measure market risk as it allows the aggregation of market risk factors, including the effects of portfolio diversification. A VaR model simulates the value of a portfolio under a range of scenarios in order to generate a distribution of potential gains and losses. VaR represents the loss a portfolio is not expected to exceed more than a certain number of times per period, based on a specified holding period, confidence level and window of historical data. We use one VaR model consistently across the trading portfolios and it uses a historical simulation approach based on a three-year window of historical data. Our primary VaR statistic is equivalent to a 99 percent confidence level, which means that for a VaR with a one-day holding period, there should not be losses in excess of VaR, on average, 99 out of 100 trading days.

Within any VaR model, there are significant and numerous assumptions that will differ from company to company. The accuracy of a VaR model depends on the availability and quality of historical data for each of the risk factors in the portfolio. A VaR model may require additional modeling assumptions for new products that do not have the necessary historical market data or for less liquid positions for which accurate daily prices are not consistently available. For positions with insufficient historical data for the VaR calculation, the process for establishing an appropriate proxy is based on fundamental and

statistical analysis of the new product or less liquid position. This analysis identifies reasonable alternatives that replicate both the expected volatility and correlation to other market risk factors that the missing data would be expected to experience.

VaR may not be indicative of realized revenue volatility as changes in market conditions or in the composition of the portfolio can have a material impact on the results. In particular, the historical data used for the VaR calculation might indicate higher or lower levels of portfolio diversification than will be experienced. In order for the VaR model to reflect current market conditions, we update the historical data underlying our VaR model on a weekly basis, or more frequently during periods of market stress, and regularly review the assumptions underlying the model. A minor portion of risks related to our trading positions is not included in VaR. These risks are reviewed as part of our ICAAP. For more information regarding ICAAP, see Capital Management on page 96.

GRM continually reviews, evaluates and enhances our VaR model so that it reflects the material risks in our trading portfolio. Changes to the VaR model are reviewed and approved prior to implementation and any material changes are reported to management through the appropriate management committees.

Trading limits on quantitative risk measures, including VaR, are independently set by *Global Markets* Risk Management and reviewed on a regular basis so that trading limits remain relevant and within our overall risk appetite for market risks. Trading limits are reviewed in the context of market liquidity, volatility and strategic business priorities. Trading limits are set at both a granular level to allow for extensive coverage of risks as well as at aggregated portfolios to account for correlations among risk factors. All trading limits are approved at least annually. Approved trading limits are stored and tracked in a centralized limits management system. Trading limit excesses are communicated to management for review. Certain quantitative market risk measures and corresponding limits have been identified as critical in the Corporation's Risk Appetite Statement. These risk appetite limits are reported on a daily basis and are approved at least annually by the ERC and the Board.

In periods of market stress, *Global Markets* senior leadership communicates daily to discuss losses, key risk positions and any limit excesses. As a result of this process, the businesses may selectively reduce risk.

Table 43 presents the total market-based portfolio VaR, which is the combination of the total covered positions (and less liquid trading positions) portfolio and the fair value option portfolio. Covered positions are defined by regulatory standards as trading assets and liabilities, both on- and off-balance sheet, that meet a defined set of specifications. These specifications identify the most liquid trading positions which are intended to be held for a short-term horizon and where we are able to hedge the material risk elements in a two-way market. Positions in less liquid markets, or where there are restrictions on the ability to trade the positions, typically do not qualify as covered positions. Foreign exchange and commodity positions are always considered covered positions, except for structural foreign currency positions that are excluded with prior regulatory approval.

In addition, Table 43 presents our fair value option portfolio, which includes substantially all of the funded and unfunded exposures for which we elect the fair value option, and their corresponding hedges. Additionally, market risk VaR for trading activities as presented in Table 43 differs from VaR used for regulatory capital calculations due to the holding period being

used. The holding period for VaR used for regulatory capital calculations is 10 days, while for the market risk VaR presented below, it is one day. Both measures utilize the same process and methodology.

The total market-based portfolio VaR results in Table 43 include market risk to which we are exposed from all business segments, excluding credit valuation adjustment (CVA), DVA and related hedges. The majority of this portfolio is within the *Global Markets* segment.

Table 43 presents year-end, average, high and low daily trading VaR for 2022 and 2021 using a 99 percent confidence

level. The amounts disclosed in Table 43 and Table 44 align to the view of covered positions used in the Basel 3 capital calculations. Foreign exchange and commodity positions are always considered covered positions, regardless of trading or banking treatment for the trade, except for structural foreign currency positions that are excluded with prior regulatory approval.

The annual average of total covered positions and less liquid trading positions portfolio VaR increased for 2022 compared to 2021 driven by heightened market volatility and reduced diversification across asset classes.

Table 43 Market Risk VaR for Trading Activities

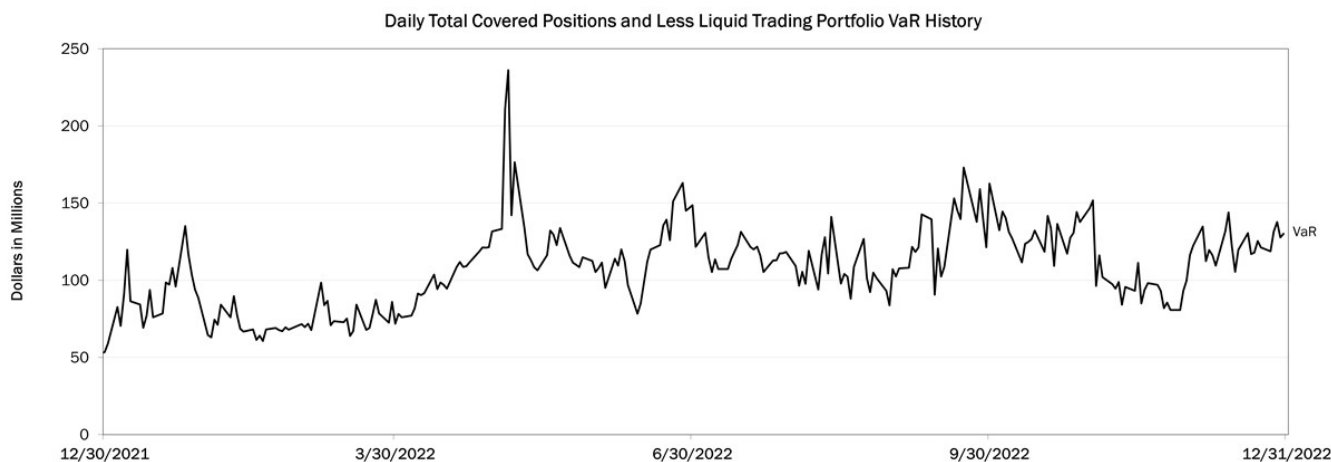
(Dollars in millions)	2022				2021			
	Year End	Average	High ⁽¹⁾	Low ⁽¹⁾	Year End	Average	High ⁽¹⁾	Low ⁽¹⁾
Foreign exchange	\$ 38	\$ 21	\$ 39	\$ 12	\$ 11	\$ 12	\$ 21	\$ 5
Interest rate	36	36	56	24	54	40	80	16
Credit	76	71	106	52	73	69	84	53
Equity	18	20	33	12	21	24	35	19
Commodities	8	13	27	7	6	8	28	4
Portfolio diversification	(81)	(91)	n/a	n/a	(114)	(100)	n/a	n/a
Total covered positions portfolio	95	70	140	42	51	53	85	34
Impact from less liquid exposures ⁽²⁾	35	38	n/a	n/a	8	20	n/a	n/a
Total covered positions and less liquid trading positions portfolio	130	108	236	61	59	73	125	46
Fair value option loans	48	51	65	37	51	50	65	31
Fair value option hedges	16	17	24	13	15	16	20	11
Fair value option portfolio diversification	(38)	(36)	n/a	n/a	(27)	(32)	n/a	n/a
Total fair value option portfolio	26	32	44	23	39	34	53	23
Portfolio diversification	9	(11)	n/a	n/a	(24)	(10)	n/a	n/a
Total market-based portfolio	\$ 165	\$ 129	287	70	\$ 74	\$ 97	169	54

⁽¹⁾ The high and low for each portfolio may have occurred on different trading days than the high and low for the components. Therefore the impact from less liquid exposures and the amount of portfolio diversification, which is the difference between the total portfolio and the sum of the individual components, is not relevant.

⁽²⁾ Impact is net of diversification effects between the covered positions and less liquid trading positions portfolios.

n/a = not applicable

The following graph presents the daily covered positions and less liquid trading positions portfolio VaR for 2022, corresponding to the data in Table 43.



Additional VaR statistics produced within our single VaR model are provided in Table 44 at the same level of detail as in Table 43. Evaluating VaR with additional statistics allows for an increased understanding of the risks in the portfolio, as the historical market data used in the VaR calculation does not necessarily follow a predefined statistical distribution. Table 44 presents average trading VaR statistics at 99 percent and 95 percent confidence levels for 2022 and 2021.

Table 44 Average Market Risk VaR for Trading Activities – 99 percent and 95 percent VaR Statistics

	2022		2021	
	99 percent	95 percent	99 percent	95 percent
(Dollars in millions)				
Foreign exchange	\$ 21	\$ 12	\$ 12	\$ 8
Interest rate	36	17	40	20
Credit	71	28	69	21
Equity	20	11	24	12
Commodities	13	7	8	4
Portfolio diversification	(91)	(46)	(100)	(39)
Total covered positions portfolio	70	29	53	26
Impact from less liquid exposures	38	7	20	2
Total covered positions and less liquid trading positions portfolio	108	36	73	28
Fair value option loans	51	14	50	12
Fair value option hedges	17	10	16	9
Fair value option portfolio diversification	(36)	(13)	(32)	(9)
Total fair value option portfolio	32	11	34	12
Portfolio diversification	(11)	(7)	(10)	(7)
Total market-based portfolio	\$ 129	\$ 40	\$ 97	\$ 33

Backtesting

The accuracy of the VaR methodology is evaluated by backtesting, which compares the daily VaR results, utilizing a one-day holding period, against a comparable subset of trading revenue. A backtesting excess occurs when a trading loss exceeds the VaR for the corresponding day. These excesses are evaluated to understand the positions and market moves that produced the trading loss with a goal to help confirm that the VaR methodology accurately represents those losses. We expect the frequency of trading losses in excess of VaR to be in line with the confidence level of the VaR statistic being tested. For example, with a 99 percent confidence level, we expect one trading loss in excess of VaR every 100 days or between two to three trading losses in excess of VaR over the course of a year. The number of backtesting excesses observed can differ from the statistically expected number of excesses if the current level of market volatility is materially different than the level of market volatility that existed during the three years of historical data used in the VaR calculation.

The trading revenue used for backtesting is defined by regulatory agencies in order to most closely align with the VaR component of the regulatory capital calculation. This revenue differs from total trading-related revenue in that it excludes revenue from trading activities that either do not generate market risk or the market risk cannot be included in VaR. Some examples of the types of revenue excluded for backtesting are fees, commissions, reserves, net interest income and intra-day trading revenues.

We conduct daily backtesting on the VaR results used for regulatory capital calculations as well as the VaR results for key legal entities, regions and risk factors. These results are reported to senior market risk management. Senior management regularly reviews and evaluates the results of these tests.

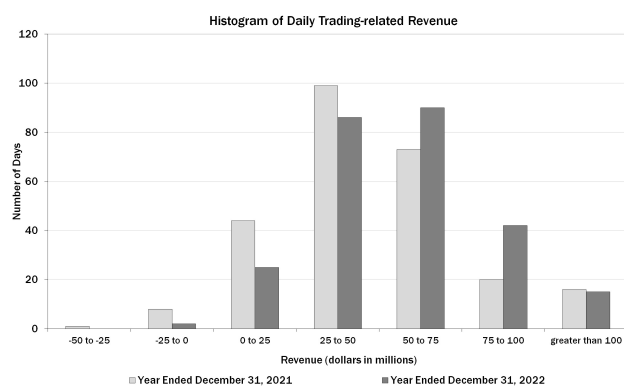
During 2022, there was one day where this subset of trading revenue had losses that exceeded our total covered portfolio VaR, utilizing a one-day holding period.

Total Trading-related Revenue

Total trading-related revenue, excluding brokerage fees, and CVA, DVA and funding valuation adjustment gains (losses), represents the total amount earned from trading positions, including market-based net interest income, which are taken in a diverse range of financial instruments and markets. For more information on fair value, see *Note 20 – Fair Value Measurements* to the Consolidated Financial Statements.

Trading-related revenue can be volatile and is largely driven by general market conditions and customer demand. Also, trading-related revenue is dependent on the volume and type of transactions, the level of risk assumed, and the volatility of price and rate movements at any given time within the ever-changing market environment. Significant daily revenue by business is monitored and the primary drivers of these are reviewed.

The following histogram is a graphic depiction of trading volatility and illustrates the daily level of trading-related revenue for 2022 and 2021. During 2022, positive trading-related revenue was recorded for 99 percent of the trading days, of which 90 percent were daily trading gains of over \$25 million, and the largest loss was \$9 million. This compares to 2021 where positive trading-related revenue was recorded for 97 percent of the trading days, of which 80 percent were daily trading gains of over \$25 million, and the largest loss was \$45 million.



Trading Portfolio Stress Testing

Because the very nature of a VaR model suggests results can exceed our estimates and it is dependent on a limited historical window, we also stress test our portfolio using scenario analysis. This analysis estimates the change in the value of our trading portfolio that may result from abnormal market movements.

A set of scenarios, categorized as either historical or hypothetical, are computed daily for the overall trading portfolio and individual businesses. These scenarios include shocks to underlying market risk factors that may be well beyond the shocks found in the historical data used to calculate VaR.

Historical scenarios simulate the impact of the market moves that occurred during a period of extended historical market stress. Generally, a multi-week period representing the most severe point during a crisis is selected for each historical scenario. Hypothetical scenarios provide estimated portfolio impacts from potential future market stress events. Scenarios are reviewed and updated in response to changing positions and new economic or political information. In addition, new or ad hoc scenarios are developed to address specific potential market events or particular vulnerabilities in the portfolio. The stress tests are reviewed on a regular basis and the results are presented to senior management.

Stress testing for the trading portfolio is integrated with enterprise-wide stress testing and incorporated into the limits framework. The macroeconomic scenarios used for enterprise-wide stress testing purposes differ from the typical trading portfolio scenarios in that they have a longer time horizon and the results are forecasted over multiple periods for use in consolidated capital and liquidity planning. For more information, see Managing Risk on page 93.

Interest Rate Risk Management for the Banking Book

The following discussion presents net interest income for banking book activities.

Interest rate risk represents the most significant market risk exposure to our banking book balance sheet. Interest rate risk is measured as the potential change in net interest income caused by movements in market interest rates. Client-facing activities, primarily lending and deposit-taking, create interest rate sensitive positions on our balance sheet.

We prepare forward-looking forecasts of net interest income. The baseline forecast takes into consideration expected future business growth, ALM positioning and the future direction of interest rate movements as implied by market-based forward curves.

We then measure and evaluate the impact that alternative interest rate scenarios have on the baseline forecast in order to assess interest rate sensitivity under varied conditions. The net interest income forecast is frequently updated for changing assumptions and differing outlooks based on economic trends, market conditions and business strategies. Thus, we continually monitor our banking book balance sheet position in order to maintain an acceptable level of exposure to interest rate changes.

The interest rate scenarios that we analyze incorporate balance sheet assumptions such as loan and deposit growth and pricing, changes in funding mix, product repricing, maturity characteristics and investment securities premium amortization. Our overall goal is to manage interest rate risk so that movements in interest rates do not significantly adversely affect earnings and capital.

Table 45 presents the spot and 12-month forward rates used in developing the forward curve used in our baseline forecasts at December 31, 2022 and 2021.

Table 45 Forward Rates

	December 31, 2022		
	Federal Funds	Three-month LIBOR	10-Year Swap
Spot rates	4.50 %	4.77 %	3.84 %
12-month forward rates	4.75	4.78	3.62
	December 31, 2021		
Spot rates	0.25 %	0.21 %	1.58 %
12-month forward rates	1.00	1.07	1.84

Table 46 shows the pretax impact to forecasted net interest income over the next 12 months from December 31, 2022 and 2021 resulting from instantaneous parallel and non-parallel shocks to the market-based forward curve. Periodically, we evaluate the scenarios presented so that they are meaningful in the context of the current rate environment. The interest rate scenarios also assume U.S. dollar interest rates are floored at zero. Depending on the level of interest rates, Down-rate scenarios may not receive the full impact of the rate shock, particularly in low rate environments.

The overall decrease in asset sensitivity, as shown in the following table, to Up-rate scenarios was primarily due to an increase in long-end and short-end rates. We continue to be asset sensitive to a parallel upward move in interest rates with the majority of that impact coming from the short end of the yield curve. Additionally, higher interest rates negatively impact the fair value of our debt securities classified as available for sale and adversely affect accumulated OCI and thus capital levels under the Basel 3 capital rules. Under instantaneous upward parallel shifts, the near-term adverse impact to Basel 3 capital would be reduced over time by offsetting positive impacts to net interest income generated from the banking book activities. For more information on Basel 3, see Capital Management – Regulatory Capital on page 97.

Table 46 Estimated Banking Book Net Interest Income Sensitivity to Curve Changes

(Dollars in millions)	Short Rate (bps)	Long Rate (bps)	December 31	
			2022	2021
Parallel Shifts				
+100 bps				
instantaneous shift	+100	+100	\$ 3,829	\$ 6,542
-100 bps				
instantaneous shift	-100	-100	(4,591)	n/m
Flatteners				
Short-end				
instantaneous change	+100	—	3,698	4,982
Long-end				
instantaneous change	—	-100	(157)	n/m
Steepeners				
Short-end				
instantaneous change	-100	—	(4,420)	n/m
Long-end				
instantaneous change	—	+100	131	1,646

n/m = not meaningful

The sensitivity analysis in Table 46 assumes that we take no action in response to these rate shocks and does not assume any change in other macroeconomic variables normally correlated with changes in interest rates. As part of our ALM activities, we use securities, certain residential mortgages, and interest rate and foreign exchange derivatives in managing interest rate sensitivity.

The behavior of our deposit portfolio in the baseline forecast and in alternate interest rate scenarios is a key assumption in our projected estimates of net interest income. The sensitivity analysis in Table 46 assumes no change in deposit portfolio size or mix from the baseline forecast in alternate rate environments. In higher rate scenarios, any customer activity resulting in the replacement of low-cost or noninterest-bearing deposits with higher yielding deposits or market-based funding would reduce our benefit in those scenarios.

Interest Rate and Foreign Exchange Derivative Contracts

We use interest rate and foreign exchange derivative contracts in our ALM activities to manage our interest rate and foreign exchange risks. Specifically, we use those derivatives to manage both the variability in cash flows and changes in fair value of various assets and liabilities arising from those risks. Our interest rate derivative contracts are generally non-leveraged swaps tied to various benchmark interest rates and foreign exchange basis swaps, options, futures and forwards, and our foreign exchange contracts include cross-currency interest rate swaps, foreign currency futures contracts, foreign currency forward contracts and options.

The derivatives used in our ALM activities can be split into two broad categories: designated accounting hedges and other risk management derivatives. Designated accounting hedges are primarily used to manage our exposure to interest rates as described in the Interest Rate Risk Management for the Banking Book section and are included in the sensitivities presented in Table 46. The Corporation also uses foreign currency derivatives in accounting hedges to manage substantially all of the foreign exchange risk of our foreign operations. By hedging the foreign exchange risk of our foreign operations, the Corporation's market risk exposure in this area is not significant.

Risk management derivatives are predominantly used to hedge foreign exchange risks related to various foreign currency-denominated assets and liabilities and eliminate substantially all foreign currency exposures in the cash flows of the Corporation's non-trading foreign currency-denominated financial instruments. These foreign exchange derivatives are sensitive to other market risk exposures such as cross-currency basis spreads and interest rate risk. However, as these features are not a significant component of these foreign exchange derivatives, the market risk related to this exposure is not significant. For more information on the accounting for derivatives, see Note 3 - *Derivatives* to the Consolidated Financial Statements.

Mortgage Banking Risk Management

We originate, fund and service mortgage loans, which subject us to credit, liquidity and interest rate risks, among others. We determine whether loans will be held for investment or held for sale at the time of commitment and manage credit and liquidity risks by selling or securitizing a portion of the loans we originate.

Interest rate risk and market risk can be substantial in the mortgage business. Changes in interest rates and other market factors impact the volume of mortgage originations. Changes in

interest rates also impact the value of interest rate lock commitments (IRLCs) and the related residential first mortgage LHS between the date of the IRLC and the date the loans are sold to the secondary market. An increase in mortgage interest rates typically leads to a decrease in the value of these instruments. Conversely, when there is an increase in interest rates, the value of the MSRs will increase driven by lower prepayment expectations. Because the interest rate risks of these hedged items offset, we combine them into one overall hedged item with one combined economic hedge portfolio consisting of derivative contracts and securities.

During 2022, 2021 and 2020, we recorded gains of \$78 million, \$39 million and \$321 million. For more information on MSRs, see Note 20 - *Fair Value Measurements* to the Consolidated Financial Statements.

Compliance and Operational Risk Management

Compliance risk is the risk of legal or regulatory sanctions, material financial loss or damage to the reputation of the Corporation arising from the failure of the Corporation to comply with the requirements of applicable laws, rules, regulations and our internal policies and procedures (collectively, applicable laws, rules and regulations). We are subject to comprehensive regulation under federal and state laws, rules and regulations in the U.S. and the laws of the various jurisdictions in which we operate, including those related to financial crimes and anti-money laundering, market conduct, trading activities, fair lending, privacy, data protection and unfair, deceptive or abusive acts or practices.

Operational risk is the risk of loss resulting from inadequate or failed processes or systems, people or external events, and includes legal risk. Operational risk may occur anywhere in the Corporation, including third-party business processes, and is not limited to operations functions. The Corporation faces a number of key operational risks including third-party risk, model risk, conduct risk, technology risk, information security risk and data risk. Operational risk can result in financial losses and reputational impacts and is a component in the calculation of total RWA used in the Basel 3 capital calculation. For more information on Basel 3 calculations, see Capital Management on page 96.

FLUs and control functions are first and foremost responsible for managing all aspects of their businesses, including their compliance and operational risk. FLUs and control functions are required to understand their business processes and related risks and controls, including third-party dependencies and the related regulatory requirements, and monitor and report on the effectiveness of the control environment. In order to actively monitor and assess the performance of their processes and controls, they must conduct comprehensive quality assurance activities and identify issues and risks to remediate control gaps and weaknesses. FLUs and control functions must also adhere to compliance and operational risk appetite limits to meet strategic, capital and financial planning objectives. Finally, FLUs and control functions are responsible for the proactive identification, management and escalation of compliance and operational risks across the Corporation. Collectively, these efforts are important to strengthen their compliance and operational resiliency, which is the ability to deliver critical operations through disruption.

Global Compliance and Operational Risk teams independently assess compliance and operational risk, monitor business activities and processes and evaluate FLUs and control functions for adherence to applicable laws, rules and regulations, including identifying issues and risks, and reporting

on the state of the control environment. Corporate Audit provides an independent assessment and validation through testing of key compliance and operational risk processes and controls across the Corporation.

The Corporation's Global Compliance – Enterprise Policy and Operational Risk Management – Enterprise Policy set the requirements for reporting compliance and operational risk information to executive management as well as the Board or appropriate Board-level committees and reflect Global Compliance and Operational Risk's responsibilities for conducting independent oversight of the Corporation's compliance and operational risk management activities. The Board provides oversight of compliance risk through its Audit Committee and the ERC, and operational risk through its ERC.

A key operational risk facing the Corporation is information security, which includes cybersecurity. Cybersecurity risk includes exposure to failures or interruptions of service or security breaches resulting from malicious technological attacks that impact the confidentiality, integrity or availability of our or third parties' operations, systems or data. The Corporation seeks to mitigate information security risk and associated reputational and compliance risk by employing a multi-layered and intelligence-led Global Information Security Program focused on preparing for, preventing, detecting, mitigating, responding to and recovering from cyber threats and incidents and effectively operating the Corporation's processes. Additionally, our business continuity policy, standards and procedures are designed to maintain the availability of business functions and enable impacted units within the Corporation and third parties to achieve strategic objectives in the event of a cybersecurity incident.

The Global Information Security Program is supported by three lines of defense. The Global Information Security Team within the first line of defense is responsible for the day-to-day management of the Global Information Security Program, which includes defining policies and procedures to safeguard the Corporation's information systems and data, conducting vulnerability and third-party information security assessments, information security event management (e.g., responding to ransomware and distributed denial of service attacks), evaluation of external cyber intelligence, supporting industry cybersecurity efforts and working with governmental agencies, and developing employee training to support adherence to the Corporation's policies and procedures. As the second line of defense, Global Compliance and Operational Risk independently assesses, monitors and tests information security risk across the Corporation, as well as the effectiveness of the Global Information Security Program. Corporate Audit serves as the third line of defense, conducting additional independent review and validation of the first-line processes and functions. As part of our Global Information Security Program, we leverage both internal and external assessments and partnerships with industry leaders to help approach information security holistically. Additionally the Corporation maintains a comprehensive enterprise-wide program that defines standards for the planning, sourcing, management, and oversight of third-party relationships and third-party access to its system, facilities, and/or confidential or proprietary data for a business purpose or supervisory function.

Through established governance structures, we have processes to help facilitate appropriate and effective oversight of information security risk. These routines enable our three lines of defense and management to debate information security risks and monitor control performance to allow for further escalation to executive management, management and

Board-level committees or to the Board, as appropriate. The Board is actively engaged in the oversight of Bank of America's Global Information Security Program and devotes significant time and attention to the oversight of cybersecurity and information security risk. The Board regularly discusses cybersecurity and information security risks with the Chief Technology and Information Officer and the Chief Information Security Officer. Additionally, the ERC receives regular reporting, and reviews and approves the Information Security Program and Policy on an annual basis.

Reputational Risk Management

Reputational risk is the risk that negative perception of the Corporation may adversely impact profitability or operations. Reputational risk may result from many of the Corporation's activities, including those related to the management of our strategic, operational, compliance and credit risks.

The Corporation manages reputational risk through established policies and controls embedded throughout its business and risk management processes. We proactively monitor and identify potential reputational risk events and have processes established to mitigate reputational risks in a timely manner. If reputational risk events occur, we focus on remediating the underlying issue and taking action to minimize damage to the Corporation's reputation. The Corporation has processes and procedures in place to respond to events that give rise to reputational risk, including educating individuals and organizations that influence public opinion, implementing external communication strategies to mitigate the risk, and informing key stakeholders of potential reputational risks. The Corporation's organization and governance structure provides oversight of reputational risks. Reputational risk reporting is provided regularly and directly to senior management and the ERC, which provides primary oversight of reputational risk. In addition, each FLU has a committee, which includes representatives from Legal and Risk, that is responsible for the oversight of reputational risk, including approval for business activities that present elevated levels of reputational risks.

Climate Risk Management

Climate-related risks are divided into two major categories: (1) risks related to the physical impacts of climate change, driven by extreme weather events such as hurricanes and floods, as well as chronic longer-term shifts such as rising average global temperatures and sea levels, and (2) risks related to the transition to a low-carbon economy, which may entail extensive policy, legal, technology and market changes. These changes and events may have broad impacts on operations, supply chains, distribution networks, customers and markets and are otherwise referred to, respectively, as physical risk and transition risk. These risks may impact both financial and nonfinancial risk types. Physical risk may lead to increased credit risk by diminishing borrowers' repayment capacity or impacting the value of collateral. Physical risk may also increase operational risk by impacting the Corporation's facilities, employees, customers or vendors. Transition risks may amplify credit risk through the financial impacts of changes in policy, technology or the market on the Corporation or its counterparties. Unanticipated market changes can lead to sudden price adjustments and give rise to heightened market risk. In addition, reputational risk may arise, including from our climate-related practices and disclosures and if we do not meet our climate-related commitments.

Effective management of climate risk requires coordinated governance, clearly defined roles and responsibilities and well-

developed processes to identify, measure, monitor and control risks. As climate risk spans all key risk types, we have developed and continue to enhance processes to embed climate risk considerations into our Risk Framework and risk management programs established for strategic, credit, market, liquidity, compliance, operational and reputational risks. Our Environmental and Social Risk Policy Framework aligns with our Risk Framework and provides additional clarity and transparency regarding our approach to environmental and social risks, inclusive of climate risk.

Our governance framework establishes oversight of climate risk practices and strategies by the Board, supported by its ERC, as well as the MRC and the Responsible Growth Committee, both of which are management-level committees comprised of senior leaders across every major FLU and control function. The Responsible Growth Committee is supported by the ESG Disclosure sub-committee, which is responsible for reviewing and providing oversight of the Corporation's climate and ESG-related public disclosures.

Our climate risk management efforts are overseen by an executive officer who reports to the CRO. The Climate Risk Council, which consists of leaders across risk, FLU and control functions, meets routinely to discuss our approach to managing climate-related risks in line with our Risk Framework.

In 2021, we publicly announced our commitment to achieve net zero emissions in our financing activities, operations, and supply chain before 2050 (Net Zero Goal) and set 2030 emissions targets for our operations and supply chain. In connection with our Net Zero Goal, in 2022, we announced a target to reduce emissions by 2030 associated with our financing activities related to auto manufacturing, energy and power generation (2030 Targets). In our September 2022 Task Force on Climate-related Financial Disclosures Report, we disclosed our 2019 and 2020 financed emissions and emissions intensity metrics for these sectors, with 2019 serving as the baseline for our 2030 Targets.

We plan to disclose the financed emissions for additional portions of our business loan portfolio in 2023, and we plan to set financing activity emission reduction targets for other key sectors by April 2024.

Achieving our climate-related goals and targets, including our Net Zero Goal and 2030 Targets, may require technological advances, clearly defined roadmaps for industry sectors, new standards and public policies, including those that improve the cost of capital for the transition to a low-carbon economy and better emissions data reporting, as well as ongoing, strong and active engagement with customers, suppliers, investors, government officials and other stakeholders.

Given the extended period of these and other climate-related goals we have established, our initiatives have not resulted in a significant effect on our results of operations or financial position in the relevant periods presented herein.

For more information about climate-related matters, including how the Corporation manages climate risk, and the Corporation's climate-related goals and commitments, including our plans to achieve our Net Zero Goal and 2030 Targets and progress on our sustainable finance goals, see the Corporation's website, including our 2022 Task Force on Climate-related Financial Disclosures Report and the 2022

Annual Report to shareholders available on the Investor Relations portion of our website in March 2023. The contents of the Corporation's website and 2022 Annual Report to shareholders are not incorporated by reference into this Annual Report on Form 10-K. For more information on climate-related risks, see Item 1A. Risk Factors of our 2022 Annual Report on Form 10-K.

The foregoing discussion and our discussion in the 2022 Annual Report to shareholders regarding our goals and commitments with respect to climate risk management, including environmental transition considerations, include "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. These statements are not guarantees of future results or performance and involve certain known and unknown risks, uncertainties and assumptions that are difficult to predict and are often beyond the Corporation's control. Actual outcomes and results may differ materially from those expressed in, or implied by, any of these forward-looking statements.

Complex Accounting Estimates

Our significant accounting principles, as described in *Note 1 – Summary of Significant Accounting Principles* to the Consolidated Financial Statements, are essential in understanding the MD&A. Many of our significant accounting principles require complex judgments to estimate the values of assets and liabilities. We have procedures and processes in place to facilitate making these judgments.

The more judgmental estimates are summarized in the following discussion. We have identified and described the development of the variables most important in the estimation processes that involve mathematical models to derive the estimates. In many cases, there are numerous alternative judgments that could be used in the process of determining the inputs to the models. Where alternatives exist, we have used the factors that we believe represent the most reasonable value in developing the inputs. Actual performance that differs from our estimates of the key variables could materially impact our results of operations. Separate from the possible future impact to our results of operations from input and model variables, the value of our lending portfolio and market-sensitive assets and liabilities may change subsequent to the balance sheet date, often significantly, due to the nature and magnitude of future credit and market conditions. Such credit and market conditions may change quickly and in unforeseen ways and the resulting volatility could have a significant, negative effect on future operating results. These fluctuations would not be indicative of deficiencies in our models or inputs.

Allowance for Credit Losses

The allowance for credit losses includes the allowance for loan and lease losses and the reserve for unfunded lending commitments. Our process for determining the allowance for credit losses is discussed in *Note 1 – Summary of Significant Accounting Principles* and *Note 5 – Outstanding Loans and Leases and Allowance for Credit Losses* to the Consolidated Financial Statements.

The determination of the allowance for credit losses is based on numerous estimates and assumptions, which require

a high degree of judgment and are often interrelated. A critical judgment in the process is the weighting of our forward-looking macroeconomic scenarios that are incorporated into our quantitative models. As any one economic outlook is inherently uncertain, the Corporation uses multiple macroeconomic scenarios in its ECL calculation, which have included a baseline scenario derived from consensus estimates, an adverse scenario reflecting an extended moderate recession, a downside scenario reflecting persistent inflation and interest rates above the baseline scenario, a tail risk scenario similar to the severely adverse scenario used in stress testing and an upside scenario that considers the potential for improvement above the baseline scenario. The overall economic outlook is weighted 95 percent towards a recessionary environment in 2023, with continued inflationary pressures leading to lower gross domestic product (GDP) and higher unemployment rate expectations as compared to the prior year. Generally, as the consensus estimates improve or deteriorate, the allowance for credit losses will change in a similar direction. There are multiple variables that drive the macroeconomic scenarios with the key variables including, but not limited to, U.S. GDP and unemployment rates. As of December 31, 2021, the weighted macroeconomic outlook for the U.S. average unemployment rate was forecasted at 5.2 percent, 4.7 percent and 4.3 percent in the fourth quarters of 2022, 2023 and 2024, respectively, and the weighted macroeconomic outlook for U.S. GDP was forecasted to grow at 2.1 percent, 1.9 percent and 1.9 percent year-over-year in the fourth quarters of 2022, 2023 and 2024, respectively. As of December 31, 2022, the latest consensus estimates for the U.S. average unemployment rate for the fourth quarter of 2022 was 3.7 percent and U.S. GDP was forecasted to grow 0.4 percent year-over-year in the fourth quarter of 2022, reflecting a tighter labor market and depressed growth expectations compared to our macroeconomic outlook as of December 31, 2021, and were factored into our allowance for credit losses estimate as of December 31, 2022. In addition, as of December 31, 2022, the weighted macroeconomic outlook for the U.S. average unemployment rate was forecasted at 5.6 percent and 5.0 percent in the fourth quarters of 2023 and 2024, and the weighted macroeconomic outlook for U.S. GDP was forecasted to contract 0.4 percent and grow 1.2 percent year-over-year in the fourth quarters of 2023 and 2024.

In addition to the above judgments and estimates, the allowance for credit losses can also be impacted by unanticipated changes in asset quality of the portfolio, such as increases or decreases in credit and/or internal risk ratings in our commercial portfolio, improvement or deterioration in borrower delinquencies or credit scores in our credit card portfolio and increases or decreases in home prices, which is a primary driver of LTVs, in our consumer real estate portfolio, all of which have some degree of uncertainty. The allowance for credit losses increased to \$14.2 billion from \$13.8 billion at December 31, 2021, primarily due to loan growth and a dampened macroeconomic outlook in 2022.

To provide an illustration of the sensitivity of the macroeconomic scenarios and other assumptions on the estimate of our allowance for credit losses, the Corporation compared the December 31, 2022 modeled ECL from the baseline scenario and our adverse scenario. Relative to the baseline scenario, the adverse scenario assumed a peak U.S. unemployment rate of nearly three percentage points higher than the baseline scenario, a decline in U.S. GDP followed by a prolonged recovery and a lower home price outlook with a difference of approximately eight percent at the trough. This

sensitivity analysis resulted in a hypothetical increase in the allowance for credit losses of approximately \$4 billion.

While the sensitivity analysis may be useful to understand how changes in macroeconomic assumptions could impact our modeled ECLs, it is not meant to forecast how our allowance for credit losses is expected to change in a different macroeconomic outlook. Importantly, the analysis does not incorporate a variety of factors, including qualitative reserves and the weighting of alternate scenarios, which could have offsetting effects on the estimate. Considering the variety of factors contemplated when developing and weighting macroeconomic outlooks such as recent economic events, leading economic indicators, views of internal and third-party economists and industry trends, in addition to other qualitative factors, the Corporation believes the allowance for credit losses at December 31, 2022 is appropriate.

Fair Value of Financial Instruments

Under applicable accounting standards, we are required to maximize the use of observable inputs and minimize the use of unobservable inputs in measuring fair value. We classify fair value measurements of financial instruments and MSRs based on the three-level fair value hierarchy in the accounting standards.

The fair values of assets and liabilities may include adjustments, such as market liquidity and credit quality, where appropriate. Valuations of products using models or other techniques are sensitive to assumptions used for the significant inputs. Where market data is available, the inputs used for valuation reflect that information as of our valuation date. Inputs to valuation models are considered unobservable if they are supported by little or no market activity. In periods of extreme volatility, lessened liquidity or in illiquid markets, there may be more variability in market pricing or a lack of market data to use in the valuation process. In keeping with the prudent application of estimates and management judgment in determining the fair value of assets and liabilities, we have in place various processes and controls that include: a model validation policy that requires review and approval of quantitative models used for deal pricing, financial statement fair value determination and risk quantification; a trading product valuation policy that requires verification of all traded product valuations; and a periodic review and substantiation of daily profit and loss reporting for all traded products. Primarily through validation controls, we utilize both broker and pricing service inputs which can and do include both market-observable and internally-modeled values and/or valuation inputs. Our reliance on this information is affected by our understanding of how the broker and/or pricing service develops its data with a higher degree of reliance applied to those that are more directly observable and lesser reliance applied to those developed through their own internal modeling. For example, broker quotes in less active markets may only be indicative and therefore less reliable. These processes and controls are performed independently of the business. For more information, see *Note 20 – Fair Value Measurements* and *Note 21 – Fair Value Option* to the Consolidated Financial Statements.

Level 3 Assets and Liabilities

Financial assets and liabilities, and MSRs, where values are based on valuation techniques that require inputs that are both unobservable and are significant to the overall fair value measurement are classified as Level 3 under the fair value hierarchy established in applicable accounting standards. The fair value of these Level 3 financial assets and liabilities and

MSRs is determined using pricing models, discounted cash flow methodologies or similar techniques for which the determination of fair value requires significant management judgment or estimation.

Level 3 financial instruments may be hedged with derivatives classified as Level 1 or 2; therefore, gains or losses associated with Level 3 financial instruments may be offset by gains or losses associated with financial instruments classified in other levels of the fair value hierarchy. The Level 3 gains and losses recorded in earnings did not have a significant impact on our liquidity or capital. We conduct a review of our fair value hierarchy classifications on a quarterly basis. Transfers into or out of Level 3 are made if the significant inputs used in the financial models measuring the fair values of the assets and liabilities became unobservable or observable, respectively, in the current marketplace. For more information on transfers into and out of Level 3 during 2022, 2021 and 2020, see *Note 20 – Fair Value Measurements* to the Consolidated Financial Statements.

Accrued Income Taxes and Deferred Tax Assets

Accrued income taxes, reported as a component of either other assets or accrued expenses and other liabilities on the Consolidated Balance Sheet, represent the net amount of current income taxes we expect to pay to or receive from various taxing jurisdictions attributable to our operations to date. We currently file income tax returns in more than 100 jurisdictions and consider many factors, including statutory, judicial and regulatory guidance, in estimating the appropriate accrued income taxes for each jurisdiction.

Net deferred tax assets, reported as a component of other assets on the Consolidated Balance Sheet, represent the net decrease in taxes expected to be paid in the future because of net operating loss (NOL) and tax credit carryforwards and

because of future reversals of temporary differences in the bases of assets and liabilities as measured by tax laws and their bases as reported in the financial statements. NOL and tax credit carryforwards result in reductions to future tax liabilities, and many of these attributes can expire if not utilized within certain periods. We consider the need for valuation allowances to reduce net deferred tax assets to the amounts that we estimate are more likely than not to be realized.

Consistent with the applicable accounting guidance, we monitor relevant tax authorities and change our estimates of accrued income taxes and/or net deferred tax assets due to changes in income tax laws and their interpretation by the courts and regulatory authorities. These revisions of our estimates, which also may result from our income tax planning and from the resolution of income tax audit matters, may be material to our operating results for any given period.

See *Note 19 – Income Taxes* to the Consolidated Financial Statements for a table of significant tax attributes and additional information. For more information, see Item 1A. Risk Factors of our 2022 Annual Report on Form 10-K.

Goodwill and Intangible Assets

The nature of and accounting for goodwill and intangible assets are discussed in *Note 1 – Summary of Significant Accounting Principles*, and *Note 7 – Goodwill and Intangible Assets* to the Consolidated Financial Statements.

We completed our annual goodwill impairment test as of June 30, 2022. Based on our assessment, we have concluded that goodwill was not impaired.

Certain Contingent Liabilities

For more information on the complex judgments associated with certain contingent liabilities, see *Note 12 – Commitments and Contingencies* to the Consolidated Financial Statements.

Non-GAAP Reconciliations

Tables 47 and 48 provide reconciliations of certain non-GAAP financial measures to GAAP financial measures.

Table 47 Annual Reconciliations to GAAP Financial Measures ⁽¹⁾

(Dollars in millions, shares in thousands)	2022	2021	2020
Reconciliation of average shareholders' equity to average tangible shareholders' equity and average tangible common shareholders' equity			
Shareholders' equity	\$ 270,299	\$ 273,757	\$ 267,309
Goodwill	(69,022)	(69,005)	(68,951)
Intangible assets (excluding MSRs)	(2,117)	(2,177)	(1,862)
Related deferred tax liabilities	922	916	821
Tangible shareholders' equity	\$ 200,082	\$ 203,491	\$ 197,317
Preferred stock	(28,318)	(23,970)	(23,624)
Tangible common shareholders' equity	\$ 171,764	\$ 179,521	\$ 173,693
Reconciliation of year-end shareholders' equity to year-end tangible shareholders' equity and year-end tangible common shareholders' equity			
Shareholders' equity	\$ 273,197	\$ 270,066	\$ 272,924
Goodwill	(69,022)	(69,022)	(68,951)
Intangible assets (excluding MSRs)	(2,075)	(2,153)	(2,151)
Related deferred tax liabilities	899	929	920
Tangible shareholders' equity	\$ 202,999	\$ 199,820	\$ 202,742
Preferred stock	(28,397)	(24,708)	(24,510)
Tangible common shareholders' equity	\$ 174,602	\$ 175,112	\$ 178,232
Reconciliation of year-end assets to year-end tangible assets			
Assets	\$ 3,051,375	\$ 3,169,495	\$ 2,819,627
Goodwill	(69,022)	(69,022)	(68,951)
Intangible assets (excluding MSRs)	(2,075)	(2,153)	(2,151)
Related deferred tax liabilities	899	929	920
Tangible assets	\$ 2,981,177	\$ 3,099,249	\$ 2,749,445

⁽¹⁾ Presents reconciliations of non-GAAP financial measures to GAAP financial measures. For more information on non-GAAP financial measures and ratios we use in assessing the results of the Corporation, see Supplemental Financial Data on page 79.

Table 48 Quarterly Reconciliations to GAAP Financial Measures ⁽¹⁾

(Dollars in millions)	2022 Quarters				2021 Quarters			
	Fourth	Third	Second	First	Fourth	Third	Second	First
Reconciliation of average shareholders' equity to average tangible shareholders' equity and average tangible common shareholders' equity								
Shareholders' equity	\$ 272,629	\$ 271,017	\$ 268,197	\$ 269,309	\$ 270,883	\$ 275,484	\$ 274,632	\$ 274,047
Goodwill	(69,022)	(69,022)	(69,022)	(69,022)	(69,022)	(69,023)	(69,023)	(68,951)
Intangible assets (excluding MSRs)	(2,088)	(2,107)	(2,127)	(2,146)	(2,166)	(2,185)	(2,212)	(2,146)
Related deferred tax liabilities	914	920	926	929	913	915	915	920
Tangible shareholders' equity	\$ 202,433	\$ 200,808	\$ 197,974	\$ 199,070	\$ 200,608	\$ 205,191	\$ 204,312	\$ 203,870
Preferred stock	(28,982)	(29,134)	(28,674)	(26,444)	(24,364)	(23,441)	(23,684)	(24,399)
Tangible common shareholders' equity	\$ 173,451	\$ 171,674	\$ 169,300	\$ 172,626	\$ 176,244	\$ 181,750	\$ 180,628	\$ 179,471
Reconciliation of period-end shareholders' equity to period-end tangible shareholders' equity and period-end tangible common shareholders' equity								
Shareholders' equity	\$ 273,197	\$ 269,524	\$ 269,118	\$ 266,617	\$ 270,066	\$ 272,464	\$ 277,119	\$ 274,000
Goodwill	(69,022)	(69,022)	(69,022)	(69,022)	(69,022)	(69,023)	(69,023)	(68,951)
Intangible assets (excluding MSRs)	(2,075)	(2,094)	(2,114)	(2,133)	(2,153)	(2,172)	(2,192)	(2,134)
Related deferred tax liabilities	899	915	920	926	929	913	915	915
Tangible shareholders' equity	\$ 202,999	\$ 199,323	\$ 198,902	\$ 196,388	\$ 199,820	\$ 202,182	\$ 206,819	\$ 203,830
Preferred stock	(28,397)	(29,134)	(29,134)	(27,137)	(24,708)	(23,441)	(23,441)	(24,319)
Tangible common shareholders' equity	\$ 174,602	\$ 170,189	\$ 169,768	\$ 169,251	\$ 175,112	\$ 178,741	\$ 183,378	\$ 179,511
Reconciliation of period-end assets to period-end tangible assets								
Assets	\$ 3,051,375	\$ 3,072,953	\$ 3,111,606	\$ 3,238,223	\$ 3,169,495	\$ 3,085,446	\$ 3,029,894	\$ 2,969,992
Goodwill	(69,022)	(69,022)	(69,022)	(69,022)	(69,022)	(69,023)	(69,023)	(68,951)
Intangible assets (excluding MSRs)	(2,075)	(2,094)	(2,114)	(2,133)	(2,153)	(2,172)	(2,192)	(2,134)
Related deferred tax liabilities	899	915	920	926	929	913	915	915
Tangible assets	\$ 2,981,177	\$ 3,002,752	\$ 3,041,390	\$ 3,167,994	\$ 3,099,249	\$ 3,015,164	\$ 2,959,594	\$ 2,899,822

⁽¹⁾ Presents reconciliations of non-GAAP financial measures to GAAP financial measures. For more information on non-GAAP financial measures and ratios we use in assessing the results of the Corporation, see Supplemental Financial Data on page 79.

Financial Statements and Notes

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Report of Management on Internal Control Over Financial Reporting

Bank of America Corporation and Subsidiaries

The management of Bank of America Corporation is responsible for establishing and maintaining adequate internal control over financial reporting.

The Corporation'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 accounting principles generally accepted in the United States of America. The Corporation's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Corporation; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with accounting principles generally accepted in the United States of America, and that receipts and expenditures of the Corporation are being made only in accordance with authorizations of management and directors of the Corporation; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the Corporation'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.

Management assessed the effectiveness of the Corporation's internal control over financial reporting as of December 31, 2022 based on the framework set forth by the Committee of Sponsoring Organizations of the Treadway Commission in *Internal Control - Integrated Framework (2013)*. Based on that assessment, management concluded that, as of December 31, 2022, the Corporation's internal control over financial reporting is effective.

The Corporation's internal control over financial reporting as of December 31, 2022 has been audited by PricewaterhouseCoopers, LLP, an independent registered public accounting firm, as stated in their accompanying report which expresses an unqualified opinion on the effectiveness of the Corporation's internal control over financial reporting as of December 31, 2022.



Brian T. Moynihan
Chair, Chief Executive Officer and President



Alastair M. Borthwick
Chief Financial Officer

Report of Independent Registered Public Accounting Firm

Bank of America Corporation and Subsidiaries

To the Board of Directors and Shareholders of Bank of America Corporation

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Bank of America Corporation and its subsidiaries (the "Corporation") as of December 31, 2022 and 2021, and the related consolidated statements of income, comprehensive income, changes in shareholders' equity and cash flows for each of the three years in the period ended December 31, 2022, including the related notes (collectively referred to as the "consolidated financial statements"). We also have audited the Corporation's internal control over financial reporting as of December 31, 2022, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Corporation as of December 31, 2022 and 2021, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2022 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Corporation maintained, in all material respects, effective internal control over financial reporting as of December 31, 2022, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Change in Accounting Principle

As discussed in Note 1 to the consolidated financial statements, the Corporation changed the manner in which it accounts for credit losses on certain financial instruments in 2020.

Basis for Opinions

The Corporation'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 Report of Management on Internal Control Over Financial Reporting. Our responsibility is to express opinions on the Corporation's consolidated financial statements and on the Corporation'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 Corporation 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 (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with 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 (iii) 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 (i) relate to accounts or disclosures that are material to the consolidated financial statements and (ii) 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.

Allowance for Loan and Lease Losses - Commercial and Consumer Card Loans

As described in Notes 1 and 5 to the consolidated financial statements, the allowance for loan and lease losses represents management's estimate of the expected credit losses in the

Corporation's loan and lease portfolio, excluding loans and unfunded lending commitments accounted for under the fair value option. As of December 31, 2022, the allowance for loan and lease losses was \$12.7 billion on total loans and leases of \$1,040.0 billion, which excludes loans accounted for under the fair value option. For commercial and consumer card loans, the expected credit loss is typically estimated using quantitative methods that consider a variety of factors such as historical loss experience, the current credit quality of the portfolio as well as an economic outlook over the life of the loan. In its loss forecasting framework, the Corporation incorporates forward looking information through the use of macroeconomic scenarios applied over the forecasted life of the assets. These macroeconomic scenarios include variables that have historically been key drivers of increases and decreases in credit losses. These variables include, but are not limited to, unemployment rates, real estate prices, gross domestic product levels and corporate bond spreads. The scenarios that are chosen and the weighting given to each scenario depend on a variety of factors including recent economic events, leading economic indicators, views of internal as well as third-party economists and industry trends. Also included in the allowance for loan and lease losses are qualitative reserves to cover losses that are expected but, in the Corporation's assessment, may not be adequately reflected in the quantitative methods or the economic assumptions. Factors that the Corporation considers include changes in lending policies and procedures, business conditions, the nature and size of the portfolio, portfolio concentrations, the volume and severity of past due loans and nonaccrual loans, the effect of external factors such as competition, and legal and regulatory requirements, among others. Further, the Corporation considers the inherent uncertainty in quantitative models that are built on historical data.

