## THREE-YEAR SUMMARY OF CONSOLIDATED FINANCIAL HIGHLIGHTS (unaudited)

| As of or for the year ended December 31, (in millions, except per share, ratio, headcount data and where otherwise noted) | 2022 | 2021 | 2020 |
|---|---|---|---|
| **Selected income statement data** | | | |
| Total net revenue | $ 128,695 | $ 121,649 | $ 119,951 |
| Total noninterest expense | 76,140 | 71,343 | 66,656 |
| **Pre-provision profit**[(a)] | 52,555 | 50,306 | 53,295 |
| Provision for credit losses | 6,389 | (9,256) | 17,480 |
| **Income before income tax expense** | 46,166 | 59,562 | 35,815 |
| Income tax expense | 8,490 | 11,228 | 6,684 |
| **Net income** | $ 37,676 | $ 48,334 | $ 29,131 |
| **Earnings per share data** | | | |
| Net income: Basic | $ 12.10 | $ 15.39 | $ 8.89 |
| Diluted | 12.09 | 15.36 | 8.88 |
| Average shares: Basic | 2,965.8 | 3,021.5 | 3,082.4 |
| Diluted | 2,970.0 | 3,026.6 | 3,087.4 |
| **Market and per common share data** | | | |
| Market capitalization | $ 393,484 | $ 466,206 | $ 387,492 |
| Common shares at period-end | 2,934.2 | 2,944.1 | 3,049.4 |
| Book value per share | 90.29 | 88.07 | 81.75 |
| Tangible book value per share ("TBVPS")[(a)] | 73.12 | 71.53 | 66.11 |
| Cash dividends declared per share | 4.00 | 3.80 | 3.60 |
| **Selected ratios and metrics** | | | |
| Return on common equity ("ROE")[(b)] | 14 % | 19 % | 12 % |
| Return on tangible common equity ("ROTCE")[(a)(b)] | 18 | 23 | 14 |
| Return on assets ("ROA")[(a)] | 0.98 | 1.30 | 0.91 |
| Overhead ratio | 59 | 59 | 56 |
| Loans-to-deposits ratio | 49 | 44 | 47 |
| Firm Liquidity coverage ratio ("LCR") (average)[(c)] | 112 | 111 | 110 |
| JPMorgan Chase Bank, N.A. LCR (average)[(c)] | 151 | 178 | 160 |
| Common equity Tier 1 ("CET1") capital ratio[(d)] | 13.2 | 13.1 | 13.1 |
| Tier 1 capital ratio[(d)] | 14.9 | 15.0 | 15.0 |
| Total capital ratio[(d)] | 16.8 | 16.8 | 17.3 |
| Tier 1 leverage ratio[(c)(d)] | 6.6 | 6.5 | 7.0 |
| Supplementary leverage ratio ("SLR")[(c)(d)] | 5.6 | 5.4 | 6.9 |
| **Selected balance sheet data (period-end)** | | | |
| Trading assets | $ 453,799 | $ 433,575 | $ 503,126 |
| Investment securities, net of allowance for credit losses | 631,162 | 672,232 | 589,999 |
| Loans | 1,135,647 | 1,077,714 | 1,012,853 |
| Total assets | 3,665,743 | 3,743,567 | 3,384,757 |
| Deposits | 2,340,179 | 2,462,303 | 2,144,257 |
| Long-term debt | 295,865 | 301,005 | 281,685 |
| Common stockholders' equity | 264,928 | 259,289 | 249,291 |
| Total stockholders' equity | 292,332 | 294,127 | 279,354 |
| **Headcount** | 293,723 | 271,025 | 255,351 |
| **Credit quality metrics** | | | |
| Allowances for loan losses and lending-related commitments | $ 22,204 | $ 18,689 | $ 30,815 |
| Allowance for loan losses to total retained loans | 1.81 % | 1.62 % | 2.95 % |
| Nonperforming assets | $ 7,247 | $ 8,346 | $ 10,906 |
| Net charge-offs | 2,853 | 2,865 | 5,259 |
| Net charge-off rate | 0.27 % | 0.30 % | 0.55 % |

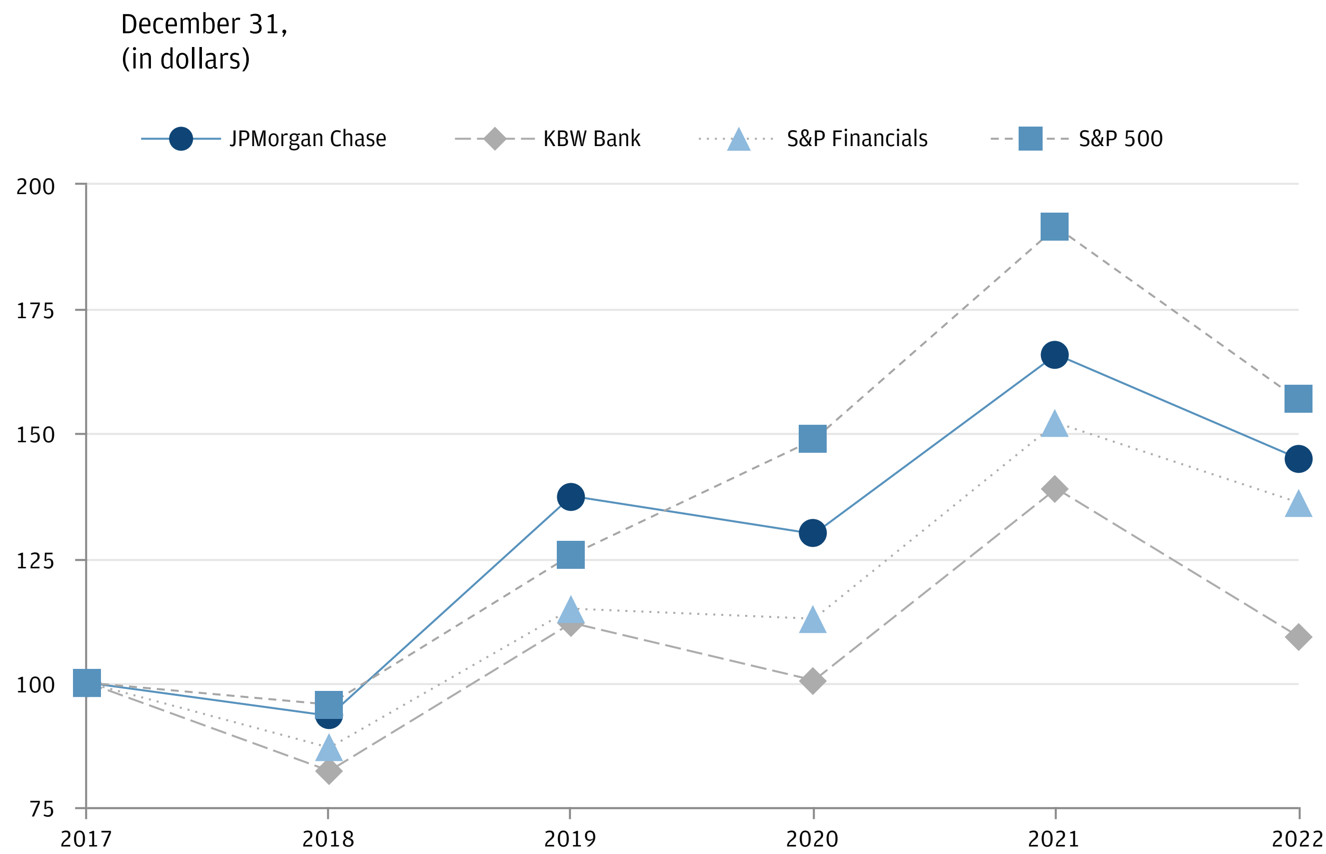
(a) Pre-provision profit, TBVPS and ROTCE are each non-GAAP financial measures. Tangible common equity ("TCE") is also a non-GAAP financial measure. Refer to Explanation and Reconciliation of the Firm's Use of Non-GAAP Financial Measures on pages 58-60 for a discussion of these measures.
(b) Quarterly ratios are based upon annualized amounts.
(c) For the years ended December 31, 2022, 2021 and 2020, the percentage represents average ratios for the three months ended December 31, 2022, 2021 and 2020.
(d) As of December 31, 2022, 2021 and 2020, the capital metrics reflect the relief provided by the Federal Reserve Board in response to the COVID-19 pandemic, including the Current Expected Credit Losses ("CECL") capital transition provisions. As of December 31, 2020, the SLR reflected the temporary exclusions of U.S. Treasury securities and deposits at Federal Reserve Banks, which became effective April 1, 2020 and remained in effect through March 31, 2021. Refer to Capital Risk Management on pages 86-96 for additional information.

## FIVE-YEAR STOCK PERFORMANCE

The following table and graph compare the five-year cumulative total return for JPMorgan Chase & Co. ("JPMorgan Chase" or the "Firm") common stock with the cumulative return of the S&P 500 Index, the KBW Bank Index and the S&P Financials Index. The S&P 500 Index is a commonly referenced equity benchmark in the United States of America ("U.S."), consisting of leading companies from different economic sectors. The KBW Bank Index seeks to reflect the performance of banks and thrifts that are publicly traded in the U.S. and is composed of leading national money center and regional banks and thrifts. The S&P Financials Index is an index of financial companies, all of which are components of the S&P 500. The Firm is a component of all three industry indices.

The following table and graph assume simultaneous investments of $100 on December 31, 2017, in JPMorgan Chase common stock and in each of the above indices. The comparison assumes that all dividends were reinvested.

| December 31, (in dollars) | 2017 | 2018 | 2019 | 2020 | 2021 | **2022** |
|---|---|---|---|---|---|---|
| JPMorgan Chase | $ 100.00 | $ 93.35 | $ 137.48 | $ 129.89 | $ 165.91 | **$ 145.01** |
| KBW Bank Index | 100.00 | 82.29 | 112.01 | 100.47 | 138.99 | **109.25** |
| S&P Financials Index | 100.00 | 86.96 | 114.87 | 112.85 | 152.20 | **136.17** |
| S&P 500 Index | 100.00 | 95.61 | 125.70 | 148.82 | 191.49 | **156.81** |



*The following is Management's discussion and analysis of the financial condition and results of operations ("MD&A") of JPMorgan Chase for the year ended December 31, 2022. The MD&A is included in both JPMorgan Chase's Annual Report for the year ended December 31, 2022 ("Annual Report") and its Annual Report on Form 10-K for the year ended December 31, 2022 ("2022 Form 10-K" or "Form 10-K") filed with the Securities and Exchange Commission ("SEC"). Refer to the Glossary of terms and acronyms on pages 297-303 for definitions of terms and acronyms used throughout the Annual Report and the 2022 Form 10-K.*

*This Form 10-K contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. These forward-looking statements are based on the current beliefs and expectations of JPMorgan Chase's management, speak only as of the date of this Form 10-K and are subject to significant risks and uncertainties. Refer to Forward-looking Statements on page 154 and Part 1, Item 1A: Risk factors in this Form 10-K on pages 9-32 for a discussion of certain of those risks and uncertainties and the factors that could cause JPMorgan Chase's actual results to differ materially because of those risks and uncertainties. There is no assurance that actual results will be in line with any outlook information set forth herein, and the Firm does not undertake to update any forward-looking statements.*

## INTRODUCTION

JPMorgan Chase & Co. (NYSE: JPM), a financial holding company incorporated under Delaware law in 1968, is a leading financial services firm based in the United States of America ("U.S."), with operations worldwide. JPMorgan Chase had $3.7 trillion in assets and $292.3 billion in stockholders' equity as of December 31, 2022. The Firm is a leader in investment banking, financial services for consumers and small businesses, commercial banking, financial transaction processing and asset management. Under the J.P. Morgan and Chase brands, the Firm serves millions of customers, predominantly in the U.S., and many of the world's most prominent corporate, institutional and government clients globally.

JPMorgan Chase's principal bank subsidiary is JPMorgan Chase Bank, National Association ("JPMorgan Chase Bank, N.A."), a national banking association with U.S. branches in 48 states and Washington, D.C. JPMorgan Chase's principal nonbank subsidiary is J.P. Morgan Securities LLC ("J.P. Morgan Securities"), a U.S. broker-dealer. The bank and non-bank subsidiaries of JPMorgan Chase operate nationally as well as through overseas branches and subsidiaries, representative offices and subsidiary foreign banks. The Firm's principal operating subsidiaries outside the U.S. are J.P. Morgan Securities plc and J.P. Morgan SE ("JPMSE"), which are subsidiaries of JPMorgan Chase Bank, N.A. and are based in the United Kingdom ("U.K.") and Germany, respectively.

For management reporting purposes, the Firm's activities are organized into four major reportable business segments, as well as a Corporate segment. The Firm's consumer business is the Consumer & Community Banking ("CCB") segment. The Firm's wholesale business segments are the Corporate & Investment Bank ("CIB"), Commercial Banking ("CB"), and Asset & Wealth Management ("AWM"). Refer to Business Segment Results on pages 61-80, and Note 32 for a description of the Firm's business segments, and the products and services they provide to their respective client bases.

The Firm's website is www.jpmorganchase.com. JPMorgan Chase makes available on its website, free of charge, annual reports on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934, as soon as reasonably practicable after it electronically files or furnishes such material to the U.S. Securities and Exchange Commission (the "SEC") at www.sec.gov. JPMorgan Chase makes new and important information about the Firm available on its website at https://www.jpmorganchase.com, including on the Investor Relations section of its website at https://www.jpmorganchase.com/ir. Information on the Firm's website is not incorporated by reference into this 2022 Form 10-K or the Firm's other filings with the SEC.

## EXECUTIVE OVERVIEW

*This executive overview of the MD&A highlights selected information and does not contain all of the information that is important to readers of this 2022 Form 10-K. For a complete description of the trends and uncertainties, as well as the risks and critical accounting estimates affecting the Firm, this 2022 Form 10-K should be read in its entirety.*

### Financial performance of JPMorgan Chase

| Year ended December 31, (in millions, except per share data and ratios) | 2022 | 2021 | Change |
|---|---|---|---|
| **Selected income statement data** | | | |
| Noninterest revenue | $ 61,985 | $ 69,338 | (11)% |
| Net interest income | $ 66,710 | $ 52,311 | 28 % |
| Total net revenue | $ 128,695 | $ 121,649 | 6 % |
| Total noninterest expense | 76,140 | 71,343 | 7 |
| Pre-provision profit | 52,555 | 50,306 | 4 |
| Provision for credit losses | 6,389 | (9,256) | NM |
| **Net income** | 37,676 | 48,334 | (22) |
| **Diluted earnings per share** | 12.09 | 15.36 | (21) |
| **Selected ratios and metrics** | | | |
| Return on common equity | 14 % | 19 % | |
| Return on tangible common equity | 18 | 23 | |
| Book value per share | $ 90.29 | $ 88.07 | 3 |
| Tangible book value per share | 73.12 | 71.53 | 2 |
| **Capital ratios**[(a)] | | | |
| CET1 capital | 13.2 % | 13.1 % | |
| Tier 1 capital | 14.9 | 15.0 | |
| Total capital | 16.8 | 16.8 | |
| **Memo:** | | | |
| NII excluding Markets[(b)] | $ 62,355 | $ 44,498 | 40 |
| NIR excluding Markets[(b)] | 40,938 | 53,412 | (23) |
| Markets[(b)] | 28,984 | 27,394 | 6 |
| Total net revenue - managed basis | $ 132,277 | $ 125,304 | 6 |

(a) The ratios reflect the CECL capital transition provisions. Refer to Capital Risk Management on pages 86-96 for additional information.
(b) NII and NIR refer to net interest income and noninterest revenue, respectively. Markets consists of CIB's Fixed Income Markets and Equity Markets businesses.

*Comparisons noted in the sections below are for the full year of 2022 versus the full year of 2021, unless otherwise specified.*

### Firmwide overview

JPMorgan Chase reported net income of $37.7 billion for 2022, down 22%, earnings per share of $12.09, ROE of 14% and ROTCE of 18%.

- **Total net revenue** was $128.7 billion, up 6%, reflecting:
  - Net interest income of $66.7 billion, up 28%, driven by higher rates and loan growth, partially offset by lower Markets net interest income. Net interest income excluding Markets was $62.4 billion, up 40%.
  - Noninterest revenue of $62.0 billion, down 11%, driven by lower Investment Banking fees, $2.4 billion of net investment securities losses in Treasury and CIO, lower net production revenue in Home Lending and lower auto operating lease income, largely offset by higher CIB Markets revenue and a $914 million gain on the sale of Visa Class B common shares ("Visa B shares") in Corporate.
- **Noninterest expense** was $76.1 billion, up 7%, driven by higher structural expense and continued investments in the business, including compensation, technology and marketing, partially offset by lower volume- and revenue-related expense.
- The **provision for credit losses** was $6.4 billion, reflecting:
  - a net addition of $3.5 billion to the allowance for credit losses, consisting of $2.3 billion in wholesale and $1.2 billion in consumer, driven by loan growth and deterioration in the Firm's macroeconomic outlook, partially offset by a reduction in the allowance related to a decrease in uncertainty associated with borrower behavior as the effects of the pandemic gradually recede, and
  - $2.9 billion of net charge-offs.

  The prior year provision was a net benefit of $9.3 billion, reflecting a net reduction to the allowance for credit losses of $12.1 billion.
- The total **allowance for credit losses** was $22.2 billion at December 31, 2022. The Firm had an allowance for loan losses to retained loans coverage ratio of 1.81%, compared with 1.62% in the prior year.
- The Firm's **nonperforming assets** totaled $7.2 billion at December 31, 2022, a net decrease of $1.1 billion, predominantly driven by lower consumer nonaccrual loans, reflecting improved credit performance and loan sales.
- Firmwide **average loans** of $1.1 trillion were up 6%, driven by higher loans across the LOBs.
- Firmwide **average deposits** of $2.5 trillion were up 5%, reflecting:
  - growth in CCB from existing and new accounts, and net inflows in AWM resulting from the residual effects of certain government actions, partially offset by the impact of growth in customer spending in CCB and migration into investments in AWM, and
  - reductions in CIB and CB due to attrition driven by the rising interest rate environment.

### Selected capital and other metrics

- **CET1 capital** was $219 billion, and the Standardized and Advanced CET1 ratios were 13.2% and 13.6%, respectively.
- **SLR** was 5.6%.
- **TBVPS** grew by 2%, ending 2022 at $73.12.

- As of December 31, 2022, the Firm had average eligible **High Quality Liquid Assets** ("HQLA") of approximately $733 billion and **unencumbered marketable securities** with a fair value of approximately $694 billion, resulting in approximately $1.4 trillion of liquidity sources. Refer to Liquidity Risk Management on pages 97-104 for additional information.

Refer to Consolidated Result of Operations and Consolidated Balance Sheets Analysis on pages 51-54 and pages 55-56, respectively, for a further discussion of the Firm's results.

Pre-provision profit, ROTCE, TCE, TBVPS, NII and NIR excluding Markets, and total net revenue on a managed basis are non-GAAP financial measures. Refer to Explanation and Reconciliation of the Firm's Use of Non-GAAP Financial Measures on pages 58-60 for a further discussion of each of these measures.

### Business segment highlights

Selected business metrics for each of the Firm's four LOBs are presented below for the full year of 2022.

| | |
|---|---|
| CCB ROE 29% | • Average deposits up 10%; client investment assets down 10%<br>• Average loans up 1%; Card Services net charge-off rate of 1.47%<br>• Debit and credit card sales volume[(a)] up 14%<br>• Active mobile customers[(b)] up 9% |
| CIB ROE 14% | • #1 ranking for Global Investment Banking fees with 8.0% wallet share for the year<br>• Total Markets revenue of $29.0 billion, up 6%, with Fixed Income Markets up 10% and Equity Markets down 2% |
| CB ROE 16% | • Gross Investment Banking revenue of $3.0 billion, down 42%<br>• Average deposits down 2%; average loans up 9% |
| AWM ROE 25% | • Assets under management ("AUM") of $2.8 trillion, down 11%<br>• Average deposits up 14%; average loans up 9% |

(a) Excludes Commercial Card.
(b) Users of all mobile platforms who have logged in within the past 90 days.

Refer to the Business Segment Results on pages 61-62 for a detailed discussion of results by business segment.

### Credit provided and capital raised

JPMorgan Chase continues to support consumers, businesses and communities around the globe. The Firm provided new and renewed credit and raised capital for wholesale and consumer clients during 2022, consisting of:

| | |
|---|---|
| $2.4 trillion | Total credit provided and capital raised (including loans and commitments)[(a)] |
| $250 billion | Credit for consumers |
| $33 billion | Credit for U.S. small businesses |
| $1.1 trillion | Credit for corporations |
| $1.0 trillion | Capital raised for corporate clients and non-U.S. government entities |
| $65 billion | Credit and capital raised for nonprofit and U.S. government entities[(a)] |

(a) Includes states, municipalities, hospitals and universities.

## Recent events

- On January 20, 2023, JPMorgan Chase announced that J.P. Morgan Asset Management had received regulatory approval from the China Securities Regulatory Commission to complete its acquisition of China International Fund Management Co., Ltd.
- On January 17, 2023, JPMorgan Chase announced that Alicia Boler Davis had been elected as a director of the Firm, effective March 20, 2023. Ms. Davis serves as Chief Executive Officer of Alto Pharmacy.

## Outlook

*These current expectations are forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Such forward-looking statements are based on the current beliefs and expectations of JPMorgan Chase's management, speak only as of the date of this Form 10-K, and are subject to significant risks and uncertainties. Refer to Forward-Looking Statements on page 154, and the Risk Factors section on pages 9-32 of this Form 10-K for a further discussion of certain of those risks and uncertainties and the other factors that could cause JPMorgan Chase's actual results to differ materially because of those risks and uncertainties. There is no assurance that actual results in 2023 will be in line with the outlook information set forth below, and the Firm does not undertake to update any forward-looking statements.*

JPMorgan Chase's current outlook for full-year 2023 should be viewed against the backdrop of the global and U.S. economies, financial markets activity, the geopolitical environment, the competitive environment, client and customer activity levels, and regulatory and legislative developments in the U.S. and other countries where the Firm does business. Each of these factors will affect the performance of the Firm. The Firm will continue to make appropriate adjustments to its businesses and operations in response to ongoing developments in the business, economic, regulatory and legal environments in which it operates.

### Full-year 2023

- Management expects net interest income to be approximately $73 billion, market dependent.
- Management expects net interest income excluding Markets to be approximately $74 billion, market dependent.
- Management expects adjusted expense to be approximately $81 billion, market dependent.
- Management expects the net charge-off rate in Card Services to be approximately 2.6%.

Net interest income excluding Markets and adjusted expense are non-GAAP financial measures. Refer to Explanation and Reconciliation of the Firm's Use of Non-GAAP Financial Measures on pages 58-60.

## Business Developments

### War in Ukraine

The duration and potential outcomes of the war in Ukraine remain uncertain. The Firm has taken and continues to take steps to close positions and reduce certain of its business activities and exposures connected with the war, and to assist clients with fulfilling any pre-existing obligations and managing their Russia-related risks.

The Firm's exposure to Russia and Russia-associated clients and counterparties is not material to its financial condition or results of operations. However, the Firm continues to monitor potential secondary impacts of the war, including increased market volatility, inflationary pressures and the effects of financial and economic sanctions imposed by various governments, that could have adverse effects on the Firm's businesses.

The Firm also continues to monitor and manage the operational risks associated with the war, including compliance with the financial and economic sanctions and the increased risk of cyber attacks.

Refer to Wholesale Credit Portfolio on pages 116-126, Allowance for Credit Losses on pages 127-129, Market Risk Management on pages 131-138, Country Risk Management on pages 139-140 and Operational Risk Management on pages 142-144 for additional information.

For purposes of this Form 10-K, "Russia" refers to exposure to clients and counterparties of the Firm for which the largest proportion of their assets is located, or the largest proportion of their revenue is derived, in Russia, based on the Firm's internal country risk management framework; and "Russia-associated" refers to exposure to clients and counterparties of the Firm with respect to which economic or financial sanctions relating to the war in Ukraine have been imposed or which have close association with Russia.

### Interbank Offered Rate ("IBOR") transition

The Firm and other market participants are preparing for the final stages of the transition from the use of the London Interbank Offered Rate ("LIBOR") and other IBORs in accordance with the International Organization of Securities Commission's standards for transaction-based benchmark rates. The cessation of the publication of the remaining principal tenors of U.S. dollar LIBOR (i.e., overnight, one-month, three-month, six-month and 12-month LIBOR) ("LIBOR Cessation") is scheduled for June 30, 2023.

As of December 31, 2022, the Firm had significantly reduced the notional amount of its exposure to contracts that reference U.S. dollar LIBOR, including in derivatives, bilateral and syndicated loans, securities, and debt and preferred stock issuances, and is on-track to meet both its internal milestones for contract remediation as well as the industry milestones and recommendations published by National Working Groups, including the Alternative Reference Rates Committee in the U.S. The Firm also continues to engage with clients to assist them with transitioning their U.S. dollar LIBOR-linked contracts to replacement rates in anticipation of LIBOR Cessation. The majority of the Firm's remaining LIBOR exposure is to derivative contracts. The Firm will be participating in initiatives by the principal central counterparties ("CCPs") to convert cleared derivatives contracts linked to U.S. dollar LIBOR in the second quarter of 2023 which will remediate approximately 40% of the Firm's remaining U.S. dollar LIBOR derivatives exposure. The Firm expects that the majority of the remaining derivatives exposure will be remediated predominantly through contractual fallback provisions.

On March 15, 2022, the Adjustable Interest Rate (LIBOR) Act ("LIBOR Act") was signed into law in the U.S. The LIBOR Act provides a framework for replacing U.S. dollar LIBOR as the reference rate in legacy financial contracts that may not otherwise transition to a replacement rate upon LIBOR Cessation. In addition, the U.K. Financial Conduct Authority is proposing that the administrator of LIBOR be required to continue to publish the one-month, three-month and six-month tenors of U.S. dollar LIBOR on a "synthetic" basis which would allow market participants to use such rates through September 30, 2024. This proposal would apply to contracts that are outside the scope of the LIBOR Act, including U.S. dollar LIBOR-linked contracts that are not governed by U.S. law. Both the LIBOR Act and the proposed publication of "synthetic" LIBOR are intended to facilitate, and reduce the risks associated with, the transition from LIBOR, including the potential for disputes or litigation.

The Firm continues to make necessary changes to its risk management systems in connection with the transition from LIBOR, including modifications to its operational systems and models. In addition, the Firm continues to monitor and evaluate client, industry, market, regulatory and legislative developments relating to the transition from LIBOR. Refer to Part 1, Item 1A: Risk Factors on pages 9-32 of the 2022 Form 10-K and to Accounting and Reporting Developments on page 153 for additional information.

## CONSOLIDATED RESULTS OF OPERATIONS

*This section provides a comparative discussion of JPMorgan Chase's Consolidated Results of Operations on a reported basis for the two-year period ended December 31, 2022, unless otherwise specified. Refer to Consolidated Results of Operations on pages 52-54 of the Firm's Annual Report on Form 10-K for the year ended December 31, 2021 (the "2021 Form 10-K") for a discussion of the 2021 versus 2020 results. Factors that relate primarily to a single business segment are discussed in more detail within that business segment's results. Refer to pages 149-152 for a discussion of the Critical Accounting Estimates Used by the Firm that affect the Consolidated Results of Operations.*

### Revenue

| Year ended December 31, (in millions) | 2022 | 2021 | 2020 |
|---|---|---|---|
| Investment banking fees | **$ 6,686** | $ 13,216 | $ 9,486 |
| Principal transactions | **19,912** | 16,304 | 18,021 |
| Lending- and deposit-related fees | **7,098** | 7,032 | 6,511 |
| Asset management, administration and commissions | **20,677** | 21,029 | 18,177 |
| Investment securities gains/(losses) | **(2,380)** | (345) | 802 |
| Mortgage fees and related income | **1,250** | 2,170 | 3,091 |
| Card income | **4,420** | 5,102 | 4,435 |
| Other income[a] | **4,322** | 4,830 | 4,865 |
| **Noninterest revenue** | **61,985** | 69,338 | 65,388 |
| Net interest income | **66,710** | 52,311 | 54,563 |
| **Total net revenue** | **$ 128,695** | $ 121,649 | $ 119,951 |

(a) Included operating lease income of $3.7 billion, $4.9 billion and $5.5 billion for the years ended December 31, 2022, 2021 and 2020, respectively. Also includes losses on tax-oriented investments. Refer to Note 6 for additional information.

### 2022 compared with 2021

**Investment banking fees** decreased in CIB, as volatile market conditions resulted in:

- lower equity and debt underwriting fees due to lower issuance activity, and
- lower advisory fees driven by a lower level of announced deals.

Refer to CIB segment results on pages 67-72 and Note 6 for additional information.