The principal considerations for our determination that performing procedures relating to the allowance for loan and lease losses for the commercial and consumer card portfolios is a critical audit matter are (i) the significant judgment and estimation by management in developing lifetime economic forecast scenarios, related weightings to each scenario and certain qualitative reserves, which in turn led to a high degree of auditor judgment, subjectivity and effort in performing procedures and in evaluating audit evidence obtained, and (ii) the audit effort involved professionals with specialized skill and knowledge.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to the allowance for loan and lease losses, including controls over the evaluation and approval of models, forecast scenarios and related weightings, and qualitative reserves. These procedures also included, among others, testing management's process for estimating the allowance for loan and lease losses, including (i) evaluating the appropriateness of the loss forecast models and methodology, (ii) evaluating the reasonableness of certain macroeconomic variables, (iii) evaluating the reasonableness of management's development, selection and weighting of lifetime economic forecast scenarios used in the loss forecast models, (iv) testing the completeness and accuracy of data used in the estimate, and (v) evaluating the reasonableness of certain qualitative reserves made to the

model output results to determine the overall allowance for loan and lease losses. The procedures also included the involvement of professionals with specialized skill and knowledge to assist in evaluating the appropriateness of certain loss forecast models, the reasonableness of economic forecast scenarios and related weightings and the reasonableness of certain qualitative reserves.

Valuation of Certain Level 3 Financial Instruments

As described in Notes 1 and 20 to the consolidated financial statements, the Corporation carries certain financial instruments at fair value, which includes \$10.7 billion of assets and \$7.1 billion of liabilities classified as Level 3 fair value measurements that are valued on a recurring basis and \$3.4 billion of assets classified as Level 3 fair value measurements that are valued on a nonrecurring basis, for which the determination of fair value requires significant management judgment or estimation. The Corporation determines the fair value of Level 3 financial instruments using pricing models, discounted cash flow methodologies, or similar techniques that require inputs that are both unobservable and are significant to the overall fair value measurement. Unobservable inputs, such as volatility or implied yield, may be determined using quantitative-based extrapolations, pricing models or other internal methodologies which incorporate management estimates and available market information.

The principal considerations for our determination that performing procedures relating to the valuation of certain Level 3 financial instruments is a critical audit matter are the significant judgment and estimation used by management to determine the fair value of these financial instruments, which in turn led to a high degree of auditor judgment, subjectivity and effort in performing procedures and in evaluating audit evidence obtained, including the involvement of professionals with specialized skill and knowledge.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to the valuation of financial instruments, including controls related to valuation models, significant unobservable inputs, and data. These procedures also included, among others, the involvement of professionals with specialized skill and knowledge to assist in developing an independent estimate of fair value for a sample of these certain financial instruments and comparison of management's estimate to the independently developed estimate of fair value. Developing the independent estimate involved testing the completeness and accuracy of data provided by management and evaluating the reasonableness of management's significant unobservable inputs.



Charlotte, North Carolina
February 22, 2023

We have served as the Corporation's auditor since 1958.

Bank of America Corporation and Subsidiaries

Consolidated Statement of Income

(In millions, except per share information)

	2022	2021	2020
Net interest income			
Interest income	\$ 72,565	\$ 47,672	\$ 51,585
Interest expense	20,103	4,738	8,225
Net interest income	52,462	42,934	43,360
Noninterest income			
Fees and commissions	33,212	39,299	34,551
Market making and similar activities	12,075	8,691	8,355
Other income	(2,799)	(1,811)	(738)
Total noninterest income	42,488	46,179	42,168
Total revenue, net of interest expense	94,950	89,113	85,528
Provision for credit losses	2,543	(4,594)	11,320
Noninterest expense			
Compensation and benefits	36,447	36,140	32,725
Occupancy and equipment	7,071	7,138	7,141
Information processing and communications	6,279	5,769	5,222
Product delivery and transaction related	3,653	3,881	3,433
Professional fees	2,142	1,775	1,694
Marketing	1,825	1,939	1,701
Other general operating	4,021	3,089	3,297
Total noninterest expense	61,438	59,731	55,213
Income before income taxes	30,969	33,976	18,995
Income tax expense	3,441	1,998	1,101
Net income	\$ 27,528	\$ 31,978	\$ 17,894
Preferred stock dividends and other	1,513	1,421	1,421
Net income applicable to common shareholders	\$ 26,015	\$ 30,557	\$ 16,473
Per common share information			
Earnings	\$ 3.21	\$ 3.60	\$ 1.88
Diluted earnings	3.19	3.57	1.87
Average common shares issued and outstanding	8,113.7	8,493.3	8,753.2
Average diluted common shares issued and outstanding	8,167.5	8,558.4	8,796.9

Consolidated Statement of Comprehensive Income

(Dollars in millions)

	2022	2021	2020
Net income	\$ 27,528	\$ 31,978	\$ 17,894
Other comprehensive income (loss), net-of-tax:			
Net change in debt securities	(6,028)	(2,077)	4,799
Net change in debit valuation adjustments	755	356	(498)
Net change in derivatives	(10,055)	(2,306)	826
Employee benefit plan adjustments	(667)	624	(98)
Net change in foreign currency translation adjustments	(57)	(45)	(52)
Other comprehensive income (loss)	(16,052)	(3,448)	4,977
Comprehensive income (loss)	\$ 11,476	\$ 28,530	\$ 22,871

See accompanying Notes to Consolidated Financial Statements.

Bank of America Corporation and Subsidiaries

Consolidated Balance Sheet

	December 31	
	2022	2021
(Dollars in millions)		
Assets		
Cash and due from banks	\$ 30,334	\$ 29,222
Interest-bearing deposits with the Federal Reserve, non-U.S. central banks and other banks	199,869	318,999
Cash and cash equivalents	230,203	348,221
Time deposits placed and other short-term investments	7,259	7,144
Federal funds sold and securities borrowed or purchased under agreements to resell (includes \$146,999 and \$150,665 measured at fair value)	267,574	250,720
Trading account assets (includes \$115,505 and \$103,434 pledged as collateral)	296,108	247,080
Derivative assets	48,642	35,344
Debt securities:		
Carried at fair value	229,994	308,073
Held-to-maturity, at cost (fair value – \$524,267 and \$665,890)	632,825	674,554
Total debt securities	862,819	982,627
Loans and leases (includes \$5,771 and \$7,819 measured at fair value)	1,045,747	979,124
Allowance for loan and lease losses	(12,682)	(12,387)
Loans and leases, net of allowance	1,033,065	966,737
Premises and equipment, net	11,510	10,833
Goodwill	69,022	69,022
Loans held-for-sale (includes \$1,115 and \$4,455 measured at fair value)	6,871	15,635
Customer and other receivables	67,543	72,263
Other assets (includes \$9,594 and \$12,144 measured at fair value)	150,759	163,869
Total assets	\$ 3,051,375	\$ 3,169,495
Liabilities		
Deposits in U.S. offices:		
Noninterest-bearing	\$ 640,745	\$ 784,189
Interest-bearing (includes \$311 and \$408 measured at fair value)	1,182,590	1,165,914
Deposits in non-U.S. offices:		
Noninterest-bearing	20,480	27,457
Interest-bearing	86,526	86,886
Total deposits	1,930,341	2,064,446
Federal funds purchased and securities loaned or sold under agreements to repurchase (includes \$151,708 and \$139,641 measured at fair value)	195,635	192,329
Trading account liabilities	80,399	100,690
Derivative liabilities	44,816	37,675
Short-term borrowings (includes \$832 and \$4,279 measured at fair value)	26,932	23,753
Accrued expenses and other liabilities (includes \$9,752 and \$11,489 measured at fair value and \$1,540 and \$1,456 of reserve for unfunded lending commitments)	224,073	200,419
Long-term debt (includes \$33,070 and \$29,708 measured at fair value)	275,982	280,117
Total liabilities	2,778,178	2,899,429
Commitments and contingencies (Note 6 – Securitizations and Other Variable Interest Entities and Note 12 – Commitments and Contingencies)		
Shareholders' equity		
Preferred stock, \$0.01 par value; authorized – 100,000,000 shares; issued and outstanding – 4,088,101 and 3,939,686 shares	28,397	24,708
Common stock and additional paid-in capital, \$0.01 par value; authorized – 12,800,000,000 shares; issued and outstanding – 7,996,777,943 and 8,077,831,463 shares	58,953	62,398
Retained earnings	207,003	188,064
Accumulated other comprehensive income (loss)	(21,156)	(5,104)
Total shareholders' equity	273,197	270,066
Total liabilities and shareholders' equity	\$ 3,051,375	\$ 3,169,495
Assets of consolidated variable interest entities included in total assets above (isolated to settle the liabilities of the variable interest entities)		
Trading account assets	\$ 2,816	\$ 5,004
Loans and leases	16,738	17,135
Allowance for loan and lease losses	(797)	(958)
Loans and leases, net of allowance	15,941	16,177
All other assets	116	189
Total assets of consolidated variable interest entities	\$ 18,873	\$ 21,370
Liabilities of consolidated variable interest entities included in total liabilities above		
Short-term borrowings (includes \$42 and \$51 of non-recourse short-term borrowings)	\$ 42	\$ 247
Long-term debt (includes \$4,581 and \$3,587 of non-recourse debt)	4,581	3,587
All other liabilities (includes \$13 and \$7 of non-recourse liabilities)	13	7
Total liabilities of consolidated variable interest entities	\$ 4,636	\$ 3,841

See accompanying Notes to Consolidated Financial Statements.

Bank of America Corporation and Subsidiaries

Consolidated Statement of Changes in Shareholders' Equity

(In millions)	Preferred Stock	Common Stock and Additional Paid-in Capital		Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Total Shareholders' Equity
		Shares	Amount			
Balance, December 31, 2019	\$ 23,401	8,836.1	\$ 91,723	\$ 156,319	\$ (6,633)	\$ 264,810
Cumulative adjustment for adoption of credit loss accounting standard				(2,406)		(2,406)
Net income				17,894		17,894
Net change in debt securities					4,799	4,799
Net change in debit valuation adjustments					(498)	(498)
Net change in derivatives					826	826
Employee benefit plan adjustments					(98)	(98)
Net change in foreign currency translation adjustments					(52)	(52)
Dividends declared:						
Common				(6,289)		(6,289)
Preferred				(1,421)		(1,421)
Issuance of preferred stock	2,181					2,181
Redemption of preferred stock	(1,072)					(1,072)
Common stock issued under employee plans, net, and other		41.7	1,284	(9)		1,275
Common stock repurchased		(227.0)	(7,025)			(7,025)
Balance, December 31, 2020	\$ 24,510	8,650.8	\$ 85,982	\$ 164,088	\$ (1,656)	\$ 272,924
Net income				31,978		31,978
Net change in debt securities					(2,077)	(2,077)
Net change in debit valuation adjustments					356	356
Net change in derivatives					(2,306)	(2,306)
Employee benefit plan adjustments					624	624
Net change in foreign currency translation adjustments					(45)	(45)
Dividends declared:						
Common				(6,575)		(6,575)
Preferred				(1,421)		(1,421)
Issuance of preferred stock	2,169					2,169
Redemption of preferred stock	(1,971)					(1,971)
Common stock issued under employee plans, net, and other		42.3	1,542	(6)		1,536
Common stock repurchased		(615.3)	(25,126)			(25,126)
Balance, December 31, 2021	\$ 24,708	8,077.8	\$ 62,398	\$ 188,064	\$ (5,104)	\$ 270,066
Net income				27,528		27,528
Net change in debt securities					(6,028)	(6,028)
Net change in debit valuation adjustments					755	755
Net change in derivatives					(10,055)	(10,055)
Employee benefit plan adjustments					(667)	(667)
Net change in foreign currency translation adjustments					(57)	(57)
Dividends declared:						
Common				(6,963)		(6,963)
Preferred				(1,596)		(1,596)
Issuance of preferred stock	4,426					4,426
Redemption of preferred stock	(737)		83			(654)
Common stock issued under employee plans, net, and other		44.9	1,545	(30)		1,515
Common stock repurchased		(125.9)	(5,073)			(5,073)
Balance, December 31, 2022	\$ 28,397	7,996.8	\$ 58,953	\$ 207,003	\$ (21,156)	\$ 273,197

See accompanying Notes to Consolidated Financial Statements.

Bank of America Corporation and Subsidiaries

Consolidated Statement of Cash Flows

(Dollars in millions)	2022	2021	2020
Operating activities			
Net income	\$ 27,528	\$ 31,978	\$ 17,894
Adjustments to reconcile net income to net cash provided by operating activities:			
Provision for credit losses	2,543	(4,594)	11,320
Gains on sales of debt securities	(32)	(22)	(411)
Depreciation and amortization	1,978	1,898	1,843
Net amortization of premium/discount on debt securities	2,072	5,837	4,101
Deferred income taxes	739	(838)	(1,737)
Stock-based compensation	2,862	2,768	2,031
Loans held-for-sale:			
Originations and purchases	(24,862)	(43,635)	(19,657)
Proceeds from sales and paydowns of loans originally classified as held for sale and instruments from related securitization activities	31,567	34,684	19,049
Net change in:			
Trading and derivative assets/liabilities	(95,772)	(22,104)	16,942
Other assets	20,799	(34,455)	(12,883)
Accrued expenses and other liabilities	23,029	16,639	(4,385)
Other operating activities, net	1,222	4,651	3,886
Net cash provided by (used in) operating activities	(6,327)	(7,193)	37,993
Investing activities			
Net change in:			
Time deposits placed and other short-term investments	(115)	(598)	561
Federal funds sold and securities borrowed or purchased under agreements to resell	(16,854)	53,338	(29,461)
Debt securities carried at fair value:			
Proceeds from sales	69,114	6,893	77,524
Proceeds from paydowns and maturities	110,195	159,616	91,084
Purchases	(134,962)	(238,398)	(194,877)
Held-to-maturity debt securities:			
Proceeds from paydowns and maturities	63,852	124,880	93,835
Purchases	(24,096)	(362,736)	(257,535)
Loans and leases:			
Proceeds from sales of loans originally classified as held for investment and instruments from related securitization activities	26,757	10,396	13,351
Purchases	(5,798)	(5,164)	(5,229)
Other changes in loans and leases, net	(86,010)	(58,039)	36,571
Other investing activities, net	(4,612)	(3,479)	(3,489)
Net cash used in investing activities	(2,529)	(313,291)	(177,665)
Financing activities			
Net change in:			
Deposits	(134,190)	268,966	360,677
Federal funds purchased and securities loaned or sold under agreements to repurchase	3,306	22,006	5,214
Short-term borrowings	3,179	4,432	(4,893)
Long-term debt:			
Proceeds from issuance	65,910	76,675	57,013
Retirement	(34,055)	(46,826)	(47,948)
Preferred stock:			
Proceeds from issuance	4,426	2,169	2,181
Redemption	(654)	(1,971)	(1,072)
Common stock repurchased	(5,073)	(25,126)	(7,025)
Cash dividends paid	(8,576)	(8,055)	(7,727)
Other financing activities, net	(312)	(620)	(601)
Net cash provided by (used in) financing activities	(106,039)	291,650	355,819
Effect of exchange rate changes on cash and cash equivalents	(3,123)	(3,408)	2,756
Net increase (decrease) in cash and cash equivalents	(118,018)	(32,242)	218,903
Cash and cash equivalents at January 1	348,221	380,463	161,560
Cash and cash equivalents at December 31	\$ 230,203	\$ 348,221	\$ 380,463
Supplemental cash flow disclosures			
Interest paid	\$ 18,526	\$ 4,506	\$ 8,662
Income taxes paid, net	2,288	2,760	2,894

See accompanying Notes to Consolidated Financial Statements.

Bank of America Corporation and Subsidiaries

Notes to Consolidated Financial Statements

NOTE 1 Summary of Significant Accounting Principles

Bank of America Corporation, a bank holding company and a financial holding company, provides a diverse range of financial services and products throughout the U.S. and in certain international markets. The term “the Corporation” as used herein may refer to Bank of America Corporation, individually, Bank of America Corporation and its subsidiaries, or certain of Bank of America Corporation’s subsidiaries or affiliates.

Principles of Consolidation and Basis of Presentation

The Consolidated Financial Statements include the accounts of the Corporation and its majority-owned subsidiaries and those variable interest entities (VIEs) where the Corporation is the primary beneficiary. Intercompany accounts and transactions have been eliminated. Results of operations of acquired companies are included from the dates of acquisition, and for VIEs, from the dates that the Corporation became the primary beneficiary. Assets held in an agency or fiduciary capacity are not included in the Consolidated Financial Statements. The Corporation accounts for investments in companies for which it owns a voting interest and for which it has the ability to exercise significant influence over operating and financing decisions using the equity method of accounting. These investments, which include the Corporation’s interests in affordable housing and renewable energy partnerships, are recorded in other assets. Equity method investments are subject to impairment testing, and the Corporation’s proportionate share of income or loss is included in other income.

The preparation of the Consolidated Financial Statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect reported amounts and disclosures. Actual results could materially differ from those estimates and assumptions. Certain prior-period amounts have been reclassified to conform to current period presentation.

New Accounting Standards

Hedge Accounting

The FASB issued a new accounting standard that makes targeted improvements to the application of the fair value hedge accounting guidance for closed portfolios of financial assets. The targeted improvements were effective January 1, 2023 on a prospective basis.

Financial Instruments – Credit Losses

The FASB amended the accounting and disclosure requirements for expected credit losses (ECL) by removing the recognition and measurement guidance on troubled debt restructurings (TDRs) and adding disclosures on the financial effect and subsequent performance of certain types of modifications made to borrowers experiencing financial difficulties. The effects of these changes on the Corporation’s consolidated financial position, results of operations or disclosures in the Notes to the Consolidated Financial Statements are not significant. The amendments were effective on January 1, 2023, which the Corporation adopted using a modified retrospective approach.

Significant Accounting Principles

Cash and Cash Equivalents

Cash and cash equivalents include cash on hand, cash items in the process of collection, cash segregated under federal and other brokerage regulations, and amounts due from correspondent banks, the Federal Reserve Bank and certain non-U.S. central banks. Certain cash balances are restricted as to withdrawal or usage by legally binding contractual agreements or regulatory requirements.

Securities Financing Agreements

Securities borrowed or purchased under agreements to resell and securities loaned or sold under agreements to repurchase (securities financing agreements) are treated as collateralized financing transactions except in instances where the transaction is required to be accounted for as individual sale and purchase transactions. Generally, these agreements are recorded at acquisition or sale price plus accrued interest. In instances where the interest is negative, the Corporation’s policy is to present negative interest on financial assets as interest income and negative interest on financial liabilities as interest expense. For securities financing agreements that are accounted for under the fair value option, the changes in the fair value of these securities financing agreements are recorded in market making and similar activities in the Consolidated Statement of Income.

The Corporation’s policy is to monitor the market value of the principal amount loaned under resale agreements and obtain collateral from or return collateral pledged to counterparties when appropriate. Securities financing agreements do not create material credit risk due to these collateral provisions; therefore, an allowance for loan losses is not necessary.

In transactions where the Corporation acts as the lender in a securities lending agreement and receives securities that can be pledged or sold as collateral, it recognizes an asset on the Consolidated Balance Sheet at fair value, representing the securities received, and a liability, representing the obligation to return those securities.

Trading Instruments

Financial instruments utilized in trading activities are carried at fair value. Fair value is generally based on quoted market prices for the same or similar assets and liabilities. If these market prices are not available, fair values are estimated based on dealer quotes, pricing models, discounted cash flow methodologies, or similar techniques where the determination of fair value may require significant management judgment or estimation. Realized gains and losses are recorded on a trade-date basis. Realized and unrealized gains and losses are recognized in market making and similar activities.

Derivatives and Hedging Activities

Derivatives are entered into on behalf of customers, for trading or to support risk management activities. Derivatives used in risk management activities include derivatives that are both designated in qualifying accounting hedge relationships and derivatives used to hedge market risks in relationships that are not designated in qualifying accounting hedge relationships (referred to as other risk management activities). The Corporation manages interest rate and foreign currency exchange rate sensitivity predominantly through the use of derivatives. Derivatives utilized by the Corporation include swaps, futures and forward settlement contracts, and option contracts.

All derivatives are recorded on the Consolidated Balance Sheet at fair value, taking into consideration the effects of legally enforceable master netting agreements that allow the Corporation to settle positive and negative positions and offset cash collateral held with the same counterparty on a net basis. For exchange-traded contracts, fair value is based on quoted market prices in active or inactive markets or is derived from observable market-based pricing parameters, similar to those applied to over-the-counter (OTC) derivatives. For non-exchange traded contracts, fair value is based on dealer quotes, pricing models, discounted cash flow methodologies or similar techniques for which the determination of fair value may require significant management judgment or estimation.

Valuations of derivative assets and liabilities reflect the value of the instrument including counterparty credit risk. These values also take into account the Corporation's own credit standing.

Trading Derivatives and Other Risk Management Activities

Derivatives held for trading purposes are included in derivative assets or derivative liabilities on the Consolidated Balance Sheet with changes in fair value included in market making and similar activities.

Derivatives used for other risk management activities are included in derivative assets or derivative liabilities. Derivatives used in other risk management activities have not been designated in qualifying accounting hedge relationships because they did not qualify or the risk that is being mitigated pertains to an item that is reported at fair value through earnings so that the effect of measuring the derivative instrument and the asset or liability to which the risk exposure pertains will offset in the Consolidated Statement of Income to the extent effective. The changes in the fair value of derivatives that serve to mitigate certain risks associated with mortgage servicing rights (MSRs), interest rate lock commitments (IRLCs) and first-lien mortgage loans held-for-sale (LHFS) that are originated by the Corporation are recorded in other income. Changes in the fair value of derivatives that serve to mitigate interest rate risk and foreign currency risk are included in market making and similar activities. Credit derivatives are also used by the Corporation to mitigate the risk associated with various credit exposures. The changes in the fair value of these derivatives are included in market making and similar activities and other income.

Derivatives Used For Hedge Accounting Purposes (Accounting Hedges)

For accounting hedges, the Corporation formally documents at inception all relationships between hedging instruments and hedged items, as well as the risk management objectives and strategies for undertaking various accounting hedges. Additionally, the Corporation primarily uses regression analysis at the inception of a hedge and for each reporting period thereafter to assess whether the derivative used in an accounting hedge transaction is expected to be and has been highly effective in offsetting changes in the fair value or cash flows of a hedged item or forecasted transaction. The Corporation discontinues hedge accounting when it is determined that a derivative is not expected to be or has ceased to be highly effective as a hedge, and then reflects changes in fair value of the derivative in earnings after termination of the hedge relationship.

Fair value hedges are used to protect against changes in the fair value of the Corporation's assets and liabilities that are attributable to interest rate or foreign exchange volatility. Changes in the fair value of derivatives designated as fair value

hedges are recorded in earnings, together and in the same income statement line item with changes in the fair value of the related hedged item. If a derivative instrument in a fair value hedge is terminated or the hedge designation removed, the previous adjustments to the carrying value of the hedged asset or liability are subsequently accounted for in the same manner as other components of the carrying value of that asset or liability. For interest-earning assets and interest-bearing liabilities, such adjustments are amortized to earnings over the remaining life of the respective asset or liability.

Cash flow hedges are used primarily to minimize the variability in cash flows of assets and liabilities or forecasted transactions caused by interest rate or foreign exchange rate fluctuations. The Corporation also uses cash flow hedges to hedge the price risk associated with deferred compensation. Changes in the fair value of derivatives used in cash flow hedges are recorded in accumulated other comprehensive income (OCI) and are reclassified into the line item in the income statement in which the hedged item is recorded in the same period the hedged item affects earnings. Components of a derivative that are excluded in assessing hedge effectiveness are recorded in the same income statement line item as the hedged item.

Net investment hedges are used to manage the foreign exchange rate sensitivity arising from a net investment in a foreign operation. Changes in the spot prices of derivatives that are designated as net investment hedges of foreign operations are recorded as a component of accumulated OCI. The remaining components of these derivatives are excluded in assessing hedge effectiveness and are recorded in market making and similar activities.

Securities

Debt securities are reported on the Consolidated Balance Sheet at their trade date. Their classification is dependent on the purpose for which the securities were acquired. Debt securities purchased for use in the Corporation's trading activities are reported in trading account assets at fair value with unrealized gains and losses included in market making and similar activities. Substantially all other debt securities purchased are used in the Corporation's asset and liability management (ALM) activities and are reported on the Consolidated Balance Sheet as either debt securities carried at fair value or as held-to-maturity (HTM) debt securities. Debt securities carried at fair value are either available-for-sale (AFS) securities with unrealized gains and losses net-of-tax included in accumulated OCI or carried at fair value with unrealized gains and losses reported in market making and similar activities. HTM debt securities are debt securities that management has the intent and ability to hold to maturity and are reported at amortized cost.

The Corporation evaluates each AFS security where the value has declined below amortized cost. If the Corporation intends to sell or believes it is more likely than not that it will be required to sell the debt security, it is written down to fair value through earnings. For AFS debt securities the Corporation intends to hold, the Corporation evaluates the debt securities for ECL, except for debt securities that are guaranteed by the U.S. Treasury, U.S. government agencies or sovereign entities of high credit quality where the Corporation applies a zero credit loss assumption. For the remaining AFS debt securities, the Corporation considers qualitative parameters such as internal and external credit ratings and the value of underlying collateral. If an AFS debt security fails any of the qualitative parameters, a discounted cash flow analysis is used by the Corporation to

determine if a portion of the unrealized loss is a result of an ECL. The Corporation will then recognize either credit loss expense or a reversal of credit loss expense in other income for the amount necessary to adjust the debt securities valuation allowance to its current estimate of expected credit losses. Cash flows expected to be collected are estimated using all relevant information available such as remaining payment terms, prepayment speeds, the financial condition of the issuer, expected defaults and the value of the underlying collateral. If any of the decline in fair value is related to market factors, that amount is recognized in accumulated OCI. In certain instances, the credit loss may exceed the total decline in fair value, in which case, the allowance recorded is limited to the difference between the amortized cost and the fair value of the asset.

The Corporation separately evaluates its HTM debt securities for any credit losses, of which substantially all qualify for the zero loss assumption. For the remaining securities, the Corporation performs a discounted cash flow analysis to estimate any credit losses which are then recognized as part of the allowance for credit losses.

Interest on debt securities, including amortization of premiums and accretion of discounts, is included in interest income. Premiums and discounts are amortized or accreted to interest income at a constant effective yield over the contractual lives of the securities. Realized gains and losses from the sales of debt securities are determined using the specific identification method.

Equity securities with readily determinable fair values that are not held for trading purposes are carried at fair value with unrealized gains and losses included in other income. Equity securities that do not have readily determinable fair values are recorded at cost less impairment, if any, plus or minus qualifying observable price changes. These securities are reported in other assets.

Loans and Leases

Loans, with the exception of loans accounted for under the fair value option, are measured at historical cost and reported at their outstanding principal balances net of any unearned income, charge-offs, unamortized deferred fees and costs on originated loans, and for purchased loans, net of any unamortized premiums or discounts. Loan origination fees and certain direct origination costs are deferred and recognized as adjustments to interest income over the lives of the related loans. Unearned income, discounts and premiums are amortized to interest income using a level yield methodology. The Corporation elects to account for certain consumer and commercial loans under the fair value option with interest reported in interest income and changes in fair value reported in market making and similar activities or other income.

Under applicable accounting guidance, for reporting purposes, the loan and lease portfolio is categorized by portfolio segment and, within each portfolio segment, by class of financing receivable. A portfolio segment is defined as the level at which an entity develops and documents a systematic methodology to determine the allowance for credit losses, and a class of financing receivable is defined as the level of disaggregation of portfolio segments based on the initial measurement attribute, risk characteristics and methods for assessing risk. The Corporation's three portfolio segments are Consumer Real Estate, Credit Card and Other Consumer, and Commercial. The classes within the Consumer Real Estate portfolio segment are residential mortgage and home equity. The classes within the Credit Card and Other Consumer portfolio segment are credit card, direct/indirect consumer and other

consumer. The classes within the Commercial portfolio segment are U.S. commercial, non-U.S. commercial, commercial real estate, commercial lease financing and U.S. small business commercial.

Leases

The Corporation provides equipment financing to its customers through a variety of lessor arrangements. Direct financing leases and sales-type leases are carried at the aggregate of lease payments receivable plus the estimated residual value of the leased property less unearned income, which is accreted to interest income over the lease terms using methods that approximate the interest method. Operating lease income is recognized on a straight-line basis. The Corporation's lease arrangements generally do not contain non-lease components.

Allowance for Credit Losses

On January 1, 2020, the Corporation adopted the new accounting standard that requires the measurement of the allowance for credit losses, which includes both the allowance for loan and lease losses and the reserve for unfunded lending commitments, to be based on management's best estimate of the ECL in the Corporation's loan and lease portfolio, excluding loans and unfunded lending commitments accounted for under the fair value option. Upon adoption, a \$3.3 billion, or 32 percent, increase in the allowance for credit losses was recorded on January 1, 2020, which was comprised of a net increase of \$2.9 billion in the allowance for loan and lease losses and a \$310 million increase in the reserve for unfunded lending commitments. The ECL on funded consumer and commercial loans and leases is referred to as the allowance for loan and lease losses and is reported separately as a contra-asset to loans and leases on the Consolidated Balance Sheet. The ECL for unfunded lending commitments, including home equity lines of credit (HELOCs), standby letters of credit (SBLCs) and binding unfunded loan commitments is reported on the Consolidated Balance Sheet in accrued expenses and other liabilities. The provision for credit losses related to the loan and lease portfolio and unfunded lending commitments is reported in the Consolidated Statement of Income at the amount necessary to adjust the allowance for credit losses to the current estimate of ECL.

For loans and leases, the ECL is typically estimated using quantitative methods that consider a variety of factors such as historical loss experience, the current credit quality of the portfolio as well as an economic outlook over the life of the loan. The life of the loan for closed-ended products is based on the contractual maturity of the loan adjusted for any expected prepayments. The contractual maturity includes any extension options that are at the sole discretion of the borrower. For open-ended products (e.g., lines of credit), the ECL is determined based on the maximum repayment term associated with future draws from credit lines unless those lines of credit are unconditionally cancellable (e.g., credit cards) in which case the Corporation does not record any allowance.

In its loss forecasting framework, the Corporation incorporates forward-looking information through the use of macroeconomic scenarios applied over the forecasted life of the assets. These macroeconomic scenarios include variables that have historically been key drivers of increases and decreases in credit losses. These variables include, but are not limited to, unemployment rates, real estate prices, gross domestic product levels and corporate bond spreads. As any one economic outlook is inherently uncertain, the Corporation leverages multiple scenarios. The scenarios that are chosen each quarter

and the weighting given to each scenario depend on a variety of factors including recent economic events, leading economic indicators, views of internal and third-party economists and industry trends.

The estimate of credit losses includes expected recoveries of amounts previously charged off (i.e., negative allowance). If a loan has been charged off, the expected cash flows on the loan are not limited by the current amortized cost balance. Instead, expected cash flows can be assumed up to the unpaid principal balance immediately prior to the charge-off.

The allowance for loan and lease losses for TDRs is measured based on the present value of projected future lifetime principal and interest cash flows discounted at the loan's original effective interest rate, or in cases where foreclosure is probable or the loan is collateral dependent, at the loan's collateral value or its observable market price, if available. The measurement of ECL for the renegotiated consumer credit card TDR portfolio is based on the present value of projected cash flows discounted using the average TDR portfolio contractual interest rate, excluding promotionally priced loans, in effect prior to restructuring. Projected cash flows for TDRs use the same economic outlook as discussed above. For purposes of computing this specific loss component of the allowance, larger impaired loans are evaluated individually and smaller impaired loans are evaluated as a pool.

Also included in the allowance for loan and lease losses are qualitative reserves to cover losses that are expected but, in the Corporation's assessment, may not be adequately reflected in the quantitative methods or the economic assumptions described above. For example, factors that the Corporation considers include changes in lending policies and procedures, business conditions, the nature and size of the portfolio, portfolio concentrations, the volume and severity of past due loans and nonaccrual loans, the effect of external factors such as competition, and legal and regulatory requirements, among others. Further, the Corporation considers the inherent uncertainty in quantitative models that are built on historical data.

With the exception of the Corporation's credit card portfolio, the Corporation does not include reserves for interest receivable in the measurement of the allowance for credit losses as the Corporation generally classifies consumer loans as nonperforming at 90 days past due and reverses interest income for these loans at that time. For credit card loans, the Corporation reserves for interest and fees as part of the allowance for loan and lease losses. Upon charge-off of a credit card loan, the Corporation reverses the interest and fee income against the income statement line item where it was originally recorded.

The Corporation has identified the following three portfolio segments and measures the allowance for credit losses using the following methods.

Consumer Real Estate

To estimate ECL for consumer loans secured by residential real estate, the Corporation estimates the number of loans that will default over the life of the existing portfolio, after factoring in estimated prepayments, using quantitative modeling methodologies. The attributes that are most significant in estimating the Corporation's ECL include refreshed loan-to-value (LTV) or, in the case of a subordinated lien, refreshed combined LTV (CLTV), borrower credit score, months since origination and geography, all of which are further broken down by present collection status (whether the loan is current, delinquent, in default, or in bankruptcy). The estimates are based on the

Corporation's historical experience with the loan portfolio, adjusted to reflect the economic outlook. The outlook on the unemployment rate and consumer real estate prices are key factors that impact the frequency and severity of loss estimates. The Corporation does not reserve for credit losses on the unpaid principal balance of loans insured by the Federal Housing Administration (FHA) and long-term standby loans, as these loans are fully insured. The Corporation records a reserve for unfunded lending commitments for the ECL associated with the undrawn portion of the Corporation's HELOCs, which can only be canceled by the Corporation if certain criteria are met. The ECL associated with these unfunded lending commitments is calculated using the same models and methodologies noted above and incorporate utilization assumptions at time of default.

For loans that are more than 180 days past due and collateral-dependent TDRs, the Corporation bases the allowance on the estimated fair value of the underlying collateral as of the reporting date less costs to sell. The fair value of the collateral securing these loans is generally determined using an automated valuation model (AVM) that estimates the value of a property by reference to market data including sales of comparable properties and price trends specific to the Metropolitan Statistical Area in which the property being valued is located. In the event that an AVM value is not available, the Corporation utilizes publicized indices or if these methods provide less reliable valuations, the Corporation uses appraisals or broker price opinions to estimate the fair value of the collateral. While there is inherent imprecision in these valuations, the Corporation believes that they are representative of this portfolio in the aggregate.

For loans that are more than 180 days past due and collateral-dependent TDRs, with the exception of the Corporation's fully insured portfolio, the outstanding balance of loans that is in excess of the estimated property value after adjusting for costs to sell is charged off. If the estimated property value decreases in periods subsequent to the initial charge-off, the Corporation will record an additional charge-off; however, if the value increases in periods subsequent to the charge-off, the Corporation will adjust the allowance to account for the increase but not to a level above the cumulative charge-off amount.

Credit Cards and Other Consumer

Credit cards are revolving lines of credit without a defined maturity date. The estimated life of a credit card receivable is determined by estimating the amount and timing of expected future payments (e.g., borrowers making full payments, minimum payments or somewhere in between) that it will take for a receivable balance to pay off. The ECL on the future payments incorporates the spending behavior of a borrower through time using key borrower-specific factors and the economic outlook described above. The Corporation applies all expected payments in accordance with the Credit Card Accountability Responsibility and Disclosure Act of 2009 (i.e., paying down the highest interest rate bucket first). Then forecasted future payments are prioritized to pay off the oldest balance until it is brought to zero or an expected charge-off amount. Unemployment rate outlook, borrower credit score, delinquency status and historical payment behavior are all key inputs into the credit card receivable loss forecasting model. Future draws on the credit card lines are excluded from the ECL as they are unconditionally cancellable.

The ECL for the consumer vehicle lending portfolio is also determined using quantitative methods supplemented with

qualitative analysis. The quantitative model estimates ECL giving consideration to key borrower and loan characteristics such as delinquency status, borrower credit score, LTV ratio, underlying collateral type and collateral value.

Commercial

The ECL on commercial loans is forecasted using models that estimate credit losses over the loan's contractual life at an individual loan level. The models use the contractual terms to forecast future principal cash flows while also considering expected prepayments. For open-ended commitments such as revolving lines of credit, changes in funded balance are captured by forecasting a borrower's draw and payment behavior over the remaining life of the commitment. For loans collateralized with commercial real estate and for which the underlying asset is the primary source of repayment, the loss forecasting models consider key loan and customer attributes such as LTV ratio, net operating income and debt service coverage, and captures variations in behavior according to property type and region. The outlook on the unemployment rate, gross domestic product, and forecasted real estate prices are utilized to determine indicators such as rent levels and vacancy rates, which impact the ECL estimate. For all other commercial loans and leases, the loss forecasting model determines the probabilities of transition to different credit risk ratings or default at each point over the life of the asset based on the borrower's current credit risk rating, industry sector, size of the exposure and the geographic market. The severity of loss is determined based on the type of collateral securing the exposure, the size of the exposure, the borrower's industry sector, any guarantors and the geographic market. Assumptions of expected loss are conditioned to the economic outlook, and the model considers key economic variables such as unemployment rate, gross domestic product, corporate bond spreads, real estate and other asset prices and equity market returns.

In addition to the allowance for loan and lease losses, the Corporation also estimates ECL related to unfunded lending commitments such as letters of credit, financial guarantees, unfunded bankers acceptances and binding loan commitments, excluding commitments accounted for under the fair value option. Reserves are estimated for the unfunded exposure using the same models and methodologies as the funded exposure and are reported as reserves for unfunded lending commitments.

Nonperforming Loans and Leases, Charge-offs and Delinquencies

Nonperforming loans and leases generally include loans and leases that have been placed on nonaccrual status. Loans accounted for under the fair value option and LHFS are not reported as nonperforming. When a nonaccrual loan is deemed uncollectible, it is charged off against the allowance for credit losses. If the charged-off amount is later recovered, the amount is reversed through the allowance for credit losses at the recovery date. Charge-offs are reported net of recoveries (net charge-offs). If recoveries for the period are greater than charge-offs, net charge-offs are reported as a negative amount.

In accordance with the Corporation's policies, consumer real estate-secured loans, including residential mortgages and home equity loans, are generally placed on nonaccrual status and classified as nonperforming at 90 days past due unless repayment of the loan is insured by the FHA or through individually insured long-term standby agreements with Fannie Mae (FNMA) or Freddie Mac (FHLMC) (the fully-insured portfolio). Residential mortgage loans in the fully-insured portfolio are not

placed on nonaccrual status and, therefore, are not reported as nonperforming. Junior-lien home equity loans are placed on nonaccrual status and classified as nonperforming when the underlying first-lien mortgage loan becomes 90 days past due even if the junior-lien loan is current. The outstanding balance of real estate-secured loans that is in excess of the estimated property value less costs to sell is charged off no later than the end of the month in which the loan becomes 180 days past due unless the loan is fully insured, or for loans in bankruptcy, within 60 days of receipt of notification of filing, with the remaining balance classified as nonperforming.

Credit card and other unsecured consumer loans are charged off when the loan becomes 180 days past due, within 60 days after receipt of notification of death or bankruptcy or upon confirmation of fraud. These loans continue to accrue interest until they are charged off and, therefore, are not reported as nonperforming loans. Consumer vehicle loans are placed on nonaccrual status when they become 90 days past due, within 60 days after receipt of notification of bankruptcy or death or upon confirmation of fraud. These loans are charged off to their collateral values when the loans become 120 days past due, upon repossession of the collateral, within 60 days after receipt of notification of bankruptcy or death or upon confirmation of fraud. If repossession of the collateral is not expected, the loans are fully charged off.

Commercial loans and leases, excluding business card loans, that are past due 90 days or more as to principal or interest, or where reasonable doubt exists as to timely collection, including loans that are individually identified as being impaired, are generally placed on nonaccrual status and classified as nonperforming unless well-secured and in the process of collection.

Business card loans are charged off in the same manner as consumer credit card loans. Other commercial loans and leases are generally charged off when all or a portion of the principal amount is determined to be uncollectible.

The entire balance of a consumer loan or commercial loan or lease is contractually delinquent if the minimum payment is not received by the specified due date on the customer's billing statement. Interest and fees continue to accrue on past due loans and leases until the date the loan is placed on nonaccrual status, if applicable. Accrued interest receivable is reversed when loans and leases are placed on nonaccrual status. Interest collections on nonaccruing loans and leases for which the ultimate collectability of principal is uncertain are applied as principal reductions; otherwise, such collections are credited to income when received. Loans and leases may be restored to accrual status when all principal and interest is current and full repayment of the remaining contractual principal and interest is expected.

Troubled Debt Restructurings

Consumer and commercial loans and leases whose contractual terms have been restructured in a manner that grants a concession to a borrower experiencing financial difficulties are classified as TDRs. Concessions could include a reduction in the interest rate to a rate that is below market on the loan, payment extensions, forgiveness of principal, forbearance or other actions designed to maximize collections. Loans that are carried at fair value and LHFS are not classified as TDRs.

Loans and leases whose contractual terms have been modified in a TDR and are current at the time of restructuring may remain on accrual status if there is demonstrated performance prior to the restructuring and payment in full under the restructured terms is expected. Otherwise, the loans are

placed on nonaccrual status and reported as nonperforming, except for fully-insured consumer real estate loans, until there is sustained repayment performance for a reasonable period, generally six months. If accruing TDRs cease to perform in accordance with their modified contractual terms, they are placed on nonaccrual status and reported as nonperforming TDRs.

Secured consumer loans that have been discharged in Chapter 7 bankruptcy and have not been reaffirmed by the borrower are classified as TDRs at the time of discharge. Such loans are placed on nonaccrual status and written down to the estimated collateral value less costs to sell no later than at the time of discharge. If these loans are contractually current, interest collections are generally recorded in interest income on a cash basis. Consumer real estate-secured loans for which a binding offer to restructure has been extended are also classified as TDRs. Credit card and other unsecured consumer loans that have been renegotiated in a TDR generally remain on accrual status until the loan is either paid in full or charged off, which occurs no later than the end of the month in which the loan becomes 180 days past due or, for loans that have been placed on a fixed payment plan, 120 days past due.

A loan that had previously been modified in a TDR and is subsequently refinanced under current underwriting standards at a market rate with no concessionary terms is accounted for as a new loan and is no longer reported as a TDR.

Loans Held-for-sale

Loans that the Corporation intends to sell in the foreseeable future, including residential mortgages, loan syndications, and to a lesser degree, commercial real estate, consumer finance and other loans, are reported as LHFS and are carried at the lower of aggregate cost or fair value. The Corporation accounts for certain LHFS, including residential mortgage LHFS, under the fair value option. Loan origination costs for LHFS carried at the lower of cost or fair value are capitalized as part of the carrying value of the loans and, upon the sale of a loan, are recognized as part of the gain or loss in noninterest income. LHFS that are on nonaccrual status and are reported as nonperforming, as defined in the policy herein, are reported separately from nonperforming loans and leases.

Premises and Equipment

Premises and equipment are carried at cost less accumulated depreciation and amortization. Depreciation and amortization are recognized using the straight-line method over the estimated useful lives of the assets. Estimated lives range up to 40 years for buildings, up to 12 years for furniture and equipment, and the shorter of lease term or estimated useful life for leasehold improvements.

Other Assets

For the Corporation's financial assets that are measured at amortized cost and are not included in debt securities or loans and leases on the Consolidated Balance Sheet, the Corporation evaluates these assets for ECL using various techniques. For assets that are subject to collateral maintenance provisions, including federal funds sold and securities borrowed or purchased under agreements to resell, where the collateral consists of daily margining of liquid and marketable assets where the margining is expected to be maintained into the foreseeable future, the expected losses are assumed to be zero. For all other assets, the Corporation performs qualitative analyses, including consideration of historical losses and current economic conditions, to estimate any ECL which are

then included in a valuation account that is recorded as a contra-asset against the amortized cost basis of the financial asset.

Lessee Arrangements

Substantially all of the Corporation's lessee arrangements are operating leases. Under these arrangements, the Corporation records right-of-use assets and lease liabilities at lease commencement. Right-of-use assets are reported in other assets on the Consolidated Balance Sheet, and the related lease liabilities are reported in accrued expenses and other liabilities. All leases are recorded on the Consolidated Balance Sheet except leases with an initial term less than 12 months for which the Corporation made the short-term lease election. Lease expense is recognized on a straight-line basis over the lease term and is recorded in occupancy and equipment expense in the Consolidated Statement of Income.

The Corporation made an accounting policy election not to separate lease and non-lease components of a contract that is or contains a lease for its real estate and equipment leases. As such, lease payments represent payments on both lease and non-lease components. At lease commencement, lease liabilities are recognized based on the present value of the remaining lease payments and discounted using the Corporation's incremental borrowing rate. Right-of-use assets initially equal the lease liability, adjusted for any lease payments made prior to lease commencement and for any lease incentives.

Goodwill and Intangible Assets

Goodwill is the purchase premium after adjusting for the fair value of net assets acquired. Goodwill is not amortized but is reviewed for potential impairment on an annual basis, or when events or circumstances indicate a potential impairment, at the reporting unit level. A reporting unit is a business segment or one level below a business segment.

The Corporation assesses the fair value of each reporting unit against its carrying value, including goodwill, as measured by allocated equity. For purposes of goodwill impairment testing, the Corporation utilizes allocated equity as a proxy for the carrying value of its reporting units. Allocated equity in the reporting units is comprised of allocated capital plus capital for the portion of goodwill and intangibles specifically assigned to the reporting unit.

In performing its goodwill impairment testing, the Corporation first assesses qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying value. Qualitative factors include, among other things, macroeconomic conditions, industry and market considerations, financial performance of the respective reporting unit and other relevant entity- and reporting-unit specific considerations.

If the Corporation concludes it is more likely than not that the fair value of a reporting unit is less than its carrying value, a quantitative assessment is performed. The Corporation has an unconditional option to bypass the qualitative assessment for any reporting unit in any period and proceed directly to performing the quantitative goodwill impairment test. The Corporation may resume performing the qualitative assessment in any subsequent period.

When performing the quantitative assessment, if the fair value of the reporting unit exceeds its carrying value, goodwill of the reporting unit would not be considered impaired. If the carrying value of the reporting unit exceeds its fair value, a goodwill impairment loss would be recognized for the amount by

which the reporting unit's allocated equity exceeds its fair value. An impairment loss recognized cannot exceed the amount of goodwill assigned to a reporting unit. An impairment loss establishes a new basis in the goodwill, and subsequent reversals of goodwill impairment losses are not permitted under applicable accounting guidance.

For intangible assets subject to amortization, an impairment loss is recognized if the carrying value of the intangible asset is not recoverable and exceeds fair value. The carrying value of the intangible asset is considered not recoverable if it exceeds the sum of the undiscounted cash flows expected to result from the use of the asset. Intangible assets deemed to have indefinite useful lives are not subject to amortization. An impairment loss is recognized if the carrying value of the intangible asset with an indefinite life exceeds its fair value.

Variable Interest Entities

A VIE is an entity that lacks equity investors or whose equity investors do not have a controlling financial interest in the entity through their equity investments. The Corporation consolidates a VIE if it has both the power to direct the activities of the VIE that most significantly impact the VIE's economic performance and an obligation to absorb losses or the right to receive benefits that could potentially be significant to the VIE. On a quarterly basis, the Corporation reassesses its involvement with the VIE and evaluates the impact of changes in governing documents and its financial interests in the VIE. The consolidation status of the VIEs with which the Corporation is involved may change as a result of such reassessments.

The Corporation primarily uses VIEs for its securitization activities, in which the Corporation transfers whole loans or debt securities into a trust or other vehicle. When the Corporation is the servicer of whole loans held in a securitization trust, including non-agency residential mortgages, home equity loans, credit cards, and other loans, the Corporation has the power to direct the most significant activities of the trust. The Corporation generally does not have the power to direct the most significant activities of a residential mortgage agency trust except in certain circumstances in which the Corporation holds substantially all of the issued securities and has the unilateral right to liquidate the trust. The power to direct the most significant activities of a commercial mortgage securitization trust is typically held by the special servicer or by the party holding specific subordinate securities which embody certain controlling rights. The Corporation consolidates a whole-loan securitization trust if it has the power to direct the most significant activities and also holds securities issued by the trust or has other contractual arrangements, other than standard representations and warranties, that could potentially be significant to the trust.

The Corporation may also transfer trading account securities and AFS securities into municipal bond or resecuritization trusts. The Corporation consolidates a municipal bond or resecuritization trust if it has control over the ongoing activities of the trust such as the remarketing of the trust's liabilities or, if there are no ongoing activities, sole discretion over the design of the trust, including the identification of securities to be transferred in and the structure of securities to be issued, and also retains securities or has liquidity or other commitments that could potentially be significant to the trust. The Corporation does not consolidate a municipal bond or resecuritization trust if one or a limited number of third-party investors share responsibility for the design of the trust or have control over the significant activities of the trust through liquidation or other substantive rights.

Other VIEs used by the Corporation include collateralized debt obligations (CDOs), investment vehicles created on behalf of customers and other investment vehicles. The Corporation does not routinely serve as collateral manager for CDOs and, therefore, does not typically have the power to direct the activities that most significantly impact the economic performance of a CDO. However, following an event of default, if the Corporation is a majority holder of senior securities issued by a CDO and acquires the power to manage its assets, the Corporation consolidates the CDO.