**Principal transactions revenue** increased, reflecting:

- higher net revenue in Fixed Income Markets, driven by a strong performance in the macro businesses amid volatile market conditions, particularly Currencies & Emerging Markets and Rates, partially offset by lower revenue in Securitized Products and Credit, and
- higher revenue associated with Equity Derivatives and Prime Finance in Equity Markets,

largely offset by

- a loss of $836 million in Credit Adjustments & Other in CIB, compared with a gain of $250 million in the prior year. The loss in the current year reflected funding spread widening and, to a lesser extent, losses on exposures relating to commodities and Russia and Russia-associated counterparties,
- net markdowns recorded in the second quarter of 2022 on held-for-sale positions, primarily unfunded commitments, in the bridge financing portfolio in CIB and CB,
- higher net losses on certain legacy private equity investments in Corporate, and
- net losses in Treasury and CIO related to cash deployment transactions, which were more than offset by the related net interest income earned on those transactions.

Principal transactions revenue in CIB may in certain cases have offsets across other revenue lines, including net interest income. The Firm assesses the performance of its CIB Markets business on a total revenue basis.

Refer to CIB, CB and Corporate segment results on pages 67-72, pages 73-75 and pages 79-80, respectively, and Note 6 for additional information.

**Lending- and deposit-related fees** increased due to higher service fee volume in CCB, predominantly offset by lower cash management fees in CB and CIB due to a higher level of credits earned by clients and applied against such fees. Refer to CCB, CIB and CB segment results on pages 63-66, pages 67-72 and pages 73-75, respectively, and Note 6 for additional information.

**Asset management, administration and commissions revenue** decreased driven by:

- lower asset management fees in AWM resulting from lower average market levels, predominantly offset by the removal of most money market fund fee waivers, and net long-term inflows,
- lower custody fees in Securities Services, primarily associated with lower average market values of assets under custody, and
- lower brokerage commissions, largely in AWM, reflecting reduced volumes,

partially offset by

- higher commissions on travel-related services and annuity sales in CCB.

Refer to CCB, CIB and AWM segment results on pages 63-66, pages 67-72 and pages 76-78, respectively, and Note 6 for additional information.

**Investment securities gains/(losses)** reflected higher net losses on sales of U.S. GSE and government agency MBS and U.S. Treasuries, associated with repositioning the investment securities portfolio in Treasury and CIO. Refer to Corporate segment results on pages 79-80 and Note 10 for additional information.

**Mortgage fees and related income** decreased driven by Home Lending, reflecting:

- lower production revenue due to lower margins and volume,

largely offset by

- higher net mortgage servicing revenue, reflecting
  - the absence of a net loss in MSR risk management in the prior year primarily driven by updates to model inputs related to prepayment expectations, and
  - higher operating revenue due to a higher level of third-party loans serviced.

Refer to CCB segment results on pages 63-66, Note 6 and 15 for further information.

**Card income** decreased driven by higher amortization related to new account origination costs, partially offset by higher annual fees in CCB, and higher payments revenue on volume growth in commercial cards in CIB and CB.

Refer to CCB, CIB and CB segment results on pages 63-66, pages 67-72 and pages 73-75, respectively, and Note 6 for further information.

**Other income** decreased reflecting:

- lower auto operating lease income in CCB as a result of a decline in volume, and
- net losses on certain investments in CIB and AWM, compared with net gains in the prior year,

partially offset by

- an increase in Other Corporate from:
  - a gain of $914M on the sale of Visa B shares,
  - higher net gains related to certain other investments, and
  - proceeds from an insurance settlement in the first quarter of 2022,
- a gain on an equity-method investment received in partial satisfaction of a loan in CB,
- the impact of movements in foreign exchange rates related to net investment hedges in Treasury and CIO, primarily as a result of the strengthening of the U.S. dollar, and
- the absence of weather-related write-downs recorded in the prior year on certain renewable energy investments in CIB.

Refer to Note 2 for additional information on Visa B shares.

**Net interest income** increased driven by higher rates and loan growth, partially offset by lower Markets NII.

The Firm's average interest-earning assets were $3.3 trillion, up $133 billion, and the yield was 2.78%, up 97 basis points ("bps"). The net yield on these assets, on an FTE basis, was 2.00%, an increase of 36 bps. The net yield excluding Markets was 2.60%, up 69 bps.

Refer to the Consolidated average balance sheets, interest and rates schedule on pages 292-296 for further information. Net yield excluding Markets is a non-GAAP financial measure. Refer to Explanation and Reconciliation of the Firm's Use of Non-GAAP Financial Measures on pages 58-60 for a further discussion of Net yield excluding Markets.

## Provision for credit losses

| Year ended December 31, (in millions) | | 2022 | | 2021 | | 2020 |
|---|---|---|---|---|---|---|
| Consumer, excluding credit card | **$** | **506** | $ | (1,933) | $ | 1,016 |
| Credit card | | **3,353** | | (4,838) | | 10,886 |
| **Total consumer** | | **3,859** | | (6,771) | | 11,902 |
| Wholesale | | **2,476** | | (2,449) | | 5,510 |
| Investment securities | | **54** | | (36) | | 68 |
| **Total provision for credit losses** | **$** | **6,389** | $ | (9,256) | $ | 17,480 |

### 2022 compared with 2021

The **provision for credit losses** was $6.4 billion, reflecting a net addition of $3.5 billion to the allowance for credit losses and $2.9 billion of net charge-offs. The net addition to the allowance for credit losses consisted of:

- $2.3 billion in **wholesale**, driven by deterioration in the Firm's macroeconomic outlook, and loan growth predominantly in CB and CIB, and
- $1.2 billion in **consumer**, predominantly driven by Card Services, reflecting higher outstanding balances and deterioration in the Firm's macroeconomic outlook, partially offset by a reduction in the allowance related to a decrease in uncertainty associated with borrower behavior as the effects of the pandemic gradually recede.

The prior year included a $12.1 billion net reduction in the allowance for credit losses.

Deterioration in the Firm's macroeconomic outlook included both updates to the central scenario in the fourth quarter of 2022, which now reflects a mild recession, as well as the impact of the increased weight placed on the adverse scenarios beginning in the first quarter of 2022 due to the effects associated with higher inflation, changes in monetary policy, and geopolitical risks, including the war in Ukraine.

Net charge-offs were $2.9 billion, flat compared with 2021, and included:

- a $309 million decrease in Card Services, reflecting the ongoing financial strength of U.S. consumers. However, median deposit balances declined in the second half of 2022, impacted by the growth in consumer spending,

offset by

- a $190 million increase in net charge-offs in Auto and Banking & Wealth Management ("BWM") as net charge-offs in the prior year benefited from government stimulus and payment assistance programs, and an increase of $76 million in CIB.

Refer to the segment discussions of CCB on pages 63-66, CIB on pages 67-72, CB on pages 73-75, AWM on pages 76-78, the Allowance for Credit Losses on pages 127-129, and Notes 1, 10 and 13 for further discussion of the credit portfolio and the allowance for credit losses.

## Noninterest expense

| Year ended December 31, (in millions) | 2022 | 2021 | 2020 |
|---|---|---|---|
| Compensation expense | **$ 41,636** | $ 38,567 | $ 34,988 |
| Noncompensation expense: | | | |
| Occupancy | **4,696** | 4,516 | 4,449 |
| Technology, communications and equipment[(a)] | **9,358** | 9,941 | 10,338 |
| Professional and outside services | **10,174** | 9,814 | 8,464 |
| Marketing | **3,911** | 3,036 | 2,476 |
| Other[(b)] | **6,365** | 5,469 | 5,941 |
| **Total noncompensation expense** | **34,504** | 32,776 | 31,668 |
| **Total noninterest expense** | **$ 76,140** | $ 71,343 | $ 66,656 |

(a) Includes depreciation expense associated with auto operating lease assets.
(b) Included Firmwide legal expense of $266 million, $426 million and $1.1 billion for the years ended December 31, 2022, 2021 and 2020, respectively.

### 2022 compared with 2021

**Compensation expense** increased driven by additional headcount, primarily in technology and operations, as well as front office, and the impact of inflation, partially offset by lower revenue-related compensation in CIB.

**Noncompensation expense** increased as a result of:

- higher investments in the business, including marketing and technology, and
- higher structural expense, including travel and entertainment; regulatory assessments; occupancy expense associated with higher utilities and exit costs of certain leases; and other employee-related expense,

partially offset by

- lower volume-related expense, reflecting lower depreciation expense on lower Auto lease assets; and lower distribution fees in AWM, partially offset by higher operating losses and outside services, both in CCB; and
- lower legal expense.

The prior year included a $550 million contribution to the Firm's Foundation.

## Income tax expense

| Year ended December 31, (in millions, except rate) | 2022 | 2021 | 2020 |
|---|---|---|---|
| Income before income tax expense | **$46,166** | $59,562 | $35,815 |
| Income tax expense | **8,490** | 11,228 | 6,684 |
| Effective tax rate | **18.4 %** | 18.9 % | 18.7 % |

### 2022 compared with 2021

The **effective tax rate** decreased driven by income tax benefits compared with income tax expense in the prior year related to tax audit settlements, largely offset by other tax adjustments and a change in the level and mix of income and expenses subject to U.S. federal and state and local taxes. Refer to Note 25 for further information.

## Consolidated balance sheets analysis

The following is a discussion of the significant changes between December 31, 2022 and 2021.

### Selected Consolidated balance sheets data

| December 31, (in millions) | 2022 | 2021 | Change |
|---|---|---|---|
| **Assets** | | | |
| Cash and due from banks | $ 27,697 | $ 26,438 | 5 % |
| Deposits with banks | 539,537 | 714,396 | (24) |
| Federal funds sold and securities purchased under resale agreements | 315,592 | 261,698 | 21 |
| Securities borrowed | 185,369 | 206,071 | (10) |
| Trading assets | 453,799 | 433,575 | 5 |
| Available-for-sale securities | 205,857 | 308,525 | (33) |
| Held-to-maturity securities | 425,305 | 363,707 | 17 |
| **Investment securities, net of allowance for credit losses** | 631,162 | 672,232 | (6) |
| Loans | 1,135,647 | 1,077,714 | 5 |
| Allowance for loan losses | (19,726) | (16,386) | 20 |
| **Loans, net of allowance for loan losses** | 1,115,921 | 1,061,328 | 5 |
| Accrued interest and accounts receivable | 125,189 | 102,570 | 22 |
| Premises and equipment | 27,734 | 27,070 | 2 |
| Goodwill, MSRs and other intangible assets | 60,859 | 56,691 | 7 |
| Other assets | 182,884 | 181,498 | 1 |
| **Total assets** | $ 3,665,743 | $ 3,743,567 | (2)% |

**Cash and due from banks and deposits with banks** decreased primarily as a result of lower deposits across the LOBs and loan growth. Deposits with banks reflect the Firm's placement of its excess cash with various central banks, including the Federal Reserve Banks.

**Federal funds sold and securities purchased under resale agreements** increased, reflecting:

- the impact of a lower level of netting on client-driven market-making activities and on collateral requirements in Markets,
- higher demand for securities to cover short positions in Fixed Income Markets, and
- an increase in the deployment of cash in Treasury and CIO.

**Securities borrowed** decreased driven by Markets, reflecting lower client-driven activities and lower demand for securities to cover short positions in Equity Markets.

Refer to Note 11 for additional information on securities purchased under resale agreements and securities borrowed.

**Trading assets** increased due to:

- higher derivative receivables, primarily in foreign exchange, as a result of market movements, and
- an increase in the deployment of cash in Treasury and CIO.

Refer to Notes 2 and 5 for additional information.

**Investment securities** decreased, driven by lower available-for-sale ("AFS") securities, partially offset by higher held-to-maturity ("HTM") securities, which includes the impact of the transfer of $78.3 billion of securities from AFS to HTM in 2022, for capital management purposes.

- The decrease in AFS securities was also due to paydowns, as well as unrealized losses, which are recognized in accumulated other comprehensive income ("AOCI"), largely offset by net purchases, and
- the increase in HTM securities also reflected purchases partially offset by paydowns.

Refer to Corporate segment results on pages 79-80, Investment Portfolio Risk Management on page 130 and Notes 2 and 10 for additional information on investment securities.

**Loans** increased, reflecting:

- higher balances in Card Services driven by higher consumer spending and net new originations,
- higher originations and revolver utilization in CB, and
- higher wholesale loans in CIB,

partially offset by

- lower mortgage warehouse loans in Home Lending as sales outpaced originations due to higher interest rates, and
- the impact from PPP loan forgiveness in BWM.

The **allowance for loan losses** increased, reflecting a net addition of $3.3 billion to the allowance for loan losses, consisting of:

- $2.1 billion in **wholesale**, resulting from deterioration in the Firm's macroeconomic outlook, and loan growth predominantly in CB and CIB, and
- $1.2 billion in **consumer,** predominantly driven by Card Services, reflecting higher outstanding balances, and deterioration in the Firm's macroeconomic outlook, partially offset by a reduction in the allowance related to a decrease in uncertainty associated with borrower behavior as the effects of the pandemic gradually recede.

There was also a $121 million addition to the allowance for lending-related commitments recognized in other liabilities on the Consolidated balance sheets, and a $54 million addition to the allowance for investment securities.

Refer to Credit and Investment Risk Management on pages 106-130, and Notes 1, 2, 3, 12 and 13 for further discussion of loans and the allowance for loan losses.

**Accrued interest and accounts receivable** increased due to higher client receivables related to client-driven activities in Markets, as well as higher receivables in Payments related to the timing of payment activities, with December 31, 2022 falling on a weekend.

**Premises and equipment**, refer to Note 16 and 18 for additional information.

**Goodwill, MSRs and other intangibles** increased reflecting:

- higher MSRs as a result of higher market interest rates and net additions, partially offset by the realization of expected cash flows, and
- additions to goodwill associated with the acquisitions of Renovite Technologies, Inc. in the fourth quarter of 2022, Global Shares PLC and Figg, Inc. in the third quarter of 2022, and Frosch Travel Group, LLC and Volkswagen Payments S.A. in the second quarter of 2022.

Refer to Note 15 for additional information.

**Other assets** increased predominantly due to the impact of securities financing activities in Markets, offset by lower auto operating lease assets in CCB.

### Selected Consolidated balance sheets data

| December 31, (in millions) | 2022 | 2021 | Change |
|---|---|---|---|
| **Liabilities** | | | |
| Deposits | $ 2,340,179 | $ 2,462,303 | (5) |
| Federal funds purchased and securities loaned or sold under repurchase agreements | 202,613 | 194,340 | 4 |
| Short-term borrowings | 44,027 | 53,594 | (18) |
| Trading liabilities | 177,976 | 164,693 | 8 |
| Accounts payable and other liabilities | 300,141 | 262,755 | 14 |
| Beneficial interests issued by consolidated variable interest entities ("VIEs") | 12,610 | 10,750 | 17 |
| Long-term debt | 295,865 | 301,005 | (2) |
| **Total liabilities** | 3,373,411 | 3,449,440 | (2) |
| Stockholders' equity | 292,332 | 294,127 | (1) |
| **Total liabilities and stockholders' equity** | $ 3,665,743 | $ 3,743,567 | (2)% |

**Deposits** decreased reflecting:

- attrition in CB and CIB, particularly non-operating deposits in CB, partially offset by net issuances of structured notes in Markets,
- net outflows into investments in AWM amid the rising interest rate environment, and
- a decline in balances in existing accounts in CCB due to higher customer spending, predominantly offset by net inflows into new accounts.

**Federal funds purchased and securities loaned or sold under repurchase agreements** increased due to:

- higher secured financing of trading assets in Markets,

partially offset by

- lower secured financing of AFS investment securities in Treasury and CIO.

**Short-term borrowings** decreased predominantly as a result of lower financing requirements in Markets.

Refer to Liquidity Risk Management on pages 97-104 for additional information on deposits, federal funds purchased and securities loaned or sold under repurchase agreements, and short-term borrowings; and also to Notes 2 and 17 for deposits and Note 11 for federal funds purchased and securities loaned or sold under repurchase agreements.

**Trading liabilities** increased due to client-driven market-making activities, which resulted in higher levels of short positions in Markets. Refer to Notes 2 and 5 for additional information.

**Accounts payable and other liabilities** increased due to higher client payables related to client-driven activities in Markets, including Prime Finance, as well as higher payables in Payments related to the timing of payment activities, with December 31, 2022 falling on a weekend. Refer to Note 19 for additional information.

**Beneficial interests issued by consolidated VIEs** increased driven by higher issuance of commercial paper as a result of an increase in loan balances in the Firm-administered multi-seller conduits. Refer to Liquidity Risk Management on pages 97-104; and Notes 14 and 28 for additional information on Firm-sponsored VIEs and loan securitization trusts.

**Long-term debt** decreased driven by:

- fair value hedge accounting adjustments in Treasury and CIO as a result of higher rates, and a decline in the fair value of structured notes in Markets,

largely offset by

- net issuances of senior debt in Treasury and CIO and structured notes in Markets. Refer to Liquidity Risk Management on pages 97-104 and Note 20 for additional information.

**Stockholders' equity** reflects net unrealized losses in AOCI, predominantly driven by the impact of higher interest rates on the AFS portfolio and cash flow hedges in Treasury and CIO. Refer to Consolidated Statements of Changes in Stockholders' Equity on page 162, Capital Actions on page 94, and Note 24 for additional information.

## Consolidated cash flows analysis

The following is a discussion of cash flow activities during the years ended December 31, 2022 and 2021. Refer to Consolidated cash flows analysis on page 57 of the Firm's 2021 Form 10-K for a discussion of the 2020 activities.

| | Year ended December 31, | | |
|---|---|---|---|
| (in millions) | **2022** | 2021 | 2020 |
| Net cash provided by/(used in) | | | |
| Operating activities | **$ 107,119** | $ 78,084 | $ (79,910) |
| Investing activities | **(137,819)** | (129,344) | (261,912) |
| Financing activities | **(126,257)** | 275,993 | 596,645 |
| Effect of exchange rate changes on cash | **(16,643)** | (11,508) | 9,155 |
| Net increase/(decrease) in cash and due from banks and deposits with banks | **$(173,600)** | $ 213,225 | $ 263,978 |

### Operating activities

JPMorgan Chase's operating assets and liabilities primarily support the Firm's lending and capital markets activities. These assets and liabilities can vary significantly in the normal course of business due to the amount and timing of cash flows, which are affected by client-driven and risk management activities and market conditions. The Firm believes that cash flows from operations, available cash and other liquidity sources, and its capacity to generate cash through secured and unsecured sources, are sufficient to meet its operating liquidity needs.

- In 2022, cash provided resulted from higher accounts payable and other liabilities, lower securities borrowed, and net proceeds from sales, securitizations, and paydowns of loans held-for-sale, partially offset by higher trading assets.
- In 2021, cash provided resulted from lower trading assets and higher accounts payable and other liabilities, partially offset by higher securities borrowed and lower trading liabilities.

### Investing activities

The Firm's investing activities predominantly include originating held-for-investment loans, investing in the investment securities portfolio and other short-term instruments.

- In 2022, cash used resulted from net originations of loans and higher securities purchased under resale agreements, partially offset by net proceeds from investment securities.
- In 2021, cash used resulted from net purchases of investment securities and higher net originations of loans, partially offset by lower securities purchased under resale agreements.

### Financing activities

The Firm's financing activities include acquiring customer deposits and issuing long-term debt and preferred stock.

- In 2022, cash used reflected lower deposits, partially offset by net proceeds from long- and short-term borrowings.
- In 2021, cash provided reflected higher deposits and net proceeds from long- and short-term borrowings, partially offset by a decrease in securities loaned or sold under repurchase agreements.
- For both periods, cash was used for repurchases of common stock and cash dividends on common and preferred stock.

* * *

Refer to Consolidated Balance Sheets Analysis on pages 55-56, Capital Risk Management on pages 86-96, and Liquidity Risk Management on pages 97-104, and the Consolidated Statements of Cash Flows on page 163 for a further discussion of the activities affecting the Firm's cash flows.

## EXPLANATION AND RECONCILIATION OF THE FIRM'S USE OF NON-GAAP FINANCIAL MEASURES

### Non-GAAP financial measures

The Firm prepares its Consolidated Financial Statements in accordance with U.S. GAAP; these financial statements appear on pages 159-163. That presentation, which is referred to as "reported" basis, provides the reader with an understanding of the Firm's results that can be tracked consistently from year-to-year and enables a comparison of the Firm's performance with the U.S. GAAP financial statements of other companies.

In addition to analyzing the Firm's results on a reported basis, management reviews Firmwide results, including the overhead ratio, on a "managed" basis; these Firmwide managed basis results are non-GAAP financial measures. The Firm also reviews the results of the LOBs on a managed basis. The Firm's definition of managed basis starts, in each case, with the reported U.S. GAAP results and includes certain reclassifications to present total net revenue for the Firm (and each of the reportable business segments) on an FTE basis. Accordingly, revenue from investments that receive tax credits and tax-exempt securities is presented in the managed results on a basis comparable to taxable investments and securities. These financial measures allow management to assess the comparability of revenue from year-to-year arising from both taxable and tax-exempt sources. The corresponding income tax impact related to tax-exempt items is recorded within income tax expense. These adjustments have no impact on net income as reported by the Firm as a whole or by the LOBs.

Management also uses certain non-GAAP financial measures at the Firm and business-segment level because these other non-GAAP financial measures provide information to investors about the underlying operational performance and trends of the Firm or of the particular business segment, as the case may be, and therefore facilitate a comparison of the Firm or the business segment with the performance of its relevant competitors. Refer to Business Segment Results on pages 61-80 for additional information on these non-GAAP measures. Non-GAAP financial measures used by the Firm may not be comparable to similarly named non-GAAP financial measures used by other companies.

The following summary table provides a reconciliation from the Firm's reported U.S. GAAP results to managed basis.

| | 2022 | | | 2021 | | | 2020 | | |
|---|---|---|---|---|---|---|---|---|---|
| Year ended December 31, (in millions, except ratios) | Reported | Fully taxable-equivalent adjustments[(a)] | Managed basis | Reported | Fully taxable-equivalent adjustments[(a)] | Managed basis | Reported | Fully taxable-equivalent adjustments[(a)] | Managed basis |
| Other income | **$ 4,322** | **$ 3,148** | **$ 7,470** | $ 4,830 | $ 3,225 | $ 8,055 | $ 4,865 | $ 2,560 | $ 7,425 |
| Total noninterest revenue | **61,985** | **3,148** | **65,133** | 69,338 | 3,225 | 72,563 | 65,388 | 2,560 | 67,948 |
| Net interest income | **66,710** | **434** | **67,144** | 52,311 | 430 | 52,741 | 54,563 | 418 | 54,981 |
| **Total net revenue** | **128,695** | **3,582** | **132,277** | 121,649 | 3,655 | 125,304 | 119,951 | 2,978 | 122,929 |
| Total noninterest expense | **76,140** | **NA** | **76,140** | 71,343 | NA | 71,343 | 66,656 | NA | 66,656 |
| **Pre-provision profit** | **52,555** | **3,582** | **56,137** | 50,306 | 3,655 | 53,961 | 53,295 | 2,978 | 56,273 |
| Provision for credit losses | **6,389** | **NA** | **6,389** | (9,256) | NA | (9,256) | 17,480 | NA | 17,480 |
| **Income before income tax expense** | **46,166** | **3,582** | **49,748** | 59,562 | 3,655 | 63,217 | 35,815 | 2,978 | 38,793 |
| Income tax expense | **8,490** | **3,582** | **12,072** | 11,228 | 3,655 | 14,883 | 6,684 | 2,978 | 9,662 |
| **Net income** | **$ 37,676** | **NA** | **$ 37,676** | $ 48,334 | NA | $ 48,334 | $ 29,131 | NA | $ 29,131 |
| Overhead ratio | **59 %** | **NM** | **58 %** | 59 % | NM | 57 % | 56 % | NM | 54 % |

(a) Predominantly recognized in CIB, CB and Corporate.

## Net interest income, net yield, and noninterest revenue excluding CIB Markets

In addition to reviewing net interest income, net yield, and noninterest revenue on a managed basis, management also reviews these metrics excluding CIB Markets, as shown below. CIB Markets consists of Fixed Income Markets and Equity Markets. These metrics, which exclude CIB Markets, are non-GAAP financial measures. Management reviews these metrics to assess the performance of the Firm's lending, investing (including asset-liability management) and deposit-raising activities, apart from any volatility associated with CIB Markets activities. In addition, management also assesses CIB Markets business performance on a total revenue basis as offsets may occur across revenue lines. Management believes that these measures provide investors and analysts with alternative measures to analyze the revenue trends of the Firm.

| Year ended December 31, (in millions, except rates) | 2022 | 2021 | 2020 |
|---|---|---|---|
| **Net interest income – reported** | **$ 66,710** | $ 52,311 | $ 54,563 |
| Fully taxable-equivalent adjustments | **434** | 430 | 418 |
| **Net interest income – managed basis[a]** | **$ 67,144** | $ 52,741 | $ 54,981 |
| Less: Markets net interest income[b] | **4,789** | 8,243 | 8,374 |
| **Net interest income excluding Markets[a]** | **$ 62,355** | $ 44,498 | $ 46,607 |
| **Average interest-earning assets** | **$3,349,079** | $3,215,942 | $2,779,710 |
| Less: Average Markets interest-earning assets[b] | **953,195** | 888,238 | 751,131 |
| **Average interest-earning assets excluding Markets** | **$2,395,884** | $2,327,704 | $2,028,579 |
| **Net yield on average interest-earning assets – managed basis** | **2.00 %** | 1.64 % | 1.98 % |
| Net yield on average Markets interest-earning assets[b] | **0.50** | 0.93 | 1.11 |
| **Net yield on average interest-earning assets excluding Markets** | **2.60 %** | 1.91 % | 2.30 % |
| **Noninterest revenue – reported** | **$ 61,985** | $ 69,338 | $ 65,388 |
| Fully taxable-equivalent adjustments | **3,148** | 3,225 | 2,560 |
| **Noninterest revenue – managed basis** | **$ 65,133** | $ 72,563 | 67,948 |
| Less: Markets noninterest revenue[b] | **24,195** | 19,151 | 21,109 |
| **Noninterest revenue excluding Markets** | **$ 40,938** | $ 53,412 | $ 46,839 |
| **Memo: Total Markets net revenue[b]** | **$ 28,984** | $ 27,394 | $ 29,483 |

(a) Interest includes the effect of related hedges. Taxable-equivalent amounts are used where applicable.
(b) Refer to pages 70-71 for further information on CIB Markets.

**Calculation of certain U.S. GAAP and non-GAAP financial measures**

Certain U.S. GAAP and non-GAAP financial measures are calculated as follows:

**Book value per share ("BVPS")**
Common stockholders' equity at period-end /
Common shares at period-end

**Overhead ratio**
Total noninterest expense / Total net revenue

**ROA**
Reported net income / Total average assets

**ROE**
Net income* / Average common stockholders' equity

**ROTCE**
Net income* / Average tangible common equity

**TBVPS**
Tangible common equity at period-end / Common shares at period-end

* Represents net income applicable to common equity

In addition, the Firm reviews other non-GAAP measures such as

- Adjusted expense, which represents noninterest expense excluding Firmwide legal expense, and
- Pre-provision profit, which represents total net revenue less total noninterest expense.

Management believes that these measures help investors understand the effect of these items on reported results and provide an alternative presentation of the Firm's performance.

The Firm also reviews the allowance for loan losses to period-end loans retained excluding trade finance and conduits, a non-GAAP financial measure, to provide a more meaningful assessment of CIB's allowance coverage ratio.

## TCE, ROTCE and TBVPS

TCE, ROTCE and TBVPS are each non-GAAP financial measures. TCE represents the Firm's common stockholders' equity (i.e., total stockholders' equity less preferred stock) less goodwill and identifiable intangible assets (other than MSRs), net of related deferred tax liabilities. ROTCE measures the Firm's net income applicable to common equity as a percentage of average TCE. TBVPS represents the Firm's TCE at period-end divided by common shares at period-end. TCE, ROTCE and TBVPS are utilized by the Firm, as well as investors and analysts, in assessing the Firm's use of equity.

The following summary table provides a reconciliation from the Firm's common stockholders' equity to TCE.

| | Period-end | | Average | | |
|---|---|---|---|---|---|
| | | | Year ended December 31, | | |
| (in millions, except per share and ratio data) | **Dec 31, 2022** | Dec 31, 2021 | **2022** | 2021 | 2020 |
| Common stockholders' equity | **$ 264,928** | $ 259,289 | **$ 253,068** | $ 250,968 | $ 236,865 |
| Less: Goodwill | **51,662** | 50,315 | **50,952** | 49,584 | 47,820 |
| Less: Other intangible assets | **1,224** | 882 | **1,112** | 876 | 781 |
| Add: Certain deferred tax liabilities[(a)] | **2,510** | 2,499 | **2,505** | 2,474 | 2,399 |
| **Tangible common equity** | **$ 214,552** | $ 210,591 | **$ 203,509** | $ 202,982 | $ 190,663 |
| Return on tangible common equity | **NA** | NA | **18 %** | 23 % | 14 % |
| Tangible book value per share | **$ 73.12** | $ 71.53 | **NA** | NA | NA |

(a) Represents deferred tax liabilities related to tax-deductible goodwill and to identifiable intangibles created in nontaxable transactions, which are netted against goodwill and other intangibles when calculating TCE.

## BUSINESS SEGMENT RESULTS

The Firm is managed on an LOB basis. There are four major reportable business segments – Consumer & Community Banking, Corporate & Investment Bank, Commercial Banking and Asset & Wealth Management. In addition, there is a Corporate segment.

The business segments are determined based on the products and services provided, or the type of customer served, and they reflect the manner in which financial information is evaluated by the Firm's Operating Committee. Segment results are presented on a managed basis. Refer to Explanation and Reconciliation of the Firm's use of Non-GAAP Financial Measures, on pages 58-60 for a definition of managed basis.

<table>
<tr><th colspan="7">JPMorgan Chase</th></tr>
<tr><th colspan="3">Consumer Businesses</th><th colspan="4">Wholesale Businesses</th></tr>
<tr><th colspan="3">Consumer & Community Banking</th><th colspan="2">Corporate & Investment Bank</th><th rowspan="2">Commercial Banking</th><th rowspan="2">Asset & Wealth Management</th></tr>
<tr><th>Banking & Wealth Management[(a)]</th><th>Home Lending</th><th>Card Services & Auto[(b)]</th><th>Banking</th><th>Markets & Securities Services</th></tr>
<tr><td>• Consumer Banking<br>• J.P. Morgan Wealth Management<br>• Business Banking</td><td>• Home Lending Production<br>• Home Lending Servicing<br>• Real Estate Portfolios</td><td>• Card Services<br>• Auto</td><td>• Investment Banking<br>• Payments<br>• Lending</td><td>• Fixed Income Markets<br>• Equity Markets<br>• Securities Services<br>• Credit Adjustments & Other</td><td>• Middle Market Banking<br>• Corporate Client Banking<br>• Commercial Real Estate Banking</td><td>• Asset Management<br>• Global Private Bank</td></tr>
</table>

(a) In the fourth quarter of 2022, Consumer & Business Banking was renamed Banking & Wealth Management ("BWM").
(b) In the fourth quarter of 2022, Card & Auto was renamed Card Services & Auto.

### Description of business segment reporting methodology

Results of the business segments are intended to present each segment as if it were a stand-alone business. The management reporting process that derives business segment results includes the allocation of certain income and expense items. The Firm also assesses the level of capital required for each LOB on at least an annual basis. The Firm periodically assesses the assumptions, methodologies and reporting classifications used for segment reporting, and further refinements may be implemented in future periods. The Firm's LOBs also provide various business metrics which are utilized by the Firm and its investors and analysts in assessing performance.

*Revenue sharing*

When business segments join efforts to sell products and services to the Firm's clients and customers, the participating business segments may agree to share revenue from those transactions. Revenue is generally recognized in the segment responsible for the related product or service, with allocations to the other segment(s) involved in the transaction. The segment results reflect these revenue-sharing agreements.

*Expense Allocation*

Where business segments use services provided by corporate support units, or another business segment, the costs of those services are allocated to the respective business segments. The expense is generally allocated based on the actual cost and use of services provided. In contrast, certain costs and investments related to corporate support units, technology and operations that are not currently utilized by any LOB, are not allocated to the business segments and are retained in Corporate. Expense retained in Corporate generally includes costs that would not be incurred if the segments were stand-alone businesses, and other items not aligned with a particular business segment.

*Funds transfer pricing*

Funds transfer pricing ("FTP") is the process by which the Firm allocates interest income and expense to the LOBs and Other Corporate and transfers the primary interest rate risk and liquidity risk to Treasury and CIO.

The funds transfer pricing process considers the interest rate and liquidity risk characteristics of assets and liabilities and off-balance sheet products. Periodically, the methodology and assumptions utilized in the FTP process are adjusted to reflect economic conditions and other factors, which may impact the allocation of net interest income to the segments.

As a result of the rising interest rate environment, the cost of funds for assets and the credits earned for liabilities have generally increased, impacting the business segments' net interest income. During the period ended December 31, 2022, this has resulted in higher cost of funds for loans and contributed to margin expansion on deposits.

*Foreign exchange risk*
Foreign exchange risk is transferred from the LOBs and Other Corporate to Treasury and CIO for certain revenues and expenses. Treasury and CIO manages these risks centrally and reports the impact of foreign exchange rate movements related to the transferred risk in its results. Refer to Market Risk Management on page 137 for additional information.

*Debt expense and preferred stock dividend allocation*
As part of the funds transfer pricing process, almost all of the cost of the credit spread component of outstanding unsecured long-term debt and preferred stock dividends is allocated to the reportable business segments, while the balance of the cost is retained in Corporate. The methodology to allocate the cost of unsecured long-term debt and preferred stock dividends to the business segments is aligned with the relevant regulatory capital requirements and funding needs of the LOBs, as applicable. The allocated cost of unsecured long-term debt is included in a business segment's net interest income, and net income is reduced by preferred stock dividends to arrive at a business segment's net income applicable to common equity.

Refer to Capital Risk Management on pages 86-96 for additional information.

*Capital allocation*
The amount of capital assigned to each business segment is referred to as equity. The Firm's allocation methodology incorporates Basel III Standardized Risk-weighted assets ("RWA"), Basel III Advanced RWA, the global systemically important banks ("GSIB") surcharge, and a simulation of capital in a severe stress environment. At least annually, the assumptions, judgments and methodologies used to allocate capital are reassessed and, as a result, the capital allocated to the LOBs may change. As of January 1, 2023, the Firm has changed its line of business capital allocations primarily as a result of updates to the Firm's capital requirements and changes in RWA for each LOB.

Refer to Line of business equity on page 93 for additional information on capital allocation.

## Segment Results – Managed Basis

The following tables summarize the Firm's results by segment for the periods indicated.

| Year ended December 31, | Consumer & Community Banking | | | Corporate & Investment Bank | | | Commercial Banking | | |
|---|---|---|---|---|---|---|---|---|---|
| (in millions, except ratios) | **2022** | 2021 | 2020 | **2022** | 2021 | 2020 | **2022** | 2021 | 2020 |
| Total net revenue | **$ 55,017** | $ 50,073 | $ 51,268 | **$47,899** | $ 51,749 | $ 49,284 | **$ 11,533** | $ 10,008 | $ 9,313 |
| Total noninterest expense | **31,471** | 29,256 | 27,990 | **27,087** | 25,325 | 23,538 | **4,719** | 4,041 | 3,798 |
| Pre-provision profit/(loss) | **23,546** | 20,817 | 23,278 | **20,812** | 26,424 | 25,746 | **6,814** | 5,967 | 5,515 |
| Provision for credit losses | **3,813** | (6,989) | 12,312 | **1,158** | (1,174) | 2,726 | **1,268** | (947) | 2,113 |
| Net income/(loss) | **14,871** | 20,930 | 8,217 | **14,970** | 21,134 | 17,094 | **4,213** | 5,246 | 2,578 |
| Return on equity ("ROE") | **29%** | 41% | 15% | **14 %** | 25% | 20% | **16 %** | 21% | 11% |

| Year ended December 31, | Asset & Wealth Management | | | Corporate | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| (in millions, except ratios) | **2022** | 2021 | 2020 | **2022** | 2021 | 2020 | **2022** | 2021 | 2020 |
| Total net revenue | **$17,748** | $ 16,957 | $ 14,240 | **$ 80** | $ (3,483) | $ (1,176) | **$ 132,277** | $ 125,304 | $ 122,929 |
| Total noninterest expense | **11,829** | 10,919 | 9,957 | **1,034** | 1,802 | 1,373 | **76,140** | 71,343 | 66,656 |
| Pre-provision profit/(loss) | **5,919** | 6,038 | 4,283 | **(954)** | (5,285) | (2,549) | **56,137** | 53,961 | 56,273 |
| Provision for credit losses | **128** | (227) | 263 | **22** | 81 | 66 | **6,389** | (9,256) | 17,480 |
| Net income/(loss) | **4,365** | 4,737 | 2,992 | **(743)** | (3,713) | (1,750) | **37,676** | 48,334 | 29,131 |
| Return on equity ("ROE") | **25 %** | 33% | 28% | **NM** | NM | NM | **14%** | 19% | 12% |

## Selected Firmwide Metrics

The following tables present key metrics for Wealth Management, which consists of the Global Private Bank in AWM and J.P. Morgan Wealth Management in CCB; and total revenue and key metrics for J.P. Morgan Payments, which consists of payments activities in CIB and CB. This presentation is intended to provide investors with additional information concerning Wealth Management and J.P. Morgan Payments, each of which consists of similar business activities conducted across LOBs to serve different types of clients and customers.

### Selected metrics - Wealth Management

| Year ended December 31, | **2022** | 2021 | 2020 |
|---|---|---|---|
| Client assets (in billions)[(a)] | **$ 2,438** | $ 2,456 | $ 2,020 |
| Number of client advisors | **8,166** | 7,463 | 6,879 |

(a) Consists of Global Private Bank in AWM and client investment assets in J.P. Morgan Wealth Management in CCB.

### Selected metrics - J.P. Morgan Payments

| (in millions, except where otherwise noted) | | | |
|---|---|---|---|
| Year ended December 31, | **2022** | 2021 | 2020 |
| Total net revenue | **$13,909** | $ 9,861 | $ 9,599 |
| Merchant processing volume (in billions) | **2,158.4** | 1,886.7 | 1,597.3 |
| Average deposits (in billions) | **779** | 800 | 651 |

The following sections provide a comparative discussion of the Firm's results by segment as of or for the years ended December 31, 2022 and 2021.

**Consumer & Community Banking offers products and services to consumers and small businesses through bank branches, ATMs, digital (including mobile and online) and telephone banking. CCB is organized into Banking & Wealth Management (including Consumer Banking, J.P. Morgan Wealth Management and Business Banking), Home Lending (including Home Lending Production, Home Lending Servicing and Real Estate Portfolios) and Card Services & Auto. Banking & Wealth Management offers deposit, investment and lending products, cash management, payments and services. Home Lending includes mortgage origination and servicing activities, as well as portfolios consisting of residential mortgages and home equity loans. Card Services issues credit cards and offers travel services. Auto originates and services auto loans and leases.**

**Selected income statement data**

| Year ended December 31, (in millions, except ratios) | 2022 | 2021 | 2020 |
|---|---|---|---|
| **Revenue** | | | |
| Lending- and deposit-related fees | **$ 3,316** | $ 3,034 | $ 3,166 |
| Asset management, administration and commissions | **3,754** | 3,514 | 2,780 |
| Mortgage fees and related income | **1,236** | 2,159 | 3,079 |
| Card income | **2,679** | 3,563 | 3,068 |
| All other income[(a)] | **4,104** | 5,016 | 5,647 |
| **Noninterest revenue** | **15,089** | 17,286 | 17,740 |
| Net interest income | **39,928** | 32,787 | 33,528 |
| **Total net revenue** | **55,017** | 50,073 | 51,268 |
| Provision for credit losses | **3,813** | (6,989) | 12,312 |
| **Noninterest expense** | | | |
| Compensation expense | **13,092** | 12,142 | 11,014 |
| Noncompensation expense[(b)] | **18,379** | 17,114 | 16,976 |
| **Total noninterest expense** | **31,471** | 29,256 | 27,990 |
| **Income before income tax expense** | **19,733** | 27,806 | 10,966 |
| Income tax expense | **4,862** | 6,876 | 2,749 |
| **Net income** | **$ 14,871** | $20,930 | $ 8,217 |
| **Revenue by line of business** | | | |
| Banking & Wealth Management[(c)] | **$ 30,262** | $23,980 | $22,955 |
| Home Lending | **3,674** | 5,291 | 6,018 |
| Card Services & Auto[(d)] | **21,081** | 20,802 | 22,295 |
| **Mortgage fees and related income details:** | | | |
| Production revenue | **497** | 2,215 | 2,629 |
| Net mortgage servicing revenue[(e)] | **739** | (56) | 450 |
| **Mortgage fees and related income** | **$ 1,236** | $ 2,159 | $ 3,079 |
| **Financial ratios** | | | |
| Return on equity | **29 %** | 41 % | 15 % |
| Overhead ratio | **57** | 58 | 55 |

(a) Included operating lease income of $3.6 billion, $4.8 billion and $5.4 billion for the years ended December 31, 2022, 2021 and 2020, respectively.

(b) Included depreciation expense on leased assets of $2.4 billion, $3.3 billion and $4.2 billion for the years ended December 31, 2022, 2021 and 2020, respectively.

(c) In the fourth quarter of 2022, Consumer & Business Banking was renamed Banking & Wealth Management.

(d) In the fourth quarter of 2022, Card & Auto was renamed Card Services & Auto.

(e) Included MSR risk management results of $93 million, $(525) million and $(18) million for the years ended December 31, 2022, 2021 and 2020, respectively.

### 2022 compared with 2021

Net income was $14.9 billion, down 29%, reflecting a net increase in the provision for credit losses compared with a net benefit in the prior year.

Net revenue was $55.0 billion, an increase of 10%.

Net interest income was $39.9 billion, up 22%, predominantly driven by:

- margin expansion on higher rates as well as growth in deposits in Banking & Wealth Management ("BWM"), and higher revolving loans in Card Services,

partially offset by

- lower NII associated with PPP loan forgiveness in BWM, and tighter loan spreads in Home Lending.

Noninterest revenue was $15.1 billion, down 13%, reflecting:

- lower production revenue from lower margins and volume in Home Lending,
- lower auto operating lease income as a result of a decline in volume, and
- lower card income reflecting higher amortization related to new account origination costs partially offset by higher annual fees in Card Services, while net interchange income was relatively flat,

partially offset by

- higher net mortgage servicing revenue, reflecting the absence of a net loss in MSR risk management in the prior year primarily driven by updates to model inputs related to prepayment expectations, as well as higher operating revenue on a higher level of third-party loans serviced,
- higher commissions reflecting travel-related services in Card Services and increased annuity sales in BWM, and
- higher deposit-related fees due to higher service fee volume in BWM.

Refer to Note 6 for additional information on card income and asset management, administration and commissions. Refer to Note 15 for further information regarding changes in the value of the MSR asset and related hedges, and mortgage fees and related income.

Noninterest expense was $31.5 billion, up 8%, reflecting:

- investments in the business and higher structural expenses, predominantly driven by compensation, technology and marketing,

partially offset by

- lower volume- and revenue-related expenses, predominantly driven by lower depreciation expense on lower auto lease assets, partially offset by higher operating losses.

The provision for credit losses was $3.8 billion, driven by:

- net charge-offs of $2.7 billion, down from $2.8 billion in the prior year and included
  - a $309 million decrease in Card Services, reflecting the ongoing financial strength of U.S. consumers. However, median deposit balances declined in the second half of 2022, impacted by the growth in consumer spending,

largely offset by

  - a $190 million increase in net charge-offs in Auto and BWM as net charge-offs in the prior year benefited from government stimulus and payment assistance programs, and
- a $1.1 billion net addition to the allowance for credit losses driven by
  - $950 million in Card Services, reflecting higher outstanding balances, and deterioration in the Firm's macroeconomic outlook, partially offset by a reduction in the allowance related to a decrease in uncertainty associated with borrower behavior as the effects of the pandemic gradually recede, and
  - $175 million in Home Lending.

The prior year included a $9.8 billion reduction in the allowance for credit losses across CCB.

Refer to Credit and Investment Risk Management on pages 106-130 and Allowance for Credit Losses on pages 127-129 for a further discussion of the credit portfolios and the allowance for credit losses.

**Selected metrics**

| As of or for the year ended December 31, (in millions, except headcount) | 2022 | 2021 | 2020 |
|---|---|---|---|
| **Selected balance sheet data (period-end)** | | | |
| Total assets | **$ 514,085** | $ 500,370 | $ 496,705 |
| Loans: | | | |
| Banking & Wealth Management [(a)] | **29,008** | 35,095 | 48,810 |
| Home Lending[(b)] | **172,554** | 180,529 | 182,121 |
| Card Services | **185,175** | 154,296 | 144,216 |
| Auto | **68,191** | 69,138 | 66,432 |
| **Total loans** | **454,928** | 439,058 | 441,579 |
| Deposits | **1,131,611** | 1,148,110 | 958,706 |
| Equity | **50,000** | 50,000 | 52,000 |
| **Selected balance sheet data (average)** | | | |
| Total assets | **$ 497,263** | $ 489,771 | $ 501,584 |
| Loans: | | | |
| Banking & Wealth Management | **31,545** | 44,906 | 43,064 |
| Home Lending[(c)] | **176,285** | 181,049 | 197,148 |
| Card Services | **163,335** | 140,405 | 146,633 |
| Auto | **68,098** | 67,624 | 61,476 |
| **Total loans** | **439,263** | 433,984 | 448,321 |
| Deposits | **1,162,680** | 1,054,956 | 851,390 |
| Equity | **50,000** | 50,000 | 52,000 |
| **Headcount** | **135,347** | 128,863 | 122,894 |

(a) At December 31, 2022, 2021 and 2020, included $350 million, $5.4 billion and $19.2 billion of loans, respectively, in Business Banking under the PPP. Refer to Credit Portfolio on pages 108-109 for a further discussion of the PPP.
(b) At December 31, 2022, 2021 and 2020, Home Lending loans held-for-sale and loans at fair value were $3.0 billion, $14.9 billion and $9.7 billion, respectively.
(c) Average Home Lending loans held-for sale and loans at fair value were $7.3 billion, $15.4 billion and $11.1 billion for the years ended December 31, 2022, 2021 and 2020, respectively.

**Selected metrics**

| As of or for the year ended December 31, (in millions, except ratio data) | 2022 | 2021 | 2020 |
|---|---|---|---|
| **Credit data and quality statistics** | | | |
| Nonaccrual loans[(a)(b)] | **$ 3,899** [(f)] | $ 4,875 [(f)] | $ 5,492 |
| Net charge-offs/(recoveries) | | | |
| Banking & Wealth Management | **370** | 289 | 263 |
| Home Lending | **(229)** | (275) | (169) |
| Card Services | **2,403** | 2,712 | 4,286 |
| Auto | **144** | 35 | 123 |
| **Total net charge-offs/ (recoveries)** | **$ 2,688** | $ 2,761 | $ 4,503 |
| Net charge-off/(recovery) rate | | | |
| Banking & Wealth Management[(c)] | **1.17%** | 0.64% | 0.61% |
| Home Lending | **(0.14)** | (0.17) | (0.09) |
| Card Services | **1.47** | 1.94 | 2.93 |
| Auto | **0.21** | 0.05 | 0.20 |
| **Total net charge-off/ (recovery) rate** | **0.62%** | 0.66% | 1.03% |
| 30+ day delinquency rate | | | |
| Home Lending[(d)(e)] | **0.83%** | 1.25% | 1.15% |
| Card Services | **1.45** | 1.04 | 1.68 |
| Auto | **1.01** | 0.64 | 0.69 |
| 90+ day delinquency rate - Card Services | **0.68%** | 0.50% | 0.92% |
| Allowance for loan losses | | | |
| Banking & Wealth Management | **$ 722** | $ 697 | $ 1,372 |
| Home Lending | **867** | 660 | 1,813 |
| Card Services | **11,200** | 10,250 | 17,800 |
| Auto | **715** | 733 | 1,042 |
| **Total allowance for loan losses** | **$13,504** | $12,340 | $22,027 |

(a) At December 31, 2022, 2021 and 2020, nonaccrual loans excluded mortgage loans 90 or more days past due and insured by U.S. government agencies of $187 million, $342 million and $558 million, respectively. These amounts have been excluded based upon the government guarantee. In addition, the Firm's policy is generally to exempt credit card loans from being placed on nonaccrual status as permitted by regulatory guidance.
(b) At December 31, 2022, 2021 and 2020, generally excludes loans that were under payment deferral programs offered in response to the COVID-19 pandemic. Refer to Credit Portfolio on pages 108-109 for further information on consumer assistance. Includes loans to customers that have exited COVID-19 related payment deferral programs and are 90 or more days past due, predominantly all of which were considered collateral-dependent at time of exit.
(c) At December 31, 2022, 2021 and 2020, included $350 million, $5.4 billion and $19.2 billion of loans, respectively, in Business Banking under the PPP. The Firm does not expect to realize material credit losses on PPP loans because the loans are guaranteed by the SBA. Refer to Credit Portfolio on pages 108-109 for a further discussion of the PPP.
(d) At December 31, 2022, 2021 and 2020, the principal balance of loans under payment deferral programs offered in response to the COVID-19 pandemic was $449 million, $1.1 billion and $9.1 billion in Home Lending, respectively. Loans that are performing according to their modified terms are generally not considered delinquent. Refer to Credit Portfolio on pages 108-109 for further information on consumer assistance.
(e) At December 31, 2022, 2021 and 2020, excluded mortgage loans insured by U.S. government agencies of $258 million, $405 million and $744 million, respectively, that are 30 or more days past due. These amounts have been excluded based upon the government guarantee.
(f) At December 31, 2022 and 2021, nonaccrual loans excluded $101 million and $506 million of PPP loans 90 or more days past due and guaranteed by the SBA, respectively.

**Selected metrics**

| As of or for the year ended December 31, (in billions, except ratios and where otherwise noted) | 2022 | 2021 | 2020 |
|---|---|---|---|
| **Business Metrics** | | | |
| CCB households (in millions) | **69.3** | 66.3 | 63.4 |
| Number of branches | **4,787** | 4,790 | 4,908 |
| Active digital customers (in thousands)[(a)] | **63,136** | 58,857 | 55,274 |
| Active mobile customers (in thousands)[(b)] | **49,710** | 45,452 | 40,899 |
| Debit and credit card sales volume | **$1,555.4** | $1,360.7 | $1,081.2 |
| Total payments transaction volume (in trillions)[(c)] | **5.6** | 5.0 | 4.0 |
| **Banking & Wealth Management** | | | |
| Average deposits | **$1,145.7** | $1,035.4 | $ 832.5 |
| Deposit margin | **1.71 %** | 1.27 % | 1.58 % |
| Business Banking average loans | **$ 22.3** | $ 37.5 | $ 37.9 |
| Business Banking origination volume | **4.3** | 13.9 [(f)] | 26.6 [(f)] |
| Client investment assets[(d)] | **647.1** | 718.1 | 590.2 |
| Number of client advisors | **5,029** | 4,725 | 4,417 |
| **Home Lending** | | | |
| Mortgage origination volume by channel | | | |
| Retail | **$ 38.5** | $ 91.8 | $ 72.9 |
| Correspondent | **26.9** | 70.9 | 40.9 |
| **Total mortgage origination volume[(e)]** | **$ 65.4** | $ 162.7 | $ 113.8 |
| Third-party mortgage loans serviced (period-end) | **$ 584.3** | $ 519.2 | $ 447.3 |
| MSR carrying value (period-end) | **8.0** | 5.5 | 3.3 |
| **Card Services** | | | |
| Sales volume, excluding commercial card | **$1,064.7** | $ 893.5 | $ 702.7 |
| Net revenue rate | **9.87 %** | 10.51 % | 10.92 % |
| Net yield on average loans | **9.77** | 9.88 | 10.42 |
| New accounts opened (in millions) | **9.6** | 8.0 | 5.4 |
| **Auto** | | | |
| Loan and lease origination volume | **$ 30.4** | $ 43.6 | $ 38.4 |
| Average auto operating lease assets | **14.3** | 19.1 | 22.0 |

(a) Users of all web and/or mobile platforms who have logged in within the past 90 days.
(b) Users of all mobile platforms who have logged in within the past 90 days.
(c) Total payments transaction volume includes debit and credit card sales volume and gross outflows of ACH, ATM, teller, wires, BillPay, PayChase, Zelle, person-to-person and checks.
(d) Includes assets invested in managed accounts and J.P. Morgan mutual funds where AWM is the investment manager. Refer to AWM segment results on pages 76-78 for additional information.
(e) Firmwide mortgage origination volume was $81.8 billion, $182.4 billion and $133.4 billion for the years ended December 31, 2022, 2021 and 2020, respectively.
(f) Included origination volume under the PPP of $10.6 billion and $21.9 billion for the years ended December 31, 2021 and 2020, respectively. The program ended on May 31, 2021 for new applications.

**The Corporate & Investment Bank, which consists of Banking and Markets & Securities Services, offers a broad suite of investment banking, market-making, prime brokerage, lending, and treasury and securities products and services to a global client base of corporations, investors, financial institutions, merchants, government and municipal entities. Banking offers a full range of investment banking products and services in all major capital markets, including advising on corporate strategy and structure, capital-raising in equity and debt markets, as well as loan origination and syndication. Banking also includes Payments, which provides payments services enabling clients to manage payments and receipts globally, and cross-border financing. Markets & Securities Services includes Markets, a global market-maker across products, including cash and derivative instruments, which also offers sophisticated risk management solutions, prime brokerage, and research. Markets & Securities Services also includes Securities Services, a leading global custodian which provides custody, fund accounting and administration, and securities lending products principally for asset managers, insurance companies and public and private investment funds.**

## Selected income statement data

| Year ended December 31, (in millions) | 2022 | 2021 | 2020 |
|---|---|---|---|
| **Revenue** | | | |
| Investment banking fees | **$ 6,929** | $ 13,359 | $ 9,477 |
| Principal transactions | **19,926** | 15,764 | 17,560 |
| Lending- and deposit-related fees | **2,419** | 2,514 | 2,070 |
| Asset management, administration and commissions | **5,065** | 5,024 | 4,721 |
| All other income[(a)] | **1,660** | 1,548 | 1,292 |
| **Noninterest revenue** | **35,999** | 38,209 | 35,120 |
| Net interest income | **11,900** | 13,540 | 14,164 |
| **Total net revenue[(b)]** | **47,899** | 51,749 | 49,284 |
| Provision for credit losses | **1,158** | (1,174) | 2,726 |
| **Noninterest expense** | | | |
| Compensation expense | **13,918** | 13,096 | 11,612 |
| Noncompensation expense | **13,169** | 12,229 | 11,926 |
| **Total noninterest expense** | **27,087** | 25,325 | 23,538 |
| **Income before income tax expense** | **19,654** | 27,598 | 23,020 |
| Income tax expense | **4,684** | 6,464 | 5,926 |
| **Net income** | **$ 14,970** | $ 21,134 | $ 17,094 |

(a) Includes card income of $1.0 billion, $910 million and $840 million for the years ended December 31, 2022, 2021 and 2020, respectively.

(b) Includes tax-equivalent adjustments, predominantly due to income tax credits and other tax benefits related to alternative energy investments; income tax credits and amortization of the cost of investments in affordable housing projects; and tax-exempt income from municipal bonds of $3.0 billion, $3.0 billion and $2.4 billion for the years ended December 31, 2022, 2021 and 2020, respectively.

## Selected income statement data

| Year ended December 31, (in millions, except ratios) | 2022 | 2021 | 2020 |
|---|---|---|---|
| **Financial ratios** | | | |
| Return on equity | **14 %** | 25 % | 20 % |
| Overhead ratio | **57** | 49 | 48 |
| Compensation expense as percentage of total net revenue | **29** | 25 | 24 |
| **Revenue by business** | | | |
| Investment Banking | **$ 6,510** | $ 12,506 | $ 8,871 |
| Payments | **7,376** | 6,270 | 5,560 |
| Lending | **1,377** | 1,001 | 1,146 |
| **Total Banking** | **15,263** | 19,777 | 15,577 |
| Fixed Income Markets | **18,617** | 16,865 | 20,878 |
| Equity Markets | **10,367** | 10,529 | 8,605 |
| Securities Services | **4,488** | 4,328 | 4,253 |
| Credit Adjustments & Other[(a)] | **(836)** | 250 | (29) |
| **Total Markets & Securities Services** | **32,636** | 31,972 | 33,707 |
| **Total net revenue** | **$47,899** | $51,749 | $49,284 |

(a) Consists primarily of centrally managed credit valuation adjustments ("CVA"), funding valuation adjustments ("FVA") on derivatives, other valuation adjustments, and certain components of fair value option elected liabilities, which are primarily reported in principal transactions revenue. Results are presented net of associated hedging activities and net of CVA and FVA amounts allocated to Fixed Income Markets and Equity Markets. Refer to Notes 2, 3 and 24 for additional information.

### 2022 compared with 2021

Net income was $15.0 billion, down 29%.

Net revenue was $47.9 billion, down 7%.

Banking revenue was $15.3 billion, down 23%.

- Investment Banking revenue was $6.5 billion, down 48%, driven by lower Investment Banking fees, which were also down 48%, as volatile market conditions resulted in lower fees across products, and $251 million of markdowns on held-for-sale positions, primarily unfunded commitments, in the bridge financing portfolio in the second quarter of 2022. The Firm ranked #1 for Global Investment Banking fees, according to Dealogic.
  - Equity underwriting fees were $1.0 billion, down 74%, and debt underwriting fees were $2.8 billion, down 43%, due to lower issuance activity.
  - Advisory fees were $3.1 billion, down 30%, driven by a lower level of announced deals.
- Payments revenue was $7.4 billion, up 18%, and included the net impact of equity investments. Excluding this net impact, revenue was $7.8 billion, up 33%, driven by deposit margin expansion on higher rates and growth in fees on higher volumes.
- Lending revenue was $1.4 billion, up 38%, driven by higher net interest income primarily on higher loans, as well as fair value gains on hedges of retained loans, compared with losses in the prior year.

Markets & Securities Services revenue was $32.6 billion, up 2%. Markets revenue was $29.0 billion, up 6%.