The Corporation consolidates a customer or other investment vehicle if it has control over the initial design of the vehicle or manages the assets in the vehicle and also absorbs potentially significant gains or losses through an investment in the vehicle, derivative contracts or other arrangements. The Corporation does not consolidate an investment vehicle if a single investor controlled the initial design of the vehicle or manages the assets in the vehicles or if the Corporation does not have a variable interest that could potentially be significant to the vehicle.

Retained interests in securitized assets are initially recorded at fair value. In addition, the Corporation may invest in debt securities issued by unconsolidated VIEs. Fair values of these debt securities, which are classified as trading account assets, debt securities carried at fair value or HTM securities, are based primarily on quoted market prices in active or inactive markets. Generally, quoted market prices for retained residual interests are not available; therefore, the Corporation estimates fair values based on the present value of the associated expected future cash flows.

Fair Value

The Corporation measures the fair values of its assets and liabilities, where applicable, in accordance with accounting guidance that requires an entity to base fair value on exit price. Under this guidance, an entity is required to maximize the use of observable inputs and minimize the use of unobservable inputs in measuring fair value. Under applicable accounting standards, fair value measurements are categorized into one of three levels based on the inputs to the valuation technique with the highest priority given to unadjusted quoted prices in active markets and the lowest priority given to unobservable inputs. The Corporation categorizes its fair value measurements of financial instruments based on this three-level hierarchy.

Level 1 Unadjusted quoted prices in active markets for identical assets or liabilities. Level 1 assets and liabilities include debt and equity securities and derivative contracts that are traded in an active exchange market, as well as certain U.S. Treasury securities that are highly liquid and are actively traded in OTC markets.

Level 2 Observable inputs other than Level 1 prices, such as quoted prices for similar assets or liabilities, quoted prices in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities. Level 2 assets and liabilities include debt securities with quoted prices that are traded less frequently than exchange-traded instruments and derivative contracts where fair value is determined using a pricing model with inputs that are observable in the market or can be derived principally from or corroborated by observable market data. This category generally includes U.S. government and

agency mortgage-backed (MBS) and asset-backed securities (ABS), corporate debt securities, derivative contracts, certain loans and LHFS.

Level 3 Unobservable inputs that are supported by little or no market activity and that are significant to the overall fair value of the assets or liabilities. Level 3 assets and liabilities include financial instruments for which the determination of fair value requires significant management judgment or estimation. The fair value for such assets and liabilities is generally determined using pricing models, discounted cash flow methodologies or similar techniques that incorporate the assumptions a market participant would use in pricing the asset or liability. This category generally includes retained residual interests in securitizations, consumer MSRs, certain ABS, highly structured, complex or long-dated derivative contracts, certain loans and LHFS, IRLCs and certain CDOs where independent pricing information cannot be obtained for a significant portion of the underlying assets.

Income Taxes

There are two components of income tax expense: current and deferred. Current income tax expense reflects taxes to be paid or refunded for the current period. Deferred income tax expense results from changes in deferred tax assets and liabilities between periods. These gross deferred tax assets and liabilities represent decreases or increases in taxes expected to be paid in the future because of future reversals of temporary differences in the bases of assets and liabilities as measured by tax laws and their bases as reported in the financial statements. Deferred tax assets are also recognized for tax attributes such as net operating loss carryforwards and tax credit carryforwards. Valuation allowances are recorded to reduce deferred tax assets to the amounts management concludes are more likely than not to be realized.

Income tax benefits are recognized and measured based upon a two-step model: first, a tax position must be more likely than not to be sustained based solely on its technical merits in order to be recognized, and second, the benefit is measured as the largest dollar amount of that position that is more likely than not to be sustained upon settlement. The difference between the benefit recognized and the tax benefit claimed on a tax return is referred to as an unrecognized tax benefit. The Corporation records income tax-related interest and penalties, if applicable, within income tax expense.

Revenue Recognition

The following summarizes the Corporation's revenue recognition accounting policies for certain noninterest income activities.

Card Income

Card income includes annual, late and over-limit fees as well as interchange, cash advances and other miscellaneous items from credit and debit card transactions and from processing card transactions for merchants. Card income is presented net of direct costs. Interchange fees are recognized upon settlement of the credit and debit card payment transactions and are generally determined on a percentage basis for credit cards and fixed rates for debit cards based on the corresponding payment network's rates. Substantially all card fees are recognized at the transaction date, except for certain time-based fees such as annual fees, which are recognized over 12 months. Fees charged to cardholders and merchants that are estimated to be uncollectible are reserved in the allowance

for loan and lease losses. Included in direct cost are rewards and credit card partner payments. Rewards paid to cardholders are related to points earned by the cardholder that can be redeemed for a broad range of rewards including cash, travel and gift cards. The points to be redeemed are estimated based on past redemption behavior, card product type, account transaction activity and other historical card performance. The liability is reduced as the points are redeemed. The Corporation also makes payments to credit card partners. The payments are based on revenue-sharing agreements that are generally driven by cardholder transactions and partner sales volumes. As part of the revenue-sharing agreements, the credit card partner provides the Corporation exclusive rights to market to the credit card partner's members or customers on behalf of the Corporation.

Service Charges

Service charges include deposit and lending-related fees. Deposit-related fees consist of fees earned on consumer and commercial deposit activities and are generally recognized when the transactions occur or as the service is performed. Consumer fees are earned on consumer deposit accounts for account maintenance and various transaction-based services, such as ATM transactions, wire transfer activities, check and money order processing and insufficient funds/overdraft transactions. Commercial deposit-related fees are from the Corporation's Global Transaction Services business and consist of commercial deposit and treasury management services, including account maintenance and other services, such as payroll, sweep account and other cash management services. Lending-related fees generally represent transactional fees earned from certain loan commitments, financial guarantees and SBLCs.

Investment and Brokerage Services

Investment and brokerage services consist of asset management and brokerage fees. Asset management fees are earned from the management of client assets under advisory agreements or the full discretion of the Corporation's financial advisors (collectively referred to as assets under management (AUM)). Asset management fees are earned as a percentage of the client's AUM and generally range from 50 basis points (bps) to 150 bps of the AUM. In cases where a third party is used to obtain a client's investment allocation, the fee remitted to the third party is recorded net and is not reflected in the transaction price, as the Corporation is an agent for those services.

Brokerage fees include income earned from transaction-based services that are performed as part of investment management services and are based on a fixed price per unit or as a percentage of the total transaction amount. Brokerage fees also include distribution fees and sales commissions that are primarily in the *Global Wealth & Investment Management (GWIM)* segment and are earned over time. In addition, primarily in the *Global Markets* segment, brokerage fees are earned when the Corporation fills customer orders to buy or sell various financial products or when it acknowledges, affirms, settles and clears transactions and/or submits trade information to the appropriate clearing broker. Certain customers pay brokerage, clearing and/or exchange fees imposed by relevant regulatory bodies or exchanges in order to execute or clear trades. These fees are recorded net and are not reflected in the transaction price, as the Corporation is an agent for those services.

Investment Banking Income

Investment banking income includes underwriting income and financial advisory services income. Underwriting consists of fees

earned for the placement of a customer's debt or equity securities. The revenue is generally earned based on a percentage of the fixed number of shares or principal placed. Once the number of shares or notes is determined and the service is completed, the underwriting fees are recognized. The Corporation incurs certain out-of-pocket expenses, such as legal costs, in performing these services. These expenses are recovered through the revenue the Corporation earns from the customer and are included in operating expenses. Syndication fees represent fees earned as the agent or lead lender responsible for structuring, arranging and administering a loan syndication.

Financial advisory services consist of fees earned for assisting clients with transactions related to mergers and acquisitions and financial restructurings. Revenue varies depending on the size of the transaction and scope of services performed and is generally contingent on successful completion of the transaction. Revenue is typically recognized once the transaction is completed and all services have been rendered. Additionally, the Corporation may earn a fixed fee in merger and acquisition transactions to provide a fairness opinion, with the fees recognized when the opinion is delivered to the client.

Other Revenue Measurement and Recognition Policies

The Corporation did not disclose the value of any open performance obligations at December 31, 2022, as its contracts with customers generally have a fixed term that is less than one year, an open term with a cancellation period that is less than one year, or provisions that allow the Corporation to recognize revenue at the amount it has the right to invoice.

Earnings Per Common Share

Earnings per common share (EPS) is computed by dividing net income allocated to common shareholders by the weighted-average common shares outstanding, excluding unvested

common shares subject to repurchase or cancellation. Net income allocated to common shareholders is net income adjusted for preferred stock dividends including dividends declared, accretion of discounts on preferred stock including accelerated accretion when preferred stock is repaid early, and cumulative dividends related to the current dividend period that have not been declared as of period end, less income allocated to participating securities. Diluted EPS is computed by dividing income allocated to common shareholders plus dividends on dilutive convertible preferred stock and preferred stock that can be tendered to exercise warrants, by the weighted-average common shares outstanding plus amounts representing the dilutive effect of stock options outstanding, restricted stock, restricted stock units (RSUs), outstanding warrants and the dilution resulting from the conversion of convertible preferred stock, if applicable.

Foreign Currency Translation

Assets, liabilities and operations of foreign branches and subsidiaries are recorded based on the functional currency of each entity. When the functional currency of a foreign operation is the local currency, the assets, liabilities and operations are translated, for consolidation purposes, from the local currency to the U.S. dollar reporting currency at period-end rates for assets and liabilities and generally at average rates for results of operations. The resulting unrealized gains and losses are reported as a component of accumulated OCI, net-of-tax. When the foreign entity's functional currency is the U.S. dollar, the resulting remeasurement gains or losses on foreign currency-denominated assets or liabilities are included in earnings.

NOTE 2 Net Interest Income and Noninterest Income

The table below presents the Corporation's net interest income and noninterest income disaggregated by revenue source for 2022, 2021 and 2020. For more information, see *Note 1 – Summary of Significant Accounting Principles*. For a disaggregation of noninterest income by business segment and *All Other*, see *Note 23 – Business Segment Information*.

(Dollars in millions)	2022	2021	2020
Net interest income			
Interest income			
Loans and leases	\$ 37,919	\$ 29,282	\$ 34,029
Debt securities	17,127	12,376	9,790
Federal funds sold and securities borrowed or purchased under agreements to resell ⁽¹⁾	4,560	(90)	903
Trading account assets	5,521	3,770	4,128
Other interest income	7,438	2,334	2,735
Total interest income	72,565	47,672	51,585
Interest expense			
Deposits	4,718	537	1,943
Short-term borrowings ⁽¹⁾	6,978	(358)	987
Trading account liabilities	1,538	1,128	974
Long-term debt	6,869	3,431	4,321
Total interest expense	20,103	4,738	8,225
Net interest income	\$ 52,462	\$ 42,934	\$ 43,360
Noninterest income			
Fees and commissions			
Card income			
Interchange fees ⁽²⁾	\$ 4,096	\$ 4,560	\$ 3,954
Other card income	1,987	1,658	1,702
Total card income	6,083	6,218	5,656
Service charges			
Deposit-related fees	5,190	6,271	5,991
Lending-related fees	1,215	1,233	1,150
Total service charges	6,405	7,504	7,141
Investment and brokerage services			
Asset management fees	12,152	12,729	10,708
Brokerage fees	3,749	3,961	3,866
Total investment and brokerage services	15,901	16,690	14,574
Investment banking fees			
Underwriting income	1,970	5,077	4,698
Syndication fees	1,070	1,499	861
Financial advisory services	1,783	2,311	1,621
Total investment banking fees	4,823	8,887	7,180
Total fees and commissions	33,212	39,299	34,551
Market making and similar activities	12,075	8,691	8,355
Other income (loss)	(2,799)	(1,811)	(738)
Total noninterest income	\$ 42,488	\$ 46,179	\$ 42,168

⁽¹⁾ For more information on negative interest, see *Note 1 – Summary of Significant Accounting Principles*.

⁽²⁾ Gross interchange fees and merchant income were \$12.9 billion, \$11.5 billion and \$9.2 billion for 2022, 2021, and 2020, respectively, and are presented net of \$8.8 billion, \$6.9 billion and \$5.5 billion of expenses for rewards and partner payments as well as certain other card costs for the same periods.

NOTE 3 Derivatives

Derivative Balances

Derivatives are entered into on behalf of customers, for trading or to support risk management activities. Derivatives used in risk management activities include derivatives that may or may not be designated in qualifying hedge accounting relationships. Derivatives that are not designated in qualifying hedge accounting relationships are referred to as other risk management derivatives. For more information on the

Corporation's derivatives and hedging activities, see Note 1 – Summary of Significant Accounting Principles. The following tables present derivative instruments included on the Consolidated Balance Sheet in derivative assets and liabilities at December 31, 2022 and 2021. Balances are presented on a gross basis, prior to the application of counterparty and cash collateral netting. Total derivative assets and liabilities are adjusted on an aggregate basis to take into consideration the effects of legally enforceable master netting agreements and have been reduced by cash collateral received or paid.

	December 31, 2022							
	Gross Derivative Assets				Gross Derivative Liabilities			
	Contract/ Notional ⁽¹⁾	Trading and Other Risk Management Derivatives	Qualifying Accounting Hedges	Total	Trading and Other Risk Management Derivatives	Qualifying Accounting Hedges	Total	
(Dollars in billions)								
Interest rate contracts								
Swaps	\$ 18,285.9	\$ 138.2	\$ 20.7	\$ 158.9	\$ 120.3	\$ 36.7	\$ 157.0	
Futures and forwards	2,796.3	8.6	—	8.6	7.8	—	7.8	
Written options ⁽²⁾	1,657.9	—	—	—	41.4	—	41.4	
Purchased options ⁽³⁾	1,594.7	42.4	—	42.4	—	—	—	
Foreign exchange contracts								
Swaps	1,509.0	44.0	0.3	44.3	43.3	0.4	43.7	
Spot, futures and forwards	4,159.3	59.9	0.1	60.0	62.1	0.6	62.7	
Written options ⁽²⁾	392.2	—	—	—	8.1	—	8.1	
Purchased options ⁽³⁾	362.6	8.3	—	8.3	—	—	—	
Equity contracts								
Swaps	394.0	10.8	—	10.8	12.2	—	12.2	
Futures and forwards	114.6	3.3	—	3.3	1.0	—	1.0	
Written options ⁽²⁾	746.8	—	—	—	45.0	—	45.0	
Purchased options ⁽³⁾	671.6	40.9	—	40.9	—	—	—	
Commodity contracts								
Swaps	56.0	5.1	—	5.1	5.3	—	5.3	
Futures and forwards	157.3	3.0	—	3.0	2.3	0.8	3.1	
Written options ⁽²⁾	59.5	—	—	—	3.3	—	3.3	
Purchased options ⁽³⁾	61.8	3.6	—	3.6	—	—	—	
Credit derivatives ⁽⁴⁾								
Purchased credit derivatives:								
Credit default swaps	319.9	2.8	—	2.8	1.6	—	1.6	
Total return swaps/options	71.5	0.7	—	0.7	3.0	—	3.0	
Written credit derivatives:								
Credit default swaps	295.2	1.2	—	1.2	2.4	—	2.4	
Total return swaps/options	85.3	4.4	—	4.4	0.9	—	0.9	
Gross derivative assets/liabilities		\$ 377.2	\$ 21.1	\$ 398.3	\$ 360.0	\$ 38.5	\$ 398.5	
Less: Legally enforceable master netting agreements				(315.9)			(315.9)	
Less: Cash collateral received/paid				(33.8)			(37.8)	
Total derivative assets/liabilities				\$ 48.6			\$ 44.8	

⁽¹⁾ Represents the total contract/notional amount of derivative assets and liabilities outstanding.

⁽²⁾ Includes certain out-of-the-money purchased options that have a liability amount primarily due to the deferral of the option premiums to the end of the contract.

⁽³⁾ Includes certain out-of-the-money written options that have an asset amount primarily due to the deferral of the option premiums to the end of the contract.

⁽⁴⁾ The net derivative asset (liability) and notional amount of written credit derivatives for which the Corporation held purchased credit derivatives with identical underlying referenced names were \$(1.2) billion and \$276.9 billion at December 31, 2022.

December 31, 2021

	Gross Derivative Assets				Gross Derivative Liabilities			
	Contract/ Notional ⁽¹⁾	Trading and Other Risk Management Derivatives	Qualifying Accounting Hedges	Total	Trading and Other Risk Management Derivatives	Qualifying Accounting Hedges	Total	
(Dollars in billions)								
Interest rate contracts								
Swaps	\$ 18,068.1	\$ 150.5	\$ 8.9	\$ 159.4	\$ 156.4	\$ 4.4	\$ 160.8	
Futures and forwards	2,243.2	1.1	—	1.1	1.0	—	1.0	
Written options ⁽²⁾	1,616.1	—	—	—	28.8	—	28.8	
Purchased options ⁽³⁾	1,673.6	33.1	—	33.1	—	—	—	
Foreign exchange contracts								
Swaps	1,420.9	28.6	0.2	28.8	30.5	0.2	30.7	
Spot, futures and forwards	4,087.2	37.1	0.3	37.4	37.7	0.2	37.9	
Written options ⁽²⁾	287.2	—	—	—	4.1	—	4.1	
Purchased options ⁽³⁾	267.6	4.1	—	4.1	—	—	—	
Equity contracts								
Swaps	443.8	12.3	—	12.3	14.5	—	14.5	
Futures and forwards	113.3	0.5	—	0.5	1.7	—	1.7	
Written options ⁽²⁾	737.7	—	—	—	58.5	—	58.5	
Purchased options ⁽³⁾	657.0	55.9	—	55.9	—	—	—	
Commodity contracts								
Swaps	47.7	3.1	—	3.1	6.0	—	6.0	
Futures and forwards	101.5	2.3	—	2.3	0.3	1.1	1.4	
Written options ⁽²⁾	44.4	—	—	—	2.6	—	2.6	
Purchased options ⁽³⁾	38.3	3.2	—	3.2	—	—	—	
Credit derivatives ⁽⁴⁾								
Purchased credit derivatives:								
Credit default swaps	297.0	1.9	—	1.9	4.3	—	4.3	
Total return swaps/options	85.3	0.2	—	0.2	1.1	—	1.1	
Written credit derivatives:								
Credit default swaps	279.8	4.2	—	4.2	1.6	—	1.6	
Total return swaps/options	85.3	0.9	—	0.9	0.5	—	0.5	
Gross derivative assets/liabilities		\$ 339.0	\$ 9.4	\$ 348.4	\$ 349.6	\$ 5.9	\$ 355.5	
Less: Legally enforceable master netting agreements				(282.3)			(282.3)	
Less: Cash collateral received/paid				(30.8)			(35.5)	
Total derivative assets/liabilities				\$ 35.3			\$ 37.7	

⁽¹⁾ Represents the total contract/notional amount of derivative assets and liabilities outstanding.

⁽²⁾ Includes certain out-of-the-money purchased options that have a liability amount primarily due to the deferral of the option premiums to the end of the contract.

⁽³⁾ Includes certain out-of-the-money written options that have an asset amount primarily due to the deferral of the option premiums to the end of the contract.

⁽⁴⁾ The net derivative asset (liability) and notional amount of written credit derivatives for which the Corporation held purchased credit derivatives with identical underlying referenced names were \$2.3 billion and \$258.4 billion at December 31, 2021.

Offsetting of Derivatives

The Corporation enters into International Swaps and Derivatives Association, Inc. (ISDA) master netting agreements or similar agreements with substantially all of the Corporation's derivative counterparties. Where legally enforceable, these master netting agreements give the Corporation, in the event of default by the counterparty, the right to liquidate securities held as collateral and to offset receivables and payables with the same counterparty. For purposes of the Consolidated Balance Sheet, the Corporation offsets derivative assets and liabilities and cash collateral held with the same counterparty where it has such a legally enforceable master netting agreement.

The following table presents derivative instruments included in derivative assets and liabilities on the Consolidated Balance

Sheet at December 31, 2022 and 2021 by primary risk (e.g., interest rate risk) and the platform, where applicable, on which these derivatives are transacted. Balances are presented on a gross basis, prior to the application of counterparty and cash collateral netting. Total gross derivative assets and liabilities are adjusted on an aggregate basis to take into consideration the effects of legally enforceable master netting agreements, which include reducing the balance for counterparty netting and cash collateral received or paid.

For more information on offsetting of securities financing agreements, see *Note 10 – Securities Financing Agreements, Short-term Borrowings, Collateral and Restricted Cash*.

Offsetting of Derivatives ⁽¹⁾

	Derivative Assets		Derivative Liabilities	
	December 31, 2022		December 31, 2021	
(Dollars in billions)				
Interest rate contracts				
Over-the-counter	\$ 138.4	\$ 132.3	\$ 171.3	\$ 166.3
Exchange-traded	0.4	0.1	0.2	—
Over-the-counter cleared	71.4	71.1	22.6	22.5
Foreign exchange contracts				
Over-the-counter	109.7	110.6	67.9	70.5
Over-the-counter cleared	1.3	1.2	1.1	1.1
Equity contracts				
Over-the-counter	21.5	22.6	29.2	32.9
Exchange-traded	33.0	33.8	38.3	38.4
Commodity contracts				
Over-the-counter	8.3	9.3	6.1	7.6
Exchange-traded	2.4	1.9	1.4	1.3
Over-the-counter cleared	0.3	0.3	0.1	0.1
Credit derivatives				
Over-the-counter	8.9	7.5	5.2	5.3
Over-the-counter cleared	—	—	1.8	1.8
Total gross derivative assets/liabilities, before netting				
Over-the-counter	286.8	282.3	279.7	282.6
Exchange-traded	35.8	35.8	39.9	39.7
Over-the-counter cleared	73.0	72.6	25.6	25.5
Less: Legally enforceable master netting agreements and cash collateral received/paid				
Over-the-counter	(243.8)	(248.2)	(250.3)	(254.6)
Exchange-traded	(33.5)	(33.5)	(37.8)	(37.8)
Over-the-counter cleared	(72.4)	(72.0)	(25.0)	(25.4)
Derivative assets/liabilities, after netting	45.9	37.0	32.1	30.0
Other gross derivative assets/liabilities ⁽²⁾	2.7	7.8	3.2	7.7
Total derivative assets/liabilities	48.6	44.8	35.3	37.7
Less: Financial instruments collateral ⁽³⁾	(18.5)	(7.4)	(11.8)	(10.6)
Total net derivative assets/liabilities	\$ 30.1	\$ 37.4	\$ 23.5	\$ 27.1

⁽¹⁾ Over-the-counter derivatives include bilateral transactions between the Corporation and a particular counterparty. Over-the-counter cleared derivatives include bilateral transactions between the Corporation and a counterparty where the transaction is cleared through a clearinghouse. Exchange-traded derivatives include listed options transacted on an exchange.

⁽²⁾ Consists of derivatives entered into under master netting agreements where the enforceability of these agreements is uncertain under bankruptcy laws in some countries or industries.

⁽³⁾ Amounts are limited to the derivative asset/liability balance and, accordingly, do not include excess collateral received/pledged. Financial instruments collateral includes securities collateral received or pledged and cash securities held and posted at third-party custodians that are not offset on the Consolidated Balance Sheet but shown as a reduction to derive net derivative assets and liabilities.

ALM and Risk Management Derivatives

The Corporation's ALM and risk management activities include the use of derivatives to mitigate risk to the Corporation including derivatives designated in qualifying hedge accounting relationships and derivatives used in other risk management activities. Interest rate, foreign exchange, equity, commodity and credit contracts are utilized in the Corporation's ALM and risk management activities.

The Corporation maintains an overall interest rate risk management strategy that incorporates the use of interest rate contracts, which are generally non-leveraged generic interest rate and basis swaps, options, futures and forwards, to minimize significant fluctuations in earnings caused by interest rate volatility. The Corporation's goal is to manage interest rate sensitivity and volatility so that movements in interest rates do not significantly adversely affect earnings or capital. As a result of interest rate fluctuations, hedged fixed-rate assets and liabilities appreciate or depreciate in fair value. Gains or losses on the derivative instruments that are linked to the hedged fixed-rate assets and liabilities are expected to substantially offset this unrealized appreciation or depreciation.

Market risk, including interest rate risk, can be substantial in the mortgage business. Market risk in the mortgage business is the risk that values of mortgage assets or revenues will be adversely affected by changes in market conditions such as interest rate movements. To mitigate the interest rate risk in mortgage banking production income, the Corporation utilizes

forward loan sale commitments and other derivative instruments, including purchased options, and certain debt securities. The Corporation also utilizes derivatives such as interest rate options, interest rate swaps, forward settlement contracts and eurodollar futures to hedge certain market risks of MSRs.

The Corporation uses foreign exchange contracts to manage the foreign exchange risk associated with certain foreign currency-denominated assets and liabilities, as well as the Corporation's investments in non-U.S. subsidiaries. Exposure to loss on these contracts will increase or decrease over their respective lives as currency exchange and interest rates fluctuate.

The Corporation purchases credit derivatives to manage credit risk related to certain funded and unfunded credit exposures. Credit derivatives include credit default swaps (CDS), total return swaps and swaptions. These derivatives are recorded on the Consolidated Balance Sheet at fair value with changes in fair value recorded in other income.

Derivatives Designated as Accounting Hedges

The Corporation uses various types of interest rate and foreign exchange derivative contracts to protect against changes in the fair value of its assets and liabilities due to fluctuations in interest rates and foreign exchange rates (fair value hedges). The Corporation also uses these types of contracts to protect against changes in the cash flows of its assets and liabilities,

and other forecasted transactions (cash flow hedges). The Corporation hedges its net investment in consolidated non-U.S. operations determined to have functional currencies other than the U.S. dollar using forward exchange contracts and cross-currency basis swaps, and by issuing foreign currency-

denominated debt (net investment hedges).

Fair Value Hedges

The table below summarizes information related to fair value hedges for 2022, 2021 and 2020.

Gains and Losses on Derivatives Designated as Fair Value Hedges

(Dollars in millions)	Derivative			Hedged Item		
	2022	2021	2020	2022	2021	2020
Interest rate risk on long-term debt ⁽¹⁾	\$ (26,654)	\$ (7,018)	\$ 7,091	\$ 26,825	\$ 6,838	\$ (7,220)
Interest rate and foreign currency risk on long-term debt ⁽²⁾	(120)	(90)	783	119	79	(783)
Interest rate risk on available-for-sale securities ⁽³⁾	21,991	5,203	(44)	(22,280)	(5,167)	49
Price risk on commodity inventory ⁽⁴⁾	674	—	—	(674)	—	—
Total	\$ (4,109)	\$ (1,905)	\$ 7,830	\$ 3,990	\$ 1,750	\$ (7,954)

⁽¹⁾ Amounts are recorded in interest expense in the Consolidated Statement of Income.

⁽²⁾ For 2022, 2021 and 2020, the derivative amount includes gains (losses) of \$(37) million, \$(73) million and \$701 million in interest expense, \$(81) million, \$0 and \$73 million in market making and similar activities, and \$(2) million, \$(17) million and \$9 million in accumulated OCI, respectively. Line item totals are in the Consolidated Statement of Income and on the Consolidated Balance Sheet.

⁽³⁾ Amounts are recorded in interest income in the Consolidated Statement of Income.

⁽⁴⁾ Amounts are recorded in market making and similar activities in the Consolidated Statement of Income.

The table below summarizes the carrying value of hedged assets and liabilities that are designated and qualifying in fair value hedging relationships along with the cumulative amount of fair value hedging adjustments included in the carrying value that have been recorded in the current hedging relationships. These fair value hedging adjustments are open basis adjustments that are not subject to amortization as long as the hedging relationship remains designated.

Designated Fair Value Hedged Assets and Liabilities

(Dollars in millions)	December 31, 2022		December 31, 2021	
	Carrying Value	Cumulative Fair Value Adjustments ⁽¹⁾	Carrying Value	Cumulative Fair Value Adjustments ⁽¹⁾
Long-term debt ⁽²⁾	\$ 187,402	\$ (21,372)	\$ 181,745	\$ 3,987
Available-for-sale debt securities ^(2, 3, 4)	167,518	(18,190)	209,038	(2,294)
Trading account assets ⁽⁵⁾	16,119	146	2,067	32

⁽¹⁾ Increase (decrease) to carrying value.

⁽²⁾ At December 31, 2022 and 2021, the cumulative fair value adjustments remaining on long-term debt and available-for-sale debt securities from discontinued hedging relationships resulted in an increase of \$137 million and \$1.5 billion in the related liability and a decrease in the related asset of \$4.9 billion and \$1.0 billion, which are being amortized over the remaining contractual life of the de-designated hedged items.

⁽³⁾ These amounts include the amortized cost of the prepayable financial assets used to designate hedging relationships in which the hedged item is the last layer expected to be remaining at the end of the hedging relationship (i.e. last-of-layer hedging relationship). At December 31, 2022 and 2021, the amortized cost of the closed portfolios used in these hedging relationships was \$21.4 billion and \$21.1 billion, of which \$9.2 billion and \$6.9 billion was designated in the last-of-layer hedging relationship. At December 31, 2022 and 2021, the cumulative adjustment associated with these hedging relationships was a decrease of \$451 million and \$172 million.

⁽⁴⁾ Carrying value represents amortized cost.

⁽⁵⁾ Represents hedging activities related to certain commodities inventory.

Cash Flow and Net Investment Hedges

The table below summarizes certain information related to cash flow hedges and net investment hedges for 2022, 2021 and 2020. Of the \$11.9 billion after-tax net loss (\$15.9 billion pretax) on derivatives in accumulated OCI at December 31, 2022, losses of \$4.4 billion after-tax (\$5.9 billion pretax) related to both open and terminated cash flow hedges are expected to be reclassified into earnings in the next 12 months. These net losses reclassified into earnings are expected

to primarily decrease net interest income related to the respective hedged items. For open cash flow hedges, the maximum length of time over which forecasted transactions are hedged is approximately seven years. For terminated cash flow hedges, the time period over which the forecasted transactions will be recognized in interest income is approximately five years, with the aggregated amount beyond this time period being insignificant.

Gains and Losses on Derivatives Designated as Cash Flow and Net Investment Hedges

(Dollars in millions, amounts pretax)	Gains (Losses) Recognized in Accumulated OCI on Derivatives			Gains (Losses) in Income Reclassified from Accumulated OCI		
	2022	2021	2020	2022	2021	2020
Cash flow hedges						
Interest rate risk on variable-rate portfolios ⁽¹⁾	\$ (13,492)	\$ (2,686)	\$ 763	\$ (338)	\$ 148	\$ (7)
Price risk on forecasted MBS purchases ⁽¹⁾	(129)	(249)	241	11	26	9
Price risk on certain compensation plans ⁽²⁾	(88)	93	85	29	55	12
Total	\$ (13,709)	\$ (2,842)	\$ 1,089	\$ (298)	\$ 229	\$ 14
Net investment hedges						
Foreign exchange risk ⁽³⁾	\$ 1,710	\$ 1,451	\$ (834)	\$ 3	\$ 23	\$ 4

⁽¹⁾ Amounts reclassified from accumulated OCI are recorded in interest income in the Consolidated Statement of Income.

⁽²⁾ Amounts reclassified from accumulated OCI are recorded in compensation and benefits expense in the Consolidated Statement of Income.

⁽³⁾ Amounts reclassified from accumulated OCI are recorded in other income in the Consolidated Statement of Income. Amounts excluded from effectiveness testing and recognized in market making and similar activities were losses of \$38 million, \$123 million and \$11 million in 2022, 2021 and 2020, respectively.

Other Risk Management Derivatives

Other risk management derivatives are used by the Corporation to reduce certain risk exposures by economically hedging various assets and liabilities. The table below presents gains (losses) on these derivatives for 2022, 2021 and 2020. These gains (losses) are largely offset by the income or expense recorded on the hedged item.

Gains and Losses on Other Risk Management Derivatives

(Dollars in millions)	2022	2021	2020
Interest rate risk on mortgage activities ^(1, 2)	\$ (326)	\$ (18)	\$ 611
Credit risk on loans ⁽²⁾	(37)	(25)	(68)
Interest rate and foreign currency risk on asset and liability management activities ⁽³⁾	4,713	1,757	(2,971)
Price risk on certain compensation plans ⁽⁴⁾	(1,073)	917	700

⁽¹⁾ Includes hedges of interest rate risk on MSRs and IRLCs to originate mortgage loans that will be held for sale.

⁽²⁾ Gains (losses) on these derivatives are recorded in other income.

⁽³⁾ Gains (losses) on these derivatives are recorded in market making and similar activities.

⁽⁴⁾ Gains (losses) on these derivatives are recorded in compensation and benefits expense.

Transfers of Financial Assets with Risk Retained through Derivatives

The Corporation enters into certain transactions involving the transfer of financial assets that are accounted for as sales where substantially all of the economic exposure to the transferred financial assets is retained through derivatives (e.g., interest rate and/or credit), but the Corporation does not retain control over the assets transferred. At both December 31, 2022 and 2021, the Corporation had transferred \$4.8 billion of non-U.S. government-guaranteed mortgage-backed securities to a third-party trust and retained economic exposure to the transferred assets through derivative contracts. In connection with these transfers, the Corporation received gross cash proceeds of \$4.9 billion and \$4.8 billion at the transfer dates. At December 31, 2022 and 2021, the fair value of the transferred securities was \$4.7 billion and \$5.0 billion.

Sales and Trading Revenue

The Corporation enters into trading derivatives to facilitate client transactions and to manage risk exposures arising from trading account assets and liabilities. It is the Corporation's policy to include these derivative instruments in its trading activities, which include derivatives and non-derivative cash instruments. The resulting risk from these derivatives is managed on a portfolio basis as part of the Corporation's *Global Markets* business segment. The related sales and trading revenue generated within *Global Markets* is recorded in various income statement line items, including market making and similar activities and net interest income as well as other revenue categories.

Sales and trading revenue includes changes in the fair value and realized gains and losses on the sales of trading and other assets, net interest income, and fees primarily from commissions on equity securities. Revenue is generated by the difference in the client price for an instrument and the price at which the trading desk can execute the trade in the dealer market. For equity securities, commissions related to purchases and sales are recorded in the "Other" column in the Sales and Trading Revenue table. Changes in the fair value of these securities are included in market making and similar activities. For debt securities, revenue, with the exception of interest associated with the debt securities, is typically included in market making and similar activities. Unlike commissions for equity securities, the initial revenue related to broker-dealer

services for debt securities is typically included in the pricing of the instrument rather than being charged through separate fee arrangements. Therefore, this revenue is recorded in market making and similar activities as part of the initial mark to fair value. For derivatives, the majority of revenue is included in market making and similar activities. In transactions where the Corporation acts as agent, which include exchange-traded futures and options, fees are recorded in other income.

The table below, which includes both derivatives and non-derivative cash instruments, identifies the amounts in the respective income statement line items attributable to the Corporation's sales and trading revenue in *Global Markets*, categorized by primary risk, for 2022, 2021 and 2020. This table includes debit valuation adjustment (DVA) and funding valuation adjustment (FVA) gains (losses). *Global Markets* results in *Note 23 – Business Segment Information* are presented on a fully taxable-equivalent (FTE) basis. The table below is not presented on an FTE basis.

Sales and Trading Revenue

(Dollars in millions)	Market making and similar activities	Net Interest Income	Other ⁽¹⁾	Total
Interest rate risk	\$ 1,919	\$ 1,619	\$ 392	\$ 3,930
Foreign exchange risk	1,981	46	(44)	1,983
Equity risk	6,077	(1,288)	1,757	6,546
Credit risk	592	2,228	177	2,997
Other risk ⁽²⁾	835	(171)	15	679
Total sales and trading revenue	\$ 11,404	\$ 2,434	\$ 2,297	\$ 16,135
2021				
Interest rate risk	\$ 523	\$ 1,794	\$ 217	\$ 2,534
Foreign exchange risk	1,505	(80)	14	1,439
Equity risk	4,581	(5)	1,834	6,410
Credit risk	1,390	1,684	556	3,630
Other risk ⁽²⁾	759	(128)	124	755
Total sales and trading revenue	\$ 8,758	\$ 3,265	\$ 2,745	\$ 14,768
2020				
Interest rate risk	\$ 2,236	\$ 2,279	\$ 229	\$ 4,744
Foreign exchange risk	1,486	(19)	2	1,469
Equity risk	3,656	(77)	1,801	5,380
Credit risk	783	1,758	331	2,872
Other risk ⁽²⁾	308	4	44	356
Total sales and trading revenue	\$ 8,469	\$ 3,945	\$ 2,407	\$ 14,821

⁽¹⁾ Represents amounts in investment and brokerage services and other income that are recorded in *Global Markets* and included in the definition of sales and trading revenue. Includes investment and brokerage services revenue of \$2.0 billion, \$1.9 billion and \$1.9 billion in 2022, 2021 and 2020, respectively.

⁽²⁾ Includes commodity risk.

Credit Derivatives

The Corporation enters into credit derivatives primarily to facilitate client transactions and to manage credit risk exposures. Credit derivatives derive value based on an underlying third-party referenced obligation or a portfolio of referenced obligations and generally require the Corporation, as the seller of credit protection, to make payments to a buyer upon the occurrence of a predefined credit event. Such credit events generally include bankruptcy of the referenced credit entity and failure to pay under the obligation, as well as acceleration of indebtedness and payment repudiation or moratorium. For credit derivatives based on a portfolio of referenced credits or credit indices, the Corporation may not be required to make payment until a specified amount of loss has

occurred and/or may only be required to make payment up to a specified amount.

Credit derivatives are classified as investment and non-investment grade based on the credit quality of the underlying referenced obligation. The Corporation considers ratings of BBB- or higher as investment grade. Non-investment grade includes non-rated credit derivative instruments. The Corporation

discloses internal categorizations of investment grade and non-investment grade consistent with how risk is managed for these instruments.

Credit derivative instruments where the Corporation is the seller of credit protection and their expiration at December 31, 2022 and 2021 are summarized in the table below.

Credit Derivative Instruments

	Less than One Year	One to Three Years	Three to Five Years	Over Five Years	Total
December 31, 2022					
Carrying Value					
(Dollars in millions)					
Credit default swaps:					
Investment grade	\$ 2	\$ 25	\$ 133	\$ 34	\$ 194
Non-investment grade	120	516	870	697	2,203
Total	122	541	1,003	731	2,397
Total return swaps/options:					
Investment grade	55	336	—	—	391
Non-investment grade	332	9	132	10	483
Total	387	345	132	10	874
Total credit derivatives	\$ 509	\$ 886	\$ 1,135	\$ 741	\$ 3,271
Credit-related notes:					
Investment grade	\$ —	\$ —	\$ 19	\$ 1,017	\$ 1,036
Non-investment grade	—	7	6	1,035	1,048
Total credit-related notes	\$ —	\$ 7	\$ 25	\$ 2,052	\$ 2,084
Maximum Payout/Notional					
Credit default swaps:					
Investment grade	\$ 34,670	\$ 66,170	\$ 93,237	\$ 18,677	\$ 212,754
Non-investment grade	15,229	29,629	30,891	6,662	82,411
Total	49,899	95,799	124,128	25,339	295,165
Total return swaps/options:					
Investment grade	38,722	10,407	—	—	49,129
Non-investment grade	32,764	500	2,054	897	36,215
Total	71,486	10,907	2,054	897	85,344
Total credit derivatives	\$ 121,385	\$ 106,706	\$ 126,182	\$ 26,236	\$ 380,509
December 31, 2021					
Carrying Value					
Credit default swaps:					
Investment grade	\$ —	\$ 5	\$ 79	\$ 49	\$ 133
Non-investment grade	34	250	453	769	1,506
Total	34	255	532	818	1,639
Total return swaps/options:					
Investment grade	35	388	—	—	423
Non-investment grade	105	—	16	—	121
Total	140	388	16	—	544
Total credit derivatives	\$ 174	\$ 643	\$ 548	\$ 818	\$ 2,183
Credit-related notes:					
Investment grade	\$ —	\$ —	\$ 36	\$ 412	\$ 448
Non-investment grade	5	—	9	1,334	1,348
Total credit-related notes	\$ 5	\$ —	\$ 45	\$ 1,746	\$ 1,796
Maximum Payout/Notional					
Credit default swaps:					
Investment grade	\$ 34,503	\$ 66,334	\$ 73,444	\$ 17,844	\$ 192,125
Non-investment grade	16,119	29,233	34,356	7,961	87,669
Total	50,622	95,567	107,800	25,805	279,794
Total return swaps/options:					
Investment grade	49,626	11,494	78	—	61,198
Non-investment grade	22,621	717	642	73	24,053
Total	72,247	12,211	720	73	85,251
Total credit derivatives	\$ 122,869	\$ 107,778	\$ 108,520	\$ 25,878	\$ 365,045

The notional amount represents the maximum amount payable by the Corporation for most credit derivatives. However, the Corporation does not monitor its exposure to credit derivatives based solely on the notional amount because this measure does not take into consideration the probability of occurrence. As such, the notional amount is not a reliable

indicator of the Corporation's exposure to these contracts. Instead, a risk framework is used to define risk tolerances and establish limits so that certain credit risk-related losses occur within acceptable, predefined limits.

Credit-related notes in the preceding table include investments in securities issued by CDO, collateralized loan

obligation (CLO) and credit-linked note vehicles. These instruments are primarily classified as trading securities. The carrying value of these instruments equals the Corporation's maximum exposure to loss. The Corporation is not obligated to make any payments to the entities under the terms of the securities owned.

Credit-related Contingent Features and Collateral

The Corporation executes the majority of its derivative contracts in the OTC market with large, international financial institutions, including broker-dealers and, to a lesser degree, with a variety of non-financial companies. A significant majority of the derivative transactions are executed on a daily margin basis. Therefore, events such as a credit rating downgrade (depending on the ultimate rating level) or a breach of credit covenants would typically require an increase in the amount of collateral required of the counterparty, where applicable, and/or allow the Corporation to take additional protective measures such as early termination of all trades. Further, as previously discussed on page 152, the Corporation enters into legally enforceable master netting agreements that reduce risk by permitting closeout and netting of transactions with the same counterparty upon the occurrence of certain events.

Certain of the Corporation's derivative contracts contain credit risk-related contingent features, primarily in the form of ISDA master netting agreements and credit support documentation that enhance the creditworthiness of these instruments compared to other obligations of the respective counterparty with whom the Corporation has transacted. These contingent features may be for the benefit of the Corporation as well as its counterparties with respect to changes in the Corporation's creditworthiness and the mark-to-market exposure under the derivative transactions. At December 31, 2022 and 2021, the Corporation held cash and securities collateral of \$101.3 billion and \$91.4 billion and posted cash and securities collateral of \$81.2 billion and \$79.3 billion in the normal course of business under derivative agreements, excluding cross-product margining agreements where clients are permitted to margin on a net basis for both derivative and secured financing arrangements.

In connection with certain OTC derivative contracts and other trading agreements, the Corporation can be required to provide additional collateral or to terminate transactions with certain counterparties in the event of a downgrade of the senior debt ratings of the Corporation or certain subsidiaries. The amount of additional collateral required depends on the contract and is usually a fixed incremental amount and/or the market value of the exposure.

At December 31, 2022, the amount of collateral, calculated based on the terms of the contracts, that the Corporation and certain subsidiaries could be required to post to counterparties but had not yet posted to counterparties was \$3.2 billion, including \$1.6 billion for Bank of America, National Association (BANA).

Some counterparties are currently able to unilaterally terminate certain contracts, or the Corporation or certain subsidiaries may be required to take other action such as find a suitable replacement or obtain a guarantee. At December 31, 2022 and 2021, the liability recorded for these derivative contracts was not significant.

The following table presents the amount of additional collateral that would have been contractually required by

derivative contracts and other trading agreements at December 31, 2022 if the rating agencies had downgraded their long-term senior debt ratings for the Corporation or certain subsidiaries by one incremental notch and by an additional second incremental notch. The table also presents derivative liabilities that would be subject to unilateral termination by counterparties upon downgrade of the Corporation's or certain subsidiaries' long-term senior debt ratings.

Additional Collateral Required to be Posted and Derivative Liabilities Subject to Unilateral Termination Upon Downgrade at December 31, 2022

(Dollars in millions)	One Incremental Notch		Second Incremental Notch	
Additional collateral required to be posted upon downgrade				
Bank of America Corporation	\$	230	\$	913
Bank of America, N.A. and subsidiaries ⁽¹⁾		66		668
Derivative liabilities subject to unilateral termination upon downgrade				
Derivative liabilities	\$	92	\$	1,073
Collateral posted		77		300

⁽¹⁾ Included in Bank of America Corporation collateral requirements in this table.

Valuation Adjustments on Derivatives

The Corporation records credit risk valuation adjustments on derivatives in order to properly reflect the credit quality of the counterparties and its own credit quality. The Corporation calculates valuation adjustments on derivatives based on a modeled expected exposure that incorporates current market risk factors. The exposure also takes into consideration credit mitigants such as enforceable master netting agreements and collateral. CDS spread data is used to estimate the default probabilities and severities that are applied to the exposures. Where no observable credit default data is available for counterparties, the Corporation uses proxies and other market data to estimate default probabilities and severity.

The table below presents credit valuation adjustment (CVA), DVA and FVA gains (losses) on derivatives (excluding the effect of any related hedge activities), which are recorded in market making and similar activities, for 2022, 2021 and 2020. CVA gains reduce the cumulative CVA thereby increasing the derivative assets balance. DVA gains increase the cumulative DVA thereby decreasing the derivative liabilities balance. CVA and DVA losses have the opposite impact. FVA gains related to derivative assets reduce the cumulative FVA thereby increasing the derivative assets balance. FVA gains related to derivative liabilities increase the cumulative FVA thereby decreasing the derivative liabilities balance. FVA losses have the opposite impact.

Valuation Adjustments Gains (Losses) on Derivatives ⁽¹⁾

(Dollars in millions)	2022		2021		2020	
Derivative assets (CVA)	\$	(80)	\$	208	\$	(118)
Derivative assets/liabilities (FVA)		125		(2)		(24)
Derivative liabilities (DVA)		194		3		24

⁽¹⁾ At December 31, 2022, 2021 and 2020, cumulative CVA reduced the derivative assets balance by \$518 million, \$438 million and \$646 million, cumulative FVA reduced the net derivative balance by \$54 million, \$179 million and \$177 million, and cumulative DVA reduced the derivative liabilities balance by \$506 million, \$312 million and \$309 million, respectively.

NOTE 4 Securities

The table below presents the amortized cost, gross unrealized gains and losses, and fair value of AFS debt securities, other debt securities carried at fair value and HTM debt securities at December 31, 2022 and 2021.

Debt Securities

	Amortized Cost	Gross		Fair Value	Amortized Cost	Gross		Fair Value
		Unrealized Gains	Unrealized Losses			Unrealized Gains	Unrealized Losses	
		December 31, 2022			December 31, 2021			
(Dollars in millions)								
Available-for-sale debt securities								
Mortgage-backed securities:								
Agency	\$ 25,204	\$ 5	\$ (1,767)	\$ 23,442	\$ 45,268	\$ 1,257	\$ (186)	\$ 46,339
Agency-collateralized mortgage obligations	2,452	—	(231)	2,221	3,331	74	(25)	3,380
Commercial	6,894	28	(515)	6,407	19,036	647	(79)	19,604
Non-agency residential ⁽¹⁾	461	15	(90)	386	591	25	(33)	583
Total mortgage-backed securities	35,011	48	(2,603)	32,456	68,226	2,003	(323)	69,906
U.S. Treasury and government agencies	160,773	18	(1,769)	159,022	197,853	1,610	(318)	199,145
Non-U.S. securities	13,455	4	(52)	13,407	11,933	—	—	11,933
Other taxable securities	4,728	1	(84)	4,645	2,725	39	(3)	2,761
Tax-exempt securities	11,518	19	(279)	11,258	15,155	317	(39)	15,433
Total available-for-sale debt securities	225,485	90	(4,787)	220,788	295,892	3,969	(683)	299,178
Other debt securities carried at fair value ⁽²⁾	8,986	376	(156)	9,206	8,873	105	(83)	8,895
Total debt securities carried at fair value	234,471	466	(4,943)	229,994	304,765	4,074	(766)	308,073
Held-to-maturity debt securities								
Agency mortgage-backed securities	503,233	—	(87,319)	415,914	553,721	3,855	(10,366)	547,210
U.S. Treasury and government agencies	121,597	—	(20,259)	101,338	111,859	254	(2,395)	109,718
Other taxable securities	8,033	—	(1,018)	7,015	9,011	147	(196)	8,962
Total held-to-maturity debt securities	632,863	—	(108,596)	524,267	674,591	4,256	(12,957)	665,890
Total debt securities ^(3,4)	\$ 867,334	\$ 466	\$ (113,539)	\$ 754,261	\$ 979,356	\$ 8,330	\$ (13,723)	\$ 973,963

⁽¹⁾ At December 31, 2022 and 2021, the underlying collateral type included approximately 17 percent and 21 percent prime and 83 percent and 79 percent subprime.

⁽²⁾ Primarily includes non-U.S. securities used to satisfy certain international regulatory requirements. Any changes in value are reported in market making and similar activities. For detail on the components, see Note 20 - Fair Value Measurements.

⁽³⁾ Includes securities pledged as collateral of \$104.5 billion and \$111.9 billion at December 31, 2022 and 2021.

⁽⁴⁾ The Corporation held debt securities from FNMA and FHLMC that each exceeded 10 percent of shareholders' equity, with an amortized cost of \$290.5 billion and \$176.7 billion, and a fair value of \$239.6 billion and \$144.6 billion at December 31, 2022, and an amortized cost of \$345.3 billion and \$205.3 billion, and a fair value of \$342.5 billion and \$202.4 billion at December 31, 2021.

At December 31, 2022, the accumulated net unrealized loss on AFS debt securities, excluding the amount related to debt securities previously transferred to held to maturity, included in accumulated OCI was \$3.5 billion, net of the related income tax benefit of \$1.2 billion. At December 31, 2022 and 2021, nonperforming AFS debt securities held by the Corporation were not significant.