- Fixed Income Markets revenue was $18.6 billion, up 10%, driven by strong performance in the macro businesses amid volatile market conditions, particularly in Currencies & Emerging Markets and Rates, partially offset by lower revenue in Securitized Products.
- Equity Markets revenue was $10.4 billion, down 2%, driven by lower revenue in Cash Equities, largely offset by Equity Derivatives.
- Securities Services revenue was $4.5 billion, up 4%, driven by deposit margin expansion on higher rates and growth in fees, largely offset by lower average market values of assets under custody and lower deposits.
- Credit Adjustments & Other was a loss of $836 million, reflecting funding spread widening, and, to a lesser extent, losses on exposures relating to commodities and Russia and Russia-associated counterparties, compared with a gain of $250 million in the prior year.

Noninterest expense was $27.1 billion, up 7%, driven by higher structural expense and investments in the business, including higher compensation, partially offset by lower revenue-related compensation as well as lower legal expense.

The provision for credit losses was $1.2 billion, predominantly driven by a net addition to the allowance for credit losses, reflecting deterioration in the Firm's macroeconomic outlook and loan growth.

The provision for credit losses in the prior year was a net benefit of $1.2 billion, driven by a net reduction in the allowance for credit losses.

## Selected metrics

| As of or for the year ended December 31, (in millions, except headcount) | 2022 | 2021 | 2020 |
|---|---|---|---|
| **Selected balance sheet data (period-end)** | | | |
| Total assets | **$1,334,296** | $1,259,896 | $1,095,926 |
| Loans: | | | |
| Loans retained[(a)] | **187,642** | 159,786 | 133,296 |
| Loans held-for-sale and loans at fair value[(b)] | **42,304** | 50,386 | 39,588 |
| **Total loans** | **229,946** | 210,172 | 172,884 |
| Equity | **103,000** | 83,000 | 80,000 |
| **Selected balance sheet data (average)** | | | |
| Total assets | **$1,406,250** | $1,334,518 | $1,121,942 |
| Trading assets-debt and equity instruments | **405,916** | 448,099 | 425,060 |
| Trading assets-derivative receivables | **77,802** | 68,203 | 69,243 |
| Loans: | | | |
| Loans retained[(a)] | **172,627** | 145,137 | 135,676 |
| Loans held-for-sale and loans at fair value[(b)] | **46,846** | 51,072 | 33,792 |
| **Total loans** | **219,473** | 196,209 | 169,468 |
| Equity | **103,000** | 83,000 | 80,000 |
| **Headcount** | **73,452** | 67,546 | 61,733 |

(a) Loans retained includes credit portfolio loans, loans held by consolidated Firm-administered multi-seller conduits, trade finance loans, other held-for-investment loans and overdrafts.
(b) Loans held-for-sale and loans at fair value primarily reflect lending related positions originated and purchased in CIB Markets, including loans held for securitization.

## Selected metrics

| As of or for the year ended December 31, (in millions, except ratios) | 2022 | 2021 | 2020 |
|---|---|---|---|
| **Credit data and quality statistics** | | | |
| Net charge-offs/ (recoveries) | **$ 82** | $ 6 | $ 370 |
| Nonperforming assets: | | | |
| Nonaccrual loans: | | | |
| Nonaccrual loans retained[(a)] | **718** | 584 | 1,008 |
| Nonaccrual loans held-for-sale and loans at fair value[(b)] | **848** | 844 | 1,662 |
| **Total nonaccrual loans** | **1,566** | 1,428 | 2,670 |
| Derivative receivables | **296** | 316 | 56 |
| Assets acquired in loan satisfactions | **87** | 91 | 85 |
| **Total nonperforming assets** | **1,949** | 1,835 | 2,811 |
| Allowance for credit losses: | | | |
| Allowance for loan losses | **2,292** | 1,348 | 2,366 |
| Allowance for lending-related commitments | **1,448** | 1,372 | 1,534 |
| **Total allowance for credit losses** | **3,740** | 2,720 | 3,900 |
| Net charge-off/(recovery) rate[(c)] | **0.05 %** | – % | 0.27 % |
| Allowance for loan losses to period-end loans retained | **1.22** | 0.84 | 1.77 |
| Allowance for loan losses to period-end loans retained, excluding trade finance and conduits[(d)] | **1.67** | 1.12 | 2.54 |
| Allowance for loan losses to nonaccrual loans retained[(a)] | **319** | 231 | 235 |
| Nonaccrual loans to total period-end loans | **0.68** | 0.68 | 1.54 |

(a) Allowance for loan losses of $104 million, $58 million and $278 million were held against these nonaccrual loans at December 31, 2022, 2021 and 2020, respectively.
(b) At December 31, 2022, 2021 and 2020, nonaccrual loans excluded mortgage loans 90 or more days past due and insured by U.S. government agencies of $115 million, $281 million and $316 million, respectively. These amounts have been excluded based upon the government guarantee.
(c) Loans held-for-sale and loans at fair value were excluded when calculating the net charge-off/(recovery) rate.
(d) Management uses allowance for loan losses to period-end loans retained, excluding trade finance and conduits, a non-GAAP financial measure, to provide a more meaningful assessment of CIB's allowance coverage ratio. Refer to Explanation and Reconciliation of the Firm's Use of Non-GAAP Financial Measures on pages 58-60.

### Investment banking fees

| (in millions) | Year ended December 31, 2022 | 2021 | 2020 |
|---|---|---|---|
| Advisory | **$ 3,051** | $ 4,381 | $ 2,368 |
| Equity underwriting | **1,034** | 3,953 | 2,758 |
| Debt underwriting[(a)] | **2,844** | 5,025 | 4,351 |
| **Total investment banking fees** | **$ 6,929** | $ 13,359 | $ 9,477 |

(a) Represents long-term debt and loan syndications.

### League table results – wallet share

| | 2022 | | 2021 | | 2020 | |
|---|---|---|---|---|---|---|
| Year ended December 31, | Rank | Share | Rank | Share | Rank | Share |
| Based on fees[(a)] | | | | | | |
| **M&A[(b)]** | | | | | | |
| Global | **# 2** | **8.2 %** | # 2 | 9.6 % | # 2 | 8.9 % |
| U.S. | **2** | **9.1** | 2 | 10.8 | 2 | 9.4 |
| **Equity and equity-related[(c)]** | | | | | | |
| Global | **1** | **5.8** | 2 | 8.8 | 2 | 8.9 |
| U.S. | **1** | **13.9** | 2 | 11.7 | 2 | 12.1 |
| **Long-term debt[(d)]** | | | | | | |
| Global | **1** | **7.0** | 1 | 8.4 | 1 | 8.8 |
| U.S. | **1** | **12.2** | 1 | 12.1 | 1 | 12.8 |
| **Loan syndications** | | | | | | |
| Global | **1** | **11.2** | 1 | 10.9 | 1 | 11.1 |
| U.S. | **1** | **12.8** | 1 | 12.6 | 1 | 12.3 |
| **Global investment banking fees[(e)]** | **# 1** | **8.0 %** | # 1 | 9.3 % | # 1 | 9.1 % |

(a) Source: Dealogic as of January 2, 2023. Reflects the ranking of revenue wallet and market share.
(b) Global M&A excludes any withdrawn transactions. U.S. M&A revenue wallet represents wallet from client parents based in the U.S.
(c) Global equity and equity-related ranking includes rights offerings and Chinese A-Shares.
(d) Long-term debt rankings include investment-grade, high-yield, supranationals, sovereigns, agencies, covered bonds, asset-backed securities ("ABS") and mortgage-backed securities ("MBS"); and exclude money market, short-term debt, and U.S. municipal securities.
(e) Global investment banking fees exclude money market, short-term debt and shelf securities.

### Markets revenue

The following table summarizes selected income statement data for the Markets businesses. Markets includes both Fixed Income Markets and Equity Markets. Markets revenue consists of principal transactions, fees, commissions and other income, as well as net interest income. The Firm assesses its Markets business performance on a total revenue basis, as offsets may occur across revenue line items. For example, securities that generate net interest income may be risk-managed by derivatives that are reflected at fair value in principal transactions revenue. Refer to Notes 6 and 7 for a description of the composition of these income statement line items.

Principal transactions reflects revenue on financial instruments and commodities transactions that arise from client-driven market-making activity. Principal transactions revenue includes amounts recognized upon executing new transactions with market participants, as well as "inventory-related revenue", which is revenue recognized from gains and losses on derivatives and other instruments that the Firm has been holding in anticipation of, or in response to, client demand, and changes in the fair value of instruments used by the Firm to actively manage the risk exposure arising from such inventory. Principal transactions revenue recognized upon executing new transactions with market participants is affected by many factors including the level of client activity, the bid-offer spread (which is the difference between the price at which a market participant is willing and able to sell an instrument to the Firm and the price at which another market participant is willing and able to buy it from the Firm, and vice versa), market liquidity and volatility. These factors are interrelated and sensitive to the same factors that drive inventory-related revenue, which include general market conditions, such as interest rates, foreign exchange rates, credit spreads, and equity and commodity prices, as well as other macroeconomic conditions.

For the periods presented below, the predominant source of principal transactions revenue was the amount recognized upon executing new transactions.

| Year ended December 31, (in millions, except where otherwise noted) | **2022** Fixed Income Markets | **2022** Equity Markets | **2022** Total Markets | 2021 Fixed Income Markets | 2021 Equity Markets | 2021 Total Markets | 2020 Fixed Income Markets | 2020 Equity Markets | 2020 Total Markets |
|---|---|---|---|---|---|---|---|---|---|
| Principal transactions | **$ 11,682** | **$ 8,846** | **$ 20,528** | $ 7,911 | $ 7,519 | $ 15,430 | $ 11,857 | $ 6,087 | $ 17,944 |
| Lending- and deposit-related fees | **303** | **22** | **325** | 321 | 17 | 338 | 226 | 10 | 236 |
| Asset management, administration and commissions | **550** | **2,007** | **2,557** | 545 | 1,967 | 2,512 | 411 | 2,087 | 2,498 |
| All other income | **916** | **(131)** | **785** | 972 | (101) | 871 | 493 | (62) | 431 |
| **Noninterest revenue** | **13,451** | **10,744** | **24,195** | 9,749 | 9,402 | 19,151 | 12,987 | 8,122 | 21,109 |
| Net interest income | **5,166** | **(377)** | **4,789** | 7,116 | 1,127 | 8,243 | 7,891 | 483 | 8,374 |
| **Total net revenue** | **$ 18,617** | **$ 10,367** | **$ 28,984** | $ 16,865 | $ 10,529 | $ 27,394 | $ 20,878 | $ 8,605 | $ 29,483 |
| **Loss days**[(a)] | | | 7 | | | 4 | | | 4 |

(a) Loss days represent the number of days for which CIB Markets, which consists of Fixed Income Markets and Equity Markets, posted losses to total net revenue. The loss days determined under this measure differ from the measure used to determine backtesting gains and losses. Daily backtesting gains and losses include positions in the Firm's Risk Management value-at-risk ("VaR") measure and exclude certain components of total net revenue, which may more than offset backtesting gains or losses on a particular day. For more information on daily backtesting gains and losses, refer to the VaR discussion on pages 133-135.

## Selected metrics

| As of or for the year ended December 31, (in millions, except where otherwise noted) | **2022** | 2021 | 2020 |
|---|---|---|---|
| Assets under custody ("AUC") by asset class (period-end) (in billions): | | | |
| Fixed Income | **$ 14,361** | $ 16,098 | $ 15,840 |
| Equity | **10,748** | 12,962 | 11,489 |
| Other[(a)] | **3,526** | 4,161 | 3,651 |
| **Total AUC** | **$ 28,635** | $ 33,221 | $ 30,980 |
| Merchant processing volume (in billions)[(b)] | **$ 2,158.4** | $ 1,886.7 | $ 1,597.3 |
| Client deposits and other third party liabilities (average)[(c)] | **$ 687,391** | $ 714,910 | $ 610,555 |

(a) Consists of mutual funds, unit investment trusts, currencies, annuities, insurance contracts, options and other contracts.
(b) Represents total merchant processing volume across CIB, CCB and CB.
(c) Client deposits and other third-party liabilities pertain to the Payments and Securities Services businesses.

## International metrics

| As of or for the year ended December 31, (in millions, except where otherwise noted) | | 2022 | | 2021 | | 2020 |
|---|---|---|---|---|---|---|
| **Total net revenue**[(a)] | | | | | | |
| Europe/Middle East/Africa | **$** | **15,303** | $ | 13,954 | $ | 13,872 |
| Asia-Pacific | | **7,846** | | 7,555 | | 7,524 |
| Latin America/Caribbean | | **2,239** | | 1,833 | | 1,931 |
| **Total international net revenue** | | **25,388** | | 23,342 | | 23,327 |
| North America | | **22,511** | | 28,407 | | 25,957 |
| **Total net revenue** | **$** | **47,899** | $ | 51,749 | $ | 49,284 |
| **Loans retained (period-end)**[(a)] | | | | | | |
| Europe/Middle East/Africa | **$** | **39,424** | $ | 33,084 | $ | 27,659 |
| Asia-Pacific | | **15,571** | | 14,471 | | 12,802 |
| Latin America/Caribbean | | **8,599** | | 7,006 | | 5,425 |
| **Total international loans** | | **63,594** | | 54,561 | | 45,886 |
| North America | | **124,048** | | 105,225 | | 87,410 |
| **Total loans retained** | **$** | **187,642** | $ | 159,786 | $ | 133,296 |
| **Client deposits and other third-party liabilities (average)**[(b)] | | | | | | |
| Europe/Middle East/Africa | **$** | **247,203** | $ | 243,867 | $ | 211,592 |
| Asia-Pacific | | **129,134** | | 132,241 | | 124,145 |
| Latin America/Caribbean | | **39,917** | | 46,045 | | 37,664 |
| **Total international** | **$** | **416,254** | $ | 422,153 | $ | 373,401 |
| North America | | **271,137** | | 292,757 | | 237,154 |
| **Total client deposits and other third-party liabilities** | **$** | **687,391** | $ | 714,910 | $ | 610,555 |
| **AUC (period-end)**[(b)] **(in billions)** | | | | | | |
| North America | **$** | **19,219** | $ | 21,655 | $ | 20,028 |
| All other regions | | **9,416** | | 11,566 | | 10,952 |
| **Total AUC** | **$** | **28,635** | $ | 33,221 | $ | 30,980 |

(a) Total net revenue and loans retained (excluding loans held-for-sale and loans at fair value) are based on the location of the trading desk, booking location, or domicile of the client, as applicable.

(b) Client deposits and other third-party liabilities pertaining to the Payments and Securities Services businesses, and AUC, are based on the domicile of the client.

**Commercial Banking provides comprehensive financial solutions, including lending, payments, investment banking and asset management products across three primary client segments: Middle Market Banking, Corporate Client Banking and Commercial Real Estate Banking. Other includes amounts not aligned with a primary client segment.**

**Middle Market Banking covers small and midsized companies, local governments and nonprofit clients.**

**Corporate Client Banking covers large corporations.**

**Commercial Real Estate Banking covers investors, developers, and owners of multifamily, office, retail, industrial and affordable housing properties.**

### Selected income statement data

| Year ended December 31, (in millions) | 2022 | 2021 | 2020 |
|---|---|---|---|
| **Revenue** | | | |
| Lending- and deposit-related fees | **$ 1,243** | $ 1,392 | $ 1,187 |
| All other income[(a)] | **2,093** | 2,537 | 1,880 |
| **Noninterest revenue** | **3,336** | 3,929 | 3,067 |
| Net interest income | **8,197** | 6,079 | 6,246 |
| **Total net revenue**[(b)] | **11,533** | 10,008 | 9,313 |
| Provision for credit losses | **1,268** | (947) | 2,113 |
| **Noninterest expense** | | | |
| Compensation expense | **2,296** | 1,973 | 1,854 |
| Noncompensation expense | **2,423** | 2,068 | 1,944 |
| **Total noninterest expense** | **4,719** | 4,041 | 3,798 |
| **Income before income tax expense** | **5,546** | 6,914 | 3,402 |
| Income tax expense | **1,333** | 1,668 | 824 |
| **Net income** | **$ 4,213** | $ 5,246 | $ 2,578 |

(a) Includes card income of $685 million, $624 million and $525 million for the years ended December 31, 2022, 2021 and 2020, respectively.

(b) Total net revenue included tax-equivalent adjustments from income tax credits related to equity investments in designated community development entities and in entities established for rehabilitation of historic properties, as well as tax-exempt income related to municipal financing activities of $322 million, $330 million and $350 million for the years ended December 31, 2022, 2021 and 2020, respectively.

### 2022 compared with 2021

Net income was $4.2 billion, down 20%, reflecting a net increase in the provision for credit losses compared with a net benefit in the prior year.

Net revenue was $11.5 billion, up 15%. Net interest income was $8.2 billion, up 35%, driven by deposit margin expansion on higher rates and growth in loans, predominantly offset by the impact of higher funding costs and lower deposits.

Noninterest revenue was $3.3 billion, down 15%, driven by lower investment banking revenue and net markdowns on held-for-sale positions, primarily unfunded commitments, in the bridge financing portfolio. The decreases were partially offset by a gain on an equity method investment received in partial satisfaction of a loan.

Noninterest expense was $4.7 billion, up 17%, largely driven by higher volume-and revenue-related expense, as well as structural expense, including higher compensation expense, and expense associated with growth in payments.

The provision for credit losses was $1.3 billion, predominantly driven by a net addition to the allowance for credit losses, reflecting deterioration in the Firm's macroeconomic outlook and loan growth.

The provision for credit losses in the prior year was a net benefit of $947 million, driven by a net reduction in the allowance for credit losses.

**CB product revenue consists of the following:**

**Lending** includes a variety of financing alternatives, which are primarily provided on a secured basis; collateral includes receivables, inventory, equipment, real estate or other assets. Products include term loans, revolving lines of credit, bridge financing, asset-based structures, leases, and standby letters of credit.

**Payments** includes revenue from a broad range of products and services that CB clients use to manage payments and receipts globally, as well as invest and manage funds.

**Investment banking** includes investment banking fees and markets revenue from a full range of products and services providing CB clients with advisory, loan syndications, capital-raising in equity and debt markets, and risk management solutions.

**Other** revenue primarily includes tax-equivalent adjustments generated from Community Development Banking and activity derived from principal transactions.

## Selected income statement data (continued)

| Year ended December 31, (in millions, except ratios) | 2022 | 2021 | 2020 |
|---|---|---|---|
| **Revenue by product** | | | |
| Lending | **$ 4,524** | $ 4,629 | $ 4,396 |
| Payments[a] | **5,882** | 3,791 | 3,820 |
| Investment banking[a][b] | **873** | 1,473 | 964 |
| Other | **254** | 115 | 133 |
| **Total net revenue** | **$ 11,533** | $ 10,008 | $ 9,313 |
| Investment banking revenue, gross[c] | **$ 2,978** | $ 5,092 | $ 3,348 |
| **Revenue by client segment** | | | |
| Middle Market Banking | **$ 5,134** | $ 4,004 | $ 3,640 |
| Corporate Client Banking | **3,918** | 3,508 | 3,203 |
| Commercial Real Estate Banking | **2,461** | 2,419 | 2,313 |
| Other | **20** | 77 | 157 |
| **Total net revenue** | **$ 11,533** | $ 10,008 | $ 9,313 |
| **Financial ratios** | | | |
| Return on equity | **16 %** | 21 % | 11 % |
| Overhead ratio | **41** | 40 | 41 |

(a) In the fourth quarter of 2022, certain revenue from CIB Markets products was reclassified from investment banking to payments. Prior-period amounts have been revised to conform with the current presentation.
(b) Includes CB's share of revenue from investment banking products sold to CB clients through the CIB.
(c) Includes gross revenues earned by the Firm for investment banking and payments products sold to CB clients that are subject to a revenue sharing arrangement with the CIB. Refer to Business Segment Results on page 61 for a discussion of revenue sharing.

## Selected metrics

| As of or for the year ended December 31, (in millions, except headcount) | 2022 | 2021 | 2020 |
|---|---|---|---|
| **Selected balance sheet data (period-end)** | | | |
| Total assets | **$ 257,106** | $ 230,776 | $ 228,911 |
| Loans: | | | |
| Loans retained | **233,879** | 206,220 | 207,880 |
| Loans held-for-sale and loans at fair value | **707** | 2,223 | 2,245 |
| **Total loans** | **$ 234,586** | $ 208,443 | $ 210,125 |
| Equity | **25,000** | 24,000 | 22,000 |
| **Period-end loans by client segment** | | | |
| Middle Market Banking[a] | **$ 72,625** | $ 61,159 | $ 61,115 |
| Corporate Client Banking | **53,840** | 45,315 | 47,420 |
| Commercial Real Estate Banking | **107,999** | 101,751 | 101,146 |
| Other | **122** | 218 | 444 |
| **Total loans[a]** | **$ 234,586** | $ 208,443 | $ 210,125 |
| **Selected balance sheet data (average)** | | | |
| Total assets | **$ 243,108** | $ 225,548 | $ 233,156 |
| Loans: | | | |
| Loans retained | **222,388** | 201,920 | 217,767 |
| Loans held-for-sale and loans at fair value | **1,350** | 3,122 | 1,129 |
| **Total loans** | **$ 223,738** | $ 205,042 | $ 218,896 |
| Client deposits and other third-party liabilities | **294,261** | 301,502 | 237,825 |
| Equity | **25,000** | 24,000 | 22,000 |
| **Average loans by client segment** | | | |
| Middle Market Banking | **$ 67,830** | $ 60,128 | $ 61,558 |
| Corporate Client Banking | **50,281** | 44,361 | 54,172 |
| Commercial Real Estate Banking | **105,459** | 100,331 | 102,479 |
| Other | **168** | 222 | 687 |
| **Total loans** | **$ 223,738** | $ 205,042 | $ 218,896 |
| **Headcount** | **14,687** | 12,902 | 11,675 |

(a) At December 31, 2022, 2021 and 2020, total loans included $132 million, $1.2 billion and $6.6 billion of loans under the PPP, of which $123 million, $1.1 billion and $6.4 billion were in Middle Market Banking, respectively. Refer to Credit Portfolio on pages 108-109 for a further discussion of the PPP.

## Selected metrics

| As of or for the year ended December 31, (in millions, except ratios) | 2022 | | 2021 | | 2020 |
|---|---|---|---|---|---|
| **Credit data and quality statistics** | | | | | |
| Net charge-offs/(recoveries) | **$ 84** | | $ 71 | | $ 401 |
| **Nonperforming assets** | | | | | |
| Nonaccrual loans: | | | | | |
| Nonaccrual loans retained[(a)] | **766** | (c) | 740 | (c) | 1,286 |
| Nonaccrual loans held-for-sale and loans at fair value | **—** | | — | | 120 |
| **Total nonaccrual loans** | **766** | | 740 | | 1,406 |
| Assets acquired in loan satisfactions | **—** | | 17 | | 24 |
| **Total nonperforming assets** | **766** | | 757 | | 1,430 |
| Allowance for credit losses: | | | | | |
| Allowance for loan losses | **3,324** | | 2,219 | | 3,335 |
| Allowance for lending-related commitments | **830** | | 749 | | 651 |
| **Total allowance for credit losses** | **4,154** | | 2,968 | | 3,986 |
| Net charge-off/(recovery) rate[(b)] | **0.04%** | | 0.04% | | 0.18% |
| Allowance for loan losses to period-end loans retained | **1.42** | | 1.08 | | 1.60 |
| Allowance for loan losses to nonaccrual loans retained[(a)] | **434** | | 300 | | 259 |
| Nonaccrual loans to period-end total loans | **0.33** | | 0.36 | | 0.67 |

(a) Allowance for loan losses of $153 million, $124 million and $273 million was held against nonaccrual loans retained at December 31, 2022, 2021 and 2020, respectively.
(b) Loans held-for-sale and loans at fair value were excluded when calculating the net charge-off/(recovery) rate.
(c) At December 31, 2022 and 2021, nonaccrual loans excluded $18 million and $114 million, respectively, of PPP loans 90 or more days past due and guaranteed by the SBA.

## ASSET & WEALTH MANAGEMENT

**Asset & Wealth Management, with client assets of $4.0 trillion, is a global leader in investment and wealth management.**

**Asset Management**
**Offers multi-asset investment management solutions across equities, fixed income, alternatives and money market funds to institutional and retail investors providing for a broad range of clients' investment needs.**

**Global Private Bank**
**Provides retirement products and services, brokerage, custody, estate planning, lending, deposits and investment management to high net worth clients.**

**The majority of AWM's client assets are in actively managed portfolios.**

### Selected income statement data

| Year ended December 31, (in millions, except ratios) | 2022 | 2021 | 2020 |
|---|---|---|---|
| **Revenue** | | | |
| Asset management, administration and commissions | **$12,172** | $12,333 | $10,610 |
| All other income | **335** | 738 | 212 |
| **Noninterest revenue** | **12,507** | 13,071 | 10,822 |
| Net interest income | **5,241** | 3,886 | 3,418 |
| **Total net revenue** | **17,748** | 16,957 | 14,240 |
| Provision for credit losses | **128** | (227) | 263 |
| **Noninterest expense** | | | |
| Compensation expense | **6,336** | 5,692 | 4,959 |
| Noncompensation expense | **5,493** | 5,227 | 4,998 |
| **Total noninterest expense** | **11,829** | 10,919 | 9,957 |
| **Income before income tax expense** | **5,791** | 6,265 | 4,020 |
| Income tax expense | **1,426** | 1,528 | 1,028 |
| **Net income** | **$ 4,365** | $ 4,737 | $ 2,992 |
| **Revenue by line of business** | | | |
| Asset Management | **$ 8,818** | $ 9,246 | $ 7,654 |
| Global Private Bank | **8,930** | 7,711 | 6,586 |
| **Total net revenue** | **$17,748** | $16,957 | $14,240 |
| **Financial ratios** | | | |
| Return on equity | **25 %** | 33 % | 28 % |
| Overhead ratio | **67** | 64 | 70 |
| Pre-tax margin ratio: | | | |
| Asset Management | **30** | 35 | 29 |
| Global Private Bank | **35** | 39 | 27 |
| Asset & Wealth Management | **33** | 37 | 28 |

### 2022 compared with 2021

Net income was $4.4 billion, down 8%.

Net revenue was $17.7 billion, up 5%. Net interest income was $5.2 billion, up 35%. Noninterest revenue was $12.5 billion, down 4%.

Revenue from Asset Management was $8.8 billion, down 5%, predominantly driven by:

- net investment valuation losses compared to net gains in the prior year and,
- lower asset management fees reflecting a decline in market levels and the impact of net liquidity outflows, predominantly offset by the removal of most money market fund fee waivers.

Revenue from Global Private Bank was $8.9 billion, up 16%, driven by:

- margin expansion on higher rates and higher average deposits; and to a lesser extent higher average loans and wider spreads,

partially offset by

- lower brokerage and placement fees on reduced volume, and lower management fees.

Noninterest expense was $11.8 billion, up 8%, driven by higher structural expense and investments in the business, largely compensation.

The provision for credit losses was $128 million, driven by a net addition to the allowance for credit losses.

The provision for credit losses in the prior year was a net benefit of $227 million driven by a net reduction in the allowance for credit losses.

**Asset Management has two high-level measures of its overall fund performance.**

- **Percentage of mutual fund assets under management in funds rated 4- or 5-star:** Mutual fund rating services rank funds based on their risk adjusted performance over various periods. A 5-star rating is the best rating and represents the top 10% of industry-wide ranked funds. A 4-star rating represents the next 22.5% of industry-wide ranked funds. A 3-star rating represents the next 35% of industry-wide ranked funds. A 2-star rating represents the next 22.5% of industry-wide ranked funds. A 1-star rating is the worst rating and represents the bottom 10% of industrywide ranked funds. An overall Morningstar rating is derived from a weighted average of the performance associated with a fund's three-, five and ten- year (if applicable) Morningstar Rating metrics. For U.S.-domiciled funds, separate star ratings are provided at the individual share class level. The Nomura "star rating" is based on three-year risk-adjusted performance only. Funds with fewer than three years of history are not rated and hence excluded from these rankings. All ratings, the assigned peer categories and the asset values used to derive these rankings are sourced from the applicable fund rating provider. Where applicable, the fund rating providers redenominate asset values into U.S. dollars. The percentage of AUM is based on star ratings at the share class level for U.S.-domiciled funds, and at a "primary share class" level to represent the star rating of all other funds, except for Japan, for which Nomura provides ratings at the fund level. The performance data may have been different if all share classes had been included. Past performance is not indicative of future results.
- **Percentage of mutual fund assets under management in funds ranked in the 1st or 2nd quartile (one, three and five years):** All quartile rankings, the assigned peer categories and the asset values used to derive these rankings are sourced from the fund rating providers. Quartile rankings are based on the net-of-fee absolute return of each fund. Where applicable, the fund rating providers redenominate asset values into U.S. dollars. The percentage of AUM is based on fund performance and associated peer rankings at the share class level for U.S.-domiciled funds, at a "primary share class" level to represent the quartile ranking for U.K., Luxembourg and Hong Kong SAR funds and at the fund level for all other funds. The performance data may have been different if all share classes had been included. Past performance is not indicative of future results.