At December 31, 2022 and 2021, the Corporation had \$191.1 billion and \$268.5 billion in AFS debt securities, which were primarily U.S. agency and U.S. Treasury securities that have a zero credit loss assumption. For more information on the zero credit loss assumption, see Note 1 - Summary of Significant Accounting Principles. For the remaining \$29.7 billion and \$30.7 billion in AFS debt securities at December 31, 2022 and 2021, the amount of ECL was not significant. At December 31, 2022 and 2021, the Corporation had \$524.3 billion and \$665.9 billion in HTM debt securities, which were substantially all U.S. agency and U.S. Treasury securities that have a zero credit loss assumption.

At December 31, 2022 and 2021, the Corporation held equity securities at an aggregate fair value of \$581 million

and \$513 million and other equity securities, as valued under the measurement alternative, at a carrying value of \$340 million and \$266 million, both of which are included in other assets. At December 31, 2022 and 2021, the Corporation also held money market investments at a fair value of \$868 million and \$707 million, which are included in time deposits placed and other short-term investments.

The gross realized gains and losses on sales of AFS debt securities for 2022, 2021 and 2020 are presented in the table below.

Gains and Losses on Sales of AFS Debt Securities

(Dollars in millions)	2022	2021	2020
Gross gains	\$ 1,251	\$ 49	\$ 423
Gross losses	(1,219)	(27)	(12)
Net gains on sales of AFS debt securities	\$ 32	\$ 22	\$ 411
Income tax expense attributable to realized net gains on sales of AFS debt securities	\$ 8	\$ 5	\$ 103

The table below presents the fair value and the associated gross unrealized losses on AFS debt securities and whether these securities have had gross unrealized losses for less than 12 months or for 12 months or longer at December 31, 2022 and 2021.

Total AFS Debt Securities in a Continuous Unrealized Loss Position

	Less than Twelve Months		Twelve Months or Longer		Total	
	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
(Dollars in millions)						
Continuously unrealized loss-positioned AFS debt securities						
December 31, 2022						
Mortgage-backed securities:						
Agency	\$ 18,759	\$ (1,118)	\$ 4,437	\$ (649)	\$ 23,196	\$ (1,767)
Agency-collateralized mortgage obligations	1,165	(96)	1,022	(135)	2,187	(231)
Commercial	3,273	(150)	2,258	(365)	5,531	(515)
Non-agency residential	264	(65)	97	(25)	361	(90)
Total mortgage-backed securities	23,461	(1,429)	7,814	(1,174)	31,275	(2,603)
U.S. Treasury and government agencies	36,730	(308)	118,636	(1,461)	155,366	(1,769)
Non-U.S. securities	9,399	(34)	756	(18)	10,155	(52)
Other taxable securities	2,036	(16)	1,580	(68)	3,616	(84)
Tax-exempt securities	607	(28)	2,849	(251)	3,456	(279)
Total AFS debt securities in a continuous unrealized loss position	\$ 72,233	\$ (1,815)	\$ 131,635	\$ (2,972)	\$ 203,868	\$ (4,787)
December 31, 2021						
Continuously unrealized loss-positioned AFS debt securities						
Mortgage-backed securities:						
Agency	\$ 11,733	\$ (166)	\$ 815	\$ (20)	\$ 12,548	\$ (186)
Agency-collateralized mortgage obligations	1,427	(22)	122	(3)	1,549	(25)
Commercial	3,451	(41)	776	(38)	4,227	(79)
Non-agency residential	241	(13)	174	(20)	415	(33)
Total mortgage-backed securities	16,852	(242)	1,887	(81)	18,739	(323)
U.S. Treasury and government agencies	103,307	(272)	4,850	(46)	108,157	(318)
Other taxable securities	—	—	82	(3)	82	(3)
Tax-exempt securities	502	(16)	109	(23)	611	(39)
Total AFS debt securities in a continuous unrealized loss position	\$ 120,661	\$ (530)	\$ 6,928	\$ (153)	\$ 127,589	\$ (683)

The remaining contractual maturity distribution and yields of the Corporation's debt securities carried at fair value and HTM debt securities at December 31, 2022 are summarized in the table below. Actual duration and yields may differ as prepayments on the loans underlying the MBS or other ABS are passed through to the Corporation.

Maturities of Debt Securities Carried at Fair Value and Held-to-maturity Debt Securities

(Dollars in millions)	Due in One Year or Less		Due after One Year through Five Years		Due after Five Years through Ten Years		Due after Ten Years		Total	
	Amount	Yield ⁽¹⁾	Amount	Yield ⁽¹⁾	Amount	Yield ⁽¹⁾	Amount	Yield ⁽¹⁾	Amount	Yield ⁽¹⁾
Amortized cost of debt securities carried at fair value										
Mortgage-backed securities:										
Agency	\$ —	—%	\$ 3	5.67%	\$ 56	4.39%	\$ 25,145	3.37%	\$ 25,204	3.37%
Agency-collateralized mortgage obligations	—	—	10	2.60	—	—	2,442	2.89	2,452	2.89
Commercial	22	2.09	670	3.07	4,591	2.03	1,624	2.31	6,907	2.20
Non-agency residential	—	—	—	—	—	—	825	9.54	825	9.54
Total mortgage-backed securities	22	2.09	683	3.08	4,647	2.06	30,036	3.44	35,388	3.25
U.S. Treasury and government agencies	3,306	1.59	79,618	1.68	78,378	1.64	32	3.38	161,334	1.66
Non-U.S. securities	17,499	2.41	3,002	4.58	723	3.93	279	6.87	21,503	2.82
Other taxable securities	2,034	4.77	2,102	4.85	455	3.46	137	3.35	4,728	4.64
Tax-exempt securities	890	3.36	4,765	3.55	2,022	3.73	3,841	3.88	11,518	3.68
Total amortized cost of debt securities carried at fair value	\$ 23,751	2.53	\$ 90,170	1.96	\$ 86,225	1.74	\$ 34,325	3.52	\$ 234,471	2.16
Amortized cost of HTM debt securities										
Agency mortgage-backed securities	\$ —	—%	\$ —	—%	\$ 14	2.64%	\$ 503,219	2.13%	\$ 503,233	2.13%
U.S. Treasury and government agencies	—	—	4,544	1.80	117,053	1.37	—	—	121,597	1.39
Other taxable securities	38	9.06	1,251	2.23	313	3.00	6,431	2.45	8,033	2.47
Total amortized cost of HTM debt securities	\$ 38	9.06	\$ 5,795	1.89	\$ 117,380	1.37	\$ 509,650	2.13	\$ 632,863	1.99
Debt securities carried at fair value										
Mortgage-backed securities:										
Agency	\$ —		\$ 3		\$ 56		\$ 23,383		\$ 23,442	
Agency-collateralized mortgage obligations	—		10		—		2,211		2,221	
Commercial	22		650		4,342		1,404		6,418	
Non-agency residential	—		2		—		751		753	
Total mortgage-backed securities	22		665		4,398		27,749		32,834	
U.S. Treasury and government agencies	3,312		79,013		77,228		30		159,583	
Non-U.S. securities	17,709		2,960		723		279		21,671	
Other taxable securities	2,028		2,085		413		122		4,648	
Tax-exempt securities	887		4,729		1,997		3,645		11,258	
Total debt securities carried at fair value	\$ 23,958		\$ 89,452		\$ 84,759		\$ 31,825		\$ 229,994	
Fair value of HTM debt securities										
Agency mortgage-backed securities	\$ —		\$ —		\$ 13		\$ 415,901		\$ 415,914	
U.S. Treasury and government agencies	—		4,164		97,174		—		101,338	
Other taxable securities	38		1,170		295		5,512		7,015	
Total fair value of HTM debt securities	\$ 38		\$ 5,334		\$ 97,482		\$ 421,413		\$ 524,267	

⁽¹⁾ The weighted-average yield is computed based on a constant effective interest rate over the contractual life of each security. The average yield considers the contractual coupon and the amortization of premiums and accretion of discounts, excluding the effect of related hedging derivatives.

NOTE 5 Outstanding Loans and Leases and Allowance for Credit Losses

The following tables present total outstanding loans and leases and an aging analysis for the Consumer Real Estate, Credit Card and Other Consumer, and Commercial portfolio segments, by class of financing receivables, at December 31, 2022 and 2021.

	30-59 Days Past Due ⁽¹⁾	60-89 Days Past Due ⁽¹⁾	90 Days or More Past Due ⁽¹⁾	Total Past Due 30 Days or More	Total Current or Less Than 30 Days Past Due ⁽¹⁾	Loans Accounted for Under the Fair Value Option	Total Outstandings
December 31, 2022							
(Dollars in millions)							
Consumer real estate							
Residential mortgage	\$ 1,077	\$ 245	\$ 945	\$ 2,267	\$ 227,403		\$ 229,670
Home equity	88	32	211	331	26,232		26,563
Credit card and other consumer							
Credit card	466	322	717	1,505	91,916		93,421
Direct/Indirect consumer ⁽²⁾	204	59	45	308	105,928		106,236
Other consumer	—	—	—	—	156		156
Total consumer	1,835	658	1,918	4,411	451,635		456,046
Consumer loans accounted for under the fair value option ⁽³⁾						\$ 339	339
Total consumer loans and leases	1,835	658	1,918	4,411	451,635	339	456,385
Commercial							
U.S. commercial	827	288	330	1,445	357,036		358,481
Non-U.S. commercial	317	59	144	520	123,959		124,479
Commercial real estate ⁽⁴⁾	409	81	77	567	69,199		69,766
Commercial lease financing	49	9	11	69	13,575		13,644
U.S. small business commercial ⁽⁵⁾	107	63	356	526	17,034		17,560
Total commercial	1,709	500	918	3,127	580,803		583,930
Commercial loans accounted for under the fair value option ⁽³⁾						5,432	5,432
Total commercial loans and leases	1,709	500	918	3,127	580,803	5,432	589,362
Total loans and leases ⁽⁶⁾	\$ 3,544	\$ 1,158	\$ 2,836	\$ 7,538	\$1,032,438	\$ 5,771	\$1,045,747
Percentage of outstandings	0.34 %	0.11 %	0.27 %	0.72 %	98.73 %	0.55 %	100.00 %

⁽¹⁾ Consumer real estate loans 30-59 days past due includes fully-insured loans of \$184 million and nonperforming loans of \$155 million. Consumer real estate loans 60-89 days past due includes fully-insured loans of \$75 million and nonperforming loans of \$88 million. Consumer real estate loans 90 days or more past due includes fully-insured loans of \$368 million and nonperforming loans of \$788 million. Consumer real estate loans current or less than 30 days past due includes \$1.6 billion, and direct/indirect consumer includes \$27 million of nonperforming loans.

⁽²⁾ Total outstandings primarily includes auto and specialty lending loans and leases of \$51.8 billion, U.S. securities-based lending loans of \$50.4 billion and non-U.S. consumer loans of \$3.0 billion.

⁽³⁾ Consumer loans accounted for under the fair value option includes residential mortgage loans of \$71 million and home equity loans of \$268 million. Commercial loans accounted for under the fair value option includes U.S. commercial loans of \$2.9 billion and non-U.S. commercial loans of \$2.5 billion. For more information, see Note 20 – Fair Value Measurements and Note 21 – Fair Value Option.

⁽⁴⁾ Total outstandings includes U.S. commercial real estate loans of \$64.9 billion and non-U.S. commercial real estate loans of \$4.8 billion.

⁽⁵⁾ Includes Paycheck Protection Program loans.

⁽⁶⁾ Total outstandings includes loans and leases pledged as collateral of \$18.5 billion. The Corporation also pledged \$163.6 billion of loans with no related outstanding borrowings to secure potential borrowing capacity with the Federal Reserve Bank and Federal Home Loan Bank.

	30-59 Days Past Due ⁽¹⁾	60-89 Days Past Due ⁽¹⁾	90 Days or More Past Due ⁽¹⁾	Total Past Due 30 Days or More	Total Current or Less Than 30 Days Past Due ⁽¹⁾	Loans Accounted for Under the Fair Value Option	Total Outstandings
December 31, 2021							
(Dollars in millions)							
Consumer real estate							
Residential mortgage	\$ 1,005	\$ 297	\$ 1,571	\$ 2,873	\$ 219,090		\$ 221,963
Home equity	123	69	369	561	27,374		27,935
Credit card and other consumer							
Credit card	298	212	487	997	80,441		81,438
Direct/Indirect consumer ⁽²⁾	147	52	18	217	103,343		103,560
Other consumer	—	—	—	—	190		190
Total consumer	1,573	630	2,445	4,648	430,438		435,086
Consumer loans accounted for under the fair value option ⁽³⁾						\$ 618	618
Total consumer loans and leases	1,573	630	2,445	4,648	430,438	618	435,704
Commercial							
U.S. commercial	815	308	396	1,519	324,417		325,936
Non-U.S. commercial	148	20	83	251	113,015		113,266
Commercial real estate ⁽⁴⁾	115	34	285	434	62,575		63,009
Commercial lease financing	104	28	13	145	14,680		14,825
U.S. small business commercial ⁽⁵⁾	129	259	89	477	18,706		19,183
Total commercial	1,311	649	866	2,826	533,393		536,219
Commercial loans accounted for under the fair value option ⁽³⁾						7,201	7,201
Total commercial loans and leases	1,311	649	866	2,826	533,393	7,201	543,420
Total loans and leases ⁽⁶⁾	\$ 2,884	\$ 1,279	\$ 3,311	\$ 7,474	\$ 963,831	\$ 7,819	\$ 979,124
Percentage of outstandings	0.29 %	0.13 %	0.34 %	0.76 %	98.44 %	0.80 %	100.00 %

⁽¹⁾ Consumer real estate loans 30-59 days past due includes fully-insured loans of \$164 million and nonperforming loans of \$118 million. Consumer real estate loans 60-89 days past due includes fully-insured loans of \$89 million and nonperforming loans of \$100 million. Consumer real estate loans 90 days or more past due includes fully-insured loans of \$633 million and nonperforming loans of \$1.3 billion. Consumer real estate loans current or less than 30 days past due includes \$1.4 billion, and direct/indirect consumer includes \$55 million of nonperforming loans.

⁽²⁾ Total outstandings primarily includes auto and specialty lending loans and leases of \$48.5 billion, U.S. securities-based lending loans of \$51.1 billion and non-U.S. consumer loans of \$3.0 billion.

⁽³⁾ Consumer loans accounted for under the fair value option includes residential mortgage loans of \$279 million and home equity loans of \$339 million. Commercial loans accounted for under the fair value option includes U.S. commercial loans of \$4.6 billion and non-U.S. commercial loans of \$2.6 billion. For more information, see Note 20 – Fair Value Measurements and Note 21 – Fair Value Option.

⁽⁴⁾ Total outstandings includes U.S. commercial real estate loans of \$58.2 billion and non-U.S. commercial real estate loans of \$4.8 billion.

⁽⁵⁾ Includes Paycheck Protection Program loans.

⁽⁶⁾ Total outstandings includes loans and leases pledged as collateral of \$13.0 billion. The Corporation also pledged \$146.6 billion of loans with no related outstanding borrowings to secure potential borrowing capacity with the Federal Reserve Bank and Federal Home Loan Bank.

The Corporation has entered into long-term credit protection agreements with FNMA and FHLMC on loans totaling \$9.5 billion and \$10.5 billion at December 31, 2022 and 2021, providing full credit protection on residential mortgage loans that become severely delinquent. All of these loans are individually insured, and therefore the Corporation does not record an allowance for credit losses related to these loans.

Nonperforming Loans and Leases

Commercial nonperforming loans decreased to \$1.1 billion at December 31, 2022 from \$1.6 billion at December 31, 2021, as paydowns and returns to performing status more than offset new downgrades to nonaccrual status. Consumer nonperforming loans decreased to \$2.8 billion at December 31, 2022 from

\$3.0 billion at December 31, 2021 primarily due to decreases from consumer real estate loan sales, partially offset by increases from loans whose prior-period deferrals expired and were modified in TDRs during the first quarter of 2022.

The following table presents the Corporation's nonperforming loans and leases, including nonperforming TDRs, and loans accruing past due 90 days or more at December 31, 2022 and 2021. Nonperforming LHFS are excluded from nonperforming loans and leases as they are recorded at either fair value or the lower of cost or fair value. For more information on the criteria for classification as nonperforming, see Note 1 – Summary of Significant Accounting Principles.

Credit Quality

	Nonperforming Loans and Leases		Accruing Past Due 90 Days or More	
	December 31			
	2022	2021	2022	2021
(Dollars in millions)				
Residential mortgage ⁽¹⁾	\$ 2,167	\$ 2,284	\$ 368	\$ 634
With no related allowance ⁽²⁾	1,973	1,950	—	—
Home equity ⁽¹⁾	510	630	—	—
With no related allowance ⁽²⁾	393	414	—	—
Credit Card	n/a	n/a	717	487
Direct/indirect consumer	77	75	2	11
Total consumer	2,754	2,989	1,087	1,132
U.S. commercial	553	825	190	171
Non-U.S. commercial	212	268	25	19
Commercial real estate	271	382	46	40
Commercial lease financing	4	80	8	8
U.S. small business commercial	14	23	355	87
Total commercial	1,054	1,578	624	325
Total nonperforming loans	\$ 3,808	\$ 4,567	\$ 1,711	\$ 1,457
Percentage of outstanding loans and leases	0.37 %	0.47 %	0.16 %	0.15 %

⁽¹⁾ Residential mortgage loans accruing past due 90 days or more are fully-insured loans. At December 31, 2022 and 2021 residential mortgage included \$260 million and \$444 million of loans on which interest had been curtailed by the FHA, and therefore were no longer accruing interest, although principal was still insured, and \$108 million and \$190 million of loans on which interest was still accruing.

⁽²⁾ Primarily relates to loans for which the estimated fair value of the underlying collateral less any costs to sell is greater than the amortized cost of the loans as of the reporting date. n/a = not applicable

Credit Quality Indicators

The Corporation monitors credit quality within its Consumer Real Estate, Credit Card and Other Consumer, and Commercial portfolio segments based on primary credit quality indicators. For more information on the portfolio segments, see *Note 1 – Summary of Significant Accounting Principles*. Within the Consumer Real Estate portfolio segment, the primary credit quality indicators are refreshed LTV and refreshed Fair Isaac Corporation (FICO) score. Refreshed LTV measures the carrying value of the loan as a percentage of the value of the property securing the loan, refreshed quarterly. Home equity loans are evaluated using CLTV, which measures the carrying value of the Corporation's loan and available line of credit combined with any outstanding senior liens against the property as a percentage of the value of the property securing the loan, refreshed quarterly. FICO score measures the creditworthiness of the borrower based on the financial obligations of the borrower and the borrower's credit history. FICO scores are typically refreshed quarterly or more frequently. Certain borrowers (e.g., borrowers that have had debts discharged in a bankruptcy proceeding) may not have their FICO scores updated. FICO scores are also a

primary credit quality indicator for the Credit Card and Other Consumer portfolio segment and the business card portfolio within U.S. small business commercial. Within the Commercial portfolio segment, loans are evaluated using the internal classifications of pass rated or reservable criticized as the primary credit quality indicators. The term reservable criticized refers to those commercial loans that are internally classified or listed by the Corporation as Special Mention, Substandard or Doubtful, which are asset quality categories defined by regulatory authorities. These assets have an elevated level of risk and may have a high probability of default or total loss. Pass rated refers to all loans not considered reservable criticized. In addition to these primary credit quality indicators, the Corporation uses other credit quality indicators for certain types of loans.

The following tables present certain credit quality indicators and gross charge-offs for the Corporation's Consumer Real Estate, Credit Card and Other Consumer, and Commercial portfolio segments by year of origination, except for revolving loans and revolving loans that were modified into term loans, which are shown on an aggregate basis at December 31, 2022.

Residential Mortgage – Credit Quality Indicators By Vintage

Term Loans by Origination Year

(Dollars in millions)	Total as of December 31, 2022	Term Loans by Origination Year					
		2022	2021	2020	2019	2018	Prior
Residential Mortgage							
Refreshed LTV							
Less than or equal to 90 percent	\$ 215,713	\$ 39,625	\$ 81,437	\$ 37,228	\$ 18,980	\$ 5,734	\$ 32,709
Greater than 90 percent but less than or equal to 100 percent	1,615	950	530	93	15	8	19
Greater than 100 percent	648	374	169	43	15	8	39
Fully-insured loans	11,694	580	3,667	3,102	949	156	3,240
Total Residential Mortgage	\$ 229,670	\$ 41,529	\$ 85,803	\$ 40,466	\$ 19,959	\$ 5,906	\$ 36,007
Residential Mortgage							
Refreshed FICO score							
Less than 620	\$ 2,156	\$ 377	\$ 518	\$ 373	\$ 124	\$ 84	\$ 680
Greater than or equal to 620 and less than 680	4,978	1,011	1,382	840	329	233	1,183
Greater than or equal to 680 and less than 740	25,444	5,411	8,290	4,369	2,187	830	4,357
Greater than or equal to 740	185,398	34,150	71,946	31,782	16,370	4,603	26,547
Fully-insured loans	11,694	580	3,667	3,102	949	156	3,240
Total Residential Mortgage	\$ 229,670	\$ 41,529	\$ 85,803	\$ 40,466	\$ 19,959	\$ 5,906	\$ 36,007
Gross charge-offs	\$ 161	\$ —	\$ 6	\$ 5	\$ 6	\$ 1	\$ 143

Home Equity - Credit Quality Indicators

(Dollars in millions)	Total	Home Equity Loans and Reverse Mortgages ⁽¹⁾		Revolving Loans		Revolving Loans Converted to Term Loans	
		December 31, 2022					
Home Equity							
Refreshed LTV							
Less than or equal to 90 percent	\$ 26,395	\$ 1,304	\$ 19,960	\$ 5,131			
Greater than 90 percent but less than or equal to 100 percent	62	20	24	18			
Greater than 100 percent	106	37	35	34			
Total Home Equity	\$ 26,563	\$ 1,361	\$ 20,019	\$ 5,183			
Home Equity							
Refreshed FICO score							
Less than 620	\$ 683	\$ 166	\$ 189	\$ 328			
Greater than or equal to 620 and less than 680	1,190	152	507	531			
Greater than or equal to 680 and less than 740	4,321	312	2,747	1,262			
Greater than or equal to 740	20,369	731	16,576	3,062			
Total Home Equity	\$ 26,563	\$ 1,361	\$ 20,019	\$ 5,183			
Gross charge-offs	\$ 45	\$ 5	\$ 24	\$ 16			

⁽¹⁾ Includes reverse mortgages of \$937 million and home equity loans of \$424 million, which are no longer originated.

Credit Card and Direct/Indirect Consumer – Credit Quality Indicators By Vintage

(Dollars in millions)	Direct/Indirect									Credit Card		
	Term Loans by Origination Year									Revolving Loans Converted to Term Loans ⁽¹⁾		
	Total Direct/ Indirect as of December 31, 2022	Revolving Loans	2022	2021	2020	2019	2018	Prior	Total Credit Card as of December 31, 2022	Revolving Loans	Revolving Loans Converted to Term Loans ⁽¹⁾	
Refreshed FICO score												
Less than 620	\$ 847	\$ 12	\$ 237	\$ 301	\$ 113	\$ 84	\$ 43	\$ 57	\$ 4,056	\$ 3,866	\$ 190	
Greater than or equal to 620 and less than 680	2,521	12	1,108	816	269	150	69	97	10,994	10,805	189	
Greater than or equal to 680 and less than 740	8,895	52	4,091	2,730	992	520	214	296	32,186	32,017	169	
Greater than or equal to 740	39,679	83	16,663	11,392	5,630	2,992	1,236	1,683	46,185	46,142	43	
Other internal credit metrics ^(2,3)	54,294	53,404	259	305	70	57	40	159	—	—	—	
Total credit card and other consumer	\$ 106,236	\$ 53,563	\$ 22,358	\$ 15,544	\$ 7,074	\$ 3,803	\$ 1,602	\$ 2,292	\$ 93,421	\$ 92,830	\$ 591	
Gross charge-offs	\$ 232	\$ 7	\$ 31	\$ 79	\$ 34	\$ 27	\$ 14	\$ 40	\$ 1,985	\$ 1,909	\$ 76	

⁽¹⁾ Represents TDRs that were modified into term loans.

⁽²⁾ Other internal credit metrics may include delinquency status, geography or other factors.

⁽³⁾ Direct/indirect consumer includes \$53.4 billion of securities-based lending, which is typically supported by highly liquid collateral with market value greater than or equal to the outstanding loan balance and therefore has minimal credit risk at December 31, 2022.

Commercial – Credit Quality Indicators By Vintage ⁽¹⁾

(Dollars in millions)	Total as of December 31, 2022	Term Loans							Revolving Loans
		Amortized Cost Basis by Origination Year							
		2022	2021	2020	2019	2018	Prior		
U.S. Commercial									
Risk ratings									
Pass rated	\$ 348,447	\$ 61,200	\$ 39,717	\$ 18,609	\$ 16,566	\$ 8,749	\$ 30,282	\$ 173,324	
Reservable criticized	10,034	278	794	697	884	1,202	856	5,323	
Total U.S. Commercial	\$ 358,481	\$ 61,478	\$ 40,511	\$ 19,306	\$ 17,450	\$ 9,951	\$ 31,138	\$ 178,647	
Gross charge-offs	\$ 151	\$ 2	\$ 24	\$ 24	\$ 9	\$ 6	\$ 13	\$ 73	
Non-U.S. Commercial									
Risk ratings									
Pass rated	\$ 121,890	\$ 24,839	\$ 19,098	\$ 5,183	\$ 3,882	\$ 2,423	\$ 4,697	\$ 61,768	
Reservable criticized	2,589	45	395	331	325	98	475	920	
Total Non-U.S. Commercial	\$ 124,479	\$ 24,884	\$ 19,493	\$ 5,514	\$ 4,207	\$ 2,521	\$ 5,172	\$ 62,688	
Gross charge-offs	\$ 41	\$ —	\$ 3	\$ 1	\$ —	\$ 37	\$ —	\$ —	
Commercial Real Estate									
Risk ratings									
Pass rated	\$ 64,619	\$ 15,290	\$ 13,089	\$ 5,756	\$ 9,013	\$ 4,384	\$ 8,606	\$ 8,481	
Reservable criticized	5,147	11	837	545	1,501	1,151	1,017	85	
Total Commercial Real Estate	\$ 69,766	\$ 15,301	\$ 13,926	\$ 6,301	\$ 10,514	\$ 5,535	\$ 9,623	\$ 8,566	
Gross charge-offs	\$ 75	\$ —	\$ —	\$ 6	\$ —	\$ 26	\$ 43	\$ —	
Commercial Lease Financing									
Risk ratings									
Pass rated	\$ 13,404	\$ 3,255	\$ 2,757	\$ 1,955	\$ 1,578	\$ 1,301	\$ 2,558	\$ —	
Reservable criticized	240	9	35	12	71	50	63	—	
Total Commercial Lease Financing	\$ 13,644	\$ 3,264	\$ 2,792	\$ 1,967	\$ 1,649	\$ 1,351	\$ 2,621	\$ —	
Gross charge-offs	\$ 8	\$ —	\$ 4	\$ —	\$ 4	\$ —	\$ —	\$ —	
U.S. Small Business Commercial ⁽²⁾									
Risk ratings									
Pass rated	\$ 8,726	\$ 1,825	\$ 1,953	\$ 1,408	\$ 864	\$ 624	\$ 1,925	\$ 127	
Reservable criticized	329	11	35	48	76	51	105	3	
Total U.S. Small Business Commercial	\$ 9,055	\$ 1,836	\$ 1,988	\$ 1,456	\$ 940	\$ 675	\$ 2,030	\$ 130	
Gross charge-offs	\$ 31	\$ —	\$ 1	\$ 11	\$ 4	\$ 1	\$ 6	\$ 8	
Total	\$ 575,425	\$ 106,763	\$ 78,710	\$ 34,544	\$ 34,760	\$ 20,033	\$ 50,584	\$ 250,031	
Total gross charge-offs	\$ 306	\$ 2	\$ 32	\$ 42	\$ 17	\$ 70	\$ 62	\$ 81	

⁽¹⁾ Excludes \$5.4 billion of loans accounted for under the fair value option at December 31, 2022.

⁽²⁾ Excludes U.S. Small Business Card loans of \$8.5 billion. Refreshed FICO scores for this portfolio are \$297 million for less than 620; \$859 million for greater than or equal to 620 and less than 680; \$2.4 billion for greater than or equal to 680 and less than 740; and \$5.0 billion greater than or equal to 740. Excludes U.S. Small Business Card loans gross charge-offs of \$172 million.

The following tables present certain credit quality indicators for the Corporation's Consumer Real Estate, Credit Card and Other Consumer, and Commercial portfolio segments by year of origination, except for revolving loans and revolving loans that were modified into term loans, which are shown on an aggregate basis at December 31, 2021.

Residential Mortgage – Credit Quality Indicators By Vintage

(Dollars in millions)	Total as of December 31, 2021	Term Loans by Origination Year						Prior
		2021	2020	2019	2018	2017		
Residential Mortgage								
Refreshed LTV								
Less than or equal to 90 percent	\$ 206,562	\$ 87,051	\$ 43,597	\$ 23,205	\$ 7,392	\$ 10,956	\$ 34,361	
Greater than 90 percent but less than or equal to 100 percent	1,938	1,401	331	81	17	14	94	
Greater than 100 percent	759	520	112	29	11	12	75	
Fully-insured loans	12,704	3,845	3,486	1,150	216	235	3,772	
Total Residential Mortgage	\$ 221,963	\$ 92,817	\$ 47,526	\$ 24,465	\$ 7,636	\$ 11,217	\$ 38,302	
Residential Mortgage								
Refreshed FICO score								
Less than 620	\$ 2,451	\$ 636	\$ 442	\$ 140	\$ 120	\$ 104	\$ 1,009	
Greater than or equal to 620 and less than 680	5,199	1,511	1,123	477	294	307	1,487	
Greater than or equal to 680 and less than 740	24,532	8,822	5,454	2,785	1,057	1,434	4,980	
Greater than or equal to 740	177,077	78,003	37,021	19,913	5,949	9,137	27,054	
Fully-insured loans	12,704	3,845	3,486	1,150	216	235	3,772	
Total Residential Mortgage	\$ 221,963	\$ 92,817	\$ 47,526	\$ 24,465	\$ 7,636	\$ 11,217	\$ 38,302	

Home Equity - Credit Quality Indicators

(Dollars in millions)	Total	Home Equity Loans and Reverse Mortgages ⁽¹⁾		Revolving Loans		Revolving Loans Converted to Term Loans		
		December 31, 2021						
Home Equity								
Refreshed LTV								
Less than or equal to 90 percent	\$ 27,594	\$ 1,773	\$ 19,095	\$ 6,726				
Greater than 90 percent but less than or equal to 100 percent	130	55	34	41				
Greater than 100 percent	211	85	54	72				
Total Home Equity	\$ 27,935	\$ 1,913	\$ 19,183	\$ 6,839				
Home Equity								
Refreshed FICO score								
Less than 620	\$ 893	\$ 244	\$ 209	\$ 440				
Greater than or equal to 620 and less than 680	1,434	222	495	717				
Greater than or equal to 680 and less than 740	4,625	468	2,493	1,664				
Greater than or equal to 740	20,983	979	15,986	4,018				
Total Home Equity	\$ 27,935	\$ 1,913	\$ 19,183	\$ 6,839				

⁽¹⁾ Includes reverse mortgages of \$1.3 billion and home equity loans of \$582 million, which are no longer originated.

Credit Card and Direct/Indirect Consumer – Credit Quality Indicators By Vintage

(Dollars in millions)	Direct/Indirect											
	Total Direct/ Indirect as of December 31, 2021	Revolving Loans	Term Loans by Origination Year							Credit Card		
			2021	2020	2019	2018	2017	Prior	Total Credit Card as of December 31, 2021	Revolving Loans	Revolving Loans Converted to Term Loans ⁽¹⁾	
Refreshed FICO score												
Less than 620	\$ 685	\$ 13	\$ 179	\$ 115	\$ 129	\$ 79	\$ 101	\$ 69	\$ 3,017	\$ 2,857	\$ 160	
Greater than or equal to 620 and less than 680	2,313	14	1,170	414	313	148	134	120	9,264	9,064	200	
Greater than or equal to 680 and less than 740	8,530	60	4,552	1,659	1,126	466	314	353	28,347	28,155	192	
Greater than or equal to 740	37,164	94	15,876	8,642	6,465	2,679	1,573	1,835	40,810	40,762	48	
Other internal credit metrics ^(2, 3)	54,868	54,173	283	53	77	75	63	144	—	—	—	
Total credit card and other consumer	\$ 103,560	\$ 54,354	\$ 22,060	\$ 10,883	\$ 8,110	\$ 3,447	\$ 2,185	\$ 2,521	\$ 81,438	\$ 80,838	\$ 600	

⁽¹⁾ Represents TDRs that were modified into term loans.

⁽²⁾ Other internal credit metrics may include delinquency status, geography or other factors.

⁽³⁾ Direct/indirect consumer includes \$54.2 billion of securities-based lending, which is typically supported by highly liquid collateral with market value greater than or equal to the outstanding loan balance and therefore has minimal credit risk at December 31, 2021.

Commercial – Credit Quality Indicators By Vintage ⁽¹⁾

(Dollars in millions)	Term Loans								
	Total as of December 31, 2021	Amortized Cost Basis by Origination Year							Revolving Loans
		2021	2020	2019	2018	2017	Prior		
U.S. Commercial									
Risk ratings									
Pass rated	\$ 315,618	\$ 55,862	\$ 25,012	\$ 23,373	\$ 11,439	\$ 10,426	\$ 23,877	\$ 165,629	
Reservable criticized	10,318	598	687	1,308	1,615	514	1,072	4,524	
Total U.S. Commercial	\$ 325,936	\$ 56,460	\$ 25,699	\$ 24,681	\$ 13,054	\$ 10,940	\$ 24,949	\$ 170,153	
Non-U.S. Commercial									
Risk ratings									
Pass rated	\$ 110,787	\$ 25,749	\$ 8,703	\$ 7,133	\$ 4,521	\$ 3,016	\$ 3,062	\$ 58,603	
Reservable criticized	2,479	223	324	487	275	257	216	697	
Total Non-U.S. Commercial	\$ 113,266	\$ 25,972	\$ 9,027	\$ 7,620	\$ 4,796	\$ 3,273	\$ 3,278	\$ 59,300	
Commercial Real Estate									
Risk ratings									
Pass rated	\$ 55,511	\$ 14,402	\$ 7,244	\$ 11,237	\$ 5,710	\$ 3,326	\$ 6,831	\$ 6,761	
Reservable criticized	7,498	277	990	2,237	1,710	596	1,464	224	
Total Commercial Real Estate	\$ 63,009	\$ 14,679	\$ 8,234	\$ 13,474	\$ 7,420	\$ 3,922	\$ 8,295	\$ 6,985	
Commercial Lease Financing									
Risk ratings									
Pass rated	\$ 14,438	\$ 3,280	\$ 2,485	\$ 2,427	\$ 2,030	\$ 1,741	\$ 2,475	\$ —	
Reservable criticized	387	25	18	91	67	48	138	—	
Total Commercial Lease Financing	\$ 14,825	\$ 3,305	\$ 2,503	\$ 2,518	\$ 2,097	\$ 1,789	\$ 2,613	\$ —	
U.S. Small Business Commercial ⁽²⁾									
Risk ratings									
Pass rated	\$ 11,618	\$ 4,257	\$ 2,922	\$ 1,059	\$ 763	\$ 623	\$ 1,853	\$ 141	
Reservable criticized	433	12	29	91	87	64	147	3	
Total U.S. Small Business Commercial	\$ 12,051	\$ 4,269	\$ 2,951	\$ 1,150	\$ 850	\$ 687	\$ 2,000	\$ 144	
Total	\$ 529,087	\$ 104,685	\$ 48,414	\$ 49,443	\$ 28,217	\$ 20,611	\$ 41,135	\$ 236,582	

⁽¹⁾ Excludes \$7.2 billion of loans accounted for under the fair value option at December 31, 2021.

⁽²⁾ Excludes U.S. Small Business Card loans of \$7.1 billion. Refreshed FICO scores for this portfolio are \$192 million for less than 620; \$618 million for greater than or equal to 620 and less than 680; \$1.9 billion for greater than or equal to 680 and less than 740; and \$4.4 billion greater than or equal to 740.

During 2022, commercial credit quality showed some signs of stabilization. Commercial reservable criticized utilized exposure decreased to \$19.3 billion at December 31, 2022 from \$22.4 billion (to 3.12 percent from 3.91 percent of total commercial reservable utilized exposure) at December 31, 2021, which was broad-based across industries.

Troubled Debt Restructurings

Consumer Real Estate

Modifications of consumer real estate loans are classified as TDRs when the borrower is experiencing financial difficulties and a concession has been granted. Concessions may include reductions in interest rates, capitalization of past due amounts, principal and/or interest forbearance, payment extensions, principal and/or interest forgiveness, or combinations thereof. Prior to permanently modifying a loan, the Corporation may enter into trial modifications with certain borrowers under both government and proprietary programs. Trial modifications generally represent a three- to four-month period during which the borrower makes monthly payments under the anticipated modified payment terms. Upon successful completion of the trial period, the Corporation and the borrower enter into a permanent modification. Binding trial modifications are classified as TDRs when the trial offer is made and continue to be classified as TDRs regardless of whether the borrower enters into a permanent modification.

Consumer real estate loans of \$211 million that have been discharged in Chapter 7 bankruptcy with no change in

repayment terms and not reaffirmed by the borrower were included in TDRs at December 31, 2022, of which \$53 million were classified as nonperforming and \$33 million were loans fully insured.

At December 31, 2022 and 2021, remaining commitments to lend additional funds to debtors whose terms have been modified in a consumer real estate TDR were not significant. Consumer real estate foreclosed properties totaled \$121 million and \$101 million at December 31, 2022 and 2021. The carrying value of consumer real estate loans, including fully-insured loans, for which formal foreclosure proceedings were in process at December 31, 2022 and 2021 was \$871 million and \$1.1 billion. During 2022 and 2021, the Corporation reclassified \$190 million and \$64 million of consumer real estate loans to foreclosed properties or, for properties acquired upon foreclosure of certain government-guaranteed loans (principally FHA-insured loans), to other assets. The reclassifications represent non-cash investing activities and, accordingly, are not reflected in the Consolidated Statement of Cash Flows.

The table below presents the December 31, 2022, 2021 and 2020 unpaid principal balance, carrying value, and average pre- and post-modification interest rates of consumer real estate loans that were modified in TDRs during 2022, 2021 and 2020. The following Consumer Real Estate portfolio segment tables include loans that were initially classified as TDRs during the period and also loans that had previously been classified as TDRs and were modified again during the period.

Consumer Real Estate – TDRs Entered into During 2022, 2021 and 2020

	Unpaid Principal Balance	Carrying Value	Pre- Modification Interest Rate	Post- Modification Interest Rate ⁽¹⁾
December 31, 2022				
(Dollars in millions)				
Residential mortgage	\$ 1,144	\$ 1,015	3.52 %	3.40 %
Home equity	238	191	4.61	4.65
Total	\$ 1,382	\$ 1,206	3.71	3.62
December 31, 2021				
Residential mortgage	\$ 891	\$ 788	3.48 %	3.38 %
Home equity	107	77	3.60	3.59
Total	\$ 998	\$ 865	3.49	3.41
December 31, 2020				
Residential mortgage	\$ 732	\$ 646	3.66 %	3.59 %
Home equity	87	69	3.67	3.61
Total	\$ 819	\$ 715	3.66	3.59

⁽¹⁾ The post-modification interest rate reflects the interest rate applicable only to permanently completed modifications, which exclude loans that are in a trial modification period.

The table below presents the December 31, 2022, 2021 and 2020 carrying value for consumer real estate loans that were modified in a TDR during 2022, 2021 and 2020, by type of modification.

Consumer Real Estate – Modification Programs

	TDRs Entered into During		
	2022	2021	2020
(Dollars in millions)			
Modifications under government programs	\$ 2	\$ 4	\$ 13
Modifications under proprietary programs	1,100	774	570
Loans discharged in Chapter 7 bankruptcy ⁽¹⁾	14	33	53
Trial modifications	90	54	79
Total modifications	\$ 1,206	\$ 865	\$ 715

⁽¹⁾ Includes loans discharged in Chapter 7 bankruptcy with no change in repayment terms that are classified as TDRs.

The following table presents the carrying value of consumer real estate loans that entered into payment default during 2022, 2021 and 2020 that were modified in a TDR during the 12 months preceding payment default. A payment default for consumer real estate TDRs is recognized when a borrower has missed three monthly payments (not necessarily consecutively) since modification.

Consumer Real Estate – TDRs Entering Payment Default that were Modified During the Preceding 12 Months

(Dollars in millions)	2022	2021	2020
Modifications under government programs	\$ —	\$ 4	\$ 16
Modifications under proprietary programs	189	128	51
Loans discharged in Chapter 7 bankruptcy ⁽¹⁾	2	9	19
Trial modifications ⁽²⁾	25	19	54
Total modifications	\$ 216	\$ 160	\$ 140

⁽¹⁾ Includes loans discharged in Chapter 7 bankruptcy with no change in repayment terms that are classified as TDRs.

⁽²⁾ Includes trial modification offers to which the customer did not respond.

Credit Card and Other Consumer

The Corporation seeks to assist customers who are experiencing financial difficulty by modifying loans while ensuring compliance with federal and local laws and guidelines. Credit card and other consumer loan modifications generally involve reducing the interest rate on the account, placing the customer on a fixed payment plan not exceeding 60 months and canceling the customer's available line of credit, all of which are considered TDRs. The Corporation makes loan modifications directly with borrowers for debt held only by the Corporation (internal programs). Additionally, the Corporation makes loan modifications for borrowers working with third-party renegotiation

agencies that provide solutions to customers' entire unsecured debt structures (external programs). The Corporation classifies other secured consumer loans that have been discharged in Chapter 7 bankruptcy as TDRs, which are written down to collateral value and placed on nonaccrual status no later than the time of discharge.

The table below provides information on the Corporation's Credit Card and Other Consumer TDR portfolio including the December 31, 2022, 2021 and 2020 unpaid principal balance, carrying value, and average pre- and post-modification interest rates of loans that were modified in TDRs during 2022, 2021 and 2020.

Credit Card and Other Consumer – TDRs Entered into During 2022, 2021 and 2020

(Dollars in millions)	Unpaid Principal Balance	Carrying Value ⁽¹⁾	Pre-Modification Interest Rate	Post-Modification Interest Rate
December 31, 2022				
Credit card	\$ 284	\$ 293	22.34 %	3.89 %
Direct/Indirect consumer	6	5	5.51	5.50
Total	\$ 290	\$ 298	22.06	3.92
December 31, 2021				
Credit card	\$ 237	\$ 248	18.45 %	4.09 %
Direct/Indirect consumer	23	16	5.88	5.88
Total	\$ 260	\$ 264	17.68	4.20
December 31, 2020				
Credit card	\$ 269	\$ 277	18.16 %	5.63 %
Direct/Indirect consumer	52	37	5.83	5.83
Total	\$ 321	\$ 314	16.70	5.65

⁽¹⁾ Includes accrued interest and fees.

The table below presents the December 31, 2022, 2021 and 2020 carrying value for Credit Card and Other Consumer loans that were modified in a TDR during 2022, 2021 and 2020 by program type.

Credit Card and Other Consumer – TDRs by Program Type at December 31 ⁽¹⁾

(Dollars in millions)	2022	2021	2020
Internal programs	\$ 251	\$ 214	\$ 225
External programs	44	44	73
Other	3	6	16
Total	\$ 298	\$ 264	\$ 314

⁽¹⁾ Includes accrued interest and fees.

Credit card and other consumer loans are deemed to be in payment default during the quarter in which a borrower misses the second of two consecutive payments. Payment defaults are one of the factors considered when projecting future cash flows in the calculation of the allowance for loan and lease losses for credit card and other consumer. Based on historical experience, the Corporation estimates that 15 percent of new credit card TDRs and 15 percent of new direct/indirect consumer TDRs may be in payment default within 12 months after modification.

Commercial Loans

Modifications of loans to commercial borrowers that are experiencing financial difficulty are designed to reduce the Corporation's loss exposure while providing the borrower with an opportunity to work through financial difficulties, often to avoid foreclosure or bankruptcy. Each modification is unique and reflects the individual circumstances of the borrower. Modifications that result in a TDR may include extensions of maturity at a concessionary (below market) rate of interest, payment forbearances or other actions designed to benefit the borrower while mitigating the Corporation's risk exposure.

Reductions in interest rates are rare. Instead, the interest rates are typically increased, although the increased rate may not represent a market rate of interest. Infrequently, concessions may also include principal forgiveness in connection with foreclosure, short sale or other settlement agreements leading to termination or sale of the loan.

At the time of restructuring, the loans are remeasured to reflect the impact, if any, on projected cash flows resulting from the modified terms. If a portion of the loan is deemed to be uncollectible, a charge-off may be recorded at the time of restructuring. Alternatively, a charge-off may have already been recorded in a previous period such that no charge-off is required at the time of modification.

During 2022, the carrying value of the Corporation's commercial loans that were modified as TDRs was \$1.9 billion compared to \$1.3 billion and \$1.2 billion for 2021 and 2020. At December 31, 2022, 2021 and 2020, the Corporation had commitments to lend \$358 million, \$283 million and \$402 million to commercial borrowers whose loans were classified as TDRs. The balance of commercial TDRs in payment default was \$105 million, \$262 million and \$218 million at December 31, 2022, 2021 and 2020.

Loans Held-for-sale

The Corporation had LHFS of \$6.9 billion and \$15.6 billion at December 31, 2022 and 2021. Cash and non-cash proceeds from sales and paydowns of loans originally classified as LHFS were \$32.0 billion, \$43.6 billion and \$20.1 billion for 2022, 2021 and 2020, respectively. Cash used for originations and purchases of LHFS totaled \$24.9 billion, \$37.3 billion and \$19.7 billion for 2022, 2021 and 2020, respectively. Also included were non-cash net transfers into LHFS of \$1.9 billion during 2022, primarily driven by the transfer of a \$1.6 billion affinity card loan portfolio to held for sale that was sold in October 2022, and \$808 million during 2021.

Accrued Interest Receivable

Accrued interest receivable for loans and leases and loans held-for-sale at December 31, 2022 and 2021 was \$3.8 billion and \$2.2 billion and is reported in customer and other receivables on the Consolidated Balance Sheet.

Outstanding credit card loan balances include unpaid principal, interest and fees. Credit card loans are not classified as nonperforming but are charged off no later than the end of the month in which the account becomes 180 days past due, within 60 days after receipt of notification of death or bankruptcy, or upon confirmation of fraud. During 2022 and 2021, the Corporation reversed \$332 million and \$446 million of interest and fee income against the income statement line item in which it was originally recorded upon charge-off of the principal balance of the loan.

For the outstanding residential mortgage, home equity, direct/indirect consumer and commercial loan balances classified as nonperforming during 2022 and 2021, interest and fee income reversed at the time the loans were classified as nonperforming was not significant. For more information on the Corporation's nonperforming loan policies, see *Note 1 - Summary of Significant Accounting Principles*.

Allowance for Credit Losses

The allowance for credit losses is estimated using quantitative and qualitative methods that consider a variety of factors, such as historical loss experience, the current credit quality of the portfolio and an economic outlook over the life of the loan. Qualitative reserves cover losses that are expected but, in the Corporation's assessment, may not be adequately reflected in

the quantitative methods or the economic assumptions. The Corporation incorporates forward-looking information through the use of several macroeconomic scenarios in determining the weighted economic outlook over the forecasted life of the assets. These scenarios include key macroeconomic variables such as gross domestic product, unemployment rate, real estate prices and corporate bond spreads. The scenarios that are chosen each quarter and the weighting given to each scenario depend on a variety of factors including recent economic events, leading economic indicators, internal and third-party economist views, and industry trends. For more information on the Corporation's credit loss accounting policies including the allowance for credit losses, see *Note 1 - Summary of Significant Accounting Principles*.

The December 31, 2022 estimate for allowance for credit losses was based on various economic scenarios, including a baseline scenario derived from consensus estimates, an adverse scenario reflecting an extended moderate recession, a downside scenario reflecting persistent inflation and interest rates above the baseline scenario, a tail risk scenario similar to the severely adverse scenario used in stress testing and an upside scenario that considers the potential for improvement above the baseline scenario. The overall economic outlook is weighted 95 percent towards a recessionary environment in 2023, with continued inflationary pressures leading to lower GDP and higher unemployment rate expectations as compared to the prior year. The weighted economic outlook assumes that the U.S. average unemployment rate will be above five and a half percent by the fourth quarter of 2023 and will slowly decline to five percent by the fourth quarter of 2024. Additionally, in this economic outlook, U.S. gross domestic product is forecasted to contract at 0.4 percent and grow at 1.2 percent year-over-year in the fourth quarters of 2023 and 2024. For comparison, as of December 31, 2021, the weighted economic outlook for the U.S. average unemployment rate was forecasted to be just above five percent by the fourth quarter of 2022 and slowly decline to just under five percent by the fourth quarter of 2023 and U.S. gross domestic product was forecasted at 2.1 percent and 1.9 percent year-over-year in the fourth quarters of 2022 and 2023.

The allowance for credit losses at December 31, 2022 was \$14.2 billion, an increase of \$379 million compared to December 31, 2021. The increase in the allowance for credit losses was primarily driven by loan growth and a dampened macroeconomic outlook, partially offset by a reserve release for reduced pandemic uncertainties. The change in the allowance for credit losses was comprised of a net increase of \$295 million in the allowance for loan and lease losses and an increase of \$84 million in the reserve for unfunded lending commitments. The increase in the allowance for credit losses was attributed to increases in the credit card and other consumer portfolios of \$341 million, and commercial portfolio of \$177 million, partially offset by a decrease in the consumer real estate portfolio of \$139 million. The provision for credit losses increased \$7.1 billion to an expense of \$2.5 billion in 2022 compared to a benefit of \$4.6 billion in 2021 and an expense of \$11.3 billion in 2020. The increase in the provision for credit losses in 2022 was primarily driven by loan growth and a dampened macroeconomic outlook, partially offset by reduced pandemic uncertainties. The benefit in 2021 was primarily due to an improved macroeconomic outlook and credit quality.

Outstanding loans and leases excluding loans accounted for under the fair value option increased \$68.7 billion in 2022 primarily driven by commercial loans, which increased \$47.7 billion, driven by broad-based growth, and consumer loans which

increased \$21.0 billion, primarily driven by credit card and residential mortgage.

The changes in the allowance for credit losses, including net charge-offs and provision for loan and lease losses, are detailed in the table below.

	Consumer		Credit Card and		Commercial	Total		
	Real Estate		Other Consumer					
(Dollars in millions)								
2022								
Allowance for loan and lease losses, January 1	\$	557	\$	6,476	\$	5,354	\$	12,387
Loans and leases charged off		(206)		(2,755)		(478)		(3,439)
Recoveries of loans and leases previously charged off		224		882		161		1,267
Net charge-offs		18		(1,873)		(317)		(2,172)
Provision for loan and lease losses		(164)		2,215		409		2,460
Other		9		(1)		(1)		7
Allowance for loan and lease losses, December 31		420		6,817		5,445		12,682
Reserve for unfunded lending commitments, January 1		96		—		1,360		1,456
Provision for unfunded lending commitments		(3)		—		86		83
Other		1		—		—		1
Reserve for unfunded lending commitments, December 31		94		—		1,446		1,540
Allowance for credit losses, December 31	\$	514	\$	6,817	\$	6,891	\$	14,222
2021								
Allowance for loan and lease losses, January 1	\$	858	\$	9,213	\$	8,731	\$	18,802
Loans and leases charged off		(78)		(3,000)		(719)		(3,797)
Recoveries of loans and leases previously charged off		225		1,006		323		1,554
Net charge-offs		147		(1,994)		(396)		(2,243)
Provision for loan and lease losses		(449)		(744)		(2,980)		(4,173)
Other		1		1		(1)		1
Allowance for loan and lease losses, December 31		557		6,476		5,354		12,387
Reserve for unfunded lending commitments, January 1		137		—		1,741		1,878
Provision for unfunded lending commitments		(41)		—		(380)		(421)
Other		—		—		(1)		(1)
Reserve for unfunded lending commitments, December 31		96		—		1,360		1,456
Allowance for credit losses, December 31	\$	653	\$	6,476	\$	6,714	\$	13,843
2020								
Allowance for loan and lease losses, January 1	\$	440	\$	7,430	\$	4,488	\$	12,358
Loans and leases charged off		(98)		(3,646)		(1,675)		(5,419)
Recoveries of loans and leases previously charged off		201		891		206		1,298
Net charge-offs		103		(2,755)		(1,469)		(4,121)
Provision for loan and lease losses		307		4,538		5,720		10,565
Other		8		—		(8)		—
Allowance for loan and lease losses, December 31		858		9,213		8,731		18,802
Reserve for unfunded lending commitments, January 1		119		—		1,004		1,123
Provision for unfunded lending commitments		18		—		737		755
Reserve for unfunded lending commitments, December 31		137		—		1,741		1,878
Allowance for credit losses, December 31	\$	995	\$	9,213	\$	10,472	\$	20,680

NOTE 6 Securitizations and Other Variable Interest Entities

The Corporation utilizes VIEs in the ordinary course of business to support its own and its customers' financing and investing needs. The Corporation routinely securitizes loans and debt securities using VIEs as a source of funding for the Corporation and as a means of transferring the economic risk of the loans or debt securities to third parties. The assets are transferred into a trust or other securitization vehicle such that the assets are legally isolated from the creditors of the Corporation and are not available to satisfy its obligations. These assets can only be used to settle obligations of the trust or other securitization vehicle. The Corporation also administers, structures or invests in other VIEs including CDOs, investment vehicles and other entities. For more information on the Corporation's use of VIEs, see *Note 1 - Summary of Significant Accounting Principles*.

The tables in this Note present the assets and liabilities of consolidated and unconsolidated VIEs at December 31, 2022 and 2021 in situations where the Corporation has continuing involvement with transferred assets or if the Corporation otherwise has a variable interest in the VIE. The tables also

present the Corporation's maximum loss exposure at December 31, 2022 and 2021 resulting from its involvement with consolidated VIEs and unconsolidated VIEs in which the Corporation holds a variable interest. The Corporation's maximum loss exposure is based on the unlikely event that all of the assets in the VIEs become worthless and incorporates not only potential losses associated with assets recorded on the Consolidated Balance Sheet but also potential losses associated with off-balance sheet commitments, such as unfunded liquidity commitments and other contractual arrangements. The Corporation's maximum loss exposure does not include losses previously recognized through write-downs of assets.

The Corporation invests in ABS issued by third-party VIEs with which it has no other form of involvement and enters into certain commercial lending arrangements that may also incorporate the use of VIEs, for example to hold collateral. These securities and loans are included in *Note 4 - Securities* or *Note 5 - Outstanding Loans and Leases and Allowance for Credit Losses*. In addition, the Corporation has used VIEs in connection with its funding activities.

The Corporation did not provide financial support to consolidated or unconsolidated VIEs during 2022, 2021 and 2020 that it was not previously contractually required to provide, nor does it intend to do so.

The Corporation had liquidity commitments, including written put options and collateral value guarantees, with certain unconsolidated VIEs of \$978 million and \$968 million at December 31, 2022 and 2021.

First-lien Mortgage Securitizations

As part of its mortgage banking activities, the Corporation securitizes a portion of the first-lien residential mortgage loans it originates or purchases from third parties, generally in the form of residential mortgage-backed securities (RMBS) guaranteed by government-sponsored enterprises, FNMA and FHLMC (collectively the GSEs), or the Government National Mortgage Association (GNMA) primarily in the case of FHA-

insured and U.S. Department of Veterans Affairs (VA)-guaranteed mortgage loans. Securitization usually occurs in conjunction with or shortly after origination or purchase, and the Corporation may also securitize loans held in its residential mortgage portfolio. In addition, the Corporation may, from time to time, securitize commercial mortgages it originates or purchases from other entities. The Corporation typically services the loans it securitizes. Further, the Corporation may retain beneficial interests in the securitization trusts including senior and subordinate securities and equity tranches issued by the trusts. Except as described in *Note 12 – Commitments and Contingencies*, the Corporation does not provide guarantees or recourse to the securitization trusts other than standard representations and warranties.

The table below summarizes select information related to first-lien mortgage securitizations for 2022, 2021 and 2020.

First-lien Mortgage Securitizations

	Residential Mortgage - Agency			Commercial Mortgage		
	2022	2021	2020	2022	2021	2020
(Dollars in millions)						
Proceeds from loan sales ⁽¹⁾	\$ 8,084	\$ 6,664	\$ 15,823	\$ 5,853	\$ 10,874	\$ 5,084
Gains on securitizations ⁽²⁾	8	9	728	46	156	61
Repurchases from securitization trusts ⁽³⁾	53	756	436	—	—	—

⁽¹⁾ The Corporation transfers residential mortgage loans to securitizations sponsored primarily by the GSEs or GNMA in the normal course of business and primarily receives residential mortgage-backed securities in exchange. Substantially all of these securities are classified as Level 2 within the fair value hierarchy and are typically sold shortly after receipt.

⁽²⁾ A majority of the first-lien residential mortgage loans securitized are initially classified as LHFS and accounted for under the fair value option. Gains recognized on these LHFS prior to securitization, which totaled \$41 million, \$121 million and \$160 million net of hedges, during 2022, 2021 and 2020, respectively, are not included in the table above.

⁽³⁾ The Corporation may have the option to repurchase delinquent loans out of securitization trusts, which reduces the amount of servicing advances it is required to make. The Corporation may also repurchase loans from securitization trusts to perform modifications. Repurchased loans include FHA-insured mortgages collateralizing GNMA securities.

The Corporation recognizes consumer MSR from the sale or securitization of consumer real estate loans. The unpaid principal balance of loans serviced for investors, including residential mortgage and home equity loans, totaled \$100.1 billion and \$115.4 billion at December 31, 2022 and 2021. Servicing fee and ancillary fee income on serviced loans was \$274 million, \$392 million and \$474 million during 2022, 2021 and 2020, respectively. Servicing advances on serviced loans, including loans serviced for others and loans held for investment, were \$1.6 billion and \$2.0 billion at December 31, 2022 and 2021. For more information on MSRs, see *Note 20 – Fair Value Measurements*.

During 2022, the Corporation deconsolidated agency residential mortgage securitization trusts with total assets of \$784 million, with no significant deconsolidations in 2021.

During 2020, the Corporation completed the sale of \$9.3 billion of consumer real estate loans through GNMA loan securitizations. As part of the securitizations, the Corporation retained \$8.4 billion of MBS, which are classified as debt securities carried at fair value on the Consolidated Balance Sheet. Total gains on loan sales of \$704 million were recorded in other income in the Consolidated Statement of Income.

The following table summarizes select information related to first-lien mortgage securitization trusts in which the Corporation held a variable interest at December 31, 2022 and 2021.

First-lien Mortgage VIEs

	Residential Mortgage									
	Agency		Non-agency				Alt-A		Commercial Mortgage	
			Prime		Subprime					
	December 31									
2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	
(Dollars in millions)										
Unconsolidated VIEs										
Maximum loss exposure ⁽¹⁾	\$ 9,112	\$ 11,600	\$ 91	\$ 121	\$ 735	\$ 908	\$ 28	\$ 14	\$ 1,594	\$ 1,445
On-balance sheet assets										
Senior securities:										
Trading account assets	\$ 232	\$ 175	\$ 3	\$ 8	\$ 25	\$ 44	\$ 26	\$ 12	\$ 91	\$ 21
Debt securities carried at fair value	3,027	5,009	—	—	410	537	—	—	—	—
Held-to-maturity securities	5,853	6,416	—	—	—	—	—	—	1,268	1,157
All other assets	—	—	3	3	25	29	2	2	101	93
Total retained positions	\$ 9,112	\$ 11,600	\$ 6	\$ 11	\$ 460	\$ 610	\$ 28	\$ 14	\$ 1,460	\$ 1,271
Principal balance outstanding ⁽²⁾	\$ 81,644	\$ 93,142	\$ 3,973	\$ 4,710	\$ 5,034	\$ 6,179	\$ 11,568	\$ 13,627	\$ 85,101	\$ 85,540

Consolidated VIEs										
Maximum loss exposure ⁽¹⁾	\$ 1,735	\$ 1,644	\$ —	\$ 49	\$ 78	\$ —	\$ —	\$ —	\$ —	\$ —
On-balance sheet assets										
Trading account assets	\$ 1,735	\$ 1,644	\$ —	\$ —	\$ 78	\$ —	\$ —	\$ —	\$ —	\$ —
Loans and leases, net	—	—	—	58	—	—	—	—	—	—
Total assets	\$ 1,735	\$ 1,644	\$ —	\$ 58	\$ 78	\$ —	\$ —	\$ —	\$ —	\$ —
Total liabilities	\$ —	\$ —	\$ —	\$ 9	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —

⁽¹⁾ Maximum loss exposure includes obligations under loss-sharing reinsurance and other arrangements for non-agency residential mortgage and commercial mortgage securitizations, but excludes the reserve for representations and warranties obligations and corporate guarantees and also excludes servicing advances and other servicing rights and obligations. For more information, see Note 12 – Commitments and Contingencies and Note 20 – Fair Value Measurements.

⁽²⁾ Principal balance outstanding includes loans where the Corporation was the transferor to securitization VIEs with which it has continuing involvement, which may include servicing the loans.

Other Asset-backed Securitizations

The table below summarizes select information related to home equity, credit card and other asset-backed VIEs in which the Corporation held a variable interest at December 31, 2022 and 2021.

Home Equity Loan, Credit Card and Other Asset-backed VIEs

	Home Equity ⁽¹⁾		Credit Card ⁽²⁾		Resecuritization Trusts		Municipal Bond Trusts	
	December 31							
	2022	2021	2022	2021	2022	2021	2022	2021
(Dollars in millions)								
Unconsolidated VIEs								
Maximum loss exposure	\$ 119	\$ 152	\$ —	\$ —	\$ 4,243	\$ 6,089	\$ 2,537	\$ 4,094
On-balance sheet assets								
Securities ⁽³⁾ :								
Trading account assets	\$ —	\$ —	\$ —	\$ —	\$ 456	\$ 1,030	\$ —	\$ —
Debt securities carried at fair value	1	1	—	—	1,259	1,903	—	—
Held-to-maturity securities	—	—	—	—	2,528	3,156	—	—
Total retained positions	\$ 1	\$ 1	\$ —	\$ —	\$ 4,243	\$ 6,089	\$ —	\$ —
Total assets of VIEs	\$ 326	\$ 430	\$ —	\$ —	\$ 12,255	\$ 18,633	\$ 3,016	\$ 4,655
Consolidated VIEs								
Maximum loss exposure	\$ 32	\$ 45	\$ 9,555	\$ 10,279	\$ 551	\$ 680	\$ —	\$ 210
On-balance sheet assets								
Trading account assets	\$ —	\$ —	\$ —	\$ —	\$ 650	\$ 686	\$ —	\$ 122
Loans and leases	97	140	14,555	14,434	—	—	—	—
Allowance for loan and lease losses	12	14	(808)	(970)	—	—	—	—
All other assets	2	3	68	70	—	—	—	88
Total assets	\$ 111	\$ 157	\$ 13,815	\$ 13,534	\$ 650	\$ 686	\$ —	\$ 210
On-balance sheet liabilities								
Short-term borrowings	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ 196
Long-term debt	79	113	4,247	3,248	99	6	—	—
All other liabilities	—	—	13	7	—	—	—	—
Total liabilities	\$ 79	\$ 113	\$ 4,260	\$ 3,255	\$ 99	\$ 6	\$ —	\$ 196

⁽¹⁾ For unconsolidated home equity loan VIEs, the maximum loss exposure includes outstanding trust certificates issued by trusts in rapid amortization, net of recorded reserves. For both consolidated and unconsolidated home equity loan VIEs, the maximum loss exposure excludes the reserve for representations and warranties obligations and corporate guarantees. For more information, see Note 12 – Commitments and Contingencies.

⁽²⁾ At December 31, 2022 and 2021, loans and leases in the consolidated credit card trust included \$3.3 billion and \$4.3 billion of seller's interest.

⁽³⁾ The retained senior securities were valued using quoted market prices or observable market inputs (Level 2 of the fair value hierarchy).

Home Equity Loans

The Corporation retains interests, primarily senior securities, in home equity securitization trusts to which it transferred home equity loans. In addition, the Corporation may be obligated to provide subordinate funding to the trusts during a rapid amortization event. This obligation is included in the maximum loss exposure in the preceding table. The charges that will ultimately be recorded as a result of the rapid amortization events depend on the undrawn portion of the home equity lines of credit, performance of the loans, the amount of subsequent draws and the timing of related cash flows.

Credit Card Securitizations

The Corporation securitizes originated and purchased credit card loans. The Corporation's continuing involvement with the securitization trust includes servicing the receivables, retaining an undivided interest (seller's interest) in the receivables, and holding certain retained interests, including subordinate interests in accrued interest and fees on the securitized receivables and cash reserve accounts.

During 2022, 2021 and 2020, the Corporation issued new senior debt securities to third-party investors from the credit card securitization trust totaling \$2.3 billion, \$1.0 billion, and \$1.0 billion, respectively.

At December 31, 2022 and 2021, the Corporation held subordinate securities issued by the credit card securitization trust with a notional principal amount of \$6.7 billion and \$6.5 billion. These securities serve as a form of credit enhancement to the senior debt securities and have a stated interest rate of zero percent. During 2022, 2021 and 2020, the credit card securitization trust issued \$363 million, \$161 million and \$161 million, respectively, of these subordinate securities.

Resecuritization Trusts

The Corporation transfers securities, typically MBS, into resecuritization VIEs generally at the request of customers seeking securities with specific characteristics. Generally, there are no significant ongoing activities performed in a resecuritization trust, and no single investor has the unilateral ability to liquidate the trust.

The Corporation resecuritized \$21.8 billion, \$28.9 billion and \$39.0 billion of securities during 2022, 2021 and 2020, respectively. Securities transferred into resecuritization VIEs were measured at fair value with changes in fair value recorded in market making and similar activities prior to the resecuritization and, accordingly, no gain or loss on sale was recorded. Securities received from the resecuritization VIEs were recognized at their fair value of \$2.4 billion, \$2.2 billion and \$6.1 billion during 2022, 2021 and 2020, respectively. In 2022 and 2021, substantially all of the securities were classified as trading account assets. All of the securities received as resecuritization proceeds during 2020 were classified as trading account assets. Of the securities received as resecuritization proceeds during 2020, \$2.4 billion, \$2.1 billion and \$1.7 billion were classified as trading account assets, debt securities carried at fair value and HTM securities, respectively. Substantially all of the trading account securities carried at fair value were categorized as Level 2 within the fair value hierarchy.

Municipal Bond Trusts

The Corporation administers municipal bond trusts that hold highly-rated, long-term, fixed-rate municipal bonds. The trusts obtain financing by issuing floating-rate trust certificates that reprice on a weekly or other short-term basis to third-party investors.

The Corporation's liquidity commitments to unconsolidated municipal bond trusts, including those for which the Corporation was transferor, totaled \$2.5 billion and \$4.1 billion at December 31, 2022 and 2021. The weighted-average remaining life of bonds held in the trusts at December 31, 2022 was 8.7 years. There were no significant write-downs or downgrades of assets or issuers during 2022, 2021 and 2020.

Other Variable Interest Entities

The table below summarizes select information related to other VIEs in which the Corporation held a variable interest at December 31, 2022 and 2021.

Other VIEs

(Dollars in millions)	Consolidated			Unconsolidated			Total					
	December 31, 2022			December 31, 2021								
Maximum loss exposure	\$	2,286	\$	31,405	\$	33,691	\$	4,819	\$	27,790	\$	32,609
On-balance sheet assets												
Trading account assets	\$	353	\$	638	\$	991	\$	2,552	\$	626	\$	3,178
Debt securities carried at fair value		—		5		5		—		7		7
Loans and leases		2,086		90		2,176		2,503		47		2,550
Allowance for loan and lease losses		(1)		(12)		(13)		(2)		(12)		(14)
All other assets		46		30,221		30,267		28		26,628		26,656
Total	\$	2,484	\$	30,942	\$	33,426	\$	5,081	\$	27,296	\$	32,377
On-balance sheet liabilities												
Short-term borrowings	\$	42	\$	—	\$	42	\$	51	\$	—	\$	51
Long-term debt		156		—		156		211		—		211
All other liabilities		—		7,318		7,318		—		6,548		6,548
Total	\$	198	\$	7,318	\$	7,516	\$	262	\$	6,548	\$	6,810
Total assets of VIEs	\$	2,484	\$	101,271	\$	103,755	\$	5,081	\$	92,249	\$	97,330

Customer VIEs

Customer VIEs include credit-linked, equity-linked and commodity-linked note VIEs, repackaging VIEs and asset acquisition VIEs, which are typically created on behalf of customers who wish to obtain market or credit exposure to a specific company, index, commodity or financial instrument.

The Corporation's maximum loss exposure to consolidated and unconsolidated customer VIEs totaled \$914 million and \$2.9 billion at December 31, 2022 and 2021, including the notional amount of derivatives to which the Corporation is a counterparty, net of losses previously recorded, and the Corporation's investment, if any, in securities issued by the VIEs.

Collateralized Debt Obligation VIEs

The Corporation receives fees for structuring CDO VIEs, which hold diversified pools of fixed-income securities, typically corporate debt or ABS, which the CDO VIEs fund by issuing multiple tranches of debt and equity securities. CDOs are generally managed by third-party portfolio managers. The Corporation typically transfers assets to these CDOs, holds securities issued by the CDOs and may be a derivative counterparty to the CDOs. The Corporation's maximum loss exposure to consolidated and unconsolidated CDOs totaled \$197 million and \$235 million at December 31, 2022 and 2021.

Investment VIEs

The Corporation sponsors, invests in or provides financing, which may be in connection with the sale of assets, to a variety of investment VIEs that hold loans, real estate, debt securities or other financial instruments and are designed to provide the desired investment profile to investors or the Corporation. At December 31, 2022 and 2021, the Corporation's consolidated investment VIEs had total assets of \$854 million and \$1.0 billion. The Corporation also held investments in unconsolidated VIEs with total assets of \$12.2 billion and \$7.1 billion at December 31, 2022 and 2021. The Corporation's maximum loss exposure associated with both consolidated and unconsolidated investment VIEs totaled \$2.4 billion and \$2.0 billion at December 31, 2022 and 2021 comprised primarily of on-balance sheet assets less non-recourse liabilities.

Leveraged Lease Trusts

The Corporation's net investment in consolidated leveraged lease trusts totaled \$1.2 billion and \$1.5 billion at December 31, 2022 and 2021. The trusts hold long-lived equipment such as rail cars, power generation and distribution equipment, and commercial aircraft. The Corporation structures the trusts and holds a significant residual interest. The net investment represents the Corporation's maximum loss exposure to the trusts in the unlikely event that the leveraged lease investments become worthless. Debt issued by the leveraged lease trusts is non-recourse to the Corporation.

Tax Credit VIEs

The Corporation holds investments in unconsolidated limited partnerships and similar entities that construct, own and operate affordable housing, wind and solar projects. An unrelated third party is typically the general partner or managing member and has control over the significant activities of the VIE. As an investor, tax credits associated with the investments in these entities are allocated to the Corporation, as provided by the U.S. Internal Revenue Code and related regulations, and are recognized as income tax benefits in the Corporation's Consolidated Statement of Income in the year they are earned,

which varies based on the type of investments. Tax credits from environmental, social and governance (ESG) investments in affordable housing are recognized ratably over a term of up to 10 years, and tax credits from wind and solar energy investments are recognized either at inception for transactions electing Investment Tax Credits (ITCs) or as energy is produced for transactions electing Production Tax Credits (PTCs), which is generally up to a 10-year time period. The volume and types of investments held by the Corporation will influence the amount of tax credits recognized each period. The maximum loss exposure included in the Other VIEs table was \$28.8 billion and \$25.7 billion at December 31, 2022 and 2021. In addition to that amount, the Corporation had unfunded capital contributions for renewable energy investments of \$1.9 billion and \$1.0 billion at December 31, 2022 and 2021. The capital contributions are contingent on various conditions precedent to funding over the next two years. The Corporation's risk of loss is generally mitigated by policies requiring that the project qualify for the expected tax credits prior to making its investment.

The Corporation's investments in affordable housing partnerships, which are reported in other assets on the Consolidated Balance Sheet, totaled \$14.1 billion and \$12.6 billion, including unfunded commitments to provide capital contributions of \$6.6 billion and \$5.8 billion, at December 31, 2022 and 2021. The unfunded commitments are expected to be paid over the next five years. During 2022, 2021 and 2020, the Corporation recognized tax credits and other tax benefits of \$1.5 billion, \$1.3 billion and \$1.2 billion and reported pretax losses in other income of \$1.2 billion, \$1.1 billion and \$1.0 billion. These tax credits are recognized as part of the Corporation's annual effective tax rate used to determine tax expense in a given quarter. The Corporation may be asked to invest additional amounts to support a troubled affordable housing project. Such additional investments have not been and are not expected to be significant.

NOTE 7 Goodwill and Intangible Assets

Goodwill

The table below presents goodwill balances by business segment at December 31, 2022 and 2021. The reporting units utilized for goodwill impairment testing are the operating segments or one level below.

	December 31	
	2022	2021
(Dollars in millions)		
Consumer Banking	\$ 30,137	\$ 30,137
Global Wealth & Investment Management	9,677	9,677
Global Banking	24,026	24,026
Global Markets	5,182	5,182
Total goodwill	\$ 69,022	\$ 69,022

During 2022, the Corporation completed its annual goodwill impairment test as of June 30, 2022 using qualitative assessments for all applicable reporting units. Based on the results of the annual goodwill impairment test, the Corporation determined there was no impairment. For more information on the use of qualitative assessments, see *Note 1 - Summary of Significant Accounting Principles*.

Intangible Assets

At December 31, 2022 and 2021, the net carrying value of intangible assets was \$2.1 billion and \$2.2 billion. At both December 31, 2022 and 2021, intangible assets included \$1.6

billion of intangible assets associated with trade names, substantially all of which had an indefinite life and, accordingly, are not being amortized. Amortization of intangibles expense was \$78 million, \$76 million and \$95 million for 2022, 2021 and 2020.

NOTE 8 Leases

The Corporation enters into both lessor and lessee arrangements. For more information on lease accounting, see Note 1 – Summary of Significant Accounting Principles and on lease financing receivables, see Note 5 – Outstanding Loans and Leases and Allowance for Credit Losses.

Lessor Arrangements

The Corporation's lessor arrangements primarily consist of operating, sales-type and direct financing leases for equipment. Lease agreements may include options to renew and for the lessee to purchase the leased equipment at the end of the lease term.

The table below presents the net investment in sales-type and direct financing leases at December 31, 2022 and 2021.

Net Investment ⁽¹⁾

	December 31	
	2022	2021
(Dollars in millions)		
Lease receivables	\$ 15,123	\$ 16,806
Unguaranteed residuals	2,143	2,078
Total net investment in sales-type and direct financing leases	\$ 17,266	\$ 18,884

⁽¹⁾ In certain cases, the Corporation obtains third-party residual value insurance to reduce its residual asset risk. The carrying value of residual assets with third-party residual value insurance for at least a portion of the asset value was \$6.5 billion and \$7.1 billion at December 31, 2022 and 2021.

The table below presents lease income for 2022, 2021 and 2020.

Lease Income

	2022	2021	2020
	(Dollars in millions)		
Sales-type and direct financing leases	\$ 589	\$ 613	\$ 707
Operating leases	941	930	931
Total lease income	\$ 1,530	\$ 1,543	\$ 1,638

Lessee Arrangements

The Corporation's lessee arrangements predominantly consist of operating leases for premises and equipment; the Corporation's financing leases are not significant.

Lease terms may contain renewal and extension options and early termination features. Generally, these options do not impact the lease term because the Corporation is not reasonably certain that it will exercise the options.

The following table provides information on the right-of-use assets, lease liabilities and weighted-average discount rates and lease terms at December 31, 2022 and 2021.

Supplemental Information for Lessee Arrangements

	December 31		
	2022	2021	
(Dollars in millions)			
Right-of-use asset	\$ 9,755	\$ 10,233	
Lease liabilities	10,359	10,858	
Weighted-average discount rate used to calculate present value of future minimum lease payments	3.25 %	2.91 %	
Weighted-average lease term (in years)	8.6	9.0	
Right-of-use assets obtained in exchange for new operating lease liabilities ⁽¹⁾	\$ 824	\$ 1,713	
	2022	2021	2020
Operating cash flows from operating leases ⁽²⁾	\$ 1,986	\$ 1,964	\$ 2,039
Lease Cost and Supplemental Information:			
Operating lease cost	\$ 2,008	\$ 2,025	\$ 2,149
Variable lease cost ⁽³⁾	464	462	474
Total lease cost ⁽⁴⁾	\$ 2,472	\$ 2,487	\$ 2,623

⁽¹⁾ Represents non-cash activity and, accordingly, is not reflected in the Consolidated Statement of Cash Flows.

⁽²⁾ Represents cash paid for amounts included in the measurements of lease liabilities.

⁽³⁾ Primarily consists of payments for common area maintenance and property taxes.

⁽⁴⁾ Amounts are recorded in occupancy and equipment expense in the Consolidated Statement of Income.

Maturity Analysis

The maturities of lessor and lessee arrangements outstanding at December 31, 2022 are presented in the table below based on undiscounted cash flows.

Maturities of Lessor and Lessee Arrangements

	Lessor		Lessee ⁽¹⁾
	Operating Leases	Sales-type and Direct Financing Leases ⁽²⁾	Operating Leases
(Dollars in millions)			
	December 31, 2022		
2023	\$ 819	\$ 4,932	\$ 1,998
2024	682	4,399	1,850
2025	509	2,539	1,567
2026	368	1,993	1,354
2027	289	990	1,131
Thereafter	664	1,635	4,189
Total undiscounted cash flows	\$ 3,331	16,488	12,089
Less: Net present value adjustment		1,365	1,730
Total ⁽³⁾	\$	\$ 15,123	\$ 10,359

⁽¹⁾ Excludes \$278 million in commitments under lessee arrangements that have not yet commenced with lease terms that will begin in 2023.

⁽²⁾ Includes \$10.2 billion in commercial lease financing receivables and \$4.9 billion in direct/indirect consumer lease financing receivables.

⁽³⁾ Represents lease receivables for lessor arrangements and lease liabilities for lessee arrangements.

NOTE 9 Deposits

The scheduled contractual maturities for total time deposits at December 31, 2022 are presented in the table below.

Contractual Maturities of Total Time Deposits

(Dollars in millions)	U.S.	Non-U.S.	Total
Due in 2023	\$ 36,114	\$ 7,393	\$ 43,507
Due in 2024	3,576	67	3,643
Due in 2025	643	6	649
Due in 2026	149	23	172
Due in 2027	116	1,472	1,588
Thereafter	238	8	246
Total time deposits	\$ 40,836	\$ 8,969	\$ 49,805

At December 31, 2022 and 2021, the Corporation had aggregate U.S. time deposits of \$12.8 billion and \$9.4 billion and non-U.S. time deposits of \$9.0 billion and \$10.6 billion in denominations that met or exceeded insurance limits.

NOTE 10 Securities Financing Agreements, Short-term Borrowings, Collateral and Restricted Cash

The Corporation enters into securities financing agreements which include securities borrowed or purchased under agreements to resell and securities loaned or sold under agreements to repurchase. These financing agreements (also referred to as “matched-book transactions”) are to accommodate customers, obtain securities to cover short positions and finance inventory positions. The Corporation elects to account for certain securities financing agreements under the fair value option. For more information on the fair value option, see Note 21 – Fair Value Option.

Offsetting of Securities Financing Agreements

Substantially all of the Corporation’s securities financing activities are transacted under legally enforceable master

repurchase agreements or legally enforceable master securities lending agreements that give the Corporation, in the event of default by the counterparty, the right to liquidate securities held and to offset receivables and payables with the same counterparty. The Corporation offsets securities financing transactions with the same counterparty on the Consolidated Balance Sheet where it has such a legally enforceable master netting agreement and the transactions have the same maturity date.

The Securities Financing Agreements table presents securities financing agreements included on the Consolidated Balance Sheet in federal funds sold and securities borrowed or purchased under agreements to resell, and in federal funds purchased and securities loaned or sold under agreements to repurchase at December 31, 2022 and 2021. Balances are presented on a gross basis, prior to the application of counterparty netting. Gross assets and liabilities are adjusted on an aggregate basis to take into consideration the effects of legally enforceable master netting agreements. For more information on the offsetting of derivatives, see Note 3 – Derivatives.

Securities Financing Agreements

(Dollars in millions)	Gross Assets/ Liabilities ⁽¹⁾	Amounts Offset	Net Balance Sheet Amount	Financial Instruments ⁽²⁾	Net Assets/ Liabilities
	December 31, 2022				
Securities borrowed or purchased under agreements to resell ⁽³⁾	\$ 597,847	\$ (330,273)	\$ 267,574	\$ (240,120)	\$ 27,454
Securities loaned or sold under agreements to repurchase	\$ 525,908	\$ (330,273)	\$ 195,635	\$ (183,265)	\$ 12,370
Other ⁽⁴⁾	8,427	—	8,427	(8,427)	—
Total	\$ 534,335	\$ (330,273)	\$ 204,062	\$ (191,692)	\$ 12,370
	December 31, 2021				
Securities borrowed or purchased under agreements to resell ⁽³⁾	\$ 527,054	\$ (276,334)	\$ 250,720	\$ (229,525)	\$ 21,195
Securities loaned or sold under agreements to repurchase	\$ 468,663	\$ (276,334)	\$ 192,329	\$ (181,860)	\$ 10,469
Other ⁽⁴⁾	11,391	—	11,391	(11,391)	—
Total	\$ 480,054	\$ (276,334)	\$ 203,720	\$ (193,251)	\$ 10,469

⁽¹⁾ Includes activity where uncertainty exists as to the enforceability of certain master netting agreements under bankruptcy laws in some countries or industries.

⁽²⁾ Includes securities collateral received or pledged under repurchase or securities lending agreements where there is a legally enforceable master netting agreement. These amounts are not offset on the Consolidated Balance Sheet, but are shown as a reduction to derive a net asset or liability. Securities collateral received or pledged where the legal enforceability of the master netting agreements is uncertain is excluded from the table.

⁽³⁾ Excludes repurchase activity of \$8.7 billion and \$20.1 billion reported in loans and leases on the Consolidated Balance Sheet at December 31, 2022 and 2021.

⁽⁴⁾ Balance is reported in accrued expenses and other liabilities on the Consolidated Balance Sheet and relates to transactions where the Corporation acts as the lender in a securities lending agreement and receives securities that can be pledged as collateral or sold. In these transactions, the Corporation recognizes an asset at fair value, representing the securities received, and a liability, representing the obligation to return those securities.

Repurchase Agreements and Securities Loaned Transactions Accounted for as Secured Borrowings

The following tables present securities sold under agreements to repurchase and securities loaned by remaining contractual term to maturity and class of collateral pledged. Included in “Other” are transactions where the Corporation acts as the

lender in a securities lending agreement and receives securities that can be pledged as collateral or sold. Certain agreements contain a right to substitute collateral and/or terminate the agreement prior to maturity at the option of the Corporation or the counterparty. Such agreements are included in the table below based on the remaining contractual term to maturity.

Remaining Contractual Maturity

(Dollars in millions)	Overnight and Continuous	30 Days or Less	After 30 Days Through 90 Days	Greater than 90 Days ⁽¹⁾	Total
	December 31, 2022				
Securities sold under agreements to repurchase	\$ 200,087	\$ 181,632	\$ 41,666	\$ 30,107	\$ 453,492
Securities loaned	66,909	288	1,139	4,080	72,416
Other	8,427	—	—	—	8,427
Total	\$ 275,423	\$ 181,920	\$ 42,805	\$ 34,187	\$ 534,335
	December 31, 2021				
Securities sold under agreements to repurchase	\$ 148,023	\$ 194,964	\$ 36,939	\$ 36,501	\$ 416,427
Securities loaned	46,231	466	1,428	4,111	52,236
Other	11,391	—	—	—	11,391
Total	\$ 205,645	\$ 195,430	\$ 38,367	\$ 40,612	\$ 480,054

⁽¹⁾ No agreements have maturities greater than four years.

Class of Collateral Pledged

(Dollars in millions)	Securities Sold Under Agreements to Repurchase	Securities Loaned	Other	Total
	December 31, 2022			
U.S. government and agency securities	\$ 193,005	\$ 18	\$ —	\$ 193,023
Corporate securities, trading loans and other	14,345	2,896	317	17,558
Equity securities	10,249	69,432	8,110	87,791
Non-U.S. sovereign debt	232,171	70	—	232,241
Mortgage trading loans and ABS	3,722	—	—	3,722
Total	\$ 453,492	\$ 72,416	\$ 8,427	\$ 534,335
	December 31, 2021			
U.S. government and agency securities	\$ 201,546	\$ 27	\$ —	\$ 201,573
Corporate securities, trading loans and other	12,838	3,440	1,148	17,426
Equity securities	19,907	48,650	10,192	78,749
Non-U.S. sovereign debt	178,019	119	51	178,189
Mortgage trading loans and ABS	4,117	—	—	4,117
Total	\$ 416,427	\$ 52,236	\$ 11,391	\$ 480,054

Under repurchase agreements, the Corporation is required to post collateral with a market value equal to or in excess of the principal amount borrowed. For securities loaned transactions, the Corporation receives collateral in the form of cash, letters of credit or other securities. To determine whether the market value of the underlying collateral remains sufficient, collateral is generally valued daily, and the Corporation may be required to deposit additional collateral or may receive or return collateral pledged when appropriate. Repurchase agreements and securities loaned transactions are generally either overnight, continuous (i.e., no stated term) or short-term. The Corporation manages liquidity risks related to these agreements by sourcing funding from a diverse group of counterparties, providing a range of securities collateral and pursuing longer durations, when appropriate.

Short-term Bank Notes

Bank of America, N.A. maintains a global program to offer up to a maximum of \$75.0 billion outstanding at any one time, of bank notes with fixed or floating rates and maturities of at least seven days from the date of issue. Short-term bank notes outstanding under this program totaled \$6.2 billion and \$1.8 billion at December 31, 2022 and 2021. These short-term bank notes, along with Federal Home Loan Bank advances, U.S.

Treasury tax and loan notes, and term federal funds purchased, are included in short-term borrowings on the Consolidated Balance Sheet.

Collateral

The Corporation accepts securities and loans as collateral that it is permitted by contract or practice to sell or repledge. At December 31, 2022 and 2021, the fair value of this collateral was \$827.6 billion and \$854.8 billion, of which \$764.1 billion and \$782.7 billion were sold or repledged. The primary source of this collateral is securities borrowed or purchased under agreements to resell.

The Corporation also pledges company-owned securities and loans as collateral in transactions that include repurchase agreements, securities loaned, public and trust deposits, U.S. Treasury tax and loan notes, and short-term borrowings. This collateral, which in some cases can be sold or repledged by the counterparties to the transactions, is parenthetically disclosed on the Consolidated Balance Sheet.

In certain cases, the Corporation has transferred assets to consolidated VIEs where those restricted assets serve as collateral for the interests issued by the VIEs. These assets are included on the Consolidated Balance Sheet in Assets of Consolidated VIEs.

In addition, the Corporation obtains collateral in connection with its derivative contracts. Required collateral levels vary depending on the credit risk rating and the type of counterparty. Generally, the Corporation accepts collateral in the form of cash, U.S. Treasury securities and other marketable securities. Based on provisions contained in master netting agreements, the Corporation nets cash collateral received against derivative assets. The Corporation also pledges collateral on its own derivative positions which can be applied against derivative

liabilities. For more information on the collateral of derivatives, see Note 3 – Derivatives.

Restricted Cash

At December 31, 2022 and 2021, the Corporation held restricted cash included within cash and cash equivalents on the Consolidated Balance Sheet of \$7.6 billion and \$5.9 billion, predominantly related to cash segregated in compliance with securities regulations and cash held on deposit with central banks to meet reserve requirements.

NOTE 11 Long-term Debt

Long-term debt consists of borrowings having an original maturity of one year or more. The table below presents the balance of long-term debt at December 31, 2022 and 2021, and the related contractual rates and maturity dates as of December 31, 2022.

(Dollars in millions)	Weighted-average Rate	Interest Rates	Maturity Dates	December 31	
				2022	2021
Notes issued by Bank of America Corporation ⁽¹⁾					
Senior notes:					
Fixed	3.03 %	0.25 - 8.05 %	2023 - 2052	\$ 188,429	\$ 194,191
Floating	4.2	0.74 - 9.16	2023 - 2044	17,469	18,753
Senior structured notes				11,608	15,086
Subordinated notes:					
Fixed	4.88	2.94 - 8.57	2024 - 2045	21,098	22,311
Floating	3.45	2.48 - 5.53	2026 - 2037	4,544	2,371
Junior subordinated notes:					
Fixed	6.71	6.45 - 8.05	2027 - 2066	743	741
Floating	5.56	5.56	2056	1	1
Total notes issued by Bank of America Corporation				243,892	253,454
Notes issued by Bank of America, N.A.					
Senior notes:					
Fixed				—	501
Floating	5.05	5.05	2024	2,600	3,173
Subordinated notes	6.00	6.00	2036	1,485	1,780
Advances from Federal Home Loan Banks:					
Fixed	4.49	0.01 - 7.42	2023 - 2034	681	290
Securitizations and other BANA VIEs ⁽²⁾					
				4,300	3,338
Other					
				908	680
Total notes issued by Bank of America, N.A.				9,974	9,762
Other debt					
Structured liabilities ⁽³⁾				21,835	16,599
Nonbank VIEs ⁽²⁾				281	249
Other					
				—	53
Total notes issued by nonbank and other entities				22,116	16,901
Total long-term debt				\$ 275,982	\$ 280,117

⁽¹⁾ Includes total loss-absorbing capacity compliant debt.

⁽²⁾ Represents liabilities of consolidated VIEs included in total long-term debt on the Consolidated Balance Sheet. Long-term debt of VIEs is collateralized by the assets of the VIEs. At December 31, 2022, amount includes debt predominantly from credit card securitization and other VIEs of \$4.2 billion and \$156 million. For more information, see Note 6 – Securitizations and Other Variable Interest Entities.

⁽³⁾ Includes debt outstanding of \$8.0 billion and \$5.4 billion at December 31, 2022 and 2021 that was issued by BofA Finance LLC, a consolidated finance subsidiary of Bank of America Corporation, the parent company, and is fully and unconditionally guaranteed by the parent company.

During 2022, the Corporation issued \$66.0 billion of long-term debt consisting of \$44.2 billion of notes issued by Bank of America Corporation, \$10.0 billion of notes issued by Bank of America, N.A. and \$11.8 billion of other debt. During 2021, the Corporation issued \$76.7 billion of long-term debt consisting of \$56.2 billion of notes issued by Bank of America Corporation, \$8.0 billion of notes issued by Bank of America, N.A. and \$12.5 billion of other debt.

During 2022, the Corporation had total long-term debt maturities and redemptions in the aggregate of \$33.3 billion consisting of \$19.8 billion for Bank of America Corporation, \$9.9 billion for Bank of America, N.A. and \$3.6 billion of other debt. During 2021, the Corporation had total long-term debt maturities and redemptions in the aggregate of \$46.4 billion consisting of \$24.4 billion for Bank of America Corporation, \$10.4 billion for Bank of America, N.A. and \$11.6 billion of other debt.

Bank of America Corporation and Bank of America, N.A. maintain various U.S. and non-U.S. debt programs to offer both senior and subordinated notes. The notes may be denominated in U.S. dollars or foreign currencies. At December 31, 2022 and 2021, the amount of foreign currency-denominated debt translated into U.S. dollars included in total long-term debt was \$46.7 billion and \$53.1 billion. Foreign currency contracts may be used to convert certain foreign currency-denominated debt into U.S. dollars.

The weighted-average effective interest rates for total long-term debt (excluding senior structured notes), total fixed-rate debt and total floating-rate debt were 3.27 percent, 3.23 percent and 4.14 percent, respectively, at December 31, 2022, and 2.83 percent, 3.08 percent and 0.75 percent, respectively, at December 31, 2021. The Corporation's ALM activities maintain an overall interest rate risk management strategy that incorporates the use of interest rate contracts to manage fluctuations in earnings caused by interest rate volatility. The

Corporation's goal is to manage interest rate sensitivity so that movements in interest rates do not have a significantly adverse effect on earnings and capital. The weighted-average rates are the contractual interest rates on the debt and do not reflect the impacts of derivative transactions.

The table below shows the carrying value for aggregate annual contractual maturities of long-term debt as of December 31, 2022. Included in the table are certain structured notes issued by the Corporation that contain provisions whereby the borrowings are redeemable at the option of the holder (put

options) at specified dates prior to maturity. Other structured notes have coupon or repayment terms linked to the performance of debt or equity securities, indices, currencies or commodities, and the maturity may be accelerated based on the value of a referenced index or security. In both cases, the Corporation or a subsidiary may be required to settle the obligation for cash or other securities prior to the contractual maturity date. These borrowings are reflected in the table as maturing at their contractual maturity date.

Long-term Debt by Maturity

(Dollars in millions)	2023	2024	2025	2026	2027	Thereafter	Total
Bank of America Corporation							
Senior notes	\$ 8,029	\$ 22,570	\$ 24,730	\$ 23,972	\$ 16,055	\$ 110,542	\$ 205,898
Senior structured notes	767	456	558	946	641	8,240	11,608
Subordinated notes	—	3,205	5,132	4,908	2,155	10,242	25,642
Junior subordinated notes	—	—	—	—	188	556	744
Total Bank of America Corporation	8,796	26,231	30,420	29,826	19,039	129,580	243,892
Bank of America, N.A.							
Senior notes	—	2,600	—	—	—	—	2,600
Subordinated notes	—	—	—	—	—	1,485	1,485
Advances from Federal Home Loan Banks	600	—	15	9	4	53	681
Securitizations and other Bank VIEs ⁽¹⁾	1,000	1,000	2,248	—	—	52	4,300
Other	642	89	71	45	63	(2)	908
Total Bank of America, N.A.	2,242	3,689	2,334	54	67	1,588	9,974
Other debt							
Structured Liabilities	5,253	2,426	2,482	1,474	2,001	8,199	21,835
Nonbank VIEs ⁽¹⁾	—	—	—	—	—	281	281
Other	—	—	—	—	—	—	—
Total other debt	5,253	2,426	2,482	1,474	2,001	8,480	22,116
Total long-term debt	\$ 16,291	\$ 32,346	\$ 35,236	\$ 31,354	\$ 21,107	\$ 139,648	\$ 275,982

⁽¹⁾ Represents liabilities of consolidated VIEs included in total long-term debt on the Consolidated Balance Sheet.

NOTE 12 Commitments and Contingencies

In the normal course of business, the Corporation enters into a number of off-balance sheet commitments. These commitments expose the Corporation to varying degrees of credit and market risk and are subject to the same credit and market risk limitation reviews as those instruments recorded on the Consolidated Balance Sheet.

Credit Extension Commitments

The Corporation enters into commitments to extend credit such as loan commitments, SBLCs and commercial letters of credit to meet the financing needs of its customers. The following table includes the notional amount of unfunded legally binding lending commitments net of amounts distributed (i.e., syndicated or participated) to other financial institutions. The distributed amounts were \$10.4 billion and \$10.7 billion at December 31, 2022 and 2021. The carrying value of the Corporation's credit extension commitments at December 31, 2022 and 2021, excluding commitments accounted for under

the fair value option, was \$1.6 billion and \$1.5 billion, which predominantly related to the reserve for unfunded lending commitments. The carrying value of these commitments is classified in accrued expenses and other liabilities on the Consolidated Balance Sheet.

Legally binding commitments to extend credit generally have specified rates and maturities. Certain of these commitments have adverse change clauses that help to protect the Corporation against deterioration in the borrower's ability to pay.

The following table includes the notional amount of commitments of \$3.0 billion and \$4.8 billion at December 31, 2022 and 2021 that are accounted for under the fair value option. However, the table excludes the cumulative net fair value for these commitments of \$110 million and \$97 million at December 31, 2022 and 2021, which is classified in accrued expenses and other liabilities. For more information regarding the Corporation's loan commitments accounted for under the fair value option, see Note 21 - Fair Value Option.

Credit Extension Commitments

	Expire in One		Expire After One		Expire After Three		Expire After		Total	
	Year or Less		Year Through Three Years		Years Through Five Years		Five Years			
(Dollars in millions)	December 31, 2022									
Notional amount of credit extension commitments										
Loan commitments ⁽¹⁾	\$	113,962	\$	162,890	\$	221,374	\$	13,667	\$	511,893
Home equity lines of credit		1,479		7,230		11,578		22,154		42,441
Standby letters of credit and financial guarantees ⁽²⁾		22,565		9,237		2,787		628		35,217
Letters of credit		853		46		52		49		1,000
Other commitments ⁽³⁾		5		93		71		1,103		1,272
Legally binding commitments		138,864		179,496		235,862		37,601		591,823
Credit card lines ⁽⁴⁾		419,144		—		—		—		419,144
Total credit extension commitments	\$	558,008	\$	179,496	\$	235,862	\$	37,601	\$	1,010,967
	December 31, 2021									
Notional amount of credit extension commitments										
Loan commitments ⁽¹⁾	\$	102,464	\$	190,687	\$	174,978	\$	26,635	\$	494,764
Home equity lines of credit		890		5,097		10,268		24,276		40,531
Standby letters of credit and financial guarantees ⁽²⁾		22,359		10,742		2,017		422		35,540
Letters of credit		1,145		124		56		98		1,423
Other commitments ⁽³⁾		18		59		81		1,233		1,391
Legally binding commitments		126,876		206,709		187,400		52,664		573,649
Credit card lines ⁽⁴⁾		406,169		—		—		—		406,169
Total credit extension commitments	\$	533,045	\$	206,709	\$	187,400	\$	52,664	\$	979,818

⁽¹⁾ At December 31, 2022 and 2021, \$2.6 billion and \$4.6 billion of these loan commitments were held in the form of a security.

⁽²⁾ The notional amounts of SBLCs and financial guarantees classified as investment grade and non-investment grade based on the credit quality of the underlying reference name within the instrument were \$25.1 billion and \$9.5 billion at December 31, 2022, and \$26.3 billion and \$8.7 billion at December 31, 2021. Amounts in the table include consumer SBLCs of \$575 million and \$512 million at December 31, 2022 and 2021.

⁽³⁾ Primarily includes second-loss positions on lease-end residual value guarantees.

⁽⁴⁾ Includes business card unused lines of credit.

Other Commitments

At December 31, 2022 and 2021, the Corporation had commitments to purchase loans (e.g., residential mortgage and commercial real estate) of \$636 million and \$181 million, which upon settlement will be included in trading account assets, loans or LHFS, and commitments to purchase commercial loans of \$294 million and \$518 million, which upon settlement will be included in trading account assets.

At December 31, 2022 and 2021, the Corporation had commitments to purchase commodities, primarily liquefied natural gas, of \$0 and \$949 million, which upon settlement will be included in trading account assets.

At both December 31, 2022 and 2021, the Corporation had commitments to enter into resale and forward-dated resale and securities borrowing agreements of \$92.0 billion, and commitments to enter into forward-dated repurchase and securities lending agreements of \$57.8 billion and \$32.6 billion as of both period ends. These commitments generally expire within the next 12 months.

At December 31, 2022 and 2021, the Corporation had a commitment to originate or purchase up to \$3.7 billion and \$4.0 billion on a rolling 12-month basis, of auto loans and leases from a strategic partner. This commitment extends through November 2026 and can be terminated with 12 months prior notice.

At December 31, 2022 and 2021, the Corporation had unfunded equity investment commitments of \$571 million and \$395 million.