"**Primary share class**" means the C share class for European funds and Acc share class for Hong Kong SAR and Taiwan funds. If these share classes are not available, the oldest share class is used as the primary share class.

## Selected metrics

| As of or for the year ended December 31, (in millions, except ranking data, ratios and headcount) | 2022 | 2021 | 2020 |
|---|---|---|---|
| % of JPM mutual fund assets rated as 4- or 5-star[a] | **73 %** | 69 % | 63 % |
| % of JPM mutual fund assets ranked in 1st or 2nd quartile:[b] | | | |
| 1 year | **65** | 53 | 63 |
| 3 years | **75** | 72 | 69 |
| 5 years | **81** | 80 | 72 |
| **Selected balance sheet data (period-end)[c]** | | | |
| Total assets | **$232,037** | $234,425 | $203,384 |
| Loans | **214,006** | 218,271 | 186,608 |
| Deposits | **233,130** | 282,052 | 198,755 |
| Equity | **17,000** | 14,000 | 10,500 |
| **Selected balance sheet data (average)[c]** | | | |
| Total assets | **$232,438** | $217,187 | $181,432 |
| Loans | **215,582** | 198,487 | 166,311 |
| Deposits | **261,489** | 230,296 | 161,955 |
| Equity | **17,000** | 14,000 | 10,500 |
| **Headcount** | **26,041** | 22,762 | 20,683 |
| Number of Global Private Bank client advisors | **3,137** | 2,738 | 2,462 |
| **Credit data and quality statistics[c]** | | | |
| Net charge-offs/(recoveries) | **$ (7)** | $ 26 | $ (14) |
| Nonaccrual loans | **459** | 708 | 964 |
| Allowance for credit losses: | | | |
| Allowance for loan losses | **$ 494** | $ 365 | $ 598 |
| Allowance for lending-related commitments | **20** | 18 | 38 |
| **Total allowance for credit losses** | **$ 514** | $ 383 | $ 636 |
| Net charge-off/(recovery) rate | **– %** | 0.01 % | (0.01)% |
| Allowance for loan losses to period-end loans | **0.23** | 0.17 | 0.32 |
| Allowance for loan losses to nonaccrual loans | **108** | 52 | 62 |
| Nonaccrual loans to period-end loans | **0.21** | 0.32 | 0.52 |

(a) Represents the Morningstar Rating for all domiciled funds except for Japan domiciled funds which use Nomura. Includes only Asset Management retail open-ended mutual funds that have a rating. Excludes money market funds, Undiscovered Managers Fund, and Brazil domiciled funds.

(b) Quartile ranking sourced from Morningstar, Lipper and Nomura based on country of domicile. Includes only Asset Management retail open-ended mutual funds that are ranked by the aforementioned sources. Excludes money market funds, Undiscovered Managers Fund, and Brazil domiciled funds.

(c) Loans, deposits and related credit data and quality statistics relate to the Global Private Bank business.

## Client assets

### 2022 compared with 2021

Client assets were $4.0 trillion, a decrease of 6%. Assets under management were $2.8 trillion, a decrease of 11% driven by lower market levels and net outflows from liquidity products, partially offset by continued net inflows into long term products.

### Client assets

| December 31, (in billions) | 2022 | 2021 | 2020 |
|---|---|---|---|
| **Assets by asset class** | | | |
| Liquidity | **$ 654** | $ 708 | $ 641 |
| Fixed income | **638** | 693 | 671 |
| Equity | **670** | 779 | 595 |
| Multi-asset | **603** | 732 | 656 |
| Alternatives | **201** | 201 | 153 |
| **Total assets under management** | **2,766** | 3,113 | 2,716 |
| Custody/brokerage/ administration/deposits | **1,282** | 1,182 | 936 |
| **Total client assets**[(a)] | **$ 4,048** | $ 4,295 | $ 3,652 |
| **Assets by client segment** | | | |
| Private Banking | **$ 751** | $ 805 | $ 689 |
| Global Institutional | **1,252** | 1,430 | 1,273 |
| Global Funds | **763** | 878 | 754 |
| **Total assets under management** | **$ 2,766** | $ 3,113 | $ 2,716 |
| Private Banking | **$ 1,964** | $ 1,931 | $ 1,581 |
| Global Institutional | **1,314** | 1,479 | 1,311 |
| Global Funds | **770** | 885 | 760 |
| **Total client assets**[(a)] | **$ 4,048** | $ 4,295 | $ 3,652 |

(a) Includes CCB client investment assets invested in managed accounts and J.P. Morgan mutual funds where AWM is the investment manager.

### Client assets (continued)

| Year ended December 31, (in billions) | 2022 | 2021 | 2020 |
|---|---|---|---|
| **Assets under management rollforward** | | | |
| Beginning balance | **$ 3,113** | $ 2,716 | $ 2,328 |
| Net asset flows: | | | |
| Liquidity | **(55)** | 68 | 104 |
| Fixed income | **13** | 36 | 48 |
| Equity | **35** | 85 | 33 |
| Multi-asset | **(9)** | 17 | 5 |
| Alternatives | **8** | 26 | 6 |
| Market/performance/other impacts | **(339)** | 165 | 192 |
| **Ending balance, December 31** | **$ 2,766** | $ 3,113 | $ 2,716 |
| **Client assets rollforward** | | | |
| Beginning balance | **$ 4,295** | $ 3,652 | $ 3,089 |
| Net asset flows | **49** | 389 | 276 |
| Market/performance/other impacts | **(296)** | 254 | 287 |
| **Ending balance, December 31** | **$ 4,048** | $ 4,295 | $ 3,652 |

### International metrics

| Year ended December 31, (in billions, except where otherwise noted) | 2022 | 2021 | 2020 |
|---|---|---|---|
| **Total net revenue (in millions)**[(a)] | | | |
| Europe/Middle East/Africa | **$ 3,240** | $ 3,571 | $ 2,956 |
| Asia-Pacific | **1,836** | 2,017 | 1,665 |
| Latin America/Caribbean | **967** | 886 | 782 |
| **Total international net revenue** | **6,043** | 6,474 | 5,403 |
| North America | **11,705** | 10,483 | 8,837 |
| **Total net revenue** | **$ 17,748** | $ 16,957 | $ 14,240 |
| **Assets under management** | | | |
| Europe/Middle East/Africa | **$ 487** | $ 561 | $ 517 |
| Asia-Pacific | **218** | 254 | 224 |
| Latin America/Caribbean | **69** | 79 | 70 |
| **Total international assets under management** | **774** | 894 | 811 |
| North America | **1,992** | 2,219 | 1,905 |
| **Total assets under management** | **$ 2,766** | $ 3,113 | $ 2,716 |
| **Client assets** | | | |
| Europe/Middle East/Africa | **$ 610** | $ 687 | $ 622 |
| Asia-Pacific | **331** | 381 | 330 |
| Latin America/Caribbean | **189** | 195 | 166 |
| **Total international client assets** | **1,130** | 1,263 | 1,118 |
| North America | **2,918** | 3,032 | 2,534 |
| **Total client assets** | **$ 4,048** | $ 4,295 | $ 3,652 |

(a) Regional revenue is based on the domicile of the client.

**The Corporate segment consists of Treasury and Chief Investment Office ("CIO") and Other Corporate. Treasury and CIO is predominantly responsible for measuring, monitoring, reporting and managing the Firm's liquidity, funding, capital, structural interest rate and foreign exchange risks.**

**Other Corporate includes staff functions and expense that is centrally managed as well as certain Firm initiatives and activities not aligned to a specific LOB. The major Other Corporate functions include Real Estate, Technology, Legal, Corporate Finance, Human Resources, Internal Audit, Risk Management, Compliance, Control Management, Corporate Responsibility and various Other Corporate groups.**

### Selected income statement and balance sheet data

| Year ended December 31, (in millions, except headcount) | 2022 | 2021 | 2020 |
|---|---|---|---|
| **Revenue** | | | |
| Principal transactions | **$ (227)** | $ 187 | $ 245 |
| Investment securities gains/(losses) | **(2,380)** | (345) | 795 |
| All other income | **809** | 226 | 159 |
| **Noninterest revenue** | **(1,798)** | 68 | 1,199 |
| Net interest income | **1,878** | (3,551) | (2,375) |
| **Total net revenue**[a] | **80** | (3,483) | (1,176) |
| Provision for credit losses | **22** | 81 | 66 |
| **Noninterest expense** | **1,034** | 1,802 | 1,373 |
| **Income/(loss) before income tax expense/(benefit)** | **(976)** | (5,366) | (2,615) |
| Income tax expense/(benefit) | **(233)** | (1,653) | (865) |
| **Net income/(loss)** | **$ (743)** | $ (3,713) | $ (1,750) |
| **Total net revenue** | | | |
| Treasury and CIO | **(439)** | (3,464) | (1,368) |
| Other Corporate | **519** | (19) | 192 |
| **Total net revenue** | **$ 80** | $ (3,483) | $ (1,176) |
| **Net income/(loss)** | | | |
| Treasury and CIO | **(197)** | (3,057) | (1,403) |
| Other Corporate | **(546)** | (656) | (347) |
| **Total net income/(loss)** | **$ (743)** | $ (3,713) | $ (1,750) |
| Total assets (period-end) | **$1,328,219** | $ 1,518,100 | $ 1,359,831 |
| Loans (period-end) | **2,181** | 1,770 | 1,657 |
| Deposits | **14,203** [b] | 396 | 318 |
| **Headcount** | **44,196** | 38,952 | 38,366 |

(a) Included tax-equivalent adjustments, driven by tax-exempt income from municipal bonds, of $235 million, $257 million and $241 million for the years ended December 31, 2022, 2021 and 2020, respectively.

(b) Predominantly relates to the Firm's international consumer growth initiatives.

### 2022 compared with 2021

Net loss was $743 million, compared with a net loss of $3.7 billion in the prior year.

Net revenue was $80 million, compared with a loss of $3.5 billion driven by higher net interest income due to higher rates, partially offset by lower noninterest revenue.

Noninterest revenue was a loss of $1.8 billion, compared with a gain of $68 million driven by:

- higher net investment securities losses on sales of U.S. GSE and government agency MBS, and U.S. Treasuries associated with repositioning the investment securities portfolio,
- the impact of movements in foreign exchange on certain revenues, primarily as result of the U.S. dollar strengthening,
- net losses related to cash deployment transactions, which were more than offset by the related net interest income earned on those transactions,
- net losses, including hedging costs on an equity method investment related to the Firm's international consumer growth initiatives, and
- net losses on certain legacy private equity investments compared with net gains in prior year.

partially offset by

- a gain on the sale of Visa B shares. In connection with the sale, the Firm entered into a derivative instrument with the purchaser of the shares under which the Firm retains the risk associated with changes in the rate at which the shares are convertible into Visa Class A common shares ("Visa A shares"). Refer to Note 2 for additional information,
- higher net gains related to certain Other Corporate investments, and
- proceeds from an insurance settlement in the first quarter of 2022.

Noninterest expense was $1.0 billion, down $768 million, predominantly driven by:

- lower structural expense reflecting the impact of movements in foreign exchange on certain expenses primarily as a result of the U.S. dollar strengthening, and lower retained technology expense, and
- a lower contribution to the Firm's Foundation.

partially offset by

- higher investments, including the costs associated with the Firm's international consumer growth initiatives.

The net impact of movements in foreign exchange rates associated with the foreign exchange risk that is transferred to Treasury and CIO on certain revenues and expenses was not material to net income. Refer to Foreign Exchange Risk on page 62 for additional information.

Refer to Note 10 and Note 13 for additional information on the investment securities portfolio and the allowance for credit losses.

The current period income tax benefit was driven by benefits related to tax audit settlements as well as other tax adjustments, partially offset by a change in the level and mix of income and expenses subject to U.S. federal and state and local taxes that also impacted the Firm's tax reserves.

Other Corporate also reflects the Firm's international consumer growth initiatives, which include Chase U.K., the Firm's digital retail bank in the U.K.; Nutmeg, a digital wealth manager in the U.K.; and a 40% ownership stake in C6 Bank, a digital bank in Brazil, which closed in the first quarter of 2022.

## Treasury and CIO overview

Treasury and CIO is predominantly responsible for measuring, monitoring, reporting and managing the Firm's liquidity, funding, capital, structural interest rate and foreign exchange risks. The risks managed by Treasury and CIO arise from the activities undertaken by the Firm's four major reportable business segments to serve their respective client bases, which generate both on- and off-balance sheet assets and liabilities.

Treasury and CIO seeks to achieve the Firm's asset-liability management objectives generally by investing in high-quality securities that are managed for the longer-term as part of the Firm's investment securities portfolio. Treasury and CIO also uses derivatives to meet the Firm's asset-liability management objectives. Refer to Note 5 for further information on derivatives. In addition, Treasury and CIO manages the Firm's cash position primarily through deposits at central banks and investments in short-term instruments. Refer to Liquidity Risk Management on pages 97-104 for further information on liquidity and funding risk. Refer to Market Risk Management on pages 131-138 for information on interest rate and foreign exchange risks.

The investment securities portfolio predominantly consists of U.S. and non-U.S. government securities, U.S. GSE and government agency and nonagency mortgage-backed securities, collateralized loan obligations, obligations of U.S. states and municipalities and other ABS. At December 31, 2022, the Treasury and CIO investment securities portfolio, net of the allowance for credit losses, was $629.3 billion, and the average credit rating of the securities comprising the portfolio was AA+ (based upon external ratings where available and, where not available, based primarily upon internal risk ratings). Refer to Note 10 for further information on the Firm's investment securities portfolio and internal risk ratings.

### Selected income statement and balance sheet data

| As of or for the year ended December 31, (in millions) | **2022** | 2021 | 2020 |
|---|---|---|---|
| Investment securities gains/ (losses) | **$ (2,380)** | $ (345) | $ 795 |
| Available-for-sale securities (average) | **$ 239,924** | $ 306,827 | $ 413,367 |
| Held-to-maturity securities (average)(a) | **412,180** | 285,086 | 94,569 |
| Investment securities portfolio (average) | **$ 652,104** | $ 591,913 | $ 507,936 |
| Available-for-sale securities (period-end) | **$ 203,981** | $ 306,352 | $ 386,065 |
| Held-to-maturity securities (period-end)(a) | **425,305** | 363,707 | 201,821 |
| Investment securities portfolio, net of allowance for credit losses (period-end)(b) | **$ 629,286** | $ 670,059 | $ 587,886 |

(a) During 2022, 2021 and 2020, the Firm transferred $78.3 billion, $104.5 billion and $164.2 billion of investment securities, respectively, from AFS to HTM for capital management purposes.

(b) At December 31, 2022, 2021 and 2020, the allowance for credit losses on investment securities was $67 million, $42 million and $78 million, respectively.

Risk is an inherent part of JPMorgan Chase's business activities. When the Firm extends a consumer or wholesale loan, advises customers and clients on their investment decisions, makes markets in securities, or offers other products or services, the Firm takes on some degree of risk. The Firm's overall objective is to manage its business, and the associated risks, in a manner that balances serving the interests of its clients, customers and investors, and protecting the safety and soundness of the Firm.

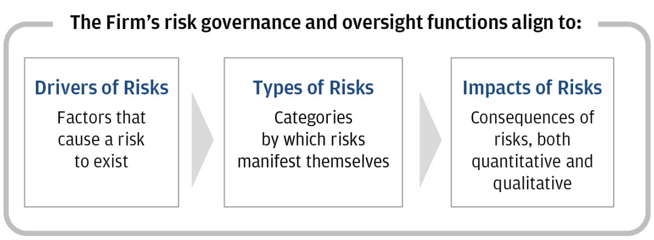
The Firm believes that effective risk management requires, among other things:

- Acceptance of responsibility, including identification and escalation of risks by all individuals within the Firm;
- Ownership of risk identification, assessment, data and management within each of the LOBs and Corporate; and
- A Firmwide risk governance and oversight structure.

The Firm follows a disciplined and balanced compensation framework with strong internal governance and independent oversight by the Board of Directors (the "Board"). The impact of risk and control issues is carefully considered in the Firm's performance evaluation and incentive compensation processes.

## Risk governance framework

The Firm's risk governance framework involves understanding drivers of risks, types of risks, and impacts of risks.




*Drivers of risks* are factors that cause a risk to exist. Drivers of risks include, but are not limited to, the economic environment, regulatory or government policy, competitor or market evolution, business decisions, process or judgment error, deliberate wrongdoing, dysfunctional markets, and natural disasters.

*Types of risks* are categories by which risks manifest themselves. The Firm's risks are generally categorized in the following four risk types:

- Strategic risk is the risk to earnings, capital, liquidity or reputation associated with poorly designed or failed business plans or inadequate responses to changes in the operating environment.
- Credit and investment risk is the risk associated with the default or change in credit profile of a client, counterparty or customer; or loss of principal or a reduction in expected returns on investments, including consumer credit risk, wholesale credit risk, and investment portfolio risk.
- Market risk is the risk associated with the effect of changes in market factors, such as interest and foreign exchange rates, equity and commodity prices, credit spreads or implied volatilities, on the value of assets and liabilities held for both the short and long term.
- Operational risk is the risk of an adverse outcome resulting from inadequate or failed internal processes or systems; human factors; or external events impacting the Firm's processes or systems. Operational risk includes compliance, conduct, legal, and estimations and model risk.

*Impacts of risks* are consequences of risks, both quantitative and qualitative. There may be many consequences of risks manifesting, including quantitative impacts such as a reduction in earnings and capital, liquidity outflows, and fines or penalties, or qualitative impacts such as damage to the Firm's reputation, loss of clients and customers, and regulatory and enforcement actions.

The Firm's risk governance framework is managed on a Firmwide basis. The Firm has an Independent Risk Management ("IRM") function, which is comprised of Risk Management and Compliance. The Firm's Chief Executive Officer ("CEO") appoints, subject to approval by the Risk Committee of the Board of Directors (the "Board Risk Committee"), the Firm's Chief Risk Officer ("CRO") to lead the IRM function and maintain the risk governance framework of the Firm. The framework is subject to approval by the Board Risk Committee through its review and approval of the Risk Governance and Oversight Policy.

The Firm's CRO oversees and delegates authority to the Firmwide Risk Executives ("FREs"), the Chief Risk Officers of the LOBs and Corporate ("LOB CROs"), and the Firm's Chief Compliance Officer ("CCO"), who, in turn, establish Risk Management and Compliance organizations, develop the Firm's risk governance policies and standards, and define and oversee the implementation of the Firm's risk governance framework. The LOB CROs oversee risks that arise in their LOBs and Corporate, while FREs oversee risks that span across the LOBs and Corporate, functions and regions. Each area of the Firm giving rise to risk is expected to operate within the parameters identified by the IRM function, and within its own management-identified risk and control standards.

### Three lines of defense

The Firm's "three lines of defense" are as follows:

The first line of defense consists of each LOB, Treasury and CIO, and certain Other Corporate initiatives, including their aligned Operations, Technology and Control Management. The first line of defense own the identification of risks within their respective organizations and the design and execution of controls to manage those risks.

Responsibilities also include adherence to applicable laws, rules and regulations and implementation of the risk governance framework established by IRM, which may include policies, standards, limits, thresholds and controls.

The second line of defense is the IRM function, which is separate from, and independently assesses and challenges, the first line of defense risk management practices. IRM is also responsible for the identification of risks within its respective organization, adherence to applicable laws, rules and regulations and for the development and implementation of policies and standards with respect to its own processes.

The third line of defense is Internal Audit, an independent function that provides objective assessment of the adequacy and effectiveness of Firmwide processes, controls, governance and risk management. The Internal Audit function is headed by the General Auditor, who reports to the Audit Committee and administratively to the CEO.

In addition, there are other functions that contribute to the Firmwide control environment but are not considered part of a particular line of defense, including Finance, Human Resources and Legal. These other functions are responsible for the identification of risks within their respective organizations, adherence to applicable laws, rules and regulations and implementation of the risk governance framework established by IRM.

### Risk identification and ownership

The LOBs and Corporate own the identification of risks within their respective organizations, as well as the design and execution of controls, including IRM-specified controls, to manage those risks. To support this activity, the Firm has a risk identification framework designed to facilitate each LOB and Corporate's responsibility to identify material risks inherent to the Firm's business and operational activities, catalog them in a central repository and review material risks on a regular basis. The IRM function reviews and challenges the LOB and Corporate's identified risks, maintains the central repository and provides the consolidated Firmwide results to the Firmwide Risk Committee ("FRC") and the Board Risk Committee.

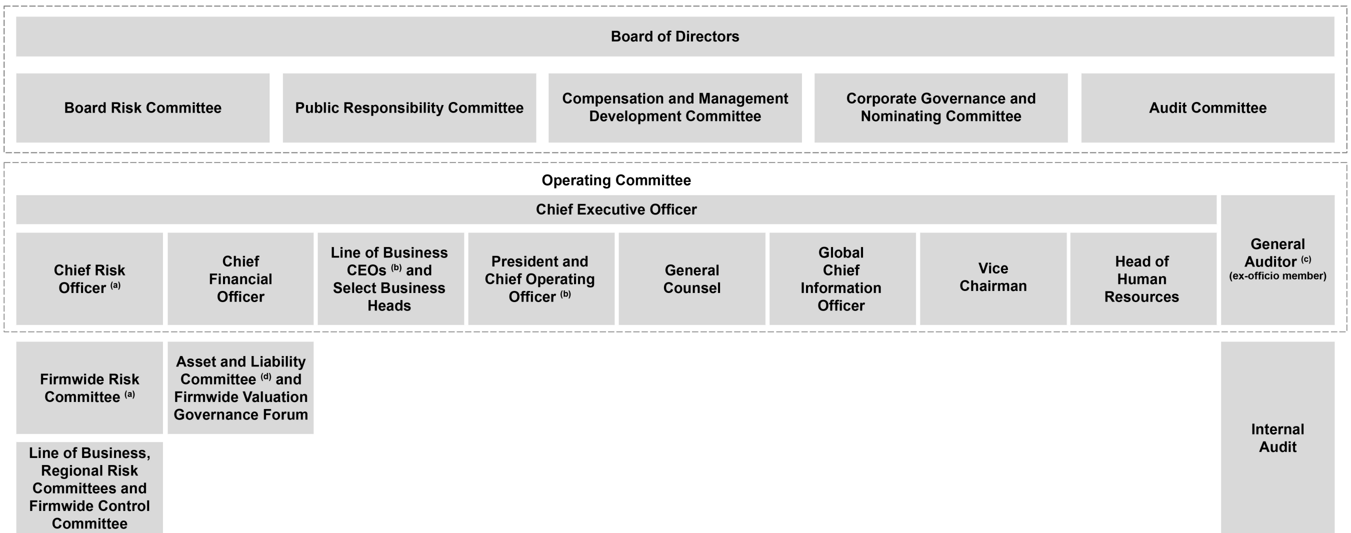
### Risk appetite

The Firm's overall appetite for risk is governed by "Risk Appetite" frameworks for quantitative and qualitative risks. Periodically the Firm's risk appetite is set and approved by senior management (including the CEO and CRO) and approved by the Board Risk Committee. Quantitative and qualitative risks are assessed to monitor and measure the Firm's capacity to take risk consistent with its stated risk appetite. Risk appetite results are reported to the Board Risk Committee.

## Risk governance and oversight structure

The independent status of the IRM function is supported by a risk governance and oversight structure that provides channels for the escalation of risks and issues to senior management, the FRC, and the Board of Directors, as appropriate.

The chart below illustrates the committees of the Board of Directors and key senior management-level committees in the Firm's risk governance and oversight structure. In addition, there are other committees, forums and channels of escalation that support the oversight of risk that are not shown in the chart below or described in this Form 10-K.




(a) The Firm's CRO may escalate directly to the Board Risk Committee. The Firmwide Risk Committee escalates to the Board Risk Committee, as appropriate.
(b) The CEO of the Corporate & Investment Bank is also the Firm's President and Chief Operating Officer.
(c) The General Auditor reports to the Audit Committee and administratively to the Firm's CEO.
(d) The Asset and Liability Committee escalates to the Firm's CEO or the Board of Directors (including its committees).

The Firm's Operating Committee, which consists of the Firm's CEO, CRO, Chief Financial Officer ("CFO"), General Counsel, CEOs of the LOBs and other senior executives, is accountable to and may refer matters to the Firm's Board of Directors. The Operating Committee is responsible for escalating to the Board the information necessary to facilitate the Board's exercise of its duties.

### Board oversight

The Firm's Board of Directors actively oversees the business and affairs of the Firm. This includes monitoring the Firm's financial performance and condition and reviewing the strategic objectives and plans of the Firm. The Board carries out a significant portion of its oversight responsibilities through its principal standing committees, each of which consists solely of independent members of the Board. The Board Risk Committee is the principal committee that oversees risk matters. The Audit Committee oversees the control environment, and the Compensation & Management Development Committee oversees compensation and other management-related matters. Each committee of the Board oversees reputational risks, conduct risks, and ESG matters within its scope of responsibility.

The JPMorgan Chase Bank, N.A. Board of Directors is responsible for the oversight of management of the bank, which it discharges both acting directly and through the principal standing committees of the Firm's Board of Directors. Risk and control oversight on behalf of JPMorgan Chase Bank N.A. is primarily the responsibility of the Board Risk Committee and the Audit Committee, respectively, and, with respect to compensation and other management-related matters, the Compensation & Management Development Committee.

*The Board Risk Committee* assists the Board in its oversight of management's responsibility to implement a global risk management framework reasonably designed to identify, assess and manage the Firm's risks. The Board Risk Committee's responsibilities include approval of applicable primary risk policies and review of certain associated frameworks, analysis and reporting established by management. Breaches in risk appetite and parameters, issues that may have a material adverse impact on the Firm, including capital and liquidity issues, and other significant risk-related matters are escalated to the Board Risk Committee, as appropriate.

*The Audit Committee* assists the Board in its oversight of management's responsibility to ensure that there is an effective system of controls reasonably designed to safeguard the Firm's assets and income, ensure the integrity of the Firm's financial statements, and maintain compliance with the Firm's ethical standards, policies, plans and procedures, and with laws and regulations. It also assists the Board in its oversight of the qualifications, independence and performance of the Firm's independent registered public accounting firm, and of the performance of the Firm's Internal Audit function.

*The Compensation & Management Development Committee ("CMDC")* assists the Board in its oversight of the Firm's compensation principles and practices. The CMDC reviews and approves the Firm's compensation and qualified benefits programs. The Committee reviews the performance of Operating Committee members against their goals, and approves their compensation awards. In addition, the CEO's award is subject to ratification by the independent directors of the Board. The CMDC also reviews the development of and succession for key executives. As part of the Board's role of reinforcing, demonstrating and communicating the "tone at the top," the CMDC oversees the Firm's culture, including reviewing updates from management regarding significant conduct issues and any related actions with respect to employees, including compensation actions.

*The Public Responsibility Committee* oversees and reviews the Firm's positions and practices on public responsibility matters such as community investment, fair lending, sustainability, consumer practices and other public policy issues that reflect the Firm's values and character and could impact the Firm's reputation among its stakeholders. The Committee also provides guidance on these matters to management and the Board, as appropriate.

*The Corporate Governance & Nominating Committee* exercises general oversight with respect to the governance of the Board of Directors. It reviews the qualifications of and recommends to the Board proposed nominees for election to the Board. The Committee evaluates and recommends to the Board corporate governance practices applicable to the Firm. It also reviews the framework for assessing the Board's performance and self-evaluation.

### Management oversight

The Firm's senior management-level committees that are primarily responsible for key risk-related functions include:

*The Firmwide Risk Committee ("FRC")* is the Firm's highest management-level risk committee. It oversees the risks inherent in the Firm's business and provides a forum for discussion of topics, and issues that are raised or escalated by its members and other committees.

*The Firmwide Control Committee ("FCC")* is an escalation committee for senior management to review and discuss the Firmwide operational risk environment including identified issues, operational risk metrics and significant events that have been escalated.

*Line of Business and Regional Risk Committees* are responsible for overseeing the governance, limits, and controls that have been established within the scope of their respective activities. These committees review the ways in which the particular LOB or the businesses operating in a particular region could be exposed to adverse outcomes, with a focus on identifying, accepting, escalating and/or requiring remediation of matters brought to these committees.

*Line of Business and Corporate Function Control Committees* oversee the operational risk and control environment of their respective business or function, inclusive of Operational Risk, Compliance and Conduct Risks. As part of that mandate, they are responsible for reviewing indicators of elevated or emerging risks and other data that may impact the level of operational risk in a business or function, addressing key operational risk issues, with an emphasis on processes with control concerns and overseeing control remediation.

*The Asset and Liability Committee ("ALCO")* is responsible for overseeing the Firm's asset and liability management ("ALM"), including the activities and frameworks supporting management of the balance sheet, liquidity risk, interest rate risk, and capital risk.

*The Firmwide Valuation Governance Forum ("VGF")* is composed of senior finance and risk executives and is responsible for overseeing the management of risks arising from valuation activities conducted across the Firm.