Other Guarantees

Bank-owned Life Insurance Book Value Protection

The Corporation sells products that offer book value protection to insurance carriers who offer group life insurance policies to corporations, primarily banks. At December 31, 2022 and 2021, the notional amount of these guarantees totaled \$4.3

billion and \$6.3 billion. At December 31, 2022 and 2021, the Corporation's maximum exposure related to these guarantees totaled \$632 million and \$928 million, with estimated maturity dates between 2033 and 2039.

Indemnifications

In the ordinary course of business, the Corporation enters into various agreements that contain indemnifications, such as tax indemnifications, whereupon payment may become due if certain external events occur, such as a change in tax law. The indemnification clauses are often standard contractual terms and were entered into in the normal course of business based on an assessment that the risk of loss would be remote. These agreements typically contain an early termination clause that permits the Corporation to exit the agreement upon these events. The maximum potential future payment under indemnification agreements is difficult to assess for several reasons, including the occurrence of an external event, the inability to predict future changes in tax and other laws, the difficulty in determining how such laws would apply to parties in contracts, the absence of exposure limits contained in standard contract language and the timing of any early termination clauses. Historically, any payments made under these guarantees have been de minimis. The Corporation has assessed the probability of making such payments in the future as remote.

Merchant Services

The Corporation in its role as merchant acquirer or as a sponsor of other merchant acquirers may be held liable for any reversed charges that cannot be collected from the merchants, due to, among other things, merchant fraud or insolvency. If charges are properly reversed after a purchase and cannot be collected from either the merchants or merchant acquirers, the Corporation may be held liable for these reversed charges. The ability to reverse a charge is primarily governed by the applicable

payment network rules and regulations, which include, but are not limited to, the type of charge, type of payment used and time limits. The total amount of transactions subject to reversal under payment network rules and regulations processed for the preceding six-month period, which was approximately \$501 billion, is an estimate of the Corporation's maximum potential exposure as of December 31, 2022. The Corporation's risk in this area primarily relates to circumstances where a cardholder has purchased goods or services for future delivery. The Corporation mitigates this risk by requiring cash deposits, guarantees, letters of credit or other types of collateral from certain merchants. The Corporation's reserves for contingent losses and the losses incurred related to the merchant processing activity were not significant.

Exchange and Clearing House Member Guarantees

The Corporation is a member of various securities and derivative exchanges and clearinghouses, both in the U.S. and other countries. As a member, the Corporation may be required to pay a pro-rata share of the losses incurred by some of these organizations as a result of another member default and under other loss scenarios. The Corporation's potential obligations may be limited to its membership interests in such exchanges and clearinghouses, to the amount (or multiple) of the Corporation's contribution to the guarantee fund or, in limited instances, to the full pro-rata share of the residual losses after applying the guarantee fund. The Corporation's maximum potential exposure under these membership agreements is difficult to estimate; however, the Corporation has assessed the probability of making any such payments as remote.

Prime Brokerage and Securities Clearing Services

In connection with its prime brokerage and clearing businesses, the Corporation performs securities clearance and settlement services with other brokerage firms and clearinghouses on behalf of its clients. Under these arrangements, the Corporation stands ready to meet the obligations of its clients with respect to securities transactions. The Corporation's obligations in this respect are secured by the assets in the clients' accounts and the accounts of their customers as well as by any proceeds received from the transactions cleared and settled by the Corporation on behalf of clients or their customers. The Corporation's maximum potential exposure under these arrangements is difficult to estimate; however, the potential for the Corporation to incur material losses pursuant to these arrangements is remote.

Fixed Income Clearing Corporation Sponsored Member Repo Program

The Corporation acts as a sponsoring member in a repo program whereby the Corporation clears certain eligible resale and repurchase agreements through the Government Securities Division of the Fixed Income Clearing Corporation on behalf of clients that are sponsored members in accordance with the Fixed Income Clearing Corporation's rules. As part of this program, the Corporation guarantees the payment and performance of its sponsored members to the Fixed Income Clearing Corporation. The Corporation's guarantee obligation is secured by a security interest in cash or high-quality securities collateral placed by clients with the clearinghouse and therefore, the potential for the Corporation to incur significant losses under this arrangement is remote. The Corporation's maximum potential exposure, without taking into consideration the related collateral, was \$59.6 billion and \$42.0 billion at December 31, 2022 and 2021.

Other Guarantees

In the normal course of business, the Corporation periodically guarantees the obligations of its affiliates in a variety of transactions including ISDA-related transactions and non-ISDA related transactions such as commodities trading, repurchase agreements, prime brokerage agreements and other transactions.

Guarantees of Certain Long-term Debt

The Corporation, as the parent company, fully and unconditionally guarantees the securities issued by BofA Finance LLC, a consolidated finance subsidiary of the Corporation, and effectively provides for the full and unconditional guarantee of trust securities issued by certain statutory trust companies that are 100 percent owned finance subsidiaries of the Corporation.

Representations and Warranties Obligations and Corporate Guarantees

The Corporation securitizes first-lien residential mortgage loans generally in the form of RMBS guaranteed by the GSEs or by GNMA in the case of FHA-insured, VA-guaranteed and Rural Housing Service-guaranteed mortgage loans, and sells pools of first-lien residential mortgage loans in the form of whole loans. In addition, in prior years, legacy companies and certain subsidiaries sold pools of first-lien residential mortgage loans and home equity loans as private-label securitizations or in the form of whole loans. In connection with these transactions, the Corporation or certain of its subsidiaries or legacy companies make and have made various representations and warranties. Breaches of these representations and warranties have resulted in and may continue to result in the requirement to repurchase mortgage loans or to otherwise make whole or provide indemnification or other remedies to sponsors, investors, securitization trusts, guarantors, insurers or other parties (collectively, repurchases).

Unresolved Repurchase Claims

Unresolved representations and warranties repurchase claims represent the notional amount of repurchase claims made by counterparties, typically the outstanding principal balance or the unpaid principal balance at the time of default. In the case of first-lien mortgages, the claim amount is often significantly greater than the expected loss amount due to the benefit of collateral and, in some cases, mortgage insurance or mortgage guarantee payments.

The notional amount of unresolved repurchase claims at December 31, 2022 and 2021 was \$5.5 billion and \$8.4 billion. These balances included \$2.2 billion and \$2.8 billion at December 31, 2022 and 2021 of claims related to loans in specific private-label securitization groups or tranches where the Corporation owns substantially all of the outstanding securities or will otherwise realize the benefit of any repurchase claims paid.

During 2022, the Corporation received \$82 million in new repurchase claims that were not time-barred. During 2022, \$3.0 billion in claims were resolved.

Reserve and Related Provision

The reserve for representations and warranties obligations and corporate guarantees was \$612 million and \$1.2 billion at December 31, 2022 and 2021 and is included in accrued expenses and other liabilities on the Consolidated Balance Sheet, and the related provision is included in other income in the Consolidated Statement of Income. The representations and warranties reserve represents the Corporation's best estimate

of probable incurred losses, is based on its experience in previous negotiations, and is subject to judgment, a variety of assumptions, and known or unknown uncertainties. Future representations and warranties losses may occur in excess of the amounts recorded for these exposures; however, the Corporation does not expect such amounts to be material to the Corporation's financial condition and liquidity. See **Litigation and Regulatory Matters** below for the Corporation's combined range of possible loss in excess of the reserve for representations and warranties and the accrued liability for litigation.

Litigation and Regulatory Matters

In the ordinary course of business, the Corporation and its subsidiaries are routinely defendants in or parties to many pending and threatened legal, regulatory and governmental actions and proceedings. In view of the inherent difficulty of predicting the outcome of such matters, particularly where the claimants seek very large or indeterminate damages or where the matters present novel legal theories or involve a large number of parties, the Corporation generally cannot predict the eventual outcome of the pending matters, timing of the ultimate resolution of these matters, or eventual loss, fines or penalties related to each pending matter.

As a matter develops, the Corporation, in conjunction with any outside counsel handling the matter, evaluates whether such matter presents a loss contingency that is probable and estimable, and, for the matters below, whether a loss in excess of any accrued liability is reasonably possible in future periods. Once the loss contingency is deemed to be both probable and estimable, the Corporation will establish an accrued liability and record a corresponding amount of expense. The Corporation continues to monitor the matter for further developments that could affect the amount of the accrued liability that has been previously established. Excluding expenses of internal and external legal service providers, litigation and regulatory investigation-related expense of \$1.2 billion and \$164 million was recognized in 2022 and 2021.

For any matter disclosed in this Note for which a loss in future periods is reasonably possible and estimable (whether in excess of an accrued liability or where there is no accrued liability) and for representations and warranties exposures, the Corporation's estimated range of possible loss is \$0 to \$0.8 billion in excess of the accrued liability, if any, as of December 31, 2022.

The accrued liability and estimated range of possible loss are based upon currently available information and subject to significant judgment, a variety of assumptions and known and unknown uncertainties. The matters underlying the accrued liability and estimated range of possible loss are unpredictable and may change from time to time, and actual losses may vary significantly from the current estimate and accrual. The estimated range of possible loss does not represent the Corporation's maximum loss exposure.

Information is provided below regarding the nature of the litigation and, where specified, associated claimed damages. Based on current knowledge, and taking into account accrued liabilities, management does not believe that loss contingencies arising from pending matters, including the matters described below, will have a material adverse effect on the consolidated financial condition or liquidity of the Corporation. However, in light of the significant judgment, variety of assumptions and uncertainties involved in those matters, some of which are beyond the Corporation's control, and the very large or indeterminate damages sought in some of those matters, an adverse outcome in one or more of those matters could be

material to the Corporation's business or results of operations for any particular reporting period, or cause significant reputational harm.

Deposit Insurance Assessment

On January 9, 2017, the Federal Deposit Insurance Corporation (FDIC) filed suit against BANA in the U.S. District Court for the District of Columbia ("District Court") alleging failure to pay a December 15, 2016 invoice for additional deposit insurance assessments and interest in the amount of \$542 million for the quarters ending June 30, 2013 through December 31, 2014.

On April 7, 2017, the FDIC amended its complaint to add a claim for additional deposit insurance and interest in the amount of \$583 million for the quarters ending March 31, 2012 through March 31, 2013. The FDIC asserts these claims based on BANA's alleged underreporting of counterparty exposures that resulted in underpayment of assessments for those quarters, and its Enforcement Section is also conducting a parallel investigation related to the same alleged reporting error. BANA disagrees with the FDIC's interpretation of the regulations as they existed during the relevant time period and is defending itself against the FDIC's claims. Pending final resolution, BANA has pledged security satisfactory to the FDIC related to the disputed additional assessment amounts. On March 27, 2018, the District Court denied BANA's partial motion to dismiss certain of the FDIC's claims. On January 24, 2023, the magistrate judge assigned to the matter by the District Court judge held oral argument on the parties' motions for summary judgment and took the motions under advisement.

LIBOR

The Corporation, BANA and certain Merrill Lynch entities have been named as defendants along with most of the other LIBOR panel banks in a number of individual and putative class actions by persons alleging they sustained losses on U.S. dollar LIBOR-based financial instruments as a result of collusion or manipulation by defendants regarding the setting of U.S. dollar LIBOR. Plaintiffs assert a variety of claims, including antitrust, Commodity Exchange Act, Racketeer Influenced and Corrupt Organizations (RICO), Securities Exchange Act of 1934, common law fraud and breach of contract claims, and seek compensatory, treble and punitive damages, and injunctive relief. All but one of the cases naming the Corporation and its affiliates relating to U.S. dollar LIBOR are pending in the U.S. District Court for the Southern District of New York ("District Court"). The District Court has dismissed all RICO claims, and dismissed all manipulation claims against Bank of America entities based on alleged trader conduct. The District Court has also substantially limited the scope of antitrust, Commodity Exchange Act and various other claims, including by dismissing in their entirety certain individual and putative class plaintiffs' antitrust claims for lack of standing. On December 30, 2021, the U.S. Court of Appeals for the Second Circuit affirmed the dismissal of these antitrust claims for lack of standing. Certain individual and putative class actions remain pending against the Corporation, BANA and certain Merrill Lynch entities. On February 28, 2018, the District Court granted certification of a class of persons that purchased OTC swaps and notes that referenced U.S. dollar LIBOR from one of the U.S. dollar LIBOR panel banks, limited to claims under Section 1 of the Sherman Act.

NOTE 13 Shareholders' Equity

Common Stock

Declared Quarterly Cash Dividends on Common Stock ⁽¹⁾

Declaration Date	Record Date	Payment Date	Dividend Per Share
February 1, 2023	March 3, 2023	March 31, 2023	\$ 0.22
October 19, 2022	December 2, 2022	December 30, 2022	0.22
July 20, 2022	September 2, 2022	September 30, 2022	0.22
April 27, 2022	June 3, 2022	June 24, 2022	0.21
February 2, 2022	March 4, 2022	March 25, 2022	0.21

⁽¹⁾ In 2022, and through February 22, 2023.

The cash dividends paid per share of common stock were \$0.86 \$0.78 and \$0.72 for 2022, 2021 and 2020, respectively.

The table below summarizes common stock repurchases during 2022, 2021 and 2020.

Common Stock Repurchase Summary

(in millions)	2022	2021	2020
Total share repurchases, including CCAR capital plan repurchases	126	615	227
Purchase price of shares repurchased and retired ⁽¹⁾	\$ 5,073	\$ 25,126	\$ 7,025

⁽¹⁾ Consists of repurchases pursuant to the Corporation's CCAR capital plans.

During 2022, in connection with employee stock plans, the Corporation issued 73 million shares of its common stock and, to satisfy tax withholding obligations, repurchased 28 million shares of its common stock. At December 31, 2022, the Corporation had reserved 491 million unissued shares of common stock for future issuances under employee stock plans, convertible notes and preferred stock.

Preferred Stock

The cash dividends declared on preferred stock were \$1.6 billion in 2022 and \$1.4 billion in both 2021 and 2020.

On January 25, 2022, the Corporation issued 70,000 shares of 4.375% Fixed-Rate Reset Non-Cumulative Preferred Stock, Series RR for \$1.8 billion, with quarterly dividends commencing in April 2022. The Series RR preferred stock has a liquidation preference of \$25,000 per share and is subject to certain restrictions in the event the Corporation fails to declare and pay full dividends.

On January 31, 2022 the Corporation issued 28,000 shares of 4.750% Non-Cumulative Preferred Stock, Series SS for \$700 million, with quarterly dividends commencing in May 2022. The Series SS preferred stock has a liquidation preference of \$25,000 per share and is subject to certain restrictions in the event the Corporation fails to declare and pay full dividends.

On April 22, 2022, the Corporation issued 80,000 shares of 6.125% Fixed-Rate Reset Non-Cumulative Preferred Stock, Series TT for \$2.0 billion, with quarterly dividends commencing in July 2022. The Series TT preferred stock has a liquidation preference of \$25,000 per share and is subject to certain restrictions in the event the Corporation fails to declare and pay full dividends.

Through a cash tender offer announced and completed in the fourth quarter of 2022, the Corporation partially repurchased Series E, Series FF, Series HH, Series JJ, Series KK, Series LL, Series MM, Series NN, Series PP, Series QQ, Series RR, Series SS, Series 1 and Series 5 preferred stock with a total carrying value of \$737 million for \$654 million in cash, with \$83 million recognized in additional paid-in capital as a preferred stock benefit.

All series of preferred stock in the Preferred Stock Summary table have a par value of \$0.01 per share, are not subject to the operation of a sinking fund, have no participation rights, and with the exception of the Series L Preferred Stock, are not convertible. The holders of the Series B Preferred Stock and Series 1 through 5 Preferred Stock have general voting rights and vote together with the common stock. The holders of the other series included in the table have no general voting rights. All outstanding series of preferred stock of the Corporation have preference over the Corporation's common stock with respect to the payment of dividends and distribution of the Corporation's assets in the event of a liquidation or dissolution. With the exception of the Series B, F and G Preferred Stock, if any dividend payable on these series is in arrears for three or more semi-annual or six or more quarterly dividend periods, as applicable (whether consecutive or not), the holders of these series and any other class or series of preferred stock ranking equally as to payment of dividends and upon which equivalent voting rights have been conferred and are exercisable (voting as a single class) will be entitled to vote for the election of two additional directors. These voting rights terminate when the Corporation has paid in full dividends on these series for at least two semi-annual or four quarterly dividend periods, as applicable, following the dividend arrearage.

The 7.25% Non-Cumulative Perpetual Convertible Preferred Stock, Series L (Series L Preferred Stock) does not have early redemption/call rights. Each share of the Series L Preferred Stock may be converted at any time, at the option of the holder, into 20 shares of the Corporation's common stock plus cash in lieu of fractional shares. The Corporation may cause some or all of the Series L Preferred Stock, at its option, at any time or from time to time, to be converted into shares of common stock at the then-applicable conversion rate if, for 20 trading days during any period of 30 consecutive trading days, the closing price of common stock exceeds 130 percent of the then-applicable conversion price of the Series L Preferred Stock. If a conversion of Series L Preferred Stock occurs at the option of the holder, subsequent to a dividend record date but prior to the dividend payment date, the Corporation will still pay any accrued dividends payable.

The table below presents a summary of perpetual preferred stock outstanding at December 31, 2022.

Preferred Stock Summary

(Dollars in millions, except as noted)

Series	Description	Initial Issuance Date	Total Shares Outstanding	Liquidation Preference per Share (in dollars)	Carrying Value	Per Annum Dividend Rate	Dividend per Share (in dollars) ⁽¹⁾	Annual Dividend	Redemption Period ⁽²⁾
Series B	7.000% Cumulative Redeemable	June 1997	7,076	\$ 100	\$ 1	7.00 %	\$ 7	\$ —	n/a
Series E ⁽³⁾	Floating Rate Non-Cumulative	November 2006	12,317	25,000	308	3-mo. LIBOR + 35 bps ⁽⁴⁾	1.01	13	On or after November 15, 2011
Series F	Floating Rate Non-Cumulative	March 2012	1,409	100,000	141	3-mo. LIBOR + 40 bps ⁽⁴⁾	4,055.56	6	On or after March 15, 2012
Series G	Adjustable Rate Non-Cumulative	March 2012	4,925	100,000	492	3-mo. LIBOR + 40 bps ⁽⁴⁾	4,055.56	20	On or after March 15, 2012
Series L	7.25% Non-Cumulative Perpetual Convertible	January 2008	3,080,182	1,000	3,080	7.25 %	72.50	223	n/a
Series U ⁽⁵⁾	Fixed-to-Floating Rate Non-Cumulative	May 2013	40,000	25,000	1,000	5.2% to, but excluding, 6/1/23; 3-mo. LIBOR +313.5 bps thereafter	52.00	52	On or after June 1, 2023
Series X ⁽⁵⁾	Fixed-to-Floating Rate Non-Cumulative	September 2014	80,000	25,000	2,000	6.250% to, but excluding, 9/5/24; 3-mo. LIBOR +370.5 bps thereafter	62.50	125	On or after September 5, 2024
Series Z ⁽⁵⁾	Fixed-to-Floating Rate Non-Cumulative	October 2014	56,000	25,000	1,400	6.500% to, but excluding, 10/23/24; 3-mo. LIBOR +417.4 bps thereafter	65.00	91	On or after October 23, 2024
Series AA ⁽⁵⁾	Fixed-to-Floating Rate Non-Cumulative	March 2015	76,000	25,000	1,900	6.100% to, but excluding, 3/17/25; 3-mo. LIBOR +389.8 bps thereafter	61.00	116	On or after March 17, 2025
Series DD ⁽⁵⁾	Fixed-to-Floating Rate Non-Cumulative	March 2016	40,000	25,000	1,000	6.300% to, but excluding, 3/10/26; 3-mo. LIBOR +455.3 bps thereafter	63.00	63	On or after March 10, 2026
Series FF ⁽⁵⁾	Fixed-to-Floating Rate Non-Cumulative	March 2018	90,834	25,000	2,271	5.875% to, but excluding, 3/15/28; 3-mo. LIBOR +293.1 bps thereafter	58.75	139	On or after March 15, 2028
Series GG ⁽³⁾	6.000% Non-Cumulative	May 2018	54,000	25,000	1,350	6.000 %	1.50	81	On or after May 16, 2023
Series HH ⁽³⁾	5.875% Non-Cumulative	July 2018	34,049	25,000	851	5.875 %	1.47	50	On or after July 24, 2023
Series JJ ⁽⁵⁾	Fixed-to-Floating Rate Non-Cumulative	June 2019	34,171	25,000	854	5.125% to, but excluding, 6/20/24; 3-mo. LIBOR +329.2 bps thereafter	51.25	51	On or after June 20, 2024
Series KK ⁽³⁾	5.375% Non-Cumulative	June 2019	55,273	25,000	1,382	5.375 %	1.34	75	On or after June 25, 2024
Series LL ⁽³⁾	5.000% Non-Cumulative	September 2019	52,045	25,000	1,301	5.000 %	1.25	66	On or after September 17, 2024
Series MM ⁽⁵⁾	Fixed-to-Floating Rate Non-Cumulative	January 2020	30,753	25,000	769	4.300 %	43.00	46	On or after January 28, 2025
Series NN ⁽³⁾	4.375% Non-Cumulative	October 2020	42,993	25,000	1,075	4.375 %	1.09	48	On or after November 3, 2025
Series PP ⁽³⁾	4.125% Non-Cumulative	January 2021	36,500	25,000	912	4.125 %	1.03	38	On or after February 2, 2026
Series QQ ⁽³⁾	4.250% Non-Cumulative	October 2021	51,879	25,000	1,297	4.250 %	1.12	58	On or after November 17, 2026
Series RR ⁽⁶⁾	4.375% Fixed-Rate Reset Non-Cumulative	January 2022	66,738	25,000	1,668	4.375% to, but excluding, 1/27/27; 5-yr U.S. Treasury Rate +276 bps thereafter	43.99	77	On or after January 27, 2027
Series SS ⁽³⁾	4.750% Non-Cumulative	January 2022	27,463	25,000	687	4.750 %	0.95	27	On or after February 17, 2027
Series TT ⁽⁶⁾	6.125% Fixed-Rate Reset Non-Cumulative	April 2022	80,000	25,000	2,000	6.125% to, but excluding, 4/27/27; 5-yr U.S. Treasury Rate +323.1 bps thereafter	46.79	94	On or after April 27, 2027
Series 1 ⁽⁷⁾	Floating Rate Non-Cumulative	November 2004	3,186	30,000	96	3-mo. LIBOR + 75 bps ⁽⁸⁾	0.80	3	On or after November 28, 2009
Series 2 ⁽⁷⁾	Floating Rate Non-Cumulative	March 2005	9,967	30,000	299	3-mo. LIBOR + 65 bps ⁽⁸⁾	0.80	10	On or after November 28, 2009
Series 4 ⁽⁷⁾	Floating Rate Non-Cumulative	November 2005	7,010	30,000	210	3-mo. LIBOR + 75 bps ⁽⁴⁾	1.01	9	On or after November 28, 2010
Series 5 ⁽⁷⁾	Floating Rate Non-Cumulative	March 2007	13,331	30,000	400	3-mo. LIBOR + 50 bps ⁽⁴⁾	1.01	17	On or after May 21, 2012
Issuance costs and certain adjustments					(347)				
Total			4,088,101		\$ 28,397				

⁽¹⁾ For all series of preferred stock other than Series B, Series F, Series G and Series L, "Dividend per Share" means the amount of dividends per depositary share of such series.

⁽²⁾ The Corporation may redeem series of preferred stock on or after the redemption date, in whole or in part, at its option, at the liquidation preference plus declared and unpaid dividends. Series B and Series L Preferred Stock do not have early redemption/call rights.

⁽³⁾ Ownership is held in the form of depositary shares, each representing a 1/1,000th interest in a share of preferred stock, paying a quarterly cash dividend, if and when declared.

⁽⁴⁾ Subject to 4.00% minimum rate per annum.

⁽⁵⁾ Ownership is held in the form of depositary shares, each representing a 1/25th interest in a share of preferred stock, paying a semi-annual cash dividend, if and when declared, until the first redemption date at which time, it adjusts to a quarterly cash dividend, if and when declared, thereafter.

⁽⁶⁾ Ownership is held in the form of depositary shares, each representing a 1/25th interest in a share of preferred stock, paying a quarterly cash dividend, if and when declared.

⁽⁷⁾ Ownership is held in the form of depositary shares, each representing a 1/1,200th interest in a share of preferred stock, paying a quarterly cash dividend, if and when declared.

⁽⁸⁾ Subject to 3.00% minimum rate per annum.

n/a = not applicable

NOTE 14 Accumulated Other Comprehensive Income (Loss)

The table below presents the changes in accumulated OCI after-tax for 2022, 2021 and 2020.

(Dollars in millions)	Debt Securities	Debit Valuation Adjustments	Derivatives	Employee Benefit Plans	Foreign Currency	Total
Balance, December 31, 2019	\$ 323	\$ (1,494)	\$ (400)	\$ (4,168)	\$ (894)	\$ (6,633)
Net change	4,799	(498)	826	(98)	(52)	4,977
Balance, December 31, 2020	\$ 5,122	\$ (1,992)	\$ 426	\$ (4,266)	\$ (946)	\$ (1,656)
Net change	(2,077)	356	(2,306)	624	(45)	(3,448)
Balance, December 31, 2021	\$ 3,045	\$ (1,636)	\$ (1,880)	\$ (3,642)	\$ (991)	\$ (5,104)
Net change	(6,028)	755	(10,055)	(667)	(57)	(16,052)
Balance, December 31, 2022	\$ (2,983)	\$ (881)	\$ (11,935)	\$ (4,309)	\$ (1,048)	\$ (21,156)

The table below presents the net change in fair value recorded in accumulated OCI, net realized gains and losses reclassified into earnings and other changes for each component of OCI pre- and after-tax for 2022, 2021 and 2020.

(Dollars in millions)	Pretax	Tax effect	After-tax	Pretax	Tax effect	After-tax	Pretax	Tax effect	After-tax
	2022			2021			2020		
Debt securities:									
Net increase (decrease) in fair value	\$ (7,995)	\$ 1,991	\$ (6,004)	\$ (2,749)	\$ 689	\$ (2,060)	\$ 6,819	\$ (1,712)	\$ 5,107
Net realized (gains) losses reclassified into earnings ⁽¹⁾	(32)	8	(24)	(22)	5	(17)	(411)	103	(308)
Net change	(8,027)	1,999	(6,028)	(2,771)	694	(2,077)	6,408	(1,609)	4,799
Debit valuation adjustments:									
Net increase (decrease) in fair value	980	(237)	743	449	(103)	346	(669)	156	(513)
Net realized (gains) losses reclassified into earnings ⁽¹⁾	16	(4)	12	13	(3)	10	19	(4)	15
Net change	996	(241)	755	462	(106)	356	(650)	152	(498)
Derivatives:									
Net increase (decrease) in fair value	(13,711)	3,430	(10,281)	(2,849)	703	(2,146)	1,098	(268)	830
Reclassifications into earnings:									
Net interest income	332	(84)	248	(166)	48	(118)	6	(1)	5
Compensation and benefits expense	(29)	7	(22)	(55)	13	(42)	(12)	3	(9)
Net realized (gains) losses reclassified into earnings	303	(77)	226	(221)	61	(160)	(6)	2	(4)
Net change	(13,408)	3,353	(10,055)	(3,070)	764	(2,306)	1,092	(266)	826
Employee benefit plans:									
Net increase (decrease) in fair value	(1,103)	276	(827)	463	(72)	391	(381)	80	(301)
Net actuarial losses and other reclassified into earnings ⁽²⁾	198	(49)	149	295	(67)	228	261	(63)	198
Settlements, curtailments and other	11	—	11	5	—	5	5	—	5
Net change	(894)	227	(667)	763	(139)	624	(115)	17	(98)
Foreign currency:									
Net increase (decrease) in fair value	332	(390)	(58)	296	(341)	(45)	(251)	199	(52)
Net realized (gains) losses reclassified into earnings ⁽¹⁾	—	1	1	(5)	5	—	(1)	1	—
Net change	332	(389)	(57)	291	(336)	(45)	(252)	200	(52)
Total other comprehensive income (loss)	\$(21,001)	\$ 4,949	\$(16,052)	\$ (4,325)	\$ 877	\$(3,448)	\$ 6,483	\$(1,506)	\$ 4,977

⁽¹⁾ Reclassifications of pretax debt securities, DVA and foreign currency (gains) losses are recorded in other income in the Consolidated Statement of Income.

⁽²⁾ Reclassifications of pretax employee benefit plan costs are recorded in other general operating expense in the Consolidated Statement of Income.

NOTE 15 Earnings Per Common Share

The calculation of EPS and diluted EPS for 2022, 2021 and 2020 is presented below. For more information on the calculation of EPS, see Note 1 – Summary of Significant Accounting Principles.

(In millions, except per share information)	2022	2021	2020
Earnings per common share			
Net income	\$ 27,528	\$ 31,978	\$ 17,894
Preferred stock dividends and other	(1,513)	(1,421)	(1,421)
Net income applicable to common shareholders	\$ 26,015	\$ 30,557	\$ 16,473
Average common shares issued and outstanding	8,113.7	8,493.3	8,753.2
Earnings per common share	\$ 3.21	\$ 3.60	\$ 1.88
Diluted earnings per common share			
Net income applicable to common shareholders	\$ 26,015	\$ 30,557	\$ 16,473
Average common shares issued and outstanding	8,113.7	8,493.3	8,753.2
Dilutive potential common shares ⁽¹⁾	53.8	65.1	43.7
Total diluted average common shares issued and outstanding	8,167.5	8,558.4	8,796.9
Diluted earnings per common share	\$ 3.19	\$ 3.57	\$ 1.87

⁽¹⁾ Includes incremental dilutive shares from preferred stock, restricted stock units, restricted stock and warrants.

For 2022, 2021 and 2020, 62 average dilutive potential common shares associated with the Series L preferred stock were not included in the diluted share count because the result would have been antidilutive under the “if-converted” method.

NOTE 16 Regulatory Requirements and Restrictions

The Federal Reserve, Office of the Comptroller of the Currency (OCC) and FDIC (collectively, U.S. banking regulators) jointly establish regulatory capital adequacy rules, including Basel 3, for U.S. banking organizations. As a financial holding company, the Corporation is subject to capital adequacy rules issued by the Federal Reserve. The Corporation’s banking entity affiliates are subject to capital adequacy rules issued by the OCC.

The Corporation and its primary banking entity affiliate, BANA, are Advanced approaches institutions under Basel 3. As Advanced approaches institutions, the Corporation and its

banking entity affiliates are required to report regulatory risk-based capital ratios and risk-weighted assets under both the Standardized and Advanced approaches. The approach that yields the lower ratio is used to assess capital adequacy, including under the Prompt Corrective Action (PCA) framework.

The Corporation is required to maintain a minimum supplementary leverage ratio (SLR) of 3.0 percent plus a leverage buffer of 2.0 percent in order to avoid certain restrictions on capital distributions and discretionary bonus payments. The Corporation’s insured depository institution subsidiaries are required to maintain a minimum 6.0 percent SLR to be considered well capitalized under the PCA framework.

The table below presents capital ratios and related information in accordance with Basel 3 Standardized and Advanced approaches as measured at December 31, 2022 and 2021 for the Corporation and BANA.

Regulatory Capital under Basel 3

	Bank of America Corporation			Bank of America, N.A.		
	Standardized Approach ⁽¹⁾	Advanced Approaches ⁽¹⁾	Regulatory Minimum ⁽²⁾	Standardized Approach ⁽¹⁾	Advanced Approaches ⁽¹⁾	Regulatory Minimum ⁽³⁾
December 31, 2022						
(Dollars in millions, except as noted)						
Risk-based capital metrics:						
Common equity tier 1 capital	\$ 180,060	\$ 180,060		\$ 181,089	\$ 181,089	
Tier 1 capital	208,446	208,446		181,089	181,089	
Total capital ⁽⁴⁾	238,773	230,916		194,254	186,648	
Risk-weighted assets (in billions)	1,605	1,411		1,386	1,087	
Common equity tier 1 capital ratio	11.2 %	12.8 %	10.4 %	13.1 %	16.7 %	7.0 %
Tier 1 capital ratio	13.0	14.8	11.9	13.1	16.7	8.5
Total capital ratio	14.9	16.4	13.9	14.0	17.2	10.5
Leverage-based metrics:						
Adjusted quarterly average assets (in billions) ⁽⁵⁾	\$ 2,997	\$ 2,997		\$ 2,358	\$ 2,358	
Tier 1 leverage ratio	7.0 %	7.0 %	4.0	7.7 %	7.7 %	5.0
Supplementary leverage exposure (in billions)		\$ 3,523			\$ 2,785	
Supplementary leverage ratio		5.9 %	5.0		6.5 %	6.0
December 31, 2021						
Risk-based capital metrics:						
Common equity tier 1 capital	\$ 171,759	\$ 171,759		\$ 182,526	\$ 182,526	
Tier 1 capital	196,465	196,465		182,526	182,526	
Total capital ⁽⁴⁾	227,592	220,616		194,773	188,091	
Risk-weighted assets (in billions)	1,618	1,399		1,352	1,048	
Common equity tier 1 capital ratio	10.6 %	12.3 %	9.5 %	13.5 %	17.4 %	7.0 %
Tier 1 capital ratio	12.1	14.0	11.0	13.5	17.4	8.5
Total capital ratio	14.1	15.8	13.0	14.4	17.9	10.5
Leverage-based metrics:						
Adjusted quarterly average assets (in billions) ⁽⁵⁾	\$ 3,087	\$ 3,087		\$ 2,414	\$ 2,414	
Tier 1 leverage ratio	6.4 %	6.4 %	4.0	7.6 %	7.6 %	5.0
Supplementary leverage exposure (in billions)		\$ 3,604			\$ 2,824	
Supplementary leverage ratio		5.5 %	5.0		6.5 %	6.0

⁽¹⁾ As of December 31, 2022 and 2021, capital ratios are calculated using the regulatory capital rule that allows a five-year transition period related to the adoption of the current expected credit losses accounting standard on January 1, 2020.

⁽²⁾ The capital conservation buffer and global systemically important bank (G-SIB) surcharge were 2.5 percent at both December 31, 2022 and 2021. The Corporation’s stress capital buffer applied in place of the capital conservation buffer under the Standardized approach was 3.4 percent at December 31, 2022 and 2.5 percent at December 31, 2021. The countercyclical capital buffer for both periods was zero. The CET1 capital regulatory minimum is the sum of the CET1 capital ratio minimum of 4.5 percent, the Corporation’s G-SIB surcharge of 2.5 percent and the Corporation’s capital conservation buffer of 2.5 percent or the SCB, as applicable, of 3.4 percent at December 31, 2022 and 2.5 percent at December 31, 2021. The SLR regulatory minimum includes a leverage buffer of 2.0 percent.

⁽³⁾ Risk-based capital regulatory minimums at December 31, 2022 and 2021 are the minimum ratios under Basel 3, including a capital conservation buffer of 2.5 percent. The regulatory minimums for the leverage ratios as of both period ends are the percent required to be considered well capitalized under the PCA framework.

⁽⁴⁾ Total capital under the Advanced approaches differs from the Standardized approach due to differences in the amount permitted in Tier 2 capital related to the qualifying allowance for credit losses.

⁽⁵⁾ Reflects total average assets adjusted for certain Tier 1 capital deductions.

The capital adequacy rules issued by the U.S. banking regulators require institutions to meet the established minimums outlined in the table above. Failure to meet the minimum requirements can lead to certain mandatory and discretionary actions by regulators that could have a material adverse impact on the Corporation's financial position. At December 31, 2022 and 2021, the Corporation and its banking entity affiliates were well capitalized.

Other Regulatory Matters

At December 31, 2022 and 2021, the Corporation had cash and cash equivalents in the amount of \$5.6 billion and \$4.0 billion, and securities with a fair value of \$16.6 billion and \$10.6 billion that were segregated in compliance with securities regulations. Cash and cash equivalents segregated in compliance with securities regulations are a component of restricted cash. For more information, see *Note 10 - Securities Financing Agreements, Short-term Borrowings, Collateral and Restricted Cash*. In addition, at December 31, 2022 and 2021, the Corporation had cash deposited with clearing organizations of \$20.7 billion and \$28.6 billion primarily recorded in other assets on the Consolidated Balance Sheet.

Bank Subsidiary Distributions

The primary sources of funds for cash distributions by the Corporation to its shareholders are capital distributions received from its bank subsidiaries, BANA and Bank of America California, N.A. In 2022, the Corporation received dividends of \$22.0 billion from BANA and \$250 million from Bank of America California, N.A.

The amount of dividends that a subsidiary bank may declare in a calendar year without OCC approval is the subsidiary bank's net profits for that year combined with its retained net profits for the preceding two years. Retained net profits, as defined by the OCC, consist of net income less dividends declared during the period. In 2023, BANA can declare and pay dividends of approximately \$16.1 billion to the Corporation plus an additional amount equal to its retained net profits for 2023 up to the date of any such dividend declaration. Bank of America California, N.A. can pay dividends of \$173 million in 2023 plus an additional amount equal to its retained net profits for 2023 up to the date of any such dividend declaration.

NOTE 17 Employee Benefit Plans

Pension and Postretirement Plans

The Corporation sponsors a qualified noncontributory trustee pension plan (Qualified Pension Plan), a number of noncontributory nonqualified pension plans and postretirement health and life plans that cover eligible employees. Non-U.S.

pension plans sponsored by the Corporation vary based on the country and local practices.

The Qualified Pension Plan has a balance guarantee feature for account balances with participant-selected investments, applied at the time a benefit payment is made from the plan that effectively provides principal protection for participant balances transferred and certain compensation credits. The Corporation is responsible for funding any shortfall on the guarantee feature.

Benefits earned under the Qualified Pension Plan have been frozen. Thereafter, the cash balance accounts continue to earn investment credits or interest credits in accordance with the terms of the plan document.

The Corporation has an annuity contract that guarantees the payment of benefits vested under a terminated U.S. pension plan (Other Pension Plan). The Corporation, under a supplemental agreement, may be responsible for or benefit from actual experience and investment performance of the annuity assets. The Corporation made no contribution under this agreement in 2022 or 2021. Contributions may be required in the future under this agreement.

The Corporation's noncontributory, nonqualified pension plans are unfunded and provide supplemental defined pension benefits to certain eligible employees.

In addition to retirement pension benefits, certain benefits-eligible employees may become eligible to continue participation as retirees in health care and/or life insurance plans sponsored by the Corporation. These plans are referred to as the Postretirement Health and Life Plans.

The Pension and Postretirement Plans table summarizes the changes in the fair value of plan assets, changes in the projected benefit obligation (PBO), the funded status of both the accumulated benefit obligation (ABO) and the PBO, and the weighted-average assumptions used to determine benefit obligations for the pension plans and postretirement plans at December 31, 2022 and 2021. The estimate of the Corporation's PBO associated with these plans considers various actuarial assumptions, including assumptions for mortality rates and discount rates. The discount rate assumptions are derived from a cash flow matching technique that utilizes rates that are based on Aa-rated corporate bonds with cash flows that match estimated benefit payments of each of the plans. The increases in the weighted-average discount rates in 2022 resulted in a decrease to the PBO of \$5.3 billion at December 31, 2022. The increases in the weighted-average discount rates in 2021 resulted in a decrease to the PBO of approximately \$895 million at December 31, 2021. Significant gains and losses related to changes in the PBO for 2022 and 2021 primarily resulted from changes in the discount rate.

Pension and Postretirement Plans ⁽¹⁾

(Dollars in millions)	Qualified Pension Plan		Non-U.S. Pension Plans		Nonqualified and Other Pension Plans		Postretirement Health and Life Plans	
	2022	2021	2022	2021	2022	2021	2022	2021
Fair value, January 1	\$ 22,078	\$ 21,776	\$ 3,031	\$ 3,078	\$ 2,585	\$ 2,789	\$ 117	\$ 143
Actual return on plan assets	(3,896)	1,215	(898)	62	(332)	(55)	2	—
Company contributions (withdrawals)	—	—	30	24	(135)	87	45	38
Plan participant contributions	—	—	1	1	—	—	104	107
Settlements and curtailments	—	—	(51)	(11)	(6)	—	—	—
Benefits paid	(924)	(913)	(62)	(84)	(226)	(236)	(161)	(171)
Federal subsidy on benefits paid	n/a	n/a	n/a	n/a	n/a	n/a	—	—
Foreign currency exchange rate changes	n/a	n/a	(323)	(39)	n/a	n/a	n/a	n/a
Fair value, December 31	\$ 17,258	\$ 22,078	\$ 1,728	\$ 3,031	\$ 1,886	\$ 2,585	\$ 107	\$ 117
Change in projected benefit obligation								
Projected benefit obligation, January 1	\$ 15,676	\$ 16,427	\$ 3,116	\$ 3,340	\$ 2,753	\$ 3,005	\$ 928	\$ 1,007
Service cost	—	—	29	28	—	—	4	5
Interest cost	438	414	53	45	74	67	25	24
Plan participant contributions	—	—	1	1	—	—	104	107
Plan amendments	—	—	3	—	—	—	—	—
Settlements and curtailments	—	—	(51)	(11)	(6)	—	—	—
Actuarial loss (gain)	(3,610)	(252)	(1,054)	(152)	(486)	(83)	(198)	(44)
Benefits paid	(924)	(913)	(62)	(84)	(226)	(236)	(161)	(171)
Federal subsidy on benefits paid	n/a	n/a	n/a	n/a	n/a	n/a	—	—
Foreign currency exchange rate changes	n/a	n/a	(283)	(51)	n/a	n/a	(2)	—
Projected benefit obligation, December 31	\$ 11,580	\$ 15,676	\$ 1,752	\$ 3,116	\$ 2,109	\$ 2,753	\$ 700	\$ 928
Amounts recognized on Consolidated Balance Sheet								
Other assets	\$ 5,678	\$ 6,402	\$ 370	\$ 550	\$ 495	\$ 777	\$ —	\$ —
Accrued expenses and other liabilities	—	—	(394)	(635)	(718)	(945)	(593)	(811)
Net amount recognized, December 31	\$ 5,678	\$ 6,402	\$ (24)	\$ (85)	\$ (223)	\$ (168)	\$ (593)	\$ (811)
Funded status, December 31								
Accumulated benefit obligation	\$ 11,580	\$ 15,676	\$ 1,694	\$ 3,031	\$ 2,109	\$ 2,753	n/a	n/a
Overfunded (unfunded) status of ABO	5,678	6,402	34	—	(223)	(168)	n/a	n/a
Provision for future salaries	—	—	58	85	—	—	n/a	n/a
Projected benefit obligation	11,580	15,676	1,752	3,116	2,109	2,753	\$ 700	\$ 928
Weighted-average assumptions, December 31								
Discount rate	5.54 %	2.86 %	4.59 %	1.85 %	5.58 %	2.80 %	5.56 %	2.85 %
Rate of compensation increase	n/a	n/a	4.25	4.46	4.00	4.00	n/a	n/a
Interest-crediting rate	5.36 %	4.83 %	2.03	1.90	4.69	4.22	n/a	n/a

⁽¹⁾ The measurement date for all of the above plans was December 31 of each year reported.
n/a = not applicable

The Corporation's estimate of its contributions to be made to the Non-U.S. Pension Plans, Nonqualified and Other Pension Plans, and Postretirement Health and Life Plans in 2023 is \$26 million, \$89 million and \$22 million, respectively. The Corporation does not expect to make a contribution to the Qualified Pension Plan in 2023. It is the policy of the Corporation to fund no less than the minimum funding amount

required by the Employee Retirement Income Security Act of 1974 (ERISA).

Pension Plans with ABO and PBO in excess of plan assets as of December 31, 2022 and 2021 are presented in the table below. For these plans, funding strategies vary due to legal requirements and local practices.

Plans with ABO and PBO in Excess of Plan Assets

(Dollars in millions)	Non-U.S. Pension Plans		Nonqualified and Other Pension Plans	
	2022	2021	2022	2021
PBO	\$ 458	\$ 841	\$ 719	\$ 945
ABO	416	780	719	945
Fair value of plan assets	71	207	1	1

Components of Net Periodic Benefit Cost

(Dollars in millions)	Qualified Pension Plan			Non-U.S. Pension Plans		
	2022	2021	2020	2022	2021	2020
Components of net periodic benefit cost (income)						
Service cost	\$ —	\$ —	\$ —	\$ 29	\$ 28	\$ 20
Interest cost	438	414	500	53	45	49
Expected return on plan assets	(1,204)	(1,173)	(1,154)	(59)	(70)	(66)
Amortization of actuarial loss (gain) and prior service cost	140	193	173	14	19	9
Other	—	—	—	10	5	8
Net periodic benefit cost (income)	\$ (626)	\$ (566)	\$ (481)	\$ 47	\$ 27	\$ 20
Weighted-average assumptions used to determine net cost for years ended December 31						
Discount rate	2.86 %	2.57 %	3.32 %	1.85 %	1.35 %	1.81 %
Expected return on plan assets	5.75	5.75	6.00	2.17	2.30	2.57
Rate of compensation increase	n/a	n/a	n/a	4.46	4.11	4.10

(Dollars in millions)	Nonqualified and Other Pension Plans			Postretirement Health and Life Plans		
	2022	2021	2020	2022	2021	2020
Components of net periodic benefit cost (income)						
Service cost	\$ —	\$ —	\$ 1	\$ 4	\$ 5	\$ 5
Interest cost	74	67	90	25	24	32
Expected return on plan assets	(59)	(49)	(71)	(2)	(3)	(4)
Amortization of actuarial loss (gain) and prior service cost	54	63	50	(9)	20	29
Other	1	—	—	—	—	(2)
Net periodic benefit cost (income)	\$ 70	\$ 81	\$ 70	\$ 18	\$ 46	\$ 60
Weighted-average assumptions used to determine net cost for years ended December 31						
Discount rate	2.80 %	2.33 %	3.20 %	2.85 %	2.48 %	3.27 %
Expected return on plan assets	2.38	1.88	2.77	2.00	2.00	2.00
Rate of compensation increase	4.00	4.00	4.00	n/a	n/a	n/a

n/a = not applicable

The asset valuation method used to calculate the expected return on plan assets component of net periodic benefit cost for the Qualified Pension Plan recognizes 60 percent of the prior year's market gains or losses at the next measurement date with the remaining 40 percent spread equally over the subsequent four years.

Gains and losses for all benefit plans except postretirement health care are recognized in accordance with the standard amortization provisions of the applicable accounting guidance. Net periodic postretirement health and life expense was determined using the "projected unit credit" actuarial method. For the Postretirement Health and Life Plans, 50 percent of the unrecognized gain or loss at the beginning of the year (or at subsequent remeasurement) is recognized on a level basis during the year.

Assumed health care cost trend rates affect the postretirement benefit obligation and benefit cost reported for the Postretirement Health and Life Plans. The assumed health care cost trend rate used to measure the expected cost of benefits covered by the Postretirement Health and Life Plans is 6.50 percent for 2023, reducing in steps to 5.00 percent in 2028 and later years.

The Corporation's net periodic benefit cost (income) recognized for the plans is sensitive to the discount rate and expected return on plan assets. For the Qualified Pension Plan, Non-U.S. Pension Plans, Nonqualified and Other Pension Plans, and Postretirement Health and Life Plans, a 25 bp decline in discount rates and expected return on assets would not have had a significant impact on the net periodic benefit cost for 2022.

Pretax Amounts included in Accumulated OCI and OCI

(Dollars in millions)	Qualified Pension Plan		Non-U.S. Pension Plans		Nonqualified and Other Pension Plans		Postretirement Health and Life Plans		Total	
	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021
Net actuarial loss (gain)	\$ 4,775	\$ 3,425	\$ 312	\$ 456	\$ 796	\$ 945	\$ (187)	\$ 4	\$ 5,696	\$ 4,830
Prior service cost (credits)	—	—	43	17	—	—	(1)	(3)	42	14
Amounts recognized in accumulated OCI	\$ 4,775	\$ 3,425	\$ 355	\$ 473	\$ 796	\$ 945	\$ (188)	\$ 1	\$ 5,738	\$ 4,844
Current year actuarial loss (gain)	\$ 1,490	\$ (294)	\$ (107)	\$ (154)	\$ (95)	\$ 21	\$ (198)	\$ (41)	\$ 1,090	\$ (468)
Amortization of actuarial gain (loss) and prior service cost	(140)	(193)	(14)	(19)	(54)	(63)	9	(20)	(199)	(295)
Current year prior service cost (credit)	—	—	3	—	—	—	—	—	3	—
Amounts recognized in OCI	\$ 1,350	\$ (487)	\$ (118)	\$ (173)	\$ (149)	\$ (42)	\$ (189)	\$ (61)	\$ 894	\$ (763)

Plan Assets

The Qualified Pension Plan has been established as a retirement vehicle for participants, and trusts have been established to secure benefits promised under the Qualified Pension Plan. The Corporation's policy is to invest the trust assets in a prudent manner for the exclusive purpose of providing benefits to participants and defraying reasonable expenses of administration. The Corporation's investment strategy is designed to provide a total return that, over the long term, increases the ratio of assets to liabilities. The strategy attempts to maximize the investment return on assets at a level of risk deemed appropriate by the Corporation while complying with ERISA and any applicable regulations and laws. The investment strategy utilizes asset allocation as a principal determinant for establishing the risk/return profile of the assets. Asset allocation ranges are established, periodically reviewed and adjusted as funding levels and liability characteristics change. Active and passive investment managers are employed to help enhance the risk/return profile of the assets. An additional aspect of the investment strategy used to minimize risk (part of the asset allocation plan) includes matching the exposure of participant-selected investment measures.

The assets of the Non-U.S. Pension Plans are primarily attributable to a U.K. pension plan. This U.K. pension plan's assets are invested prudently so that the benefits promised to members are provided with consideration given to the nature and the duration of the plans' liabilities. The selected asset

allocation strategy is designed to achieve a higher return than the lowest risk strategy.