## Risk governance and oversight functions

The Firm manages its risk through risk governance and oversight functions. The scope of a particular function or business activity may include one or more drivers, types and/or impacts of risk. For example, Country Risk Management oversees country risk which may be a driver of risk or an aggregation of exposures that could give rise to multiple risk types such as credit or market risk.

The following sections discuss the risk governance and oversight functions that have been established to manage the risks inherent in the Firm's business activities.


| Risk governance and oversight functions | Page |
|---|---|
| Strategic Risk | 85 |
| Capital Risk | 86-96 |
| Liquidity Risk | 97-104 |
| Reputation Risk | 105 |
| Consumer Credit Risk | 110-115 |
| Wholesale Credit Risk | 116-126 |
| Investment Portfolio Risk | 130 |
| Market Risk | 131-138 |
| Country Risk | 139-140 |
| Climate Risk | 141 |
| Operational Risk | 142-148 |
| Compliance Risk | 145 |
| Conduct Risk | 146 |
| Legal Risk | 147 |
| Estimations and Model Risk | 148 |

## STRATEGIC RISK MANAGEMENT

Strategic risk is the risk to earnings, capital, liquidity or reputation associated with poorly designed or failed business plans or inadequate responses to changes in the operating environment.

### Management and oversight

The Operating Committee, together with the senior leadership of each LOB and Corporate, is responsible for managing the Firm's most significant strategic risks. IRM engages regularly in strategic business discussions and decision-making, including participation in relevant business reviews and senior management meetings, risk and control committees and other relevant governance forums, and acquisition and new business initiative reviews. The Board of Directors oversees management's strategic decisions, and the Board Risk Committee oversees IRM and the Firm's risk governance framework.

In the process of developing business plans and strategic initiatives, LOB and Corporate senior management identify the associated risks that are incorporated into the Firmwide Risk Identification framework and their impact on risk appetite.

In addition, IRM conducts a qualitative assessment of the LOB and Corporate strategic initiatives to assess their impact on the risk profile of the Firm.

The Firm's strategic planning process, which includes the development of the Firm's strategic plan and other strategic initiatives, is one component of managing the Firm's strategic risk. The strategic plan outlines the Firm's strategic framework and initiatives, and includes components such as budget, risk appetite, capital, earnings and asset-liability management objectives. Guided by the Firm's How We Do Business Principles, the Operating Committee and senior management teams in each LOB and Corporate review and update the strategic plan periodically, including evaluating the strategic framework and performance against prior-year initiatives, assessing the operating environment, refining existing strategies and developing new strategies.

The Firm's strategic plan, together with IRM's assessment, are provided to the Board as part of its review and approval of the Firm's strategic plan, and the plan is also reflected in the Firm's budget.

The Firm's balance sheet strategy, which focuses on risk-adjusted returns, strong capital and robust liquidity, is also a component in the management of strategic risk. Refer to Capital Risk Management on pages 86-96 for further information on capital risk. Refer to Liquidity Risk Management on pages 97-104 for further information on liquidity risk. Refer to Reputation Risk Management on page 105 for further information on reputation risk.

## CAPITAL RISK MANAGEMENT

Capital risk is the risk the Firm has an insufficient level or composition of capital to support the Firm's business activities and associated risks during normal economic environments and under stressed conditions.

A strong capital position is essential to the Firm's business strategy and competitive position. Maintaining a strong balance sheet to manage through economic volatility is considered a strategic imperative of the Firm's Board of Directors, CEO and Operating Committee. The Firm's fortress balance sheet philosophy focuses on risk-adjusted returns, strong capital and robust liquidity. The Firm's capital risk management strategy focuses on maintaining long-term stability to enable the Firm to build and invest in market-leading businesses, including in highly stressed environments. Senior management considers the implications on the Firm's capital prior to making significant decisions that could impact future business activities. In addition to considering the Firm's earnings outlook, senior management evaluates all sources and uses of capital with a view to ensuring the Firm's capital strength.

### Capital risk management

The Firm has a Capital Risk Management function whose primary objective is to provide independent oversight of capital risk across the Firm.

Capital Risk Management's responsibilities include:

- Defining, monitoring and reporting capital risk metrics;
- Establishing, calibrating and monitoring capital risk limits and indicators, including capital risk appetite;
- Developing a process to classify, monitor and report capital limit breaches;
- Performing an assessment of the Firm's capital management activities, including changes made to the Contingency Capital Plan described below; and
- Conducting assessments of the Firm's regulatory capital framework intended to ensure compliance with applicable regulatory capital rules.

### Capital management

Treasury and CIO is responsible for capital management.

The primary objectives of the Firm's capital management are to:

- Maintain sufficient capital in order to continue to build and invest in the Firm's businesses through the cycle and in stressed environments;
- Retain flexibility to take advantage of future investment opportunities;
- Promote the Firm's ability to serve as a source of strength to its subsidiaries;
- Ensure the Firm operates above the minimum regulatory capital ratios as well as maintain "well-capitalized" status for the Firm and its insured depository institution ("IDI") subsidiaries at all times under applicable regulatory capital requirements;
- Meet capital distribution objectives; and
- Maintain sufficient capital resources to operate throughout a resolution period in accordance with the Firm's preferred resolution strategy.

The Firm addresses these objectives through:

- Establishing internal minimum capital requirements and maintaining a strong capital governance framework. The internal minimum capital levels consider the Firm's regulatory capital requirements as well as an internal assessment of capital adequacy, in normal economic cycles and in stress events;
- Retaining flexibility in order to react to a range of potential events; and
- Regular monitoring of the Firm's capital position and following prescribed escalation protocols, both at the Firm and material legal entity levels.

### Governance

Committees responsible for overseeing the Firm's capital management include the Capital Governance Committee, the Firmwide ALCO and LOB and regional ALCOs, and the CIO, Treasury and Corporate ("CTC") Risk Committee. In addition, the Board Risk Committee periodically reviews the Firm's capital risk tolerance. Refer to Firmwide Risk Management on pages 81-84 for additional discussion of the Firmwide ALCO and other risk-related committees.

### Capital planning and stress testing

*Comprehensive Capital Analysis and Review*

The Federal Reserve requires large Bank Holding Companies ("BHCs"), including the Firm, to submit at least annually a capital plan that has been reviewed and approved by the Board of Directors. The Federal Reserve uses Comprehensive Capital Analysis and Review ("CCAR") and other stress testing processes to ensure that large BHCs have sufficient capital during periods of economic and financial stress, and have robust, forward-looking capital assessment and planning processes in place that address each BHC's unique risks to enable it to absorb losses under certain stress scenarios. Through CCAR, the Federal Reserve evaluates each BHC's capital adequacy and internal capital adequacy assessment processes ("ICAAP"), as well as its plans to make capital distributions, such as dividend payments or stock repurchases. The Federal Reserve uses results under the severely adverse scenario from its supervisory stress test to determine each firm's Stress Capital Buffer ("SCB") requirement for the coming year.

On June 27, 2022, the Firm announced that it had completed the Federal Reserve's 2022 CCAR stress test process. On August 4, 2022, the Federal Reserve affirmed the Firm's 2022 SCB requirement of 4.0% (up from 3.2%), and the Firm's Standardized CET1 capital ratio requirement, including regulatory buffers, of 12.0% (up from 11.2%). The 2022 SCB requirement became effective on October 1, 2022, and will remain in effect until September 30, 2023.

Refer to Capital actions on page 94 for information on actions taken by the Firm's Board of Directors.

*Internal Capital Adequacy Assessment Process*

Annually, the Firm prepares the ICAAP, which informs the Board of Directors of the ongoing assessment of the Firm's processes for managing the sources and uses of capital as well as compliance with supervisory expectations for capital planning and capital adequacy. The Firm's ICAAP integrates stress testing protocols with capital planning. The Firm's Audit Committee is responsible for reviewing and approving the capital planning framework.

Stress testing assesses the potential impact of alternative economic and business scenarios on the Firm's earnings and capital. Economic scenarios, and the parameters underlying those scenarios, are defined centrally and applied uniformly across the businesses. These scenarios are articulated in terms of macroeconomic factors, which are key drivers of business results; global market shocks, which generate short-term but severe trading losses; and idiosyncratic operational risk events. The scenarios are intended to capture and stress key vulnerabilities and idiosyncratic risks facing the Firm. In addition to CCAR and other periodic stress testing, management also considers tailored stress scenarios and sensitivity analyses, as necessary.

## Contingency Capital Plan

The Firm's Contingency Capital Plan establishes the capital management framework for the Firm and specifies the principles underlying the Firm's approach towards capital management in normal economic conditions and in stressed environments. The Contingency Capital Plan defines how the Firm calibrates its targeted capital levels and meets minimum capital requirements, monitors the ongoing appropriateness of planned capital distributions, and sets out the capital contingency actions that are expected to be taken or considered at various levels of capital depletion during a period of stress.

## Regulatory capital

The Federal Reserve establishes capital requirements, including well-capitalized standards, for the consolidated financial holding company. The OCC establishes similar minimum capital requirements and standards for the Firm's IDI subsidiaries, including JPMorgan Chase Bank, N.A. The U.S. capital requirements generally follow the Capital Accord of the Basel Committee, as amended from time to time.

*Basel III Overview*

The capital rules under Basel III establish minimum capital ratios and overall capital adequacy standards for large and internationally active U.S. BHCs and banks, including the Firm and its IDI subsidiaries, including JPMorgan Chase Bank, N.A. The minimum amount of regulatory capital that must be held by BHCs and banks is determined by calculating RWA, which are on-balance sheet assets and off-balance sheet exposures, weighted according to risk. Two comprehensive approaches are prescribed for calculating RWA: a standardized approach ("Basel III Standardized"), and an advanced approach ("Basel III Advanced"). For each of the risk-based capital ratios, the capital adequacy of the Firm is evaluated against the lower of the Standardized or Advanced approaches compared to their respective regulatory capital ratio requirements. The Firm's Basel III Standardized risk-based ratios are currently more binding than the Basel III Advanced risk-based ratios.

Basel III establishes capital requirements for calculating credit risk RWA and market risk RWA, and in the case of Basel III Advanced, operational risk RWA. Key differences in the calculation of credit risk RWA between the Standardized and Advanced approaches are that for Basel III Advanced, credit risk RWA is based on risk-sensitive approaches which largely rely on the use of internal credit models and parameters, whereas for Basel III Standardized, credit risk RWA is generally based on supervisory risk-weightings which vary primarily by counterparty type and asset class. Market risk RWA is calculated on a generally consistent basis between Basel III Standardized and Basel III Advanced. In addition to the RWA calculated under these approaches, the Firm may supplement such amounts to incorporate management judgment and feedback from its regulators.

Basel III also includes a requirement for Advanced Approaches banking organizations, including the Firm, to calculate the SLR. Refer to SLR on page 93 for additional information.

*Key Regulatory Developments*

*CECL regulatory capital transition.*

Until December 31, 2021, the Firm's capital reflected a two year delay of the effects of CECL provided by the Federal Reserve Board in response to the COVID-19 pandemic.

Beginning January 1, 2022, the $2.9 billion CECL capital benefit is being phased out at 25% per year over a three-year period. As of December 31, 2022, the Firm's CET1 capital reflected the remaining $2.2 billion benefit associated with the CECL capital transition provisions.

Additionally, effective January 1, 2022, the Firm phased out 25% of the other CECL capital transition provisions which impacted Tier 2 capital, adjusted average assets, total leverage exposure and RWA, as applicable.

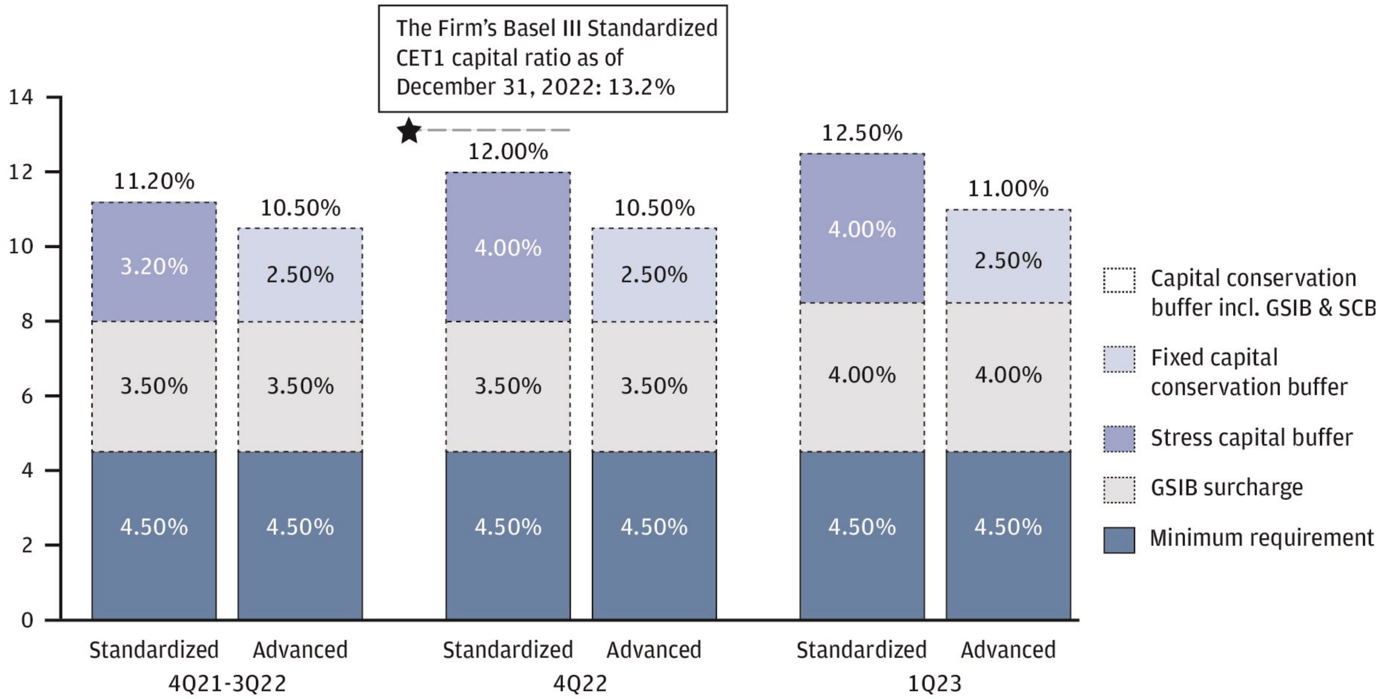
Refer to Note 1 for further information on the CECL accounting guidance.

*Standardized Approach for Counterparty Credit Risk*. On January 1, 2022, the Firm adopted “Standardized Approach for Counterparty Credit Risk” (“SA-CCR”), which replaced the Current Exposure Method used to measure derivatives counterparty exposure under the Standardized and Advanced approach RWA where internal models are not used, as well as leverage exposure used to calculate the SLR in the regulatory capital framework. The rule issued by the U.S. banking regulators in November 2019 applies to Basel III Advanced Approaches banking organizations, such as the Firm and JPMorgan Chase Bank, N.A.

The adoption of SA-CCR on January 1, 2022 increased the Firm’s Standardized RWA by approximately $40 billion based on the Firm's derivatives exposure as of December 31, 2021, which resulted in a decrease of approximately 30 bps to the Firm's CET1 capital ratio and a modest decrease in its total leverage exposure. In addition, the adoption of SA-CCR increased the Firm's Advanced RWA, but to a lesser extent than Standardized RWA.

*Risk-based Capital Regulatory Requirements*

The following chart presents the Firm's Basel III CET1 capital ratio requirements under the Basel III rules currently in effect.




All banking institutions are currently required to have a minimum CET1 capital ratio of 4.5% of risk-weighted assets.

Certain banking organizations, including the Firm, are required to hold additional levels of capital to serve as a "capital conservation buffer". The capital conservation buffer incorporates a GSIB surcharge, a discretionary countercyclical capital buffer and a fixed capital conservation buffer of 2.5% for Advanced regulatory capital requirements and a variable SCB requirement, floored at 2.5%, for Standardized regulatory capital requirements.

Under the Federal Reserve's GSIB rule, the Firm is required to assess its GSIB surcharge on an annual basis under two separately prescribed methods based on data for the previous fiscal year-end, and is subject to the higher of the two. "Method 1" reflects the GSIB surcharge as prescribed by the Basel Committee's assessment methodology, and is calculated by the Financial Stability Board ("FSB") across five criteria: size, cross-jurisdictional activity, interconnectedness, complexity and substitutability. "Method 2", calculated by the Firm, modifies the Method 1 requirements to include a measure of short-term wholesale funding in place of substitutability, and introduces a GSIB score "multiplication factor".

The following table presents the Firm's effective GSIB surcharge for the years ended December 31, 2023, 2022 and 2021. For 2023, the Firm's effective GSIB surcharge under Method 1 and Method 2 has increased to 2.5% and 4.0%, respectively.

| | 2023 | 2022 | 2021 |
|---|---|---|---|
| Method 1 | 2.5 % | 2.0 % | 2.0 % |
| Method 2 | 4.0 % | 3.5 % | 3.5 % |

On November 21, 2022, the FSB released its annual GSIB list based upon data as of December 31, 2021, which affirmed the Firm's Method 1 GSIB surcharge of 2.5% (up from 2.0%), effective January 1, 2023.

The Firm's Method 2 surcharge calculated using data as of December 31, 2021 is 4.5%, which will be effective January 1, 2024. The Firm's estimated Method 2 surcharge calculated using data as of December 31, 2022 is 4.5%. Accordingly, based on the GSIB rule currently in effect, the Firm's effective GSIB surcharge is expected to increase to 4.5% on January 1, 2024.

The U.S. federal regulatory capital standards include a framework for setting a discretionary countercyclical capital buffer taking into account the macro financial environment in which large, internationally active banks function. As of December 31, 2022, the U.S. countercyclical capital buffer remained at 0%. The Federal Reserve will continue to review the buffer at least annually. The buffer can be increased if the Federal Reserve, FDIC and OCC determine that systemic risks are meaningfully above normal and can be calibrated up to an additional 2.5% of RWA subject to a 12-month implementation period.

Failure to maintain regulatory capital equal to or in excess of the risk-based regulatory capital minimum plus the capital conservation buffer (inclusive of the GSIB surcharge) and any countercyclical buffer will result in limitations to the amount of capital that the Firm may distribute, such as through dividends and common share repurchases, as well as certain executive discretionary bonus payments.

*Risk-based Capital Targets*

The Firm's current target for its Basel III Standardized CET1 capital ratio is 13.0% for the first quarter of 2023, increasing to 13.5% for the first quarter of 2024 with consideration for an increase in the GSIB surcharge in 2024, and assuming no change in the Stress Capital Buffer. The Firm's quarterly capital ratios may vary from these targets dependent on market conditions. These targets are based on the Basel III capital rules currently in effect.

*Total Loss-Absorbing Capacity*

The Federal Reserve's TLAC rule requires the U.S. GSIB top-tier holding companies, including the Firm, to maintain minimum levels of external TLAC and eligible long-term debt ("eligible LTD"). Refer to TLAC on page 95 for additional information.

*Leverage-based Capital Regulatory Requirements*

*Supplementary leverage ratio*

Banking organizations subject to the Basel III Advanced approach are currently required to have a minimum SLR of 3.0%. Certain banking organizations, including the Firm, are also required to hold an additional 2.0% leverage buffer.

The SLR is defined as Tier 1 capital under Basel III divided by the Firm's total leverage exposure. Total leverage exposure is calculated by taking the Firm's total average on-balance sheet assets, less amounts permitted to be deducted for Tier 1 capital, and adding certain off-balance sheet exposures, such as undrawn commitments and derivatives potential future exposure.

Failure to maintain an SLR equal to or greater than the regulatory requirement will result in limitations on the amount of capital that the Firm may distribute such as through dividends and common share repurchases, as well as on certain executive discretionary bonus payments.

*Other regulatory capital*

In addition to meeting the capital ratio requirements of Basel III, the Firm and its IDI subsidiaries must also maintain minimum capital and leverage ratios in order to be "well-capitalized" under the regulations issued by the Federal Reserve and the Prompt Corrective Action ("PCA") requirements of the FDIC Improvement Act ("FDICIA"), respectively. Refer to Note 27 for additional information.

Additional information regarding the Firm's capital ratios, as well as the U.S. federal regulatory capital standards to which the Firm is subject, is presented in Note 27. Refer to the Firm's Pillar 3 Regulatory Capital Disclosures reports, which are available on the Firm's website, for further information on the Firm's Basel III measures.

The following tables present the Firm's risk-based capital metrics under both the Basel III Standardized and Advanced approaches and leverage-based capital metrics. Refer to Note 27 for JPMorgan Chase Bank, N.A.'s risk-based and leverage-based capital metrics.

| | Standardized | | | Advanced | | |
|---|---|---|---|---|---|---|
| (in millions, except ratios) | **December 31, 2022** | December 31, 2021 | Capital ratio requirements[b] | **December 31, 2022** | December 31, 2021 | Capital ratio requirements[b] |
| **Risk-based capital metrics:**[a] | | | | | | |
| CET1 capital | **$ 218,934** | $ 213,942 | | **$ 218,934** | $ 213,942 | |
| Tier 1 capital | **245,631** | 246,162 | | **245,631** | 246,162 | |
| Total capital | **277,769** | 274,900 | | **264,583** | 265,796 | |
| Risk-weighted assets | **1,653,538** | 1,638,900 | | **1,609,773** | 1,547,920 | |
| CET1 capital ratio | **13.2 %** | 13.1 % | **12.0 %** | **13.6 %** | 13.8 % | **10.5 %** |
| Tier 1 capital ratio | **14.9** | 15.0 | **13.5** | **15.3** | 15.9 | **12.0** |
| Total capital ratio | **16.8** | 16.8 | **15.5** | **16.4** | 17.2 | **14.0** |

(a) The capital metrics reflect the CECL capital transition provisions.
(b) Represents minimum requirements and regulatory buffers applicable to the Firm for the period ended December 31, 2022. For the period ended December 31, 2021, the Basel III Standardized CET1, Tier 1, and Total capital ratio requirements applicable to the Firm were 11.2%, 12.7%, and 14.7%, respectively. Refer to Note 27 for additional information.

| Three months ended (in millions, except ratios) | **December 31, 2022** | December 31, 2021 | Capital ratio requirements[c] |
|---|---|---|---|
| **Leverage-based capital metrics:**[a] | | | |
| Adjusted average assets[b] | **$ 3,703,873** | $ 3,782,035 | |
| Tier 1 leverage ratio | **6.6 %** | 6.5 % | **4.0 %** |
| Total leverage exposure | **$ 4,367,092** | $ 4,571,789 | |
| SLR | **5.6 %** | 5.4 % | **5.0 %** |

(a) The capital metrics reflect the CECL capital transition provisions.
(b) Adjusted average assets, for purposes of calculating the leverage ratios, includes quarterly average assets adjusted for on-balance sheet assets that are subject to deduction from Tier 1 capital, predominantly goodwill, inclusive of estimated equity method goodwill, and other intangible assets.
(c) Represents minimum requirements and regulatory buffers applicable to the Firm. Refer to Note 27 for additional information.

*Capital components*

The following table presents reconciliations of total stockholders' equity to Basel III CET1 capital, Tier 1 capital and Total capital as of December 31, 2022 and 2021.

| (in millions) | December 31, 2022 | December 31, 2021 |
|---|---|---|
| **Total stockholders' equity** | **$ 292,332** | $ 294,127 |
| Less: Preferred stock | 27,404 | 34,838 |
| **Common stockholders' equity** | **264,928** | 259,289 |
| Add: | | |
| Certain deferred tax liabilities[a] | 2,510 | 2,499 |
| Other CET1 capital adjustments[b] | 6,221 | 3,351 |
| Less: | | |
| Goodwill | 53,501 [f] | 50,315 |
| Other intangible assets | 1,224 | 882 |
| **Standardized/Advanced CET1 capital** | **218,934** | 213,942 |
| Add: Preferred stock | 27,404 | 34,838 |
| Less: Other Tier 1 adjustments[c] | 707 | 2,618 |
| **Standardized/Advanced Tier 1 capital** | **$ 245,631** | $ 246,162 |
| Long-term debt and other instruments qualifying as Tier 2 capital | $ 13,569 | $ 14,106 |
| Qualifying allowance for credit losses[d] | 19,353 | 15,012 |
| Other | (784) | (380) |
| **Standardized Tier 2 capital** | **$ 32,138** | $ 28,738 |
| **Standardized Total capital** | **$ 277,769** | $ 274,900 |
| Adjustment in qualifying allowance for credit losses for Advanced Tier 2 capital[e] | (13,186) | (9,104) |
| **Advanced Tier 2 capital** | **$ 18,952** | $ 19,634 |
| **Advanced Total capital** | **$ 264,583** | $ 265,796 |

(a) Represents deferred tax liabilities related to tax-deductible goodwill and to identifiable intangibles created in nontaxable transactions, which are netted against goodwill and other intangibles when calculating CET1 capital.
(b) As of December 31, 2022 and 2021, includes a net benefit associated with cash flow hedges and debit valuation adjustments ("DVA") related to structured notes recorded in AOCI of $5.2 billion and $1.4 billion and the benefit from the CECL capital transition provisions of $2.2 billion and $2.9 billion, respectively.
(c) As of December 31, 2021, Other Tier 1 adjustments included $2.0 billion of Series Z preferred stock called for redemption on December 31, 2021 and subsequently redeemed on February 1, 2022.
(d) Represents the allowance for credit losses eligible for inclusion in Tier 2 capital up to 1.25% of credit risk RWA, including the impact of the CECL capital transition provision with any excess deducted from RWA.
(e) Represents an adjustment to qualifying allowance for credit losses for the excess of eligible credit reserves over expected credit losses up to 0.6% of credit risk RWA, including the impact of the CECL capital transition provision with any excess deducted from RWA.
(f) Goodwill deducted from capital includes goodwill associated with equity method investments in nonconsolidated financial institutions based on regulatory requirements. Refer to Principal investment risk on page 130 for additional information.

*Capital rollforward*

The following table presents the changes in Basel III CET1 capital, Tier 1 capital and Tier 2 capital for the year ended December 31, 2022.

| Year Ended December 31, (in millions) | 2022 |
|---|---|
| Standardized/Advanced CET1 capital at December 31, 2021 | $ 213,942 |
| Net income applicable to common equity | 36,081 |
| Dividends declared on common stock | (11,893) |
| Net purchase of treasury stock | (1,921) |
| Changes in additional paid-in capital | 629 |
| Changes related to AOCI applicable to capital: | |
| Unrealized gains/(losses) on investment securities | (11,764) |
| Translation adjustments, net of hedges[a] | (611) |
| Fair value hedges | 98 |
| Defined benefit pension and other postretirement employee benefit ("OPEB") plans | (1,241) |
| Changes related to other CET1 capital adjustments[b] | (4,386) |
| Change in Standardized/Advanced CET1 capital | 4,992 |
| **Standardized/Advanced CET1 capital at December 31, 2022** | **$ 218,934** |
| | |
| Standardized/Advanced Tier 1 capital at December 31, 2021 | $ 246,162 |
| Change in CET1 capital[b] | 4,992 |
| Redemptions of noncumulative perpetual preferred stock | (5,434) |
| Other | (89) |
| Change in Standardized/Advanced Tier 1 capital | (531) |
| **Standardized/Advanced Tier 1 capital at December 31, 2022** | **$ 245,631** |
| | |
| Standardized Tier 2 capital at December 31, 2021 | $ 28,738 |
| Change in long-term debt and other instruments qualifying as Tier 2 | (537) |
| Change in qualifying allowance for credit losses[b] | 4,341 |
| Other | (404) |
| Change in Standardized Tier 2 capital | 3,400 |
| **Standardized Tier 2 capital at December 31, 2022** | **$ 32,138** |
| **Standardized Total capital at December 31, 2022** | **$ 277,769** |
| | |
| Advanced Tier 2 capital at December 31, 2021 | $ 19,634 |
| Change in long-term debt and other instruments qualifying as Tier 2 | (537) |
| Change in qualifying allowance for credit losses[b] | 259 |
| Other | (404) |
| Change in Advanced Tier 2 capital | (682) |
| **Advanced Tier 2 capital at December 31, 2022** | **$ 18,952** |
| **Advanced Total capital at December 31, 2022** | **$ 264,583** |

(a) Includes foreign currency translation adjustments and the impact of related derivatives.
(b) Includes the impact of the CECL capital transition provisions.

*RWA rollforward*

The following table presents changes in the components of RWA under Basel III Standardized and Advanced approaches for the year ended December 31, 2022. The amounts in the rollforward categories are estimates, based on the predominant driver of the change.

| | Standardized | | | Advanced | | | |
|---|---|---|---|---|---|---|---|
| Year ended December 31, 2022 (in millions) | Credit risk RWA[(c)] | Market risk RWA | **Total RWA** | Credit risk RWA[(c)] | Market risk RWA | Operational risk RWA | **Total RWA** |
| December 31, 2021 | $ 1,543,452 | $ 95,448 | **$ 1,638,900** | $ 1,047,042 | $ 95,506 | $ 405,372 | **$ 1,547,920** |
| Model & data changes[(a)] | (7,313) | (3,808) | **(11,121)** | 966 | (3,808) | – | **(2,842)** |
| Movement in portfolio levels[(b)] | 32,397 | (6,638) | **25,759** | 30,068 | (6,266) | 40,893 | **64,695** |
| Changes in RWA | 25,084 | (10,446) | **14,638** | 31,034 | (10,074) | 40,893 | **61,853** |
| **December 31, 2022** | **$ 1,568,536** | **$ 85,002** | **$ 1,653,538** | **$ 1,078,076** | **$ 85,432** | **$ 446,265** | **$ 1,609,773** |

(a) Model & data changes refer to material movements in levels of RWA as a result of revised methodologies and/or treatment per regulatory guidance (exclusive of rule changes).

(b) Movement in portfolio levels (inclusive of rule changes) refers to: for Credit risk RWA, impact of SA-CCR adoption on January 1, 2022, changes in book size including position rolloffs in legacy portfolios in Home Lending, changes in composition and credit quality, market movements, and deductions for excess eligible credit reserves not eligible for inclusion in Tier 2 capital; for Market risk RWA, changes in position, market movements, and changes in the Firm's regulatory multiplier from Regulatory VaR backtesting exceptions; and for Operational risk RWA, updates to cumulative losses and macroeconomic model inputs.

(c) As of December 31, 2022 and 2021, the Basel III Standardized Credit risk RWA included wholesale and retail off balance-sheet RWA of $210.1 billion and $218.5 billion, respectively; and the Basel III Advanced Credit risk RWA included wholesale and retail off balance-sheet RWA of $180.8 billion and $188.5 billion, respectively.

Refer to the Firm's Pillar 3 Regulatory Capital Disclosures reports, which are available on the Firm's website, for further information on Credit risk RWA, Market risk RWA and Operational risk RWA.

*Supplementary leverage ratio*

The following table presents the components of the Firm's SLR.

| Three months ended (in millions, except ratio) | **December 31, 2022** | December 31, 2021 |
|---|---|---|
| **Tier 1 capital** | **$ 245,631** | $ 246,162 |
| Total average assets | 3,755,271 | 3,831,655 |
| Less: Regulatory capital adjustments[(a)] | 51,398 | 49,620 |
| Total adjusted average assets[(b)] | 3,703,873 | 3,782,035 |
| Add: Off-balance sheet exposures[(c)] | 663,219 | 789,754 |
| **Total leverage exposure** | **$ 4,367,092** | $ 4,571,789 |
| **SLR** | **5.6 %** | 5.4 % |

(a) For purposes of calculating the SLR, includes quarterly average assets adjusted for on-balance sheet assets that are subject to deduction from Tier 1 capital, predominantly goodwill, inclusive of estimated equity method goodwill, other intangible assets and adjustments for the CECL capital transition provisions.

(b) Adjusted average assets used for the calculation of Tier 1 leverage ratio.

(c) Off-balance sheet exposures are calculated as the average of the three month-end spot balances on applicable regulatory exposures during the reporting quarter. Effective January 1, 2022, includes the impact of the SA-CCR adoption. Refer to the Firm's Pillar 3 Regulatory Capital Disclosures reports for additional information.

## Line of business equity

Each business segment is allocated capital by taking into consideration a variety of factors including capital levels of similarly rated peers and applicable regulatory capital requirements. ROE is measured and internal targets for expected returns are established as key measures of a business segment's performance.

The Firm's allocation methodology incorporates Basel III Standardized RWA, Basel III Advanced RWA, the GSIB surcharge, and a simulation of capital in a severe stress environment. At least annually, the assumptions, judgments and methodologies used to allocate capital are reassessed and, as a result, the capital allocated to the LOBs may change. As of January 1, 2023, the Firm has changed its line of business capital allocations primarily as a result of updates to the Firm's capital requirements and changes in RWA for each LOB.

The following table presents the capital allocated to each business segment.

### Line of business equity (Allocated capital)

| | | December 31, | |
|---|---|---|---|
| (in billions) | **January 1, 2023** | 2022 | 2021 |
| Consumer & Community Banking | **$ 52.0** | $ 50.0 | $ 50.0 |
| Corporate & Investment Bank | **108.0** | 103.0 | 83.0 |
| Commercial Banking | **28.5** | 25.0 | 24.0 |
| Asset & Wealth Management | **16.0** | 17.0 | 14.0 |
| Corporate | **60.4** | 69.9 | 88.3 |
| **Total common stockholders' equity** | **$ 264.9** | $ 264.9 | $ 259.3 |

## Capital actions

*Common stock dividends*

The Firm's common stock dividends are planned as part of the Capital Management governance framework in line with the Firm's capital management objectives.

The Firm's quarterly common stock dividend is currently $1.00 per share. The Firm's dividends are subject to approval by the Board of Directors on a quarterly basis. Refer to Note 21 and Note 26 for information regarding dividend restrictions.

The following table shows the common dividend payout ratio based on net income applicable to common equity.

| Year ended December 31, | **2022** | 2021 | 2020 |
|---|---|---|---|
| Common dividend payout ratio | **33 %** | 25 % | 40 % |

*Common stock*

Effective May 1, 2022, the Firm is authorized to purchase up to $30 billion of common shares under its common share repurchase program, which superseded the previously approved repurchase program under which the Firm was authorized to purchase up to $30 billion of common shares.

On July 14, 2022, the Firm announced that it had temporarily suspended share repurchases in anticipation of the increase in the Firm's regulatory capital requirements. The Firm had set a target for achieving CET1 capital of 13.0% by the first quarter of 2023. The Firm met and exceeded that target in the fourth quarter of 2022, and resumed repurchasing shares under its common share repurchase program in the first quarter of 2023.

The following table sets forth the Firm's repurchases of common stock for the years ended December 31, 2022, 2021 and 2020.

| Year ended December 31, (in millions) | **2022** | 2021[(a)] | 2020[(b)] |
|---|---|---|---|
| Total number of shares of common stock repurchased | **23.1** | 119.7 | 50.0 |
| Aggregate purchase price of common stock repurchases | **$ 3,122** | $ 18,448 | $ 6,397 |

(a) As directed by the Federal Reserve, total net repurchases and common stock dividends in the first and second quarter of 2021 were restricted and could not exceed the average of the Firm's net income for the four preceding calendar quarters. Effective July 1, 2021, the Firm became subject to the normal capital distribution restrictions provided under the regulatory capital framework.

(b) On March 15, 2020, in response to the economic disruptions caused by the COVID-19 pandemic, the Firm temporarily suspended repurchases of its common stock. Subsequently, the Federal Reserve directed all large banks, including the Firm, to discontinue net share repurchases through the end of 2020.

The Board of Directors' authorization to repurchase common shares is utilized at management's discretion, and the timing of purchases and the exact amount of common shares that may be repurchased is subject to various factors, including market conditions; legal and regulatory considerations affecting the amount and timing of repurchase activity; the Firm's capital position (taking into account goodwill and intangibles); internal capital generation; and alternative investment opportunities. The $30 billion common share repurchase program approved by the Board does not establish specific price targets or timetables. The repurchase program may be suspended by management at any time; and may be executed through open market purchases or privately negotiated transactions, or utilizing Rule 10b5-1 plans, which are written trading plans that the Firm may enter into from time to time under Rule 10b5-1 of the Securities Exchange Act of 1934 and which allow the Firm to repurchase its common shares during periods when it may otherwise not be repurchasing common shares – for example, during internal trading blackout periods.

Refer to Part II, Item 5: Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities on page 34 of the 2022 Form 10-K for additional information regarding repurchases of the Firm's equity securities.

Refer to capital planning and stress testing on pages 86-87 for additional information.

*Preferred stock*

Preferred stock dividends declared were $1.6 billion for each of the years ended December 31, 2022, 2021 and 2020.

During the year ended December 31, 2022, the Firm redeemed several series of non-cumulative preferred stock.

Refer to Note 21 for additional information on the Firm's preferred stock, including the issuance and redemption of preferred stock.

*Subordinated Debt*

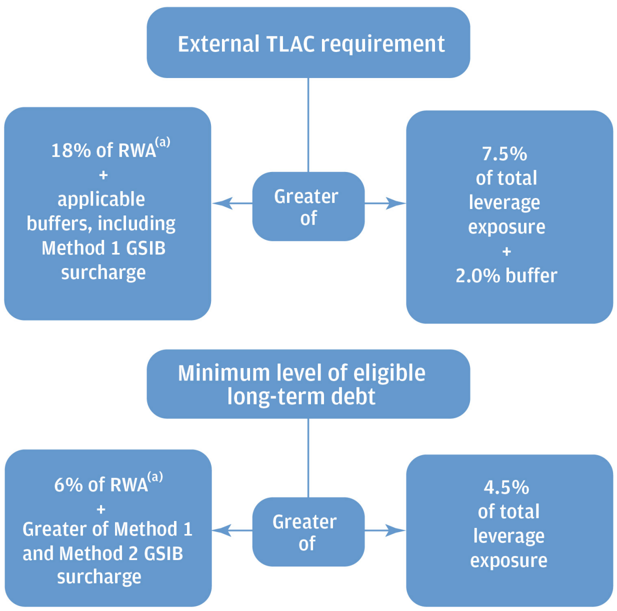
Refer to Long-term funding and issuance on page 103 and Note 20 for additional information on the Firm's subordinated debt.

## Other capital requirements

*Total Loss-Absorbing Capacity*

The Federal Reserve's TLAC rule requires the U.S. GSIB top-tier holding companies, including the Firm, to maintain minimum levels of external TLAC and eligible long-term debt.

The external TLAC requirements and the minimum level of eligible long-term debt requirements are shown below:




(a) RWA is the greater of Standardized and Advanced compared to their respective regulatory capital ratio requirements.

Failure to maintain TLAC equal to or in excess of the regulatory minimum plus applicable buffers will result in limitations on the amount of capital that the Firm may distribute, such as through dividends and common share repurchases, as well as on certain executive discretionary bonus payments.

The following table presents the eligible external TLAC and eligible LTD amounts, as well as a representation of these amounts as a percentage of the Firm's total RWA and total leverage exposure applying the impact of the CECL capital transition provisions as of December 31, 2022 and 2021.

| | **December 31, 2022** | | December 31, 2021 | |
|---|---|---|---|---|
| (in billions, except ratio) | **External TLAC** | **LTD** | External TLAC | LTD |
| Total eligible amount | **$ 486.0** | **$ 228.5** | $ 464.6 | $ 210.4 |
| % of RWA | **29.4 %** | **13.8 %** | 28.4 % | 12.8 % |
| Regulatory requirements | **22.5** | **9.5** | 22.5 | 9.5 |
| Surplus/(shortfall) | **$ 114.0** | **$ 71.4** | $ 95.9 | $ 54.7 |
| % of total leverage exposure | **11.1 %** | **5.2 %** | 10.2 % | 4.6 % |
| Regulatory requirements | **9.5** | **4.5** | 9.5 | 4.5 |
| Surplus/(shortfall) | **$ 71.2** | **$ 32.0** | $ 30.3 | $ 4.6 |

As of January 1, 2023, the regulatory requirement for TLAC to RWA and LTD to RWA ratios has increased by 50 bps to 23.0% and 10.0%, respectively, due to the increase in the Firm's GSIB requirements. Refer to Risk-based Capital Regulatory Requirements on pages 89-90 for further information on the GSIB surcharge.

Refer to Liquidity Risk Management on pages 97-104 for further information on long-term debt issued by the Parent Company.

Refer to Part I, Item 1A: Risk Factors on pages 9-32 of the 2022 Form 10-K for information on the financial consequences to holders of the Firm's debt and equity securities in a resolution scenario.

### U.S. broker-dealer regulatory capital

*J.P. Morgan Securities*

JPMorgan Chase's principal U.S. broker-dealer subsidiary is J.P. Morgan Securities. J.P. Morgan Securities is subject to the regulatory capital requirements of Rule 15c3-1 under the Securities Exchange Act of 1934 (the "Net Capital Rule"). J.P. Morgan Securities is also registered as a futures commission merchant and is subject to regulatory capital requirements, including those imposed by the SEC, the Commodity Futures Trading Commission ("CFTC"), the Financial Industry Regulatory Authority ("FINRA") and the National Futures Association ("NFA").

J.P. Morgan Securities has elected to compute its minimum net capital requirements in accordance with the "Alternative Net Capital Requirements" of the Net Capital Rule.

The following table presents J.P. Morgan Securities' net capital:

| December 31, 2022 (in millions) | Actual | Minimum |
|---|---|---|
| Net Capital | $ 24,989 | $ 5,628 |

J.P. Morgan Securities is registered with the SEC as a security-based swap dealer and with the CFTC as a swap dealer. As a result of additional SEC and CFTC capital and financial reporting requirements for security-based swap dealers and swap dealers, J.P. Morgan Securities is subject to alternative minimum net capital requirements and required to hold "tentative net capital" in excess of $5.0 billion. J.P. Morgan Securities is also required to notify the SEC and CFTC in the event that its tentative net capital is less than $6.0 billion. Tentative net capital is net capital before deducting market and credit risk charges as defined by the Net Capital Rule. As of December 31, 2022, J.P. Morgan Securities maintained tentative net capital in excess of the minimum and notification requirements.

### Non-U.S. subsidiary regulatory capital

*J.P. Morgan Securities plc*

J.P. Morgan Securities plc is a wholly-owned subsidiary of JPMorgan Chase Bank, N.A. and has authority to engage in banking, investment banking and broker-dealer activities. J.P. Morgan Securities plc is jointly regulated in the U.K. by the Prudential Regulation Authority ("PRA") and the Financial Conduct Authority ("FCA"). J.P. Morgan Securities plc is subject to the European Union ("EU") Capital Requirements Regulation ("CRR"), as adopted in the U.K., and the PRA capital rules, each of which have implemented Basel III and thereby subject J.P. Morgan Securities plc to its requirements.

The Bank of England requires that U.K. banks, including U.K. regulated subsidiaries of overseas groups, maintain minimum requirements for own funds and eligible liabilities ("MREL"). As of December 31, 2022, J.P. Morgan Securities plc was compliant with its MREL requirements, which became fully phased-in on January 1, 2022.

Effective January 1, 2023, J.P. Morgan Securities plc was required to meet the minimum leverage capital requirement established by the PRA of 3.25%, plus regulatory buffers. As of December 31, 2022, J.P. Morgan Securities plc was compliant with its leverage requirements.

The following table presents J.P. Morgan Securities plc's capital metrics:

| December 31, 2022 (in millions, except ratios) | Actual | Regulatory Minimum ratios[(a)] |
|---|---|---|
| Total capital | $ 54,218 | |
| CET1 capital ratio | 22.4 % | 4.5 % |
| Tier 1 capital ratio | 25.4 % | 6.0 % |
| Total capital ratio | 32.6 % | 8.0 % |

(a) Represents minimum Pillar 1 requirements specified by the PRA. J.P. Morgan Securities plc's capital ratios as of December 31, 2022 exceeded the minimum requirements, including the additional capital requirements specified by the PRA.

*J.P. Morgan SE*

JPMSE is a wholly-owned subsidiary of JPMorgan Chase Bank, N.A. and has authority to engage in banking, investment banking and markets activities. JPMSE is regulated by the European Central Bank as well as the local regulators in each of the countries in which it operates, and it is subject to EU capital requirements under Basel III.

JPMSE is required by the EU Single Resolution Board to maintain MREL. As of December 31, 2022, JPMSE was compliant with its MREL requirements.

The following table presents JPMSE's capital metrics:

| December 31, 2022 (in millions, except ratios) | Actual | Regulatory Minimum ratios[(a)] |
|---|---|---|
| Total capital | $ 38,879 | |
| CET1 capital ratio | 19.7 % | 4.5 % |
| Tier 1 capital ratio | 19.7 % | 6.0 % |
| Total capital ratio | 33.8 % | 8.0 % |
| Tier 1 leverage ratio | 6.0 % | 3.0 % |

(a) Represents minimum Pillar 1 requirements specified by the EU CRR. J.P. Morgan SE's capital and leverage ratios as of December 31, 2022 exceeded the minimum requirements, including the additional capital requirements specified by the European Banking Authority.

Liquidity risk is the risk that the Firm will be unable to meet its contractual and contingent financial obligations as they arise or that it does not have the appropriate amount, composition and tenor of funding and liquidity to support its assets and liabilities.

### Liquidity risk management

The Firm has a Liquidity Risk Management ("LRM") function whose primary objective is to provide independent oversight of liquidity risk across the Firm. Liquidity Risk Management's responsibilities include:

- Defining, monitoring and reporting liquidity risk metrics;
- Independently establishing and monitoring limits and indicators, including liquidity risk appetite;
- Developing a process to classify, monitor and report limit breaches;
- Performing an independent review of liquidity risk management processes to evaluate their adequacy and effectiveness based on LRM's Independent Review Framework;
- Monitoring and reporting internal Firmwide and legal entity liquidity stress tests, regulatory defined metrics, as well as liquidity positions, balance sheet variances and funding activities; and
- Approving or escalating for review new or updated liquidity stress assumptions.

### Liquidity management

Treasury and CIO is responsible for liquidity management.

The primary objectives of the Firm's liquidity management are to:

- Ensure that the Firm's core businesses and material legal entities are able to operate in support of client needs and meet contractual and contingent financial obligations through normal economic cycles as well as during stress events, and
- Manage an optimal funding mix and availability of liquidity sources.

The Firm addresses these objectives through:

- Analyzing and understanding the liquidity characteristics of the assets and liabilities of the Firm, LOBs and legal entities, taking into account legal, regulatory, and operational restrictions;
- Developing internal liquidity stress testing assumptions;
- Defining and monitoring Firmwide and legal entity-specific liquidity strategies, policies, reporting and contingency funding plans;
- Managing liquidity within the Firm's approved liquidity risk appetite tolerances and limits;
- Managing compliance with regulatory requirements related to funding and liquidity risk; and
- Setting FTP in accordance with underlying liquidity characteristics of balance sheet assets and liabilities as well as certain off-balance sheet items.

As part of the Firm's overall liquidity management strategy, the Firm manages liquidity and funding using a centralized, global approach designed to:

- Optimize liquidity sources and uses;
- Monitor exposures;
- Identify constraints on the transfer of liquidity between the Firm's legal entities; and
- Maintain the appropriate amount of surplus liquidity at a Firmwide and legal entity level, where relevant.

### Governance

Committees responsible for liquidity governance include the Firmwide ALCO as well as LOB and regional ALCOs, the Treasurer Committee, and the CTC Risk Committee. In addition, the Board Risk Committee reviews and recommends to the Board of Directors, for formal approval, the Firm's liquidity risk tolerances, liquidity strategy, and liquidity policy. Refer to Firmwide Risk Management on pages 81-84 for further discussion of ALCO and other risk-related committees.

### Internal stress testing

Liquidity stress tests are intended to ensure that the Firm has sufficient liquidity under a variety of adverse scenarios, including scenarios analyzed as part of the Firm's resolution and recovery planning. Stress scenarios are produced for JPMorgan Chase & Co. ("Parent Company") and the Firm's material legal entities on a regular basis, and other stress tests are performed in response to specific market events or concerns. Liquidity stress tests assume all of the Firm's contractual financial obligations are met and take into consideration:

- Varying levels of access to unsecured and secured funding markets;
- Estimated non-contractual and contingent cash outflows;
- Considerations of credit rating downgrades;
- Collateral haircuts; and
- Potential impediments to the availability and transferability of liquidity between jurisdictions and material legal entities such as regulatory, legal or other restrictions.

Liquidity outflows are modeled across a range of time horizons and currency dimensions and contemplate both market and idiosyncratic stresses.

Results of stress tests are considered in the formulation of the Firm's funding plan and assessment of its liquidity position. The Parent Company acts as a source of funding for the Firm through equity and long-term debt issuances, and its intermediate holding company, JPMorgan Chase Holdings LLC (the "IHC"), provides funding support to the ongoing operations of the Parent Company and its subsidiaries. The Firm maintains liquidity at the Parent Company, the IHC, and operating subsidiaries at levels sufficient to comply with liquidity risk tolerances and minimum liquidity requirements, and to manage through periods of stress when access to normal funding sources may be disrupted.

### Contingency funding plan

The Firm's Contingency Funding Plan ("CFP") sets out the strategies for addressing and managing liquidity resource needs during a liquidity stress event and incorporates liquidity risk limits, indicators and risk appetite tolerances. The CFP also identifies the alternative contingent funding and liquidity resources available to the Firm and its legal entities in a period of stress.

### LCR and HQLA

The LCR rule requires that the Firm and JPMorgan Chase Bank, N.A. maintain an amount of eligible HQLA that is sufficient to meet their respective estimated total net cash outflows over a prospective 30 calendar-day period of significant stress. Eligible HQLA, for purposes of calculating the LCR, is the amount of unencumbered HQLA that satisfy certain operational considerations as defined in the LCR rule. HQLA primarily consist of cash and certain high-quality liquid securities as defined in the LCR rule.

Under the LCR rule, the amount of eligible HQLA held by JPMorgan Chase Bank, N.A. that is in excess of its stand-alone 100% minimum LCR requirement, and that is not transferable to non-bank affiliates, must be excluded from the Firm's reported eligible HQLA.

Estimated net cash outflows are based on standardized stress outflow and inflow rates prescribed in the LCR rule, which are applied to the balances of the Firm's assets, sources of funds, and obligations. The LCR for both the Firm and JPMorgan Chase Bank, N.A. is required to be a minimum of 100%.

The following table summarizes the Firm and JPMorgan Chase Bank, N.A.'s average LCR for the three months ended December 31, 2022, September 30, 2022 and December 31, 2021 based on the Firm's interpretation of the LCR framework.

| | Three months ended | | |
|---|---|---|---|
| Average amount (in millions) | **December 31, 2022** | September 30, 2022 | December 31, 2021 |
| **JPMorgan Chase & Co.:** | | | |
| **HQLA** | | | |
| Eligible cash[(a)] | **$ 542,847** | $ 589,158 | $ 703,384 |
| Eligible securities[(b)(c)] | **190,201** | 126,913 | 34,738 |
| **Total HQLA[(d)]** | **$ 733,048** | $ 716,071 | $ 738,122 |
| Net cash outflows | **$ 652,580** | $ 635,072 | $ 664,801 |
| **LCR** | **112 %** | 113 % | 111 % |
| **Net excess eligible HQLA[(d)]** | **$ 80,468** | $ 80,999 | $ 73,321 |
| **JPMorgan Chase Bank, N.A.:** | | | |
| **LCR** | **151 %** | 165 % | 178 % |
| **Net excess eligible HQLA** | **$ 356,733** | $ 450,260 | $ 555,300 |

(a) Represents cash on deposit at central banks, primarily the Federal Reserve Banks.
(b) Predominantly U.S. Treasuries, U.S. GSE and government agency MBS, and sovereign bonds net of applicable haircuts under the LCR rule.
(c) Eligible HQLA securities may be reported in securities borrowed or purchased under resale agreements, trading assets, or investment securities on the Firm's Consolidated balance sheets.
(d) Excludes average excess eligible HQLA at JPMorgan Chase Bank, N.A. that are not transferable to non-bank affiliates.

JPMorgan Chase Bank, N.A.'s average LCR decreased during the three months ended December 31, 2022, compared with the three months ended September 30, 2022 reflecting a decrease in JPMorgan Chase Bank, N.A.'s HQLA, primarily due to a reduction in cash associated with a decline in deposits, and loan growth.

JPMorgan Chase Bank, N.A.'s average LCR for the three months ended December 31, 2022 decreased when compared with the same period in the prior year, reflecting a decrease in JPMorgan Chase Bank, N.A.'s HQLA as a result of a reduction in cash from loan growth and a decline in deposits as well as lower market values of HQLA-eligible investment securities. Refer to Note 10 for additional information on the Firm's investment securities portfolio.

The Firm and JPMorgan Chase Bank, N.A.'s average LCR fluctuates from period to period due to changes in its eligible HQLA and estimated net cash outflows as a result of ongoing business activity. Refer to the Firm's U.S. LCR Disclosure reports, which are available on the Firm's website, for a further discussion of the Firm's LCR.

### Other liquidity sources

In addition to the assets reported in the Firm's eligible HQLA discussed above, the Firm had unencumbered marketable securities, such as equity and debt securities, that the Firm believes would be available to raise liquidity. This includes excess eligible HQLA securities at JPMorgan Chase Bank, N.A. that are not transferable to non-bank affiliates. The fair value of these securities was approximately $694 billion and $914 billion as of December 31, 2022 and 2021, respectively, although the amount of liquidity that could be raised at any particular time would be dependent on prevailing market conditions. The fair value decreased compared to December 31, 2021, primarily due to a decrease in excess eligible HQLA securities at JPMorgan Chase Bank, N.A., as noted above.

The Firm also had available borrowing capacity at the FHLBs and the discount window at the Federal Reserve Banks as a result of collateral pledged by the Firm to such banks of approximately $323 billion and $308 billion as of December 31, 2022 and 2021, respectively. This borrowing capacity excludes the benefit of cash and securities reported in the Firm's eligible HQLA or other unencumbered securities that are currently pledged at the Federal Reserve Banks discount window and other central banks. Available borrowing capacity increased from December 31, 2021 primarily due to increased credit card receivables pledged at the Federal Reserve Banks. Although available, the Firm does not view this borrowing capacity at the Federal Reserve Banks discount window and the other central banks as a primary source of liquidity.

## NSFR

The net stable funding ratio ("NSFR") is a liquidity requirement for large banking organizations that is intended to measure the adequacy of "available" stable funding that is sufficient to meet their "required" amounts of stable funding over a one-year horizon.

As of December 31, 2022, the Firm and JPMorgan Chase Bank, N.A. were compliant with the 100% minimum NSFR requirement, based on the Firm's current interpretation of the final rule. The Firm will be required to publicly disclose its quarterly average NSFR semiannually beginning in the second half of 2023.

## Funding

### Sources of funds

Management believes that the Firm's unsecured and secured funding capacity is sufficient to meet its on- and off-balance sheet obligations, which includes both short- and long-term cash requirements.

The Firm funds its global balance sheet through diverse sources of funding including stable deposits, secured and unsecured funding in the capital markets and stockholders' equity. Deposits are the primary funding source for JPMorgan Chase Bank, N.A. Additionally, JPMorgan Chase Bank, N.A. may access funding through short- or long-term secured borrowings, through the issuance of unsecured long-term debt, or from borrowings from the IHC. The Firm's non-bank subsidiaries are primarily funded from long-term unsecured borrowings and short-term secured borrowings which are primarily securities loaned or sold under repurchase agreements. Excess funding is invested by Treasury and CIO in the Firm's investment securities portfolio or deployed in cash or other short-term liquid investments based on their interest rate and liquidity risk characteristics.

Refer to Note 28 for additional information on off-balance sheet obligations.

### Deposits

The table below summarizes, by LOB and Corporate, the period-end and average deposit balances as of and for the years ended December 31, 2022 and 2021.

| As of or for the year ended December 31, (in millions) | 2022 | 2021 | Average 2022 | Average 2021 |
|---|---|---|---|---|
| Consumer & Community Banking | **$ 1,131,611** | $ 1,148,110 | **$ 1,162,680** | $ 1,054,956 |
| Corporate & Investment Bank | **689,893** | 707,791 | **739,700** | 760,048 |
| Commercial Banking | **271,342** | 323,954 | **294,180** | 301,343 |
| Asset & Wealth Management | **233,130** | 282,052 | **261,489** | 230,296 |
| Corporate | **14,203** | 396 | **9,866** | 511 |
| **Total Firm** | **$ 2,340,179** | $ 2,462,303 | **$ 2,467,915** | $ 2,347,154 |

Deposits provide a stable source of funding and reduce the Firm's reliance on the wholesale funding markets. A significant portion of the Firm's deposits are consumer deposits and wholesale operating deposits, which are both considered to be stable sources of liquidity. Wholesale operating deposits are considered to be stable sources of liquidity because they are generated from customers that maintain operating service relationships with the Firm.

The Firm believes that average deposit balances are generally more representative of deposit trends than period-end deposit balances. However, during periods of market disruption those trends could be affected.

Average deposits were higher for the year ended December 31, 2022 compared to the year ended December 31, 2021, reflecting:

- growth in CCB from existing and new accounts across both consumer and small business customers, partially offset by a decline in deposits starting in the second half of 2022, impacted by growth in customer spending, and
- net inflows in AWM resulting from the residual effects of certain government actions, partially offset by migration into investments starting in the second quarter of 2022 as a result of the rising interest rate environment

partially offset by

- lower average deposits in CIB and CB due to attrition, also as a result of the rising interest rate environment.

Period-end deposits decreased reflecting:

- attrition in CB and CIB, particularly non-operating deposits in CB, partially offset by net issuances of structured notes in Markets,
- net outflows into investments in AWM amid the rising interest rate environment, and
- a decline in balances in existing accounts in CCB due to higher customer spending, predominantly offset by net inflows into new accounts.

The increase in deposits for both spot and averages in Corporate was driven by the Firm's international consumer growth initiatives.

Refer to the discussion of the Firm's Consolidated Balance Sheets Analysis and the Business Segment Results on pages 55-56 and pages 61-80, respectively, for further information on deposit and liability balance trends.