The expected rate of return on plan assets assumption was developed through analysis of historical market returns, historical asset class volatility and correlations, current market conditions, anticipated future asset allocations, the funds' past experience and expectations on potential future market returns. The expected return on plan assets assumption is determined using the calculated market-related value for the Qualified Pension Plan and the Other Pension Plan and the fair value for the Non-U.S. Pension Plans and Postretirement Health and Life Plans. The expected return on plan assets assumption represents a long-term average view of the performance of the assets in the Qualified Pension Plan, the Non-U.S. Pension Plans, the Other Pension Plan, and Postretirement Health and Life Plans, a return that may or may not be achieved during any one calendar year. The Other Pension Plan is invested solely in an annuity contract, which is primarily invested in fixed-income securities structured such that asset maturities match the duration of the plan's obligations.

The target allocations for 2023 by asset category for the Qualified Pension Plan, Non-U.S. Pension Plans, and Nonqualified and Other Pension Plans are presented in the table below. Equity securities for the Qualified Pension Plan include common stock of the Corporation in the amounts of \$296 million (1.72 percent of total plan assets) and \$398 million (1.80 percent of total plan assets) at December 31, 2022 and 2021.

2023 Target Allocation

Asset Category	Percentage		
	Qualified Pension Plan	Non-U.S. Pension Plans	Nonqualified and Other Pension Plans
Equity securities	15 - 50%	0 - 20%	0 - 5%
Debt securities	45 - 80%	40 - 75%	95 - 100%
Real estate	0 - 10%	0 - 15%	0 - 5%
Other	0 - 5%	10 - 40%	0 - 5%

Fair Value Measurements

For more information on fair value measurements, including descriptions of Level 1, 2 and 3 of the fair value hierarchy and the valuation methods employed by the Corporation, see *Note 1 - Summary of Significant Accounting Principles* and *Note 20 - Fair Value Measurements*. Combined plan investment assets measured at fair value by level and in total at December 31, 2022 and 2021 are summarized in the Fair Value Measurements table.

Fair Value Measurements

	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
	December 31, 2022				December 31, 2021			
(Dollars in millions)								
Money market and interest-bearing cash	\$ 1,329	\$ —	\$ —	\$ 1,329	\$ 1,339	\$ —	\$ —	\$ 1,339
U.S. government and government agency obligations	3,313	704	5	4,022	4,948	934	6	5,888
Corporate debt	—	3,587	—	3,587	—	4,900	—	4,900
Non-U.S. debt securities	327	933	—	1,260	925	1,165	—	2,090
Asset-backed securities	—	1,273	—	1,273	—	1,485	—	1,485
Mutual and exchange-traded funds	1,247	—	—	1,247	1,395	—	—	1,395
Collective investment funds	—	1,988	—	1,988	—	3,419	—	3,419
Common and preferred stocks	3,901	—	—	3,901	4,826	—	—	4,826
Real estate investment trusts	76	—	—	76	87	—	—	87
Participant loans	—	—	6	6	—	—	7	7
Other investments ⁽¹⁾	1	23	410	434	1	29	630	660
Total plan investment assets, at fair value ⁽²⁾	\$ 10,194	\$ 8,508	\$ 421	\$ 19,123	\$ 13,521	\$ 11,932	\$ 643	\$ 26,096

⁽¹⁾ Other investments includes insurance annuity contracts of \$390 million and \$612 million and other various investments of \$44 million and \$48 million at December 31, 2022 and 2021.

⁽²⁾ At December 31, 2022 and 2021, excludes \$1.9 billion and \$1.7 billion of certain investments that are measured at fair value using the net asset value per share (or its equivalent) as a practical expedient and are not required to be classified in the fair value hierarchy.

The Level 3 Fair Value Measurements table presents a reconciliation of all plan investment assets measured at fair value using significant unobservable inputs (Level 3) during 2022, 2021 and 2020.

Level 3 Fair Value Measurements

	Balance	Actual Return on	Purchases, Sales	Balance
	January 1	Plan Assets Still Held at the Reporting Date	and Settlements	December 31
(Dollars in millions)				
				2022
U.S. government and government agency obligations	\$ 6	\$ —	\$ (1)	\$ 5
Participant Loans	7	—	(1)	6
Other investments	630	(8)	(212)	410
Total	\$ 643	\$ (8)	\$ (214)	\$ 421
				2021
U.S. government and government agency obligations	\$ 7	\$ —	\$ (1)	\$ 6
Participant Loans	7	—	—	7
Other investments	684	(5)	(49)	630
Total	\$ 698	\$ (5)	\$ (50)	\$ 643
				2020
U.S. government and government agency obligations	\$ 8	\$ —	\$ (1)	\$ 7
Participant loans	8	—	(1)	7
Other investments	628	6	50	684
Total	\$ 644	\$ 6	\$ 48	\$ 698

Projected Benefit Payments

Benefit payments projected to be made from the Qualified Pension Plan, Non-U.S. Pension Plans, Nonqualified and Other Pension Plans, and Postretirement Health and Life Plans are presented in the table below.

Projected Benefit Payments

	Qualified	Non-U.S.	Nonqualified	Postretirement
	Pension Plan ⁽¹⁾	Pension Plans ⁽²⁾	and Other Pension Plans ⁽²⁾	Health and Life Plans ⁽³⁾
(Dollars in millions)				
2023	\$ 892	\$ 114	\$ 235	\$ 73
2024	927	108	232	70
2025	918	116	223	67
2026	921	117	215	64
2027	908	114	209	61
2028 - 2032	4,289	580	884	263

⁽¹⁾ Benefit payments expected to be made from the plan's assets.

⁽²⁾ Benefit payments expected to be made from a combination of the plans' and the Corporation's assets.

⁽³⁾ Benefit payments (net of retiree contributions) expected to be made from a combination of the plans' and the Corporation's assets.

Defined Contribution Plans

The Corporation maintains qualified and non-qualified defined contribution retirement plans. The Corporation recorded expense of \$1.2 billion in 2022, 2021 and 2020 related to the qualified defined contribution plans. At December 31, 2022 and 2021, 179 million and 173 million shares of the Corporation's common stock were held by these plans. Payments to the plans for dividends on common stock were \$153 million, \$139 million and \$138 million in 2022, 2021 and 2020, respectively.

Certain non-U.S. employees are covered under defined contribution pension plans that are separately administered in accordance with local laws.

NOTE 18 Stock-based Compensation Plans

The Corporation administers a number of equity compensation plans, with awards being granted predominantly from the Bank of America Corporation Equity Plan (BACEP). Under this plan, 715 million shares of the Corporation's common stock are authorized to be used for grants of awards.

During 2022 and 2021, the Corporation granted 102 million and 99 million RSU awards to certain employees under the BACEP. These RSUs were authorized to settle predominantly in shares of common stock of the Corporation. Certain RSUs will be settled in cash or contain settlement provisions that subject these awards to variable accounting whereby compensation expense is adjusted to fair value based on changes in the share price of the Corporation's common stock up to the settlement date. The RSUs granted in 2022 will generally vest over four years. Of the RSUs granted in 2021, 81 million will generally vest over four years and 18 million will vest over three years. The four-year awards vest primarily in one-fourth increments on each of the first four anniversaries of the grant date while the three-year awards vest primarily in one-third increments on each of the first three anniversaries of the grant date, provided that the employee remains continuously employed with the Corporation during that time, and will be expensed ratably over the vesting period, net of estimated forfeitures, for non-retirement eligible employees based on the grant-date fair value of the shares. Of the RSUs granted in 2022 and 2021 that vest over four years, 39 million and 27 million do not include retirement eligibility. For all other RSUs granted to employees who are retirement eligible, they are deemed authorized as of the beginning of the year preceding the grant date when the incentive award plans are generally approved. As a result, the estimated value is expensed ratably over the year preceding the grant date. The compensation cost for the stock-based plans was \$2.9 billion, \$3.0 billion and \$2.1 billion, and the related income tax benefit was \$697 million, \$723 million and \$505 million for 2022, 2021 and 2020, respectively. At December 31, 2022, there was an estimated \$3.6 billion of total unrecognized compensation cost related to certain share-based compensation awards that is expected to be recognized over a period of up to four years, with a weighted-average period of 2.7 years.

Restricted Stock and Restricted Stock Units

The total fair value of restricted stock and restricted stock units vested in 2022, 2021 and 2020 was \$3.4 billion, \$2.3 billion and \$2.3 billion, respectively. The table below presents the status at December 31, 2022 of the share-settled restricted stock and restricted stock units and changes during 2022.

Stock-settled Restricted Stock and Restricted Stock Units

	Shares/Units	Weighted-average Grant Date Fair Value
Outstanding at January 1, 2022	185,050,842	\$ 31.54
Granted	100,108,395	46.10
Vested	(73,288,792)	30.85
Canceled	(9,310,647)	39.80
Outstanding at December 31, 2022	202,559,798	38.60

NOTE 19 Income Taxes

The components of income tax expense for 2022, 2021 and 2020 are presented in the table below.

Income Tax Expense

(Dollars in millions)	2022	2021	2020
Current income tax expense			
U.S. federal	\$ 1,157	\$ 1,076	\$ 1,092
U.S. state and local	389	775	1,076
Non-U.S.	1,156	985	670
Total current expense	2,702	2,836	2,838
Deferred income tax expense			
U.S. federal	110	962	(799)
U.S. state and local	254	491	(233)
Non-U.S.	375	(2,291)	(705)
Total deferred expense	739	(838)	(1,737)
Total income tax expense	\$ 3,441	\$ 1,998	\$ 1,101

Total income tax expense does not reflect the tax effects of items that are included in OCI each period. For more information, see Note 14 - Accumulated Other Comprehensive Income (Loss). Other tax effects included in OCI each period resulted in a benefit of \$4.9 billion and \$877 million in 2022 and 2021 and an expense of \$1.5 billion in 2020.

Income tax expense for 2022, 2021 and 2020 varied from the amount computed by applying the statutory income tax rate to income before income taxes. The Corporation's federal statutory tax rate was 21 percent for 2022, 2021 and 2020. A reconciliation of the expected U.S. federal income tax expense, calculated by applying the federal statutory tax rate, to the Corporation's actual income tax expense, and the effective tax rates for 2022, 2021 and 2020 are presented in the following table.

Reconciliation of Income Tax Expense

	Amount	Percent	Amount	Percent	Amount	Percent
	2022		2021		2020	
(Dollars in millions)						
Expected U.S. federal income tax expense	\$ 6,504	21.0 %	\$ 7,135	21.0 %	\$ 3,989	21.0 %
Increase (decrease) in taxes resulting from:						
State tax expense, net of federal benefit	756	2.4	1,087	3.2	728	3.8
Affordable housing/energy/other credits	(3,698)	(11.9)	(3,795)	(11.2)	(2,869)	(15.1)
Tax-exempt income, including dividends	(273)	(0.9)	(352)	(1.0)	(346)	(1.8)
Changes in prior-period UTBs, including interest	(273)	(0.9)	(155)	(0.5)	(41)	(0.2)
Rate differential on non-U.S. earnings	368	1.2	45	0.1	218	1.1
Nondeductible expenses	352	1.1	206	0.6	324	1.7
Tax law changes	186	0.6	(2,050)	(6.0)	(699)	(3.7)
Other	(481)	(1.5)	(123)	(0.3)	(203)	(1.0)
Total income tax expense	\$ 3,441	11.1 %	\$ 1,998	5.9 %	\$ 1,101	5.8 %

Tax Law changes reflect the impact of the 2022, 2021 and 2020 U.K. enacted corporate income tax rate changes, which resulted in a negative tax adjustment of approximately \$186 million in 2022 and positive income tax adjustments of approximately \$2.0 billion and \$700 million in 2021 and 2020, with corresponding adjustments of U.K. net deferred tax assets. The U.K. net deferred tax assets are primarily net operating losses (NOLs), incurred by the Corporation's U.K. broker-dealer entity in historical periods, which do not expire under U.K. tax law and are assessed regularly for impairment. If further U.K. tax law changes are enacted, a corresponding income tax adjustment will be made based on the amount of available net deferred tax assets and applicable tax rate changes.

Tax credits originate from ESG investments in affordable housing and renewable energy partnerships and similar entities. Significant increases in the tax credits recognized over the last three annual periods have been primarily driven by the Corporation's continued growth in the volume of investments in wind and solar energy production facilities, consistent with the Corporation's commitment to support the transition to a lower carbon economy. For additional information, see Note 6 - *Securitizations and Other Variable Interest Entities*.

The reconciliation of the beginning unrecognized tax benefits (UTB) balance to the ending balance is presented in the table below.

Reconciliation of the Change in Unrecognized Tax Benefits

(Dollars in millions)	2022	2021	2020
Balance, January 1	\$ 1,322	\$ 1,340	\$ 1,175
Increases related to positions taken during the current year	121	208	238
Increases related to positions taken during prior years ⁽¹⁾	167	265	99
Decreases related to positions taken during prior years ⁽¹⁾	(289)	(413)	(172)
Settlements	(99)	(23)	—
Expiration of statute of limitations	(166)	(55)	—
Balance, December 31	\$ 1,056	\$ 1,322	\$ 1,340

⁽¹⁾ The sum of the positions taken during prior years differs from the \$(273) million, \$(155) million and \$(41) million in the Reconciliation of Income Tax Expense table due to temporary items, state items and jurisdictional offsets, as well as the inclusion of interest in the Reconciliation of Income Tax Expense table.

At December 31, 2022, 2021 and 2020, the balance of the Corporation's UTBs which would, if recognized, affect the Corporation's effective tax rate was \$709 million, \$959 million and \$976 million, respectively. Included in the UTB balance are some items the recognition of which would not affect the effective tax rate, such as the tax effect of certain temporary differences, the portion of gross state UTBs that would be offset by the tax benefit of the associated federal deduction and the portion of gross non-U.S. UTBs that would be offset by tax reductions in other jurisdictions.

It is reasonably possible that the UTB balance may decrease by as much as \$375 million during the next 12 months, since resolved items will be removed from the balance whether their resolution results in payment or recognition.

The Corporation recognized an interest benefit of \$50 million in 2022 and interest expense of \$32 million and \$9 million in 2021 and 2020. At December 31, 2022 and 2021, the Corporation's accrual for interest and penalties that related to income taxes, net of taxes and remittances, was \$107 million and \$167 million.

The Corporation files income tax returns in more than 100 state and non-U.S. jurisdictions each year. The IRS and other tax authorities in countries and states in which the Corporation has significant business operations examine tax returns periodically (continuously in some jurisdictions). The table below summarizes the status of examinations by major jurisdiction for the Corporation and various subsidiaries at December 31, 2022.

Tax Examination Status

	Years under Examination ⁽¹⁾	Status at December 31, 2022
United States	2017-2021	Field Examination
California	2012-2014	Appeals
California	2015-2017	Field Examination
California	2018-2020	To begin in 2023
New York	2019-2021	To begin in 2023
United Kingdom ⁽²⁾	2019-2020	Field Examination

⁽¹⁾ All tax years subsequent to the years shown remain subject to examination.

⁽²⁾ Field examination for tax year 2021 to begin in 2023.

Significant components of the Corporation's net deferred tax assets and liabilities at December 31, 2022 and 2021 are presented in the following table.

Deferred Tax Assets and Liabilities

(Dollars in millions)	December 31	
	2022	2021
Deferred tax assets		
Net operating loss carryforwards	\$ 9,029	\$ 9,360
Security, loan and debt valuations	4,788	2,746
Allowance for credit losses	3,503	3,097
Lease liability	2,443	2,508
Employee compensation and retirement benefits	1,625	1,392
Accrued expenses	1,143	1,626
Available-for-sale securities	960	—
Credit carryforwards	769	705
Other	1,371	1,160
Gross deferred tax assets	25,631	22,594
Valuation allowance	(2,133)	(1,988)
Total deferred tax assets, net of valuation allowance	23,498	20,606
Deferred tax liabilities		
Equipment lease financing	2,432	3,083
Right-of-use asset	2,303	2,358
ESG-related tax credit investments	1,759	1,387
Fixed Assets	1,200	2,082
Available-for-sale securities	—	1,016
Other	2,459	1,527
Gross deferred tax liabilities	10,153	11,453
Net deferred tax assets	\$ 13,345	\$ 9,153

The table below summarizes the deferred tax assets and related valuation allowances recognized for the net operating loss (NOL) and tax credit carryforwards at December 31, 2022.

Net Operating Loss and Tax Credit Carryforward Deferred Tax Assets

(Dollars in millions)	Deferred Tax Asset	Valuation Allowance	Net Deferred Tax Asset	First Year Expiring
Net operating losses - U.K. ⁽¹⁾	\$ 7,661	\$ —	\$ 7,661	None
Net operating losses - other non-U.S.	331	(147)	184	Various
Net operating losses - U.S. states ⁽²⁾	1,036	(627)	409	Various
Foreign tax credits	769	(769)	—	After 2028

⁽¹⁾ Represents U.K. broker-dealer net operating losses that may be carried forward indefinitely.
⁽²⁾ The net operating losses and related valuation allowances for U.S. states before considering the benefit of federal deductions were \$1.3 billion and \$794 million.

Management concluded that no valuation allowance was necessary to reduce the deferred tax assets related to the U.K. NOL carryforwards and U.S. federal and certain state NOL carryforwards since estimated future taxable income will be sufficient to utilize these assets prior to their expiration. The majority of the Corporation's U.K. net deferred tax assets, which consist primarily of NOLs, are expected to be realized by certain subsidiaries over an extended number of years. Management's conclusion is supported by financial results, profit forecasts for the relevant entities and the indefinite period to carry forward NOLs. However, a material change in those estimates could lead management to reassess such valuation allowance conclusions.

At December 31, 2022, U.S. federal income taxes had not been provided on approximately \$5.0 billion of temporary differences associated with investments in non-U.S. subsidiaries that are essentially permanent in duration. If the Corporation were to record the associated deferred tax liability, the amount would be approximately \$1.0 billion.

NOTE 20 Fair Value Measurements

Under applicable accounting standards, fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. The Corporation determines the fair values of its financial instruments under applicable accounting standards that require an entity to maximize the use of observable inputs and minimize the use of unobservable inputs. The Corporation categorizes its financial instruments into three levels based on the established fair value hierarchy and conducts a review of fair value hierarchy classifications on a quarterly basis. Transfers into or out of fair value hierarchy classifications are made if the significant inputs used in the financial models measuring the fair values of the assets and liabilities become unobservable or observable in the current marketplace. For more information regarding the fair value hierarchy and how the Corporation measures fair value, see *Note 1 - Summary of Significant Accounting Principles*. The Corporation accounts for certain financial instruments under the fair value option. For more information, see *Note 21 - Fair Value Option*.

Valuation Techniques

The following sections outline the valuation methodologies for the Corporation's assets and liabilities. While the Corporation believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different estimate of fair value at the reporting date.

During 2022, there were no significant changes to valuation approaches or techniques that had, or are expected to have, a material impact on the Corporation's consolidated financial position or results of operations.

Trading Account Assets and Liabilities and Debt Securities

The fair values of trading account assets and liabilities are primarily based on actively traded markets where prices are based on either direct market quotes or observed transactions. The fair values of debt securities are generally based on quoted market prices or market prices for similar assets. Liquidity is a significant factor in the determination of the fair values of trading account assets and liabilities and debt securities. Market price quotes may not be readily available for some positions such as positions within a market sector where trading activity has slowed significantly or ceased. Some of these instruments are valued using a discounted cash flow model, which estimates the fair value of the securities using internal credit risk, and interest rate and prepayment risk models that incorporate management's best estimate of current key assumptions such as default rates, loss severity and prepayment rates. Principal and interest cash flows are discounted using an observable discount rate for similar instruments with adjustments that management believes a market participant would consider in determining fair value for the specific security. Other instruments are valued using a net asset value approach which considers the value of the underlying securities. Underlying assets are valued using external pricing services, where available, or matrix pricing based on the vintages and ratings. Situations of illiquidity generally are triggered by the market's perception of credit uncertainty regarding a single company or a specific market sector. In these instances, fair value is determined based on limited available market information and other factors,

principally from reviewing the issuer's financial statements and changes in credit ratings made by one or more rating agencies.

Derivative Assets and Liabilities

The fair values of derivative assets and liabilities traded in the OTC market are determined using quantitative models that utilize multiple market inputs including interest rates, prices and indices to generate continuous yield or pricing curves and volatility factors to value the position. The majority of market inputs are actively quoted and can be validated through external sources, including brokers, market transactions and third-party pricing services. When third-party pricing services are used, the methods and assumptions are reviewed by the Corporation. Estimation risk is greater for derivative asset and liability positions that are either option-based or have longer maturity dates where observable market inputs are less readily available, or are unobservable, in which case, quantitative-based extrapolations of rate, price or index scenarios are used in determining fair values. The fair values of derivative assets and liabilities include adjustments for market liquidity, counterparty credit quality and other instrument-specific factors, where appropriate. In addition, the Corporation incorporates within its fair value measurements of OTC derivatives a valuation adjustment to reflect the credit risk associated with the net position. Positions are netted by counterparty, and fair value for net long exposures is adjusted for counterparty credit risk while the fair value for net short exposures is adjusted for the Corporation's own credit risk. The Corporation also incorporates FVA within its fair value measurements to include funding costs on uncollateralized derivatives and derivatives where the Corporation is not permitted to use the collateral it receives. An estimate of severity of loss is also used in the determination of fair value, primarily based on market data.

Loans and Loan Commitments

The fair values of loans and loan commitments are based on market prices, where available, or discounted cash flow analyses using market-based credit spreads of comparable debt instruments or credit derivatives of the specific borrower or comparable borrowers. Results of discounted cash flow analyses may be adjusted, as appropriate, to reflect other market conditions or the perceived credit risk of the borrower.

Mortgage Servicing Rights

The fair values of MSR are primarily determined using an option-adjusted spread valuation approach, which factors in prepayment risk to determine the fair value of MSR. This approach consists of projecting servicing cash flows under multiple interest rate scenarios and discounting these cash flows using risk-adjusted discount rates.

Loans Held-for-sale

The fair values of LHFS are based on quoted market prices, where available, or are determined by discounting estimated cash flows using interest rates approximating the Corporation's current origination rates for similar loans adjusted to reflect the inherent credit risk. The borrower-specific credit risk is embedded within the quoted market prices or is implied by considering loan performance when selecting comparables.

Short-term Borrowings and Long-term Debt

The Corporation issues structured liabilities that have coupons or repayment terms linked to the performance of debt or equity securities, interest rates, indices, currencies or commodities. The fair values of these structured liabilities are estimated using quantitative models for the combined derivative and debt portions of the notes. These models incorporate observable and, in some instances, unobservable inputs including security prices, interest rate yield curves, option volatility, currency, commodity or equity rates and correlations among these inputs. The Corporation also considers the impact of its own credit spread in determining the discount rate used to value these liabilities. The credit spread is determined by reference to observable spreads in the secondary bond market.

Securities Financing Agreements

The fair values of certain reverse repurchase agreements, repurchase agreements and securities borrowed transactions are determined using quantitative models, including discounted cash flow models that require the use of multiple market inputs including interest rates and spreads to generate continuous yield or pricing curves, and volatility factors. The majority of market inputs are actively quoted and can be validated through external sources, including brokers, market transactions and third-party pricing services.

Deposits

The fair values of deposits are determined using quantitative models, including discounted cash flow models that require the use of multiple market inputs including interest rates and spreads to generate continuous yield or pricing curves, and volatility factors. The majority of market inputs are actively quoted and can be validated through external sources, including brokers, market transactions and third-party pricing services. The Corporation considers the impact of its own credit spread in the valuation of these liabilities. The credit risk is determined by reference to observable credit spreads in the secondary cash market.

Asset-backed Secured Financings

The fair values of asset-backed secured financings are based on external broker bids, where available, or are determined by discounting estimated cash flows using interest rates approximating the Corporation's current origination rates for similar loans adjusted to reflect the inherent credit risk.

Recurring Fair Value

Assets and liabilities carried at fair value on a recurring basis at December 31, 2022 and 2021, including financial instruments that the Corporation accounts for under the fair value option, are summarized in the following tables.

(Dollars in millions)	December 31, 2022				
	Fair Value Measurements			Netting Adjustments ⁽¹⁾	Assets/Liabilities at Fair Value
	Level 1	Level 2	Level 3		
Assets					
Time deposits placed and other short-term investments	\$ 868	\$ —	\$ —	\$ —	\$ 868
Federal funds sold and securities borrowed or purchased under agreements to resell	—	146,999	—	—	146,999
Trading account assets:					
U.S. Treasury and government agencies	58,894	212	—	—	59,106
Corporate securities, trading loans and other	—	46,897	2,384	—	49,281
Equity securities	77,868	35,065	145	—	113,078
Non-U.S. sovereign debt	7,392	26,306	518	—	34,216
Mortgage trading loans, MBS and ABS:					
U.S. government-sponsored agency guaranteed	—	28,563	34	—	28,597
Mortgage trading loans, ABS and other MBS	—	10,312	1,518	—	11,830
Total trading account assets ⁽²⁾	144,154	147,355	4,599	—	296,108
Derivative assets	14,775	380,380	3,213	(349,726)	48,642
AFS debt securities:					
U.S. Treasury and government agencies	158,102	920	—	—	159,022
Mortgage-backed securities:					
Agency	—	23,442	—	—	23,442
Agency-collateralized mortgage obligations	—	2,221	—	—	2,221
Non-agency residential	—	128	258	—	386
Commercial	—	6,407	—	—	6,407
Non-U.S. securities	—	13,212	195	—	13,407
Other taxable securities	—	4,645	—	—	4,645
Tax-exempt securities	—	11,207	51	—	11,258
Total AFS debt securities	158,102	62,182	504	—	220,788
Other debt securities carried at fair value:					
U.S. Treasury and government agencies	561	—	—	—	561
Non-agency residential MBS	—	248	119	—	367
Non-U.S. and other securities	3,027	5,251	—	—	8,278
Total other debt securities carried at fair value	3,588	5,499	119	—	9,206
Loans and leases	—	5,518	253	—	5,771
Loans held-for-sale	—	883	232	—	1,115
Other assets ⁽³⁾	6,898	897	1,799	—	9,594
Total assets ⁽⁴⁾	\$ 328,385	\$ 749,713	\$ 10,719	\$ (349,726)	\$ 739,091
Liabilities					
Interest-bearing deposits in U.S. offices	\$ —	\$ 311	\$ —	\$ —	\$ 311
Federal funds purchased and securities loaned or sold under agreements to repurchase	—	151,708	—	—	151,708
Trading account liabilities:					
U.S. Treasury and government agencies	13,906	181	—	—	14,087
Equity securities	36,937	4,825	—	—	41,762
Non-U.S. sovereign debt	9,636	8,228	—	—	17,864
Corporate securities and other	—	6,628	58	—	6,686
Total trading account liabilities	60,479	19,862	58	—	80,399
Derivative liabilities	15,431	376,979	6,106	(353,700)	44,816
Short-term borrowings	—	818	14	—	832
Accrued expenses and other liabilities	7,458	2,262	32	—	9,752
Long-term debt	—	32,208	862	—	33,070
Total liabilities ⁽⁴⁾	\$ 83,368	\$ 584,148	\$ 7,072	\$ (353,700)	\$ 320,888

⁽¹⁾ Amounts represent the impact of legally enforceable master netting agreements and also cash collateral held or placed with the same counterparties.

⁽²⁾ Includes securities with a fair value of \$16.6 billion that were segregated in compliance with securities regulations or deposited with clearing organizations. This amount is included in the parenthetical disclosure on the Consolidated Balance Sheet. Trading account assets also includes certain commodities inventory of \$40 million that is accounted for at the lower of cost or net realizable value, which is the current selling price less any costs to sell.

⁽³⁾ Includes MSRs of \$1.0 billion, which are classified as Level 3 assets.

⁽⁴⁾ Total recurring Level 3 assets were 0.35 percent of total consolidated assets, and total recurring Level 3 liabilities were 0.25 percent of total consolidated liabilities.

December 31, 2021

(Dollars in millions)	Fair Value Measurements			Netting Adjustments ⁽¹⁾	Assets/Liabilities at Fair Value
	Level 1	Level 2	Level 3		
Assets					
Time deposits placed and other short-term investments	\$ 707	\$ —	\$ —	\$ —	\$ 707
Federal funds sold and securities borrowed or purchased under agreements to resell	—	150,665	—	—	150,665
Trading account assets:					
U.S. Treasury and government agencies	44,599	803	—	—	45,402
Corporate securities, trading loans and other	—	31,601	2,110	—	33,711
Equity securities	61,425	38,383	190	—	99,998
Non-U.S. sovereign debt	3,822	25,612	396	—	29,830
Mortgage trading loans, MBS and ABS:					
U.S. government-sponsored agency guaranteed	—	25,645	109	—	25,754
Mortgage trading loans, ABS and other MBS	—	10,967	1,418	—	12,385
Total trading account assets ⁽²⁾	109,846	133,011	4,223	—	247,080
Derivative assets	34,748	310,581	3,133	(313,118)	35,344
AFS debt securities:					
U.S. Treasury and government agencies	198,071	1,074	—	—	199,145
Mortgage-backed securities:					
Agency	—	46,339	—	—	46,339
Agency-collateralized mortgage obligations	—	3,380	—	—	3,380
Non-agency residential	—	267	316	—	583
Commercial	—	19,604	—	—	19,604
Non-U.S. securities	—	11,933	—	—	11,933
Other taxable securities	—	2,690	71	—	2,761
Tax-exempt securities	—	15,381	52	—	15,433
Total AFS debt securities	198,071	100,668	439	—	299,178
Other debt securities carried at fair value:					
U.S. Treasury and government agencies	575	—	—	—	575
Non-agency residential MBS	—	343	242	—	585
Non-U.S. and other securities	2,580	5,155	—	—	7,735
Total other debt securities carried at fair value	3,155	5,498	242	—	8,895
Loans and leases	—	7,071	748	—	7,819
Loans held-for-sale	—	4,138	317	—	4,455
Other assets ⁽³⁾	7,657	2,915	1,572	—	12,144
Total assets ⁽⁴⁾	\$ 354,184	\$ 714,547	\$ 10,674	\$ (313,118)	\$ 766,287
Liabilities					
Interest-bearing deposits in U.S. offices	\$ —	\$ 408	\$ —	\$ —	\$ 408
Federal funds purchased and securities loaned or sold under agreements to repurchase	—	139,641	—	—	139,641
Trading account liabilities:					
U.S. Treasury and government agencies	19,826	313	—	—	20,139
Equity securities	41,744	6,491	—	—	48,235
Non-U.S. sovereign debt	10,400	13,781	—	—	24,181
Corporate securities and other	—	8,124	11	—	8,135
Total trading account liabilities	71,970	28,709	11	—	100,690
Derivative liabilities	35,282	314,380	5,795	(317,782)	37,675
Short-term borrowings	—	4,279	—	—	4,279
Accrued expenses and other liabilities	8,359	3,130	—	—	11,489
Long-term debt	—	28,633	1,075	—	29,708
Total liabilities ⁽⁴⁾	\$ 115,611	\$ 519,180	\$ 6,881	\$ (317,782)	\$ 323,890

⁽¹⁾ Amounts represent the impact of legally enforceable master netting agreements and also cash collateral held or placed with the same counterparties.

⁽²⁾ Includes securities with a fair value of \$10.6 billion that were segregated in compliance with securities regulations or deposited with clearing organizations. This amount is included in the parenthetical disclosure on the Consolidated Balance Sheet. Trading account assets also includes certain commodities inventory of \$752 million that is accounted for at the lower of cost or net realizable value, which is the current selling price less any costs to sell.

⁽³⁾ Includes MSRs of \$818 million, which are classified as Level 3 assets.

⁽⁴⁾ Total recurring Level 3 assets were 0.34 percent of total consolidated assets, and total recurring Level 3 liabilities were 0.24 percent of total consolidated liabilities.

The following tables present a reconciliation of all assets and liabilities measured at fair value on a recurring basis using significant unobservable inputs (Level 3) during 2022, 2021 and 2020, including net realized and unrealized gains (losses) included in earnings and accumulated OCI. Transfers into Level 3 occur primarily due to decreased price observability, and

transfers out of Level 3 occur primarily due to increased price observability. Transfers occur on a regular basis for long-term debt instruments due to changes in the impact of unobservable inputs on the value of the embedded derivative in relation to the instrument as a whole.

Level 3 – Fair Value Measurements ⁽¹⁾

	Balance January 1	Total Realized/ Unrealized Gains (Losses) in Net Income ⁽²⁾	Gains (Losses) in OCI ⁽³⁾	Gross				Gross Transfers into Level 3	Gross Transfers out of Level 3	Balance December 31	Change in Unrealized Gains (Losses) in Net Income Related to Financial Instruments Still Held ⁽²⁾
				Purchases	Sales	Issuances	Settlements				
Year Ended December 31, 2022											
Trading account assets:											
Corporate securities, trading loans and other	2,110	(52)	(2)	1,069	(384)	—	(606)	1,023	(774)	2,384	(78)
Equity securities	190	(3)	—	45	(25)	—	(4)	38	(96)	145	(6)
Non-U.S. sovereign debt	396	59	16	54	(4)	—	(68)	75	(10)	518	56
Mortgage trading loans, MBS and ABS	1,527	(254)	—	729	(665)	—	(112)	536	(209)	1,552	(152)
Total trading account assets	4,223	(250)	14	1,897	(1,078)	—	(790)	1,672	(1,089)	4,599	(180)
Net derivative assets (liabilities) ⁽⁴⁾	(2,662)	551	—	319	(830)	—	294	(180)	(385)	(2,893)	259
AFS debt securities:											
Non-agency residential MBS	316	—	(35)	—	(8)	—	(75)	73	(13)	258	—
Non-U.S. and other taxable securities	71	10	(10)	126	—	—	(22)	311	(291)	195	1
Tax-exempt securities	52	—	1	—	—	—	(3)	1	—	51	—
Total AFS debt securities	439	10	(44)	126	(8)	—	(100)	385	(304)	504	1
Other debt securities carried at fair value – Non-agency residential MBS											
Loans and leases ^(5,6)	748	(45)	—	—	(154)	82	(129)	—	(249)	253	(21)
Loans held-for-sale ^(5,6)	317	9	4	171	(6)	—	(271)	8	—	232	19
Other assets ^(6,7)	1,572	305	(21)	39	(35)	208	(271)	5	(3)	1,799	213
Trading account liabilities – Corporate securities and other											
Short-term borrowings ⁽⁵⁾	(11)	5	—	(4)	—	—	(2)	(46)	—	(58)	1
Accrued expenses and other liabilities ⁽⁵⁾	—	3	—	—	(17)	—	—	(3)	3	(14)	2
Long-term debt ⁽⁵⁾	—	(23)	—	(9)	—	—	—	—	—	(32)	(7)
	(1,075)	(197)	82	—	14	(1)	57	(24)	282	(862)	(200)
Year Ended December 31, 2021											
Trading account assets:											
Corporate securities, trading loans and other	\$ 1,359	\$ (17)	\$ —	\$ 765	\$ (437)	\$ —	\$ (327)	\$ 1,218	\$ (451)	\$ 2,110	\$ (79)
Equity securities	227	(18)	—	103	(68)	—	—	112	(166)	190	(44)
Non-U.S. sovereign debt	354	31	(20)	18	—	—	(13)	26	—	396	34
Mortgage trading loans, MBS and ABS	1,440	(58)	—	518	(721)	7	(167)	771	(263)	1,527	(91)
Total trading account assets	3,380	(62)	(20)	1,404	(1,226)	7	(507)	2,127	(880)	4,223	(180)
Net derivative assets (liabilities) ⁽⁴⁾	(3,468)	927	—	521	(653)	—	293	(74)	(208)	(2,662)	800
AFS debt securities:											
Non-agency residential MBS	378	(11)	(111)	—	(98)	—	(45)	304	(101)	316	8
Non-U.S. and other taxable securities	89	(4)	(7)	8	(10)	—	(4)	—	(1)	71	—
Tax-exempt securities	176	20	—	—	—	—	(2)	—	(142)	52	(19)
Total AFS debt securities	643	5	(118)	8	(108)	—	(51)	304	(244)	439	(11)
Other debt securities carried at fair value – Non-agency residential MBS											
Loans and leases ^(5,6)	267	1	—	—	(45)	—	(37)	101	(45)	242	10
Loans held-for-sale ^(5,6)	717	62	(6)	59	(13)	70	(180)	46	(13)	748	65
Other assets ^(6,7)	236	13	(6)	132	(1)	—	(79)	26	(4)	317	18
	1,970	7	3	26	(202)	144	(383)	9	(2)	1,572	3
Trading account liabilities – Corporate securities and other											
Long-term debt ⁽⁵⁾	(16)	6	—	—	—	(1)	—	—	—	(11)	—
	(1,164)	(92)	13	(6)	15	(12)	98	(65)	138	(1,075)	(113)

⁽¹⁾ Assets (liabilities). For assets, increase (decrease) to Level 3 and for liabilities, (increase) decrease to Level 3.

⁽²⁾ Includes gains (losses) reported in earnings in the following income statement line items: Trading account assets/liabilities - predominantly market making and similar activities; Net derivative assets (liabilities) - market making and similar activities and other income; AFS debt securities - other income; Other debt securities carried at fair value - other income; Loans and leases - market making and similar activities and other income; Loans held-for-sale - other income; Other assets - market making and similar activities and other income related to MSRs; Short-term borrowings - market making and similar activities; Accrued expenses and other liabilities - market making and similar activities and other income; Long-term debt - market making and similar activities.

⁽³⁾ Includes unrealized gains (losses) in OCI on AFS debt securities, foreign currency translation adjustments and the impact of changes in the Corporation's credit spreads on long-term debt accounted for under the fair value option. Amounts include net unrealized gains (losses) of \$28 million and \$(19) million related to financial instruments still held at December 31, 2022 and 2021.

⁽⁴⁾ Net derivative assets (liabilities) include derivative assets of \$3.2 billion and \$3.1 billion and derivative liabilities of \$6.1 billion and \$5.8 billion at December 31, 2022 and 2021.

⁽⁵⁾ Amounts represent instruments that are accounted for under the fair value option.

⁽⁶⁾ Issuances represent loan originations and MSRs recognized following securitizations or whole-loan sales.

⁽⁷⁾ Settlements primarily represent the net change in fair value of the MSR asset due to the recognition of modeled cash flows and the passage of time.

Level 3 – Fair Value Measurements ⁽¹⁾

(Dollars in millions)	Balance January 1	Total Realized/ Unrealized Gains (Losses) in Net Income ⁽²⁾	Gains (Losses) in OCI ⁽³⁾	Gross				Gross Transfers into Level 3	Gross Transfers out of Level 3	Balance December 31	Change in Unrealized Gains (Losses) in Net Income Related to Financial Instruments Still Held ⁽²⁾
				Purchases	Sales	Issuances	Settlements				
Year Ended December 31, 2020											
Trading account assets:											
Corporate securities, trading loans and other	\$ 1,507	\$ (138)	\$ (1)	\$ 430	\$ (242)	\$ 10	\$ (282)	\$ 639	\$ (564)	\$ 1,359	\$ (102)
Equity securities	239	(43)	—	78	(53)	—	(3)	58	(49)	227	(31)
Non-U.S. sovereign debt	482	45	(46)	76	(61)	—	(39)	150	(253)	354	47
Mortgage trading loans, MBS and ABS	1,553	(120)	(3)	577	(746)	11	(96)	757	(493)	1,440	(92)
Total trading account assets	3,781	(256)	(50)	1,161	(1,102)	21	(420)	1,604	(1,359)	3,380	(178)
Net derivative assets (liabilities) ⁽⁴⁾	(2,538)	(235)	—	120	(646)	—	(112)	(235)	178	(3,468)	(953)
AFS debt securities:											
Non-agency residential MBS	424	(2)	3	23	(54)	—	(44)	158	(130)	378	(2)
Non-U.S. and other taxable securities	67	1	—	9	(5)	—	(1)	18	—	89	1
Tax-exempt securities	108	(21)	3	—	—	—	(169)	265	(10)	176	(20)
Total AFS debt securities	599	(22)	6	32	(59)	—	(214)	441	(140)	643	(21)
Other debt securities carried at fair value - Non-agency residential MBS											
	299	26	—	—	(180)	—	(24)	190	(44)	267	3
Loans and leases ^(5,6)	693	(4)	—	145	(76)	22	(161)	98	—	717	9
Loans held-for-sale ^(5,6)	375	26	(28)	—	(489)	691	(119)	93	(313)	236	(5)
Other assets ^(6,7)	2,360	(288)	3	178	(4)	224	(506)	5	(2)	1,970	(374)
Trading account liabilities – Equity securities	(2)	1	—	—	—	—	—	—	1	—	—
Trading account liabilities – Corporate securities and other	(15)	8	—	(7)	(3)	—	1	—	—	(16)	—
Long-term debt ⁽⁵⁾	(1,149)	(46)	2	(104)	—	(47)	218	(52)	14	(1,164)	(5)

⁽¹⁾ Assets (liabilities). For assets, increase (decrease) to Level 3 and for liabilities, (increase) decrease to Level 3.

⁽²⁾ Includes gains/losses reported in earnings in the following income statement line items: Trading account assets/liabilities - predominantly market making and similar activities; Net derivative assets (liabilities) - market making and similar activities and other income; AFS debt securities - other income; Other debt securities carried at fair value - other income; Loans and leases - market making and similar activities and other income; Loans held-for-sale - other income; Other assets - market making and similar activities and other income related to MSRs; Long-term debt - market making and similar activities.

⁽³⁾ Includes unrealized losses in OCI on AFS debt securities, foreign currency translation adjustments and the impact of changes in the Corporation's credit spreads on long-term debt accounted for under the fair value option. Amounts include net unrealized losses of \$41 million related to financial instruments still held at December 31, 2020.

⁽⁴⁾ Net derivative assets (liabilities) include derivative assets of \$2.8 billion and derivative liabilities of \$6.2 billion.

⁽⁵⁾ Amounts represent instruments that are accounted for under the fair value option.

⁽⁶⁾ Issuances represent loan originations and MSRs recognized following securitizations or whole-loan sales.

⁽⁷⁾ Settlements primarily represent the net change in fair value of the MSR asset due to the recognition of modeled cash flows and the passage of time.

The following tables present information about significant unobservable inputs related to the Corporation's material categories of Level 3 financial assets and liabilities at December 31, 2022 and 2021.

Quantitative Information about Level 3 Fair Value Measurements at December 31, 2022

(Dollars in millions)

Financial Instrument	Fair Value	Valuation Technique	Inputs		
			Significant Unobservable Inputs	Ranges of Inputs	Weighted Average ⁽¹⁾
Loans and Securities⁽²⁾					
Instruments backed by residential real estate assets	\$ 852				
Trading account assets – Mortgage trading loans, MBS and ABS	338	Discounted cash flow, Market comparables	Yield	0% to 25%	10%
Loans and leases	137		Prepayment speed	0% to 29% CPR	12% CPR
AFS debt securities – Non-agency residential	258		Default rate	0% to 3% CDR	1% CDR
Other debt securities carried at fair value – Non-agency residential	119		Price	\$0 to \$111	\$26
			Loss severity	0% to 100%	24%
Instruments backed by commercial real estate assets	\$ 362				
Trading account assets – Corporate securities, trading loans and other	292	Discounted cash flow	Yield	0% to 25%	10%
Trading account assets – Mortgage trading loans, MBS and ABS	66		Price	\$0 to \$100	\$75
Loans held-for-sale	4				
Commercial loans, debt securities and other	\$ 4,348				
Trading account assets – Corporate securities, trading loans and other	2,092	Discounted cash flow, Market comparables	Yield	5% to 43%	15%
Trading account assets – Non-U.S. sovereign debt	518		Prepayment speed	10% to 20%	15%
Trading account assets – Mortgage trading loans, MBS and ABS	1,148		Default rate	3% to 4%	4%
AFS debt securities – Tax-exempt securities	51		Loss severity	35% to 40%	38%
AFS debt securities – Non-U.S. and other taxable securities	195		Price	\$0 to \$157	\$75
Loans and leases	116				
Loans held-for-sale	228				
Other assets, primarily auction rate securities	\$ 779	Discounted cash flow, Market comparables	Price	\$10 to \$97	\$94
			Discount rate	11%	n/a
MSRs	\$ 1,020	Discounted cash flow	Weighted-average life, fixed rate ⁽⁵⁾	0 to 14 years	6 years
			Weighted-average life, variable rate ⁽⁵⁾	0 to 12 years	4 years
			Option-adjusted spread, fixed rate	7% to 14%	9%
			Option-adjusted spread, variable rate	9% to 15%	12%
Structured liabilities					
Long-term debt	\$ (862)	Discounted cash flow, Market comparables, Industry standard derivative pricing ⁽³⁾	Yield	22% to 43%	23%
			Equity correlation	0% to 95%	69%
			Price	\$0 to \$119	\$90
			Natural gas forward price	\$3/MMBtu to \$13/MMBtu	\$9 /MMBtu
Net derivative assets (liabilities)					
Credit derivatives	\$ (44)	Discounted cash flow, Stochastic recovery correlation model	Credit spreads	3 to 63 bps	22 bps
			Upfront points	0 to 100 points	83 points
			Prepayment speed	15% CPR	n/a
			Default rate	2% CDR	n/a
			Credit correlation	18% to 53%	44%
		Price	\$0 to \$151	\$63	
Equity derivatives	\$ (1,534)	Industry standard derivative pricing ⁽³⁾	Equity correlation	0% to 100%	73%
			Long-dated equity volatilities	4% to 101%	44%
Commodity derivatives	\$ (291)	Discounted cash flow, Industry standard derivative pricing ⁽³⁾	Natural gas forward price	\$3/MMBtu to \$13/MMBtu	\$8 /MMBtu
			Power forward price	\$9 to \$123	\$43
Interest rate derivatives	\$ (1,024)	Industry standard derivative pricing ⁽⁴⁾	Correlation (IR/IR)	(35)% to 89%	67%
			Correlation (FX/IR)	11% to 58%	43%
			Long-dated inflation rates	0% to 39%	1%
			Long-dated inflation volatilities	0% to 5%	2%
			Interest rate volatilities	0% to 2%	1%
Total net derivative assets (liabilities)	\$ (2,893)				

⁽¹⁾ For loans and securities, structured liabilities and net derivative assets (liabilities), the weighted average is calculated based upon the absolute fair value of the instruments.

⁽²⁾ The categories are aggregated based upon product type which differs from financial statement classification. The following is a reconciliation to the line items in the table on page 197: Trading account assets – Corporate securities, trading loans and other of \$2.4 billion, Trading account assets – Non-U.S. sovereign debt of \$518 million, Trading account assets – Mortgage trading loans, MBS and ABS of \$1.6 billion, AFS debt securities of \$504 million, Other debt securities carried at fair value - Non-agency residential of \$119 million, Other assets, including MSRs, of \$1.8 billion, Loans and leases of \$253 million and LHFS of \$232 million.

⁽³⁾ Includes models such as Monte Carlo simulation and Black-Scholes.

⁽⁴⁾ Includes models such as Monte Carlo simulation, Black-Scholes and other methods that model the joint dynamics of interest, inflation and foreign exchange rates.

⁽⁵⁾ The weighted-average life is a product of changes in market rates of interest, prepayment rates and other model and cash flow assumptions.

CPR = Constant Prepayment Rate

CDR = Constant Default Rate

MMBtu = Million British thermal units

IR = Interest Rate

FX = Foreign Exchange

n/a = not applicable

Quantitative Information about Level 3 Fair Value Measurements at December 31, 2021

(Dollars in millions)

Financial Instrument	Fair Value	Valuation Technique	Inputs		
			Significant Unobservable Inputs	Ranges of Inputs	Weighted Average ⁽¹⁾
Loans and Securities⁽²⁾					
Instruments backed by residential real estate assets	\$ 1,269		Yield	0% to 25%	6%
Trading account assets – Mortgage trading loans, MBS and ABS	338	Discounted cash flow, Market comparables	Prepayment speed	1% to 40% CPR	19% CPR
Loans and leases	373		Default rate	0% to 3% CDR	1% CDR
AFS debt securities - Non-agency residential	316		Price	\$0 to \$168	\$92
Other debt securities carried at fair value - Non-agency residential	242		Loss severity	0% to 43%	13%
Instruments backed by commercial real estate assets	\$ 298			Yield	0% to 25%
Trading account assets – Corporate securities, trading loans and other	138	Discounted cash flow	Price	\$0 to \$101	\$57
Trading account assets – Mortgage trading loans, MBS and ABS	77				
AFS debt securities – Non-U.S. and other taxable securities	71				
Loans held-for-sale	12				
Commercial loans, debt securities and other	\$ 4,212		Yield	0% to 19%	10%
Trading account assets – Corporate securities, trading loans and other	1,972	Discounted cash flow, Market comparables	Prepayment speed	10% to 20%	16%
Trading account assets – Non-U.S. sovereign debt	396		Default rate	3% to 4%	4%
Trading account assets – Mortgage trading loans, MBS and ABS	1,112		Loss severity	35% to 40%	37%
AFS debt securities – Tax-exempt securities	52		Price	\$0 to \$189	\$73
Loans and leases	375		Long-dated equity volatilities	45%	n/a
Loans held-for-sale	305				
Other assets, primarily auction rate securities	\$ 754		Discounted cash flow, Market comparables	Price	\$10 to \$96
			Discount rate	9%	n/a
MSRs	\$ 818	Discounted cash flow	Weighted-average life, fixed rate ⁽⁵⁾	0 to 14 years	4 years
			Weighted-average life, variable rate ⁽⁵⁾	0 to 10 years	3 years
			Option-adjusted spread, fixed rate	7% to 14%	9%
			Option-adjusted spread, variable rate	9% to 15%	12%
Structured liabilities					
Long-term debt	\$ (1,075)	Discounted cash flow, Market comparables, Industry standard derivative pricing ⁽³⁾	Yield	0% to 19%	18%
			Equity correlation	3% to 100%	80%
			Long-dated equity volatilities	5% to 78%	36%
			Price	\$0 to \$125	\$82
			Natural gas forward price	\$2/MMBtu to \$8/MMBtu	\$4/MMBtu
Net derivative assets (liabilities)					
Credit derivatives	\$ (104)	Discounted cash flow, Stochastic recovery correlation model	Credit spreads	7 to 155 bps	61 bps
			Upfront points	16 to 100 points	68 points
			Prepayment speed	15% CPR	n/a
			Default rate	2% CDR	n/a
			Credit correlation	20% to 60%	55%
			Price	\$0 to \$120	\$53
Equity derivatives	\$ (1,710)	Industry standard derivative pricing ⁽³⁾	Equity correlation	3% to 100%	80%
			Long-dated equity volatilities	5% to 78%	36%
Commodity derivatives	\$ (976)	Discounted cash flow, Industry standard derivative pricing ⁽³⁾	Natural gas forward price	\$2/MMBtu to \$8/MMBtu	\$4/MMBtu
			Correlation	65% to 85%	76%
			Power forward price	\$11 to \$103	\$32
			Volatilities	41% to 69%	63%
Interest rate derivatives	\$ 128	Industry standard derivative pricing ⁽⁴⁾	Correlation (IR/IR)	(1)% to 90%	54%
			Correlation (FX/IR)	(1)% to 58%	44%
			Long-dated inflation rates	(10)% to 11%	3%
			Long-dated inflation volatilities	0% to 2%	2%
			Interest rates volatilities	0% to 2%	1%
Total net derivative assets (liabilities)	\$ (2,662)				

⁽¹⁾ For loans and securities, structured liabilities and net derivative assets (liabilities), the weighted average is calculated based upon the absolute fair value of the instruments.

⁽²⁾ The categories are aggregated based upon product type which differs from financial statement classification. The following is a reconciliation to the line items in the table on page 198: Trading account assets – Corporate securities, trading loans and other of \$2.1 billion, Trading account assets – Non-U.S. sovereign debt of \$396 million, Trading account assets – Mortgage trading loans, MBS and ABS of \$1.5 billion, AFS debt securities of \$439 million, Other debt securities carried at fair value - Non-agency residential of \$242 million, Other assets, including MSRs, of \$1.6 billion, Loans and leases of \$748 million and LHFS of \$317 million.

⁽³⁾ Includes models such as Monte Carlo simulation and Black-Scholes.

⁽⁴⁾ Includes models such as Monte Carlo simulation, Black-Scholes and other methods that model the joint dynamics of interest, inflation and foreign exchange rates.

⁽⁵⁾ The weighted-average life is a product of changes in market rates of interest, prepayment rates and other model and cash flow assumptions.

CPR = Constant Prepayment Rate

CDR = Constant Default Rate

MMBtu = Million British thermal units

IR = Interest Rate

FX = Foreign Exchange

n/a = not applicable

In the previous tables, instruments backed by residential and commercial real estate assets include RMBS, commercial MBS, whole loans and mortgage CDOs. Commercial loans, debt securities and other include corporate CLOs and CDOs, commercial loans and bonds, and securities backed by non-real estate assets. Structured liabilities primarily include equity-linked notes that are accounted for under the fair value option.

The Corporation uses multiple market approaches in valuing certain of its Level 3 financial instruments. For example, market comparables and discounted cash flows are used together. For a given product, such as corporate debt securities, market comparables may be used to estimate some of the unobservable inputs, and then these inputs are incorporated into a discounted cash flow model. Therefore, the balances disclosed encompass both of these techniques.

The levels of aggregation and diversity within the products disclosed in the tables result in certain ranges of inputs being wide and unevenly distributed across asset and liability categories.

Uncertainty of Fair Value Measurements from Unobservable Inputs

Loans and Securities

A significant increase in market yields, default rates, loss severities or duration would have resulted in a significantly lower fair value for long positions. Short positions would have been impacted in a directionally opposite way. The impact of changes in prepayment speeds would have resulted in differing impacts depending on the seniority of the instrument and, in the case of CLOs, whether prepayments can be reinvested. A significant increase in price would have resulted in a significantly higher fair value for long positions, and short positions would have been impacted in a directionally opposite way.

Structured Liabilities and Derivatives

For credit derivatives, a significant increase in market yield, upfront points (i.e., a single upfront payment made by a

protection buyer at inception), credit spreads, default rates or loss severities would have resulted in a significantly lower fair value for protection sellers and higher fair value for protection buyers. The impact of changes in prepayment speeds would have resulted in differing impacts depending on the seniority of the instrument.

Structured credit derivatives are impacted by credit correlation. Default correlation is a parameter that describes the degree of dependence among credit default rates within a credit portfolio that underlies a credit derivative instrument. The sensitivity of this input on the fair value varies depending on the level of subordination of the tranche. For senior tranches that are net purchases of protection, a significant increase in default correlation would have resulted in a significantly higher fair value. Net short protection positions would have been impacted in a directionally opposite way.

For equity derivatives, commodity derivatives, interest rate derivatives and structured liabilities, a significant change in long-dated rates and volatilities and correlation inputs (i.e., the degree of correlation between an equity security and an index, between two different commodities, between two different interest rates, or between interest rates and foreign exchange rates) would have resulted in a significant impact to the fair value; however, the magnitude and direction of the impact depend on whether the Corporation is long or short the exposure. For structured liabilities, a significant increase in yield or decrease in price would have resulted in a significantly lower fair value.

Nonrecurring Fair Value

The Corporation holds certain assets that are measured at fair value only in certain situations (e.g., the impairment of an asset), and these measurements are referred to herein as nonrecurring. The amounts below represent assets still held as of the reporting date for which a nonrecurring fair value adjustment was recorded during 2022, 2021, and 2020.

Assets Measured at Fair Value on a Nonrecurring Basis

	December 31, 2022		December 31, 2021	
	Level 2	Level 3	Level 2	Level 3
(Dollars in millions)				
Assets				
Loans held-for-sale	\$ 1,979	\$ 3,079	\$ 634	\$ 24
Loans and leases ⁽¹⁾	—	166	—	213
Foreclosed properties ^(2, 3)	—	7	—	5
Other assets	88	165	256	2,046
Gains (Losses)				
	2022	2021	2020	
Assets				
Loans held-for-sale	\$ (387)	\$ (44)	\$ (79)	
Loans and leases ⁽¹⁾	(48)	(60)	(73)	
Foreclosed properties	(6)	(2)	(6)	
Other assets	(91)	(492)	(98)	

⁽¹⁾ Includes \$15 million, \$24 million and \$30 million of losses on loans that were written down to a collateral value of zero during 2022, 2021 and 2020, respectively.

⁽²⁾ Amounts are included in other assets on the Consolidated Balance Sheet and represent the carrying value of foreclosed properties that were written down subsequent to their initial classification as foreclosed properties. Losses on foreclosed properties include losses recorded during the first 90 days after transfer of a loan to foreclosed properties.

⁽³⁾ Excludes \$60 million and \$52 million of properties acquired upon foreclosure of certain government-guaranteed loans (principally FHA-insured loans) at December 31, 2022 and 2021.

The table below presents information about significant unobservable inputs utilized in the Corporation's nonrecurring Level 3 fair value measurements at December 31, 2022 and 2021.

Quantitative Information about Nonrecurring Level 3 Fair Value Measurements

Financial Instrument	Fair Value	Valuation Technique	Inputs		
			Significant Unobservable Inputs	Ranges of Inputs	Weighted Average ⁽¹⁾
(Dollars in millions)					
Year Ended December 31, 2022					
Loans held-for-sale	\$ 3,079	Pricing model	Implied yield	9% to 24%	n/a
Loans and leases ⁽²⁾	166	Market comparables	OREO discount	10% to 66%	26%
			Costs to sell	8% to 24%	9%
Other assets ⁽³⁾	165	Discounted cash flow	Discount rate	7%	n/a
Year Ended December 31, 2021					
Loans and leases ⁽²⁾	\$ 213	Market comparables	OREO discount	13% to 59%	24%
			Costs to sell	8% to 26%	9%
Other assets ⁽⁴⁾	1,875	Discounted cash flow	Discount rate	7%	n/a
	166	Market comparables	Estimated appraisal value	n/a	n/a

⁽¹⁾ The weighted average is calculated based upon the fair value of the loans.

⁽²⁾ Represents residential mortgages where the loan has been written down to the fair value of the underlying collateral.

⁽³⁾ Represents the fair value of certain impaired renewable energy investments.

⁽⁴⁾ Represents the fair value of certain impaired renewable energy investments and impaired assets related to the Corporation's real estate rationalization.

n/a = not applicable

NOTE 21 Fair Value Option

Loans and Loan Commitments

The Corporation elects to account for certain loans and loan commitments that exceed the Corporation's single-name credit risk concentration guidelines under the fair value option. Lending commitments are actively managed and, as appropriate, credit risk for these lending relationships may be mitigated through the use of credit derivatives, with the Corporation's public side credit view and market perspectives determining the size and timing of the hedging activity. These credit derivatives do not meet the requirements for designation as accounting hedges and are carried at fair value. The fair value option allows the Corporation to carry these loans and loan commitments at fair value, which is more consistent with management's view of the underlying economics and the manner in which they are managed. In addition, the fair value option allows the Corporation to reduce the accounting volatility that would otherwise result from the asymmetry created by accounting for the financial instruments at historical cost and the credit derivatives at fair value.

Loans Held-for-sale

The Corporation elects to account for residential mortgage LHFS, commercial mortgage LHFS and certain other LHFS under the fair value option. These loans are actively managed and monitored and, as appropriate, certain market risks of the loans may be mitigated through the use of derivatives. The Corporation has elected not to designate the derivatives as qualifying accounting hedges, and therefore, they are carried at

fair value. The changes in fair value of the loans are largely offset by changes in the fair value of the derivatives. The fair value option allows the Corporation to reduce the accounting volatility that would otherwise result from the asymmetry created by accounting for the financial instruments at the lower of cost or fair value and the derivatives at fair value. The Corporation has not elected to account for certain other LHFS under the fair value option primarily because these loans are floating-rate loans that are not hedged using derivative instruments.

Loans Reported as Trading Account Assets

The Corporation elects to account for certain loans that are held for the purpose of trading and are risk-managed on a fair value basis under the fair value option.

Other Assets

The Corporation elects to account for certain long-term fixed-rate margin loans that are hedged with derivatives under the fair value option. Election of the fair value option allows the Corporation to reduce the accounting volatility that would otherwise result from the asymmetry created by accounting for the financial instruments at historical cost and the derivatives at fair value.

Securities Financing Agreements

The Corporation elects to account for certain securities financing agreements, including resale and repurchase agreements, under the fair value option. These elections include certain agreements collateralized by the U.S. government and its agencies, which are generally short-dated and have minimal interest rate risk.

Long-term Deposits

The Corporation elects to account for certain long-term fixed-rate and rate-linked deposits that are hedged with derivatives that do not qualify for hedge accounting. Election of the fair value option allows the Corporation to reduce the accounting volatility that would otherwise result from the asymmetry created by accounting for the financial instruments at historical cost and the derivatives at fair value. The Corporation has not elected to carry other long-term deposits at fair value because they are not hedged using derivatives.

Short-term Borrowings

The Corporation elects to account for certain short-term borrowings, primarily short-term structured liabilities, under the fair value option because this debt is risk-managed on a fair value basis.

The Corporation also elects to account for certain asset-backed secured financings, which are also classified in short-term borrowings, under the fair value option. Election of the fair value option allows the Corporation to reduce the accounting

volatility that would otherwise result from the asymmetry created by accounting for the asset-backed secured financings at historical cost and the corresponding mortgage LHFS securing these financings at fair value.

Long-term Debt

The Corporation elects to account for certain long-term debt, primarily structured liabilities, under the fair value option. This long-term debt is either risk-managed on a fair value basis or the related hedges do not qualify for hedge accounting.

Fair Value Option Elections

The following tables provide information about the fair value carrying amount and the contractual principal outstanding of assets and liabilities accounted for under the fair value option at December 31, 2022 and 2021, and information about where changes in the fair value of assets and liabilities accounted for under the fair value option are included in the Consolidated Statement of Income for 2022, 2021 and 2020.

Fair Value Option Elections

	December 31, 2022			December 31, 2021		
	Fair Value Carrying Amount	Contractual Principal Outstanding	Fair Value Carrying Amount Less Unpaid Principal	Fair Value Carrying Amount	Contractual Principal Outstanding	Fair Value Carrying Amount Less Unpaid Principal
(Dollars in millions)						
Federal funds sold and securities borrowed or purchased under agreements to resell	\$ 146,999	\$ 147,158	\$ (159)	\$ 150,665	\$ 150,677	\$ (12)
Loans reported as trading account assets ⁽¹⁾	10,143	17,682	(7,539)	10,864	18,895	(8,031)
Trading inventory – other	20,770	n/a	n/a	21,986	n/a	n/a
Consumer and commercial loans	5,771	5,897	(126)	7,819	7,888	(69)
Loans held-for-sale ⁽¹⁾	1,115	1,873	(758)	4,455	5,343	(888)
Other assets	620	n/a	n/a	544	n/a	n/a
Long-term deposits	311	381	(70)	408	401	7
Federal funds purchased and securities loaned or sold under agreements to repurchase	151,708	151,885	(177)	139,641	139,682	(41)
Short-term borrowings	832	833	(1)	4,279	4,127	152
Unfunded loan commitments	110	n/a	n/a	97	n/a	n/a
Accrued expenses and other liabilities	1,217	1,161	56	—	—	—
Long-term debt	33,070	36,830	(3,760)	29,708	30,903	(1,195)

⁽¹⁾ A significant portion of the loans reported as trading account assets and LHFS are distressed loans that were purchased at a deep discount to par, and the remainder are loans with a fair value near contractual principal outstanding.

n/a = not applicable

Gains (Losses) Related to Assets and Liabilities Accounted for Under the Fair Value Option

(Dollars in millions)	Market making and similar activities		Other Income		Total
			2022		
Loans reported as trading account assets	\$	(164)	\$	—	\$ (164)
Trading inventory – other ⁽¹⁾		(1,159)		—	(1,159)
Consumer and commercial loans		(58)		(27)	(85)
Loans held-for-sale ⁽²⁾		—		(304)	(304)
Short-term borrowings		639		—	639
Unfunded loan commitments		—		8	8
Accrued expenses and other liabilities		11		—	11
Long-term debt ⁽³⁾		4,359		(46)	4,313
Other ⁽⁴⁾		74		30	104
Total	\$	3,702	\$	(339)	\$ 3,363
				2021	
Loans reported as trading account assets	\$	275	\$	—	\$ 275
Trading inventory – other ⁽¹⁾		(211)		—	(211)
Consumer and commercial loans		78		40	118
Loans held-for-sale ⁽²⁾		—		58	58
Short-term borrowings		883		—	883
Long-term debt ⁽³⁾		(604)		(41)	(645)
Other ⁽⁴⁾		18		(23)	(5)
Total	\$	439	\$	34	\$ 473
				2020	
Loans reported as trading account assets	\$	107	\$	—	\$ 107
Trading inventory – other ⁽¹⁾		3,216		—	3,216
Consumer and commercial loans		22		(3)	19
Loans held-for-sale ⁽²⁾		—		103	103
Short-term borrowings		(170)		—	(170)
Unfunded loan commitments		—		(65)	(65)
Long-term debt ⁽³⁾		(2,175)		(53)	(2,228)
Other ⁽⁴⁾		35		(22)	13
Total	\$	1,035	\$	(40)	\$ 995

⁽¹⁾ The gains (losses) in market making and similar activities are primarily offset by (losses) gains on trading liabilities that hedge these assets.

⁽²⁾ Includes the value of IRLCs on funded loans, including those sold during the period.

⁽³⁾ The net gains (losses) in market making and similar activities relate to the embedded derivatives in structured liabilities and are typically offset by (losses) gains on derivatives and securities that hedge these liabilities. For the cumulative impact of changes in the Corporation's own credit spreads and the amount recognized in accumulated OCI, see Note 14 – Accumulated Other Comprehensive Income (Loss). For more information on how the Corporation's own credit spread is determined, see Note 20 – Fair Value Measurements.

⁽⁴⁾ Includes gains (losses) on federal funds sold and securities borrowed or purchased under agreements to resell, other assets, long-term deposits and federal funds purchased and securities loaned or sold under agreements to repurchase.

Gains (Losses) Related to Borrower-specific Credit Risk for Assets and Liabilities Accounted for Under the Fair Value Option

(Dollars in millions)	2022		2021		2020	
Loans reported as trading account assets	\$	(950)	\$	128	\$	(172)
Consumer and commercial loans		(51)		7		(19)
Loans held-for-sale		(23)		28		(105)
Unfunded loan commitments		8		(1)		(65)

NOTE 22 Fair Value of Financial Instruments

Financial instruments are classified within the fair value hierarchy using the methodologies described in Note 20 – Fair Value Measurements. Certain loans, deposits, long-term debt, unfunded lending commitments and other financial instruments are accounted for under the fair value option. For more information, see Note 21 – Fair Value Option. The following disclosures include financial instruments that are not carried at fair value or only a portion of the ending balance is carried at fair value on the Consolidated Balance Sheet.

Short-term Financial Instruments

The carrying value of short-term financial instruments, including cash and cash equivalents, certain time deposits placed and other short-term investments, federal funds sold and purchased, certain resale and repurchase agreements and short-term

borrowings, approximates the fair value of these instruments. These financial instruments generally expose the Corporation to limited credit risk and have no stated maturities or have short-term maturities and carry interest rates that approximate market. The Corporation accounts for certain resale and repurchase agreements under the fair value option.

Under the fair value hierarchy, cash and cash equivalents are classified as Level 1. Time deposits placed and other short-term investments, such as U.S. government securities and short-term commercial paper, are classified as Level 1 or Level 2. Federal funds sold and purchased are classified as Level 2. Resale and repurchase agreements are classified as Level 2 because they are generally short-dated and/or variable-rate instruments collateralized by U.S. government or agency securities. Short-term borrowings are classified as Level 2.

Fair Value of Financial Instruments

The carrying values and fair values by fair value hierarchy of certain financial instruments where only a portion of the ending balance was carried at fair value at December 31, 2022 and 2021 are presented in the table below.

Fair Value of Financial Instruments

	Carrying Value	Fair Value		
		Level 2	Level 3	Total
(Dollars in millions)				
December 31, 2022				
Financial assets				
Loans	\$ 1,014,593	\$ 50,194	\$ 935,282	\$ 985,476
Loans held-for-sale	6,871	3,417	3,455	6,872
Financial liabilities				
Deposits ⁽¹⁾	1,930,341	1,930,165	—	1,930,165
Long-term debt	275,982	271,993	1,136	273,129
Commercial unfunded lending commitments ⁽²⁾	1,650	77	6,596	6,673
December 31, 2021				
Financial assets				
Loans	\$ 946,142	\$ 53,544	\$ 919,980	\$ 973,524
Loans held-for-sale	15,635	15,016	627	15,643
Financial liabilities				
Deposits ⁽¹⁾	2,064,446	2,064,438	—	2,064,438
Long-term debt	280,117	286,802	1,288	288,090
Commercial unfunded lending commitments ⁽²⁾	1,554	97	6,384	6,481

⁽¹⁾ Includes demand deposits of \$918.9 billion and \$1.0 trillion with no stated maturities at December 31, 2022 and 2021.

⁽²⁾ The carrying value of commercial unfunded lending commitments is included in accrued expenses and other liabilities on the Consolidated Balance Sheet. The Corporation does not estimate the fair value of consumer unfunded lending commitments because, in many instances, the Corporation can reduce or cancel these commitments by providing notice to the borrower. For more information on commitments, see Note 12 - Commitments and Contingencies.

NOTE 23 Business Segment Information

The Corporation reports its results of operations through the following four business segments: *Consumer Banking*, *Global Wealth & Investment Management*, *Global Banking* and *Global Markets*, with the remaining operations recorded in *All Other*.

Consumer Banking

Consumer Banking offers a diversified range of credit, banking and investment products and services to consumers and small businesses. *Consumer Banking* product offerings include traditional savings accounts, money market savings accounts, CDs and IRAs, checking accounts, and investment accounts and products, as well as credit and debit cards, residential mortgages and home equity loans, and direct and indirect loans to consumers and small businesses in the U.S. *Consumer Banking* includes the impact of servicing residential mortgages and home equity loans.

Global Wealth & Investment Management

GWIM provides a high-touch client experience through a network of financial advisors focused on clients with over \$250,000 in total investable assets, including tailored solutions to meet clients' needs through a full set of investment management, brokerage, banking and retirement products. *GWIM* also provides comprehensive wealth management solutions targeted to high net worth and ultra high net worth clients, as well as customized solutions to meet clients' wealth structuring, investment management, trust and banking needs, including specialty asset management services.

Global Banking

Global Banking provides a wide range of lending-related products and services, integrated working capital management and treasury solutions, and underwriting and advisory services through the Corporation's network of offices and client relationship teams. *Global Banking* also provides investment banking products to clients. The economics of certain investment banking and underwriting activities are shared primarily between *Global Banking* and *Global Markets* under an internal revenue-sharing arrangement. *Global Banking* clients generally include middle-market companies, commercial real estate firms, not-for-profit companies, large global corporations, financial institutions, leasing clients, and mid-sized U.S.-based businesses requiring customized and integrated financial advice and solutions.

Global Markets

Global Markets offers sales and trading services and research services to institutional clients across fixed-income, credit, currency, commodity and equity businesses. *Global Markets* provides market-making, financing, securities clearing, settlement and custody services globally to institutional investor clients in support of their investing and trading activities. *Global Markets* product coverage includes securities and derivative products in both the primary and secondary markets. *Global Markets* also works with commercial and corporate clients to provide risk management products. As a result of market-making activities, *Global Markets* may be required to manage risk in a broad range of financial products. In addition, the economics of certain investment banking and underwriting activities are shared primarily between *Global Markets* and *Global Banking* under an internal revenue-sharing arrangement.

All Other

All Other primarily consists of ALM activities, liquidating businesses and certain expenses not otherwise allocated to a business segment. ALM activities encompass interest rate and foreign currency risk management activities for which substantially all of the results are allocated to the business segments.

Basis of Presentation

The management accounting and reporting process derives segment and business results by utilizing allocation methodologies for revenue and expense. The net income derived for the businesses is dependent upon revenue and cost allocations using an activity-based costing model, funds transfer pricing, and other methodologies and assumptions management believes are appropriate to reflect the results of the business.

Total revenue, net of interest expense, includes net interest income on an FTE basis and noninterest income. The adjustment of net interest income to an FTE basis results in a corresponding increase in income tax expense. The segment results also reflect certain revenue and expense methodologies that are utilized to determine net income. The net interest income of the businesses includes the results of a funds transfer pricing process that matches assets and liabilities with similar interest rate sensitivity and maturity characteristics. In segments where the total of liabilities and equity exceeds assets, which are generally deposit-taking segments, the Corporation allocates assets to match liabilities. Net interest income of the business segments also includes an allocation of net interest income generated by certain of the Corporation's ALM activities.

The Corporation's ALM activities include an overall interest rate risk management strategy that incorporates the use of

various derivatives and cash instruments to manage fluctuations in earnings and capital that are caused by interest rate volatility. The Corporation's goal is to manage interest rate sensitivity so that movements in interest rates do not significantly adversely affect earnings and capital. The results of a majority of the Corporation's ALM activities are allocated to the business segments and fluctuate based on the performance of the ALM activities. ALM activities include external product pricing decisions including deposit pricing strategies, the effects of the Corporation's internal funds transfer pricing process and the net effects of other ALM activities.

Certain expenses not directly attributable to a specific business segment are allocated to the segments. The costs of certain centralized or shared functions are allocated based on methodologies that reflect utilization.

Effective October 1, 2021, a business activity previously

included in the *Global Markets* segment is being reported as a liquidating business in *All Other*, consistent with a realignment in performance reporting to senior management. While this activity was not material to *Global Markets'* results of operations and historical results have not been restated, this activity's noninterest expense of \$309 million and \$473 million for the three months ended September 30, 2021 and June 30, 2021 was elevated and would have been excluded from *Global Markets'* results of operations for those periods under the new basis of presentation.

The table below presents net income (loss) and the components thereto (with net interest income on an FTE basis for the business segments, *All Other* and the total Corporation) for 2022, 2021 and 2020, and total assets at December 31, 2022, 2021 and 2020 for each business segment, as well as *All Other*.

Results of Business Segments and All Other

At and for the year ended December 31

(Dollars in millions)

	Total Corporation ⁽¹⁾			Consumer Banking		
	2022	2021	2020	2022	2021	2020
Net interest income	\$ 52,900	\$ 43,361	\$ 43,859	\$ 30,045	\$ 24,929	\$ 24,698
Noninterest income	42,488	46,179	42,168	8,590	9,076	8,564
Total revenue, net of interest expense	95,388	89,540	86,027	38,635	34,005	33,262
Provision for credit losses	2,543	(4,594)	11,320	1,980	(1,035)	5,765
Noninterest expense	61,438	59,731	55,213	20,077	19,290	18,882
Income before income taxes	31,407	34,403	19,494	16,578	15,750	8,615
Income tax expense	3,879	2,425	1,600	4,062	3,859	2,111
Net income	\$ 27,528	\$ 31,978	\$ 17,894	\$ 12,516	\$ 11,891	\$ 6,504
Year-end total assets	\$ 3,051,375	\$ 3,169,495		\$ 1,126,453	\$ 1,131,142	

	Global Wealth & Investment Management			Global Banking		
	2022	2021	2020	2022	2021	2020
Net interest income	\$ 7,466	\$ 5,664	\$ 5,468	\$ 12,184	\$ 8,511	\$ 9,013
Noninterest income	14,282	15,084	13,116	10,045	12,364	9,974
Total revenue, net of interest expense	21,748	20,748	18,584	22,229	20,875	18,987
Provision for credit losses	66	(241)	357	641	(3,201)	4,897
Noninterest expense	15,490	15,258	14,160	10,966	10,632	9,342
Income before income taxes	6,192	5,731	4,067	10,622	13,444	4,748
Income tax expense	1,517	1,404	996	2,815	3,630	1,282
Net income	\$ 4,675	\$ 4,327	\$ 3,071	\$ 7,807	\$ 9,814	\$ 3,466
Year-end total assets	\$ 368,893	\$ 438,275		\$ 588,466	\$ 638,131	

	Global Markets			All Other		
	2022	2021	2020	2022	2021	2020
Net interest income	\$ 3,088	\$ 4,011	\$ 4,646	\$ 117	\$ 246	\$ 34
Noninterest income	15,050	15,244	14,119	(5,479)	(5,589)	(3,605)
Total revenue, net of interest expense	18,138	19,255	18,765	(5,362)	(5,343)	(3,571)
Provision for credit losses	28	65	251	(172)	(182)	50
Noninterest expense	12,420	13,032	11,417	2,485	1,519	1,412
Income (loss) before income taxes	5,690	6,158	7,097	(7,675)	(6,680)	(5,033)
Income tax expense (benefit)	1,508	1,601	1,845	(6,023)	(8,069)	(4,634)
Net income (loss)	\$ 4,182	\$ 4,557	\$ 5,252	\$ (1,652)	\$ 1,389	\$ (399)
Year-end total assets	\$ 812,489	\$ 747,794		\$ 155,074	\$ 214,153	

⁽¹⁾ There were no material intersegment revenues.

Business Segment Reconciliations

(Dollars in millions)	2022	2021	2020
Segments' total revenue, net of interest expense	\$ 100,750	\$ 94,883	\$ 89,598
Adjustments ⁽¹⁾ :			
Asset and liability management activities	(164)	(4)	375
Liquidating businesses, eliminations and other	(5,198)	(5,339)	(3,946)
FTE basis adjustment	(438)	(427)	(499)
Consolidated revenue, net of interest expense	\$ 94,950	\$ 89,113	\$ 85,528
Segments' total net income	29,180	30,589	18,293
Adjustments, net-of-tax ⁽¹⁾ :			
Asset and liability management activities	(122)	11	279
Liquidating businesses, eliminations and other	(1,530)	1,378	(678)
Consolidated net income	\$ 27,528	\$ 31,978	\$ 17,894

	December 31	
	2022	2021
Segments' total assets	\$ 2,896,301	\$ 2,955,342
Adjustments ⁽¹⁾ :		
Asset and liability management activities, including securities portfolio	1,133,375	1,363,626
Elimination of segment asset allocations to match liabilities	(1,041,793)	(1,216,891)
Other	63,492	67,418
Consolidated total assets	\$ 3,051,375	\$ 3,169,495

⁽¹⁾ Adjustments include consolidated income, expense and asset amounts not specifically allocated to individual business segments.

NOTE 24 Parent Company Information

The following tables present the Parent Company-only financial information.

Condensed Statement of Income

(Dollars in millions)	2022	2021	2020
Income			
Dividends from subsidiaries:			
Bank holding companies and related subsidiaries	\$ 22,250	\$ 15,621	\$ 10,352
Interest from subsidiaries	12,420	8,362	8,825
Other income (loss)	(201)	(114)	(138)
Total income	34,469	23,869	19,039
Expense			
Interest on borrowed funds from subsidiaries	236	54	136
Other interest expense	7,041	3,383	4,119
Noninterest expense	1,322	1,531	1,651
Total expense	8,599	4,968	5,906
Income before income taxes and equity in undistributed earnings of subsidiaries	25,870	18,901	13,133
Income tax expense	683	886	649
Income before equity in undistributed earnings of subsidiaries	25,187	18,015	12,484
Equity in undistributed earnings (losses) of subsidiaries:			
Bank holding companies and related subsidiaries	2,333	14,078	5,372
Nonbank companies and related subsidiaries	8	(115)	38
Total equity in undistributed earnings (losses) of subsidiaries	2,341	13,963	5,410
Net income	\$ 27,528	\$ 31,978	\$ 17,894

Condensed Balance Sheet

	December 31	
	2022	2021
(Dollars in millions)		
Assets		
Cash held at bank subsidiaries	\$ 9,609	\$ 5,011
Securities	617	671
Receivables from subsidiaries:		
Bank holding companies and related subsidiaries	222,584	217,447
Banks and related subsidiaries	220	347
Nonbank companies and related subsidiaries	978	368
Investments in subsidiaries:		
Bank holding companies and related subsidiaries	301,207	316,497
Nonbank companies and related subsidiaries	3,770	3,645
Other assets	7,156	8,602
Total assets	\$ 546,141	\$ 552,588
Liabilities and shareholders' equity		
Accrued expenses and other liabilities	\$ 14,193	\$ 17,394
Payables to subsidiaries:		
Banks and related subsidiaries	260	107
Bank holding companies and related subsidiaries	21	3
Nonbank companies and related subsidiaries	14,578	11,564
Long-term debt	243,892	253,454
Total liabilities	272,944	282,522
Shareholders' equity	273,197	270,066
Total liabilities and shareholders' equity	\$ 546,141	\$ 552,588

Condensed Statement of Cash Flows

	2022	2021	2020
(Dollars in millions)			
Operating activities			
Net income	\$ 27,528	\$ 31,978	\$ 17,894
Reconciliation of net income (loss) to net cash provided by (used in) operating activities:			
Equity in undistributed (earnings) losses of subsidiaries	(2,341)	(13,963)	(5,410)
Other operating activities, net	(31,777)	(7,144)	14,303
Net cash provided by (used in) operating activities	(6,590)	10,871	26,787
Investing activities			
Net sales (purchases) of securities	25	(14)	(4)
Net payments to subsidiaries	(6,044)	(10,796)	(33,111)
Other investing activities, net	(34)	(26)	(7)
Net cash used in investing activities	(6,053)	(10,836)	(33,122)
Financing activities			
Net increase (decrease) in other advances	2,853	503	(422)
Proceeds from issuance of long-term debt	44,123	56,106	43,766
Retirement of long-term debt	(19,858)	(24,544)	(23,168)
Proceeds from issuance of preferred stock and warrants	4,426	2,170	2,181
Redemption of preferred stock	(654)	(1,971)	(1,072)
Common stock repurchased	(5,073)	(25,126)	(7,025)
Cash dividends paid	(8,576)	(8,055)	(7,727)
Net cash provided by (used in) financing activities	17,241	(917)	6,533
Net increase (decrease) in cash held at bank subsidiaries	4,598	(882)	198
Cash held at bank subsidiaries at January 1	5,011	5,893	5,695
Cash held at bank subsidiaries at December 31	\$ 9,609	\$ 5,011	\$ 5,893

NOTE 25 Performance by Geographical Area

The Corporation's operations are highly integrated with operations in both U.S. and non-U.S. markets. The non-U.S. business activities are largely conducted in Europe, the Middle East and Africa and in Asia. The Corporation identifies its geographic performance based on the business unit structure used to manage the capital or expense deployed in the region

as applicable. This requires certain judgments related to the allocation of revenue so that revenue can be appropriately matched with the related capital or expense deployed in the region. Certain asset, liability, income and expense amounts have been allocated to arrive at total assets, total revenue, net of interest expense, income before income taxes and net income by geographic area as presented below.

(Dollars in millions)		Total Assets at Year End ⁽¹⁾	Total Revenue, Net of Interest Expense ⁽²⁾	Income Before Income Taxes	Net Income
U.S. ⁽³⁾	2022	\$ 2,631,815	\$ 82,890	\$ 28,135	\$ 25,607
	2021	2,789,862	78,012	31,392	27,781
	2020		75,576	18,247	16,692
Asia	2022	127,399	4,597	1,144	865
	2021	117,085	4,439	988	733
	2020		4,232	1,051	788
Europe, Middle East and Africa	2022	262,856	6,044	1,121	689
	2021	233,356	5,423	1,097	3,134
	2020		4,491	(596)	264
Latin America and the Caribbean	2022	29,305	1,419	569	367
	2021	29,192	1,239	499	330
	2020		1,229	293	150
Total Non-U.S.	2022	419,560	12,060	2,834	1,921
	2021	379,633	11,101	2,584	4,197
	2020		9,952	748	1,202
Total Consolidated	2022	\$ 3,051,375	\$ 94,950	\$ 30,969	\$ 27,528
	2021	3,169,495	89,113	33,976	31,978
	2020		85,528	18,995	17,894

⁽¹⁾ Total assets include long-lived assets, which are primarily located in the U.S.

⁽²⁾ There were no material intercompany revenues between geographic regions for any of the periods presented.

⁽³⁾ Substantially reflects the U.S.

Glossary

Alt-A Mortgage – A type of U.S. mortgage that is considered riskier than A-paper, or “prime,” and less risky than “subprime,” the riskiest category. Typically, Alt-A mortgages are characterized by borrowers with less than full documentation, lower credit scores and higher LTVs.

Assets Under Management (AUM) – The total market value of assets under the investment advisory and/or discretion of *GWIM* which generate asset management fees based on a percentage of the assets’ market values. AUM reflects assets that are generally managed for institutional, high net worth and retail clients, and are distributed through various investment products including mutual funds, other commingled vehicles and separate accounts.

Banking Book – All on- and off-balance sheet financial instruments of the Corporation except for those positions that are held for trading purposes.

Brokerage and Other Assets – Non-discretionary client assets which are held in brokerage accounts or held for safekeeping.

Committed Credit Exposure – Any funded portion of a facility plus the unfunded portion of a facility on which the lender is legally bound to advance funds during a specified period under prescribed conditions.

Credit Derivatives – Contractual agreements that provide protection against a specified credit event on one or more referenced obligations.

Credit Valuation Adjustment (CVA) – A portfolio adjustment required to properly reflect the counterparty credit risk exposure as part of the fair value of derivative instruments.

Debit Valuation Adjustment (DVA) – A portfolio adjustment required to properly reflect the Corporation’s own credit risk exposure as part of the fair value of derivative instruments and/or structured liabilities.

Funding Valuation Adjustment (FVA) – A portfolio adjustment required to include funding costs on uncollateralized derivatives and derivatives where the Corporation is not permitted to use the collateral it receives.

Interest Rate Lock Commitment (IRLC) – Commitment with a loan applicant in which the loan terms are guaranteed for a designated period of time subject to credit approval.

Letter of Credit – A document issued on behalf of a customer to a third party promising to pay the third party upon presentation of specified documents. A letter of credit effectively substitutes the issuer’s credit for that of the customer.

Loan-to-value (LTV) – A commonly used credit quality metric. LTV is calculated as the outstanding carrying value of the loan divided by the estimated value of the property securing the loan.

Macro Products – Include currencies, interest rates and commodities products.

Margin Receivable – An extension of credit secured by eligible securities in certain brokerage accounts.

Matched Book – Repurchase and resale agreements or securities borrowed and loaned transactions where the overall asset and liability position is similar in size and/or maturity. Generally, these are entered into to accommodate customers where the Corporation earns the interest rate spread.

Mortgage Servicing Rights (MSR) – The right to service a mortgage loan when the underlying loan is sold or securitized. Servicing includes collections for principal, interest and escrow payments from borrowers and accounting for and remitting principal and interest payments to investors.

Nonperforming Loans and Leases – Includes loans and leases that have been placed on nonaccrual status, including nonaccruing loans whose contractual terms have been restructured in a manner that grants a concession to a borrower experiencing financial difficulties.

Prompt Corrective Action (PCA) – A framework established by the U.S. banking regulators requiring banks to maintain certain levels of regulatory capital ratios, comprised of five categories of capitalization: “well capitalized,” “adequately capitalized,” “undercapitalized,” “significantly undercapitalized” and “critically undercapitalized.” Insured depository institutions that fail to meet certain of these capital levels are subject to increasingly strict limits on their activities, including their ability to make capital distributions, pay management compensation, grow assets and take other actions.

Subprime Loans – Although a standard industry definition for subprime loans (including subprime mortgage loans) does not exist, the Corporation defines subprime loans as specific product offerings for higher risk borrowers.

Troubled Debt Restructurings (TDRs) – Loans whose contractual terms have been restructured in a manner that grants a concession to a borrower experiencing financial difficulties. Certain consumer loans for which a binding offer to restructure has been extended are also classified as TDRs.

Value-at-Risk (VaR) – VaR is a model that simulates the value of a portfolio under a range of hypothetical scenarios in order to generate a distribution of potential gains and losses. VaR represents the loss the portfolio is expected to experience with a given confidence level based on historical data. A VaR model is an effective tool in estimating ranges of potential gains and losses on our trading portfolios.

Key Metrics

Active Digital Banking Users – Mobile and/or online active users over the past 90 days.

Active Mobile Banking Users – Mobile active users over the past 90 days.

Book Value – Ending common shareholders' equity divided by ending common shares outstanding.

Common Equity Ratio - Ending common shareholders' equity divided by ending total assets.

Deposit Spread – Annualized net interest income divided by average deposits.

Dividend Payout Ratio – Common dividends declared divided by net income applicable to common shareholders.

Efficiency Ratio – Noninterest expense divided by total revenue, net of interest expense.

Gross Interest Yield – Effective annual percentage rate divided by average loans.

Net Interest Yield – Net interest income divided by average total interest-earning assets.

Operating Margin – Income before income taxes divided by total revenue, net of interest expense.

Return on Average Allocated Capital – Adjusted net income divided by allocated capital.

Return on Average Assets – Net income divided by total average assets.

Return on Average Common Shareholders' Equity – Net income applicable to common shareholders divided by average common shareholders' equity.

Return on Average Shareholders' Equity – Net income divided by average shareholders' equity.

Risk-adjusted Margin – Difference between total revenue, net of interest expense, and net credit losses divided by average loans.

Acronyms

ABS	Asset-backed securities	GNMA	Government National Mortgage Association
AFS	Available-for-sale	GRM	Global Risk Management
AI	Artificial intelligence	GSE	Government-sponsored enterprise
ALM	Asset and liability management	G-SIB	Global systemically important bank
ARR	Alternative reference rates	GWIM	Global Wealth & Investment Management
AUM	Assets under management	HELOC	Home equity line of credit
AVM	Automated valuation model	HQLA	High Quality Liquid Assets
BANA	Bank of America, National Association	HTM	Held-to-maturity
BHC	Bank holding company	IBOR	Interbank Offered Rates
BofAS	BofA Securities, Inc.	ICAAP	Internal Capital Adequacy Assessment Process
BofASE	BofA Securities Europe SA	IRLC	Interest rate lock commitment
bps	Basis points	ISDA	International Swaps and Derivatives Association, Inc.
CAE	Chief Audit Executive	LCR	Liquidity Coverage Ratio
CCAR	Comprehensive Capital Analysis and Review	LHFS	Loans held-for-sale
CDO	Collateralized debt obligation	LIBOR	London Interbank Offered Rate
CDS	Credit default swap	LTV	Loan-to-value
CECL	Current expected credit losses	MBS	Mortgage-backed securities
CET1	Common equity tier 1	MD&A	Management's Discussion and Analysis of Financial Condition and Results of Operations
CFPB	Consumer Financial Protection Bureau	MLI	Merrill Lynch International
CFTC	Commodity Futures Trading Commission	MLPCC	Merrill Lynch Professional Clearing Corp
CLO	Collateralized loan obligation	MLPF&S	Merrill Lynch, Pierce, Fenner & Smith Incorporated
CLTV	Combined loan-to-value	MRC	Management Risk Committee
CRO	Chief Risk Officer	MSA	Metropolitan Statistical Area
CVA	Credit valuation adjustment	MSR	Mortgage servicing right
DIF	Deposit Insurance Fund	NOL	Net operating loss
DVA	Debit valuation adjustment	NSFR	Net Stable Funding Ratio
ECL	Expected credit losses	OCC	Office of the Comptroller of the Currency
EPS	Earnings per common share	OCI	Other comprehensive income
ERC	Enterprise Risk Committee	OREO	Other real estate owned
ESG	Environmental, social and governance	OTC	Over-the-counter
EU	European Union	PCA	Prompt Corrective Action
FCA	Financial Conduct Authority	PPP	Paycheck Protection Program
FDIC	Federal Deposit Insurance Corporation	RMBS	Residential mortgage-backed securities
FDICIA	Federal Deposit Insurance Corporation Improvement Act of 1991	RSU	Restricted stock unit
FHA	Federal Housing Administration	RWA	Risk-weighted assets
FHLB	Federal Home Loan Bank	SBA	Small Business Administration
FHLMC	Freddie Mac	SBLC	Standby letter of credit
FICC	Fixed income, currencies and commodities	SCB	Stress capital buffer
FICO	Fair Isaac Corporation (credit score)	SEC	Securities and Exchange Commission
FLUs	Front line units	SLR	Supplementary leverage ratio
FNMA	Fannie Mae	TDR	Troubled debt restructurings
FTE	Fully taxable-equivalent	TLAC	Total loss-absorbing capacity
FVA	Funding valuation adjustment	UDAAP	Unfair, deceptive, or abusive acts or practices
GAAP	Accounting principles generally accepted in the United States of America	VA	U.S. Department of Veterans Affairs
GDPR	General Data Protection Regulation	VaR	Value-at-Risk
GLS	Global Liquidity Sources	VIE	Variable interest entity

Disclosure Controls and Procedures

Bank of America Corporation and Subsidiaries

As of the end of the period covered by this report and pursuant to Rule 13a-15 of the Securities Exchange Act of 1934, as amended (Exchange Act), Bank of America's management, including the Chief Executive Officer and Chief Financial Officer, conducted an evaluation of the effectiveness and design of our disclosure controls and procedures (as that term is defined in Rule 13a-15(e) of the Exchange Act). Based upon that evaluation, Bank of America's Chief Executive Officer and Chief Financial Officer concluded that Bank of America's disclosure controls and procedures were effective, as of the end of the period covered by this report.

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EXECUTIVE MANAGEMENT TEAM AND MANAGEMENT COMMITTEE

EXECUTIVE MANAGEMENT TEAM

Brian T. Moynihan*

Chair of the Board and
Chief Executive Officer

Raul A. Anaya

President, Business Banking

Dean C. Athanasia*

President, Regional Banking

Catherine P. Bessant

Vice Chair, Global Strategy

Aditya Bhasin*

Chief Technology and Information Officer

D. Steve Boland*

Chief Administrative Officer

Alastair M. Borthwick*

Chief Financial Officer

Sheri B. Bronstein*

Chief Human Resources Officer

James P. DeMare*

President, Global Markets

Paul M. Donofrio*

Vice Chair

Geoffrey S. Greener*

Chief Risk Officer

Christine P. Katziff

Chief Audit Executive

Kathleen A. Knox*

President, The Private Bank

Matthew M. Koder*

President, Global Corporate & Investment
Banking

Aron D. Levine

President, Preferred Banking

Bernard A. Mensah*

President, International; CEO,
Merrill Lynch International

Lauren Mogensen*

Global General Counsel

Thong M. Nguyen*

Vice Chair, Head of Global Strategy &
Enterprise Platforms

Holly O'Neill

President, Retail Banking

Tom M. Scrivener*

Chief Operations Executive

Andrew M. Sieg*

President, Merrill Wealth Management

Wendy H. Stewart

President, Global Commercial Banking

Bruce R. Thompson*

Vice Chair, Head of Enterprise Credit

MANAGEMENT COMMITTEE**

Faiz A. Ahmad

Head of Global Transaction Services

Michael C. Ankrom

Chief Resiliency Officer, Global Strategic
Enablement & Transformation

Keith T. Banks

Vice Chair and Chief Investment Officer,
Pension and Benefits Plan

Alexandre Bettamio

President, Latin America

Rudolf A. Bless

Chief Accounting Officer

Len Botkin

Enterprise Initiatives and Strategic Priorities

Cynthia H. Bowman

Chief Diversity, Inclusion and Corporate Social
Responsibility Officer

Candace Browning

Vice Chair of the Bank of America Institute
and Head of Global Research

Lisa G. Clyde

Head of Global Corporate Banking
& Leasing

Lawrence T. Di Rita

Head of Public Policy

Christopher J. Fabro

Global Compensation, Benefits and Aviation

Karen Fang

Global Head of Sustainable Finance

April L. Francois

Head of Global Strategic Planning

Craig Froelich

Chief Information Security Officer

Sarang R. Gadkari

Co-Head of Global Capital Markets

Debbie U. Helvig

Global Corporate Communications

Mary Hines Drosch

Head of Consumer & Small Business Products

Shannon Lilly

Treasurer

Amy Littman

Co-Head of Global Compliance & Operational
Risk and Head of Enterprise Reputational Risk

Andrei Magasiner

Global Markets Chief of Staff and Global
Banking and Global Markets AML Client
Outreach

Denis Manelski

Global Head of Fixed Income Sales

Anil T. Matai

Global Human Resources Executive and Life
Event Services

E. Lee McEntire

Head of Investor Relations and Local Markets
Organization

Sharon L. Miller

President, Small Business and Head of
Specialty Banking & Lending

Mark Monaco

Enterprise Payments

Tram V. Nguyen

Head of Global Strategic and Sustainable
Investments

Jessica A. Oppenheim

External Communications Executive

Lorna R. Sabbia

Head of Retirement and Personal Wealth
Solutions

Purna R. Saggurti

Vice Chair, Bank of America

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Head of Wealth Management Banking &
Lending

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Co-President of APAC and Head of APAC GCIB

Thomas J. Sheehan

Head of Global Investment Banking

Jin Su

Co-President of APAC and Co-Head of
APAC FICC

David C. Tyrie

Chief Digital Officer and Head of Global
Marketing

Elif Bilgi Zapparoli

Co-Head of Global Capital Markets

Soofian J. Zuberi

Head of Global Equities

*Executive Officer

**All members of the Executive Management Team are also members of the Management Committee

BOARD OF DIRECTORS

BOARD OF DIRECTORS

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Former Chairman, Deloitte LLP

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R. David Yost*

Former Chief Executive Officer, AmerisourceBergen Corporation

Maria T. Zuber

Vice President for Research and E.A. Griswold Professor of Geophysics, Massachusetts Institute of Technology

*Not standing for reelection at the 2023 Annual Meeting of Shareholders

Corporate Information

Bank of America Corporation

Headquarters

The principal executive offices of Bank of America Corporation (the Corporation) are located in the Bank of America Corporate Center, 100 North Tryon Street, Charlotte, NC 28255.

Stock Listing

The Corporation's common stock is listed on the New York Stock Exchange (NYSE) under the symbol BAC. The stock is typically listed as BankAm in newspapers. As of December 31, 2022, there were 144,011 registered holders of the Corporation's common stock.

Investor Relations

Analysts, portfolio managers and other investors seeking additional information about Bank of America stock should contact our Equity Investor Relations group at 1.704.386.5681 or i_r@bofa.com. For additional information about Bank of America from a credit perspective, including debt and preferred securities, contact our Fixed Income Investor Relations group at 1.866.607.1234 or fixedincomeir@bofa.com. Visit the Investor Relations area of the Bank of America website, <https://investor.bankofamerica.com>, for stock and dividend information, financial news releases, links to Bank of America SEC filings, electronic versions of our annual reports and other items of interest to the Corporation's shareholders.

Customers

For assistance with Bank of America products and services, call 1.800.432.1000, or visit the Bank of America website at www.bankofamerica.com. Additional toll-free numbers for specific products and services are listed on our website at www.bankofamerica.com/contact.

News Media

News media seeking information should visit our online newsroom at <https://newsroom.bankofamerica.com> for news releases, press kits and other items relating to the Corporation, including a complete list of the Corporation's media relations specialists grouped by business specialty or geography.

Annual Report on Form 10-K

The Corporation's 2022 Annual Report on Form 10-K is available at <https://investor.bankofamerica.com>. The Corporation also will provide a copy of the 2022 Annual Report on Form 10-K (without exhibits) upon written request addressed to:

Bank of America Corporation
Office of the Corporate Secretary
Bank of America Corporate Center
100 North Tryon Street
NC1-007-56-06
Charlotte, NC 28255

Shareholder Inquiries

For inquiries concerning dividend checks, electronic deposit of dividends, dividend reinvestment, tax statements, electronic delivery, transferring ownership, address changes or lost or stolen stock certificates, contact Bank of America Shareholder Services at Computershare Trust Company, N.A., via the Internet at www.computershare.com/bac; call 1.800.642.9855; or write to P.O. Box 43078, Providence, RI 02940. Hearing impaired 1.888.403.9700 or outside the United States 1.781.575.4592. For general shareholder information, contact Bank of America Office of the Corporate Secretary at 1.800.521.3984. Shareholders outside of the United States and Canada may call 1.781.575.2621.

Electronic Delivery

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