Certain deposits are covered by insurance protection that provides additional funding stability and results in a benefit to the LCR. Deposit insurance protection may be available to depositors in the countries in which the deposits are placed. For example, the Federal Deposit Insurance Corporation ("FDIC") provides deposit insurance protection for deposits placed in a U.S. depository institution. At December 31, 2022 and 2021, the Firmwide estimated uninsured deposits were $1,383.7 billion and $1,489.6 billion, respectively, primarily reflecting wholesale operating deposits.

Total uninsured deposits include time deposits. The table below presents an estimate of uninsured U.S. and non-U.S. time deposits, and their remaining maturities. The Firm's estimates of its uninsured U.S. time deposits are based on data that the Firm calculates periodically under applicable FDIC regulations. For purposes of this presentation, all non-U.S. time deposits are deemed to be uninsured.

| | **December 31, 2022** | | December 31, 2021 | |
|---|---|---|---|---|
| (in millions) | U.S. | Non-U.S. | U.S. | Non-U.S. |
| Three months or less | **$ 43,513** | **$ 68,765** | $ 29,359 | $ 49,342 |
| Over three months but within 6 months | **8,670** | **3,658** | 6,235 | 2,172 |
| Over six months but within 12 months | **7,035** | **2,850** | 913 | 459 |
| Over 12 months | **787** | **2,634** | 526 | 2,562 |
| **Total** | **$ 60,005** | **$ 77,907** | $ 37,033 | $ 54,535 |

The table below shows the loan and deposit balances, the loans-to-deposits ratios, and deposits as a percentage of total liabilities, as of December 31, 2022 and 2021.

| As of December 31, (in billions except ratios) | **2022** | 2021 |
|---|---|---|
| Deposits | **$ 2,340.2** | $ 2,462.3 |
| Deposits as a % of total liabilities | **69 %** | 71 % |
| Loans | **$ 1,135.6** | $ 1,077.7 |
| Loans-to-deposits ratio | **49 %** | 44 % |

The following table provides a summary of the average balances and average interest rates of JPMorgan Chase's deposits for the years ended December 31, 2022, 2021, and 2020.

| (Unaudited) Year ended December 31, | Average balances | | | Average interest rates | | |
|---|---|---|---|---|---|---|
| (in millions, except interest rates) | **2022** | 2021 | 2020 | **2022** | 2021 | 2020 |
| **U.S. offices** | | | | | | |
| Noninterest-bearing | **$ 691,206** | $ 648,170 (c) | $ 495,722 | **NA** | NA | NA |
| Interest-bearing | | | | | | |
| Demand[(a)] | **324,512** | 322,122 (c) | 269,888 | **0.92 %** | 0.06 % | 0.25 % |
| Savings[(b)] | **971,788** | 930,866 (c) | 739,916 | **0.28** | 0.06 | 0.13 |
| Time | **62,022** | 48,628 | 59,053 | **2.07** | 0.26 | 1.10 |
| **Total interest-bearing deposits** | **1,358,322** | 1,301,616 | 1,068,857 | **0.52** | 0.07 | 0.21 |
| **Total deposits in U.S. offices** | **2,049,528** | 1,949,786 | 1,564,579 | **0.34** | 0.05 | 0.15 |
| **Non-U.S. offices** | | | | | | |
| Noninterest-bearing | **28,043** | 26,315 | 21,805 | **NA** | NA | NA |
| Interest-bearing | | | | | | |
| Demand | **324,740** | 313,304 | 267,545 | **0.57** | (0.10) | – |
| Time | **65,604** | 57,749 | 52,822 | **1.85** | (0.09) | 0.13 |
| **Total interest-bearing deposits** | **390,344** | 371,053 | 320,367 | **0.78** | (0.10) | 0.02 |
| **Total deposits in non-U.S. offices** | **418,387** | 397,368 | 342,172 | **0.73** | (0.09) | 0.02 |
| **Total deposits** | **$ 2,467,915** | $ 2,347,154 | $ 1,906,751 | **0.41 %** | 0.02 % | 0.12 % |

(a) Includes Negotiable Order of Withdrawal ("NOW") accounts, and certain trust accounts.
(b) Includes Money Market Deposit Accounts ("MMDAs").
(c) Prior-period amounts have been revised to conform with the current presentation.

Refer to Note 17 for additional information on deposits.

The following table summarizes short-term and long-term funding, excluding deposits, as of December 31, 2022 and 2021, and average balances for the years ended December 31, 2022 and 2021. Refer to the Consolidated Balance Sheets Analysis on pages 55-56 and Note 11 for additional information.

### Sources of funds (excluding deposits)

| As of or for the year ended December 31, | | | Average | |
|---|---|---|---|---|
| (in millions) | **2022** | 2021 | **2022** | 2021 |
| Commercial paper | **$ 12,557** | $ 15,108 | **$ 16,151** | $ 12,285 |
| Other borrowed funds | **8,418** | 9,999 | **12,250** | 12,903 |
| Federal funds purchased | **1,684** | 1,769 | **1,567** | 2,197 |
| **Total short-term unsecured funding** | **$ 22,659** | $ 26,876 | **$ 29,968** | $ 27,385 |
| Securities sold under agreements to repurchase[a] | **$ 198,382** | $ 189,806 | **$ 236,192** | $ 250,229 |
| Securities loaned[a] | **2,547** | 2,765 | **5,003** | 6,876 |
| Other borrowed funds | **23,052** | 28,487 | **25,211** | 28,138 |
| Obligations of Firm-administered multi-seller conduits[b] | **9,236** | 6,198 | **7,387** | 9,283 |
| **Total short-term secured funding** | **$ 233,217** | $ 227,256 | **$ 273,793** | $ 294,526 |
| Senior notes | **$ 188,025** | $ 191,488 | **$ 189,047** | $ 181,290 |
| Subordinated debt | **21,803** | 20,531 | **20,125** | 20,877 |
| Structured notes[c] | **70,839** | 73,956 | **68,656** | 75,152 |
| **Total long-term unsecured funding** | **$ 280,667** | $ 285,975 | **$ 277,828** | $ 277,319 |
| Credit card securitization[b] | **$ 1,999** | $ 2,397 | **$ 1,950** | $ 3,156 |
| FHLB advances | **11,093** | 11,110 | **11,103** | 12,174 |
| Other long-term secured funding[d] | **4,105** | 3,920 | **3,837** | 4,384 |
| **Total long-term secured funding** | **$ 17,197** | $ 17,427 | **$ 16,890** | $ 19,714 |
| **Preferred stock[e]** | **$ 27,404** | $ 34,838 | **$ 31,893** | $ 33,027 |
| **Common stockholders' equity[e]** | **$ 264,928** | $ 259,289 | **$ 253,068** | $ 250,968 |

(a) Primarily consists of short-term securities loaned or sold under agreements to repurchase.
(b) Included in beneficial interests issued by consolidated variable interest entities on the Firm's Consolidated balance sheets.
(c) Includes certain TLAC-eligible long-term unsecured debt issued by the Parent Company.
(d) Includes long-term structured notes which are secured.
(e) Refer to Capital Risk Management on pages 86-96, Consolidated statements of changes in stockholders' equity on page 162, Note 21 and Note 22 for additional information on preferred stock and common stockholders' equity.

### Short-term funding

The Firm's sources of short-term secured funding primarily consist of securities loaned or sold under agreements to repurchase. These instruments are secured predominantly by high-quality securities collateral, including government-issued debt and U.S. GSE and government agency MBS. Securities sold under agreements to repurchase increased at December 31, 2022, compared with December 31, 2021, due to higher secured financing of trading assets in Markets, partially offset by lower secured financing of AFS investment securities in Treasury and CIO.

The balances associated with securities loaned or sold under agreements to repurchase fluctuate over time due to investment and financing activities of clients, the Firm's demand for financing, the ongoing management of the mix of the Firm's liabilities, including its secured and unsecured financing (for both the investment securities and market-making portfolios), and other market and portfolio factors.

The Firm's sources of short-term unsecured funding primarily consist of issuances of wholesale commercial paper and other borrowed funds.

The decrease in period-end commercial paper and the increase in average balances for the year ended December 31, 2022 compared to the respective prior year periods, was due to changes in net issuance levels primarily for short-term liquidity management.

## Long-term funding and issuance

Long-term funding provides an additional source of stable funding and liquidity for the Firm. The Firm's long-term funding plan is driven primarily by expected client activity, liquidity considerations, and regulatory requirements, including TLAC. Long-term funding objectives include maintaining diversification, maximizing market access and optimizing funding costs. The Firm evaluates various funding markets, tenors and currencies in creating its optimal long-term funding plan.

The significant majority of the Firm's long-term unsecured funding is issued by the Parent Company to provide flexibility in support of the funding needs of both bank and non-bank subsidiaries. The Parent Company advances substantially all net funding proceeds to its subsidiary, the IHC. The IHC does not issue debt to external counterparties. The following table summarizes long-term unsecured issuance and maturities or redemptions for the years ended December 31, 2022 and 2021. Refer to Note 20 for additional information on the IHC and long-term debt.

### Long-term unsecured funding

| Year ended December 31, | 2022 | 2021 | 2022 | 2021 |
|---|---|---|---|---|
| (Notional in millions) | Parent Company | | Subsidiaries | |
| **Issuance** | | | | |
| Senior notes issued in the U.S. market | **$ 32,600** | $ 39,500 | **$ –** | $ – |
| Senior notes issued in non-U.S. markets | **2,752** | 5,581 | **–** | – |
| **Total senior notes** | **35,352** | 45,081 | **–** | – |
| Subordinated debt | **3,500** | – | **–** | – |
| Structured notes[(a)] | **2,535** | 4,113 | **35,577** | 32,714 |
| **Total long-term unsecured funding – issuance** | **$ 41,387** | $ 49,194 | **$ 35,577** | $ 32,714 |
| **Maturities/redemptions** | | | | |
| Senior notes | **$ 16,700** | $ 10,840 | **$ 65** | $ 65 |
| Subordinated debt | **–** | 9 | **–** | – |
| Structured notes | **1,594** | 4,694 | **25,481** | 33,023 |
| **Total long-term unsecured funding – maturities/redemptions** | **$ 18,294** | $ 15,543 | **$ 25,546** | $ 33,088 |

(a) Includes certain TLAC-eligible long-term unsecured debt issued by the Parent Company.

The Firm can also raise secured long-term funding through securitization of consumer credit card loans and FHLB advances. The following table summarizes the securitization issuance and FHLB advances and their respective maturities or redemptions for the years ended December 31, 2022 and 2021.

### Long-term secured funding

| Year ended December 31, | Issuance | | Maturities/Redemptions | |
|---|---|---|---|---|
| (in millions) | 2022 | 2021 | 2022 | 2021 |
| Credit card securitization | **$ 999** | $ – | **$ 1,400** | $ 2,550 |
| FHLB advances | **–** | – | **14** | 3,011 |
| Other long-term secured funding[(a)] | **476** | 525 | **268** | 741 |
| **Total long-term secured funding** | **$ 1,475** | $ 525 | **$ 1,682** | $ 6,302 |

(a) Includes long-term structured notes that are secured.

The Firm's wholesale businesses also securitize loans for client-driven transactions; those client-driven loan securitizations are not considered to be a source of funding for the Firm and are not included in the table above. Refer to Note 14 for a further description of client-driven loan securitizations.

## Credit ratings

The cost and availability of financing are influenced by credit ratings. Reductions in these ratings could have an adverse effect on the Firm's access to liquidity sources, increase the cost of funds, trigger additional collateral or funding requirements and decrease the number of investors and counterparties willing to lend to the Firm. The nature and magnitude of the impact of ratings downgrades depends on numerous contractual and behavioral factors, which the Firm believes are incorporated in its liquidity risk and stress testing metrics. The Firm believes that it maintains sufficient liquidity to withstand a potential decrease in funding capacity due to ratings downgrades.

Additionally, the Firm's funding requirements for VIEs and other third-party commitments may be adversely affected by a decline in credit ratings. Refer to liquidity risk and credit-related contingent features in Note 5 for additional information on the impact of a credit ratings downgrade on the funding requirements for VIEs, and on derivatives and collateral agreements.

The credit ratings of the Parent Company and the Firm's principal bank and non-bank subsidiaries as of December 31, 2022, were as follows:

| | JPMorgan Chase & Co. | | | JPMorgan Chase Bank, N.A. | | | J.P. Morgan Securities LLC<br>J.P. Morgan Securities plc<br>J.P. Morgan SE [(a)] | | |
|---|---|---|---|---|---|---|---|---|---|
| December 31, 2022 | Long-term issuer | Short-term issuer | Outlook | Long-term issuer | Short-term issuer | Outlook | Long-term issuer | Short-term issuer | Outlook |
| Moody's Investors Service | A1 | P-1 | Stable | Aa2 | P-1 | Stable | Aa3 | P-1 | Stable |
| Standard & Poor's | A- | A-2 | Positive | A+ | A-1 | Positive | A+ | A-1 | Positive |
| Fitch Ratings | AA- | F1+ | Stable | AA | F1+ | Stable | AA | F1+ | Stable |

(a) In January 2022, the three rating agencies affirmed the credit ratings of J.P. Morgan SE, which are equivalent to the ratings previously assigned to J.P. Morgan SE's predecessors, J.P. Morgan Bank Luxembourg S.A. and J.P. Morgan AG.

On September 29, 2022, Moody's upgraded the Parent Company's long-term issuer rating to A1 (previously A2) and changed the long-term outlook to stable (previously positive). All other ratings and outlooks of the Parent Company and those of the Firm's principal bank and non-bank subsidiaries were affirmed by Moody's.

JPMorgan Chase's unsecured debt does not contain requirements that would call for an acceleration of payments, maturities or changes in the structure of the existing debt, provide any limitations on future borrowings or require additional collateral, based on unfavorable changes in the Firm's credit ratings, financial ratios, earnings, or stock price.

Critical factors in maintaining high credit ratings include a stable and diverse earnings stream, strong capital and liquidity ratios, strong credit quality and risk management controls, and diverse funding sources. Rating agencies continue to evaluate economic and geopolitical trends, regulatory developments, future profitability, risk management practices, and litigation matters, as well as their broader ratings methodologies. Changes in any of these factors could lead to changes in the Firm's credit ratings.

Reputation risk is the risk that an action or inaction may negatively impact perception of the Firm's integrity and reduce confidence in the Firm's competence by various constituents, including clients, counterparties, customers, investors, regulators, employees, communities or the broader public.

## Organization and management

Reputation Risk Management establishes the governance framework for managing reputation risk across the Firm's LOBs and Corporate. Reputation risk is inherently challenging to identify, manage, and quantify.

The Firm's reputation risk management function includes the following activities:

- Maintaining a Firmwide Reputation Risk Governance policy and a standard consistent with the reputation risk framework
- Overseeing the governance execution through processes and infrastructure that support consistent identification, escalation, management and monitoring of reputation risk issues Firmwide

The types of events that result in reputation risk are wide-ranging and may be introduced by the Firm's employees and the clients, customers and counterparties with which the Firm does business. These events could result in financial losses, litigation, regulatory enforcement actions, fines, penalties or other sanctions, as well as other harm to the Firm.

## Governance and oversight

The Reputation Risk Governance policy establishes the principles for managing reputation risk for the Firm. It is the responsibility of employees in each LOB and Corporate to consider the reputation of the Firm when deciding whether to offer a new product, engage in a transaction or client relationship, enter a new jurisdiction, initiate a business process or consider any other activity. Environmental impacts and social concerns are increasingly important considerations in assessing the Firm's reputation risk, and are a component of the Firm's reputation risk governance.

Reputation risk issues that are deemed to be material are escalated as appropriate.

## CREDIT AND INVESTMENT RISK MANAGEMENT

Credit and investment risk is the risk associated with the default or change in credit profile of a client, counterparty or customer; or loss of principal or a reduction in expected returns on investments, including consumer credit risk, wholesale credit risk, and investment portfolio risk.

### Credit risk management

Credit risk is the risk associated with the default or change in credit profile of a client, counterparty or customer. The Firm provides credit to a variety of clients and customers, ranging from large corporate and institutional clients to individual consumers and small businesses. In its consumer businesses, the Firm is exposed to credit risk primarily through its home lending, credit card, auto, and business banking businesses. In its wholesale businesses, the Firm is exposed to credit risk through its underwriting, lending, market-making, and hedging activities with and for clients and counterparties, as well as through its operating services activities (such as cash management and clearing activities), and securities financing activities. The Firm is also exposed to credit risk through its investment securities portfolio and cash placed with banks.

Credit Risk Management monitors, measures and manages credit risk throughout the Firm and defines credit risk policies and procedures. The Firm's credit risk management governance includes the following activities:

- Maintaining a credit risk policy framework
- Monitoring, measuring and managing credit risk across all portfolio segments, including transaction and exposure approval
- Setting industry and geographic concentration limits, as appropriate, and establishing underwriting guidelines
- Assigning and managing credit authorities in connection with the approval of credit exposure
- Managing criticized exposures and delinquent loans, and
- Estimating credit losses and supporting appropriate credit risk-based capital management

### Risk identification and measurement

To measure credit risk, the Firm employs several methodologies for estimating the likelihood of obligor or counterparty default. Methodologies for measuring credit risk vary depending on several factors, including type of asset (e.g., consumer versus wholesale), risk measurement parameters (e.g., delinquency status and borrower's credit score versus wholesale risk-rating) and risk management and collection processes (e.g., retail collection center versus centrally managed workout groups). Credit risk measurement is based on the probability of default of an obligor or counterparty, the loss severity given a default event and the exposure at default.

Based on these factors and the methodology and estimates described in Note 13 and Note 10, the Firm estimates credit losses for its exposures. The allowance for loan losses reflects estimated credit losses related to the consumer and wholesale held-for-investment loan portfolios, the allowance for lending-related commitments reflects estimated credit losses related to the Firm's lending-related commitments and the allowance for investment securities reflects estimated credit losses related to the investment securities portfolio. Refer to Note 13, Note 10 and Critical Accounting Estimates used by the Firm on pages 149-152 for further information.

In addition, potential and unexpected credit losses are reflected in the allocation of credit risk capital and represent the potential volatility of actual losses relative to the established allowances for loan losses and lending-related commitments. The analyses for these losses include stress testing that considers alternative economic scenarios as described below.

### Stress testing

Stress testing is important in measuring and managing credit risk in the Firm's credit portfolio. The stress testing process assesses the potential impact of alternative economic and business scenarios on estimated credit losses for the Firm. Economic scenarios and the underlying parameters are defined centrally, articulated in terms of macroeconomic factors and applied across the businesses. The stress test results may indicate credit migration, changes in delinquency trends and potential losses in the credit portfolio. In addition to the periodic stress testing processes, management also considers additional stresses outside these scenarios, including industry and country-specific stress scenarios, as necessary. The Firm uses stress testing to inform decisions on setting risk appetite both at a Firm and LOB level, as well as to assess the impact of stress on individual counterparties.

## Risk monitoring and management

The Firm has developed policies and practices that are designed to preserve the independence and integrity of the approval and decision-making process for extending credit so that credit risks are assessed accurately, approved properly, monitored regularly and managed actively at both the transaction and portfolio levels. The policy framework establishes credit approval authorities, concentration limits, risk-rating methodologies, portfolio review parameters and guidelines for management of distressed exposures. In addition, certain models, assumptions and inputs used in evaluating and monitoring credit risk are independently validated by groups that are separate from the LOBs.

Consumer credit risk is monitored for delinquency and other trends, including any concentrations at the portfolio level, as certain of these trends can be addressed through changes in underwriting policies and portfolio guidelines. Consumer Risk Management evaluates delinquency and other trends against business expectations, current and forecasted economic conditions, and industry benchmarks. Historical and forecasted economic performance and trends are incorporated into the modeling of estimated consumer credit losses and are part of the monitoring of the credit risk profile of the portfolio.

Wholesale credit risk is monitored regularly at an aggregate portfolio, industry, and individual client and counterparty level with established concentration limits that are reviewed and revised periodically as deemed appropriate by management. Industry and counterparty limits, as measured in terms of exposure and economic risk appetite, are subject to stress-based loss constraints. Wrong-way risk is the risk that exposure to a counterparty is positively correlated with the impact of a default by the same counterparty, which could cause exposure to increase at the same time as the counterparty's capacity to meet its obligations is decreasing.

Management of the Firm's wholesale credit risk exposure is accomplished through a number of means, including:

- Loan underwriting and credit approval processes
- Loan syndications and participations
- Loan sales and securitizations
- Credit derivatives
- Master netting agreements, and
- Collateral and other risk-reduction techniques

In addition to Credit Risk Management, an independent Credit Review function is responsible for:

- Independently validating or changing the risk grades assigned to exposures in the Firm's wholesale credit portfolio, and assessing the timeliness of risk grade changes initiated by responsible business units; and
- Evaluating the effectiveness of the credit management processes of the LOBs and Corporate, including the adequacy of credit analyses and risk grading/loss given default ("LGD") rationales, proper monitoring and management of credit exposures, and compliance with applicable grading policies and underwriting guidelines.

Refer to Note 12 for further discussion of consumer and wholesale loans.

## Risk reporting

To enable monitoring of credit risk and effective decision-making, aggregate credit exposure, credit quality forecasts, concentration levels and risk profile changes are reported regularly to senior members of Credit Risk Management. Detailed portfolio reporting of industry, clients, counterparties and customers, product and geography are prepared, and the appropriateness of the allowance for credit losses is reviewed by senior management at least on a quarterly basis. Through the risk reporting and governance structure, credit risk trends and limit exceptions are provided regularly to, and discussed with, risk committees, senior management and the Board of Directors.

## CREDIT PORTFOLIO

Credit risk is the risk associated with the default or change in credit profile of a client, counterparty or customer.

In the following tables, total loans include loans retained (i.e., held-for-investment); loans held-for-sale; and certain loans accounted for at fair value. The following tables do not include loans which the Firm accounts for at fair value and classifies as trading assets; refer to Notes 2 and 3 for further information regarding these loans. Refer to Notes 12, 28, and 5 for additional information on the Firm's loans, lending-related commitments and derivative receivables, including the Firm's related accounting policies.

Refer to Note 10 for information regarding the credit risk inherent in the Firm's investment securities portfolio; and refer to Note 11 for information regarding credit risk inherent in the securities financing portfolio. Refer to Consumer Credit Portfolio on pages 110-115 and Note 12 for further discussions of the consumer credit environment and consumer loans. Refer to Wholesale Credit Portfolio on pages 116-126 and Note 12 for further discussions of the wholesale credit environment and wholesale loans.

### Total credit portfolio

| December 31, (in millions) | Credit exposure | | Nonperforming[d][e] | |
|---|---|---|---|---|
| | **2022** | 2021 | **2022** | 2021 |
| Loans retained | **$ 1,089,598** | $ 1,010,206 | **$ 5,837** | $ 6,932 |
| Loans held-for-sale | **3,970** | 8,688 | **54** | 48 |
| Loans at fair value | **42,079** | 58,820 | **829** | 815 |
| **Total loans** | **1,135,647** | 1,077,714 | **6,720** | 7,795 |
| Derivative receivables | **70,880** | 57,081 | **296** | 316 |
| Receivables from customers[a] | **49,257** | 59,645 | **–** | – |
| **Total credit-related assets** | **1,255,784** | 1,194,440 | **7,016** | 8,111 |
| **Assets acquired in loan satisfactions** | | | | |
| Real estate owned | **NA** | NA | **203** | 213 |
| Other | **NA** | NA | **28** | 22 |
| **Total assets acquired in loan satisfactions** | **NA** | NA | **231** | 235 |
| Lending-related commitments | **1,326,782** | 1,262,313 | **455** | 764 |
| **Total credit portfolio** | **$ 2,582,566** | $ 2,456,753 | **$ 7,702** | $ 9,110 |
| Credit derivatives and credit-related notes used in credit portfolio management activities[b] | **$ (19,330)** | $ (20,739) [c] | **$ –** | $ – |
| Liquid securities and other cash collateral held against derivatives | **(23,014)** | (10,102) | **NA** | NA |

(a) Receivables from customers reflect held-for-investment margin loans to brokerage clients in CIB, CCB and AWM; these are reported within accrued interest and accounts receivable on the Consolidated balance sheets.

(b) Represents the net notional amount of protection purchased and sold through credit derivatives and credit-related notes used to manage credit exposures.

(c) Prior-period amount has been revised to conform with the current presentation.

(d) At December 31, 2022 and 2021, nonperforming assets excluded mortgage loans 90 or more days past due and insured by U.S. government agencies of $302 million and $623 million, respectively. These amounts have been excluded based upon the government guarantee. In addition, the Firm's policy is generally to exempt credit card loans from being placed on nonaccrual status as permitted by regulatory guidance.

(e) At December 31, 2022, and 2021 nonaccrual loans excluded $119 million and $633 million, respectively, of PPP loans 90 or more days past due and guaranteed by the SBA.

The following table provides information on Firmwide nonaccrual loans to total loans.

| December 31, (in millions, except ratios) | **2022** | 2021 |
|---|---|---|
| Total nonaccrual loans | **$ 6,720** | $ 7,795 |
| Total loans | **1,135,647** | 1,077,714 |
| Firmwide nonaccrual loans to total loans outstanding | **0.59 %** | 0.72 % |

The following table provides information about the Firm's net charge-offs and recoveries.

| Year ended December 31, (in millions, except ratios) | **2022** | 2021 |
|---|---|---|
| Net charge-offs | **$ 2,853** | $ 2,865 |
| Average retained loans | **1,044,765** | 965,271 |
| Net charge-off rates | **0.27 %** | 0.30 % |

## Customer and client assistance

The Firm provided various forms of assistance to customers and clients impacted by the COVID-19 pandemic, including payment deferrals and covenant modifications. Assistance provided in response to the COVID-19 pandemic could delay the recognition of delinquencies, nonaccrual status, and net charge-offs for those customers and clients who would have otherwise moved into past due or nonaccrual status. Refer to Notes 12 and 13 for further information on the Firm's accounting policies for loan modifications and the allowance for credit losses.

## Paycheck Protection Program ("PPP")

The PPP, implemented by the Small Business Administration ("SBA"), provided the Firm with delegated authority to process and originate PPP loans. When certain criteria are met, PPP loans are subject to forgiveness and the Firm will receive payment of the forgiveness amount from the SBA. The PPP ended for new applications on May 31, 2021.

At December 31, 2022 and 2021, the Firm had $490 million and $6.7 billion, respectively, of PPP loans, including $350 million and $5.4 billion, respectively, in consumer, and $140 million and $1.3 billion, respectively, in wholesale.

At December 31, 2022 and 2021, $119 million and $633 million, respectively, of PPP loans 90 or more days past due have been excluded from the Firm's nonaccrual loans as they are guaranteed by the SBA. Refer to Note 12 for additional information.

## CONSUMER CREDIT PORTFOLIO

The Firm's retained consumer portfolio consists primarily of residential real estate loans, credit card loans, scored auto and business banking loans, as well as associated lending-related commitments. The Firm's focus is on serving primarily the prime segment of the consumer credit market. Originated mortgage loans are retained in the residential real estate portfolio, securitized or sold to U.S. government agencies and U.S. government-sponsored enterprises; other types of consumer loans are typically retained on the balance sheet. Refer to Note 12 for further information on the consumer loan portfolio. Refer to Note 28 for further information on lending-related commitments.

The following tables present consumer credit-related information with respect to the scored credit portfolio held in CCB, AWM, CIB and Corporate.

## Consumer credit portfolio

| December 31, (in millions) | Credit exposure 2022 | Credit exposure 2021 | Nonaccrual loans[j][k][l] 2022 | Nonaccrual loans[j][k][l] 2021 |
|---|---|---|---|---|
| **Consumer, excluding credit card** | | | | |
| Residential real estate[a] | **$ 237,561** | $ 224,795 | **$ 3,745** | $ 4,759 |
| Auto and other[b][c][d] | **63,192** | 70,761 | **129** | 119 |
| **Total loans - retained** | **300,753** | 295,556 | **3,874** | 4,878 |
| Loans held-for-sale | **618** | 1,287 | **28** | – |
| Loans at fair value[e] | **10,004** | 26,463 | **423** | 472 |
| **Total consumer, excluding credit card loans** | **311,375** | 323,306 | **4,325** | 5,350 |
| Lending-related commitments[f] | **33,518** | 45,334 | | |
| **Total consumer exposure, excluding credit card** | **344,893** | 368,640 | | |
| **Credit card** | | | | |
| Loans retained[g] | **185,175** | 154,296 | **NA** | NA |
| **Total credit card loans** | **185,175** | 154,296 | | |
| Lending-related commitments[f][h] | **821,284** | 730,534 | | |
| **Total credit card exposure[h]** | **1,006,459** | 884,830 | | |
| **Total consumer credit portfolio[h]** | **$ 1,351,352** | $ 1,253,470 | **$ 4,325** | $ 5,350 |
| Credit-related notes used in credit portfolio management activities[i] | **$ (1,187)** | $ (2,028) | | |

| Year ended December 31, (in millions, except ratios) | Net charge-offs/(recoveries) 2022 | Net charge-offs/(recoveries) 2021 | Average loans - retained 2022 | Average loans - retained 2021 | Net charge-off/(recovery) rate[m] 2022 | Net charge-off/(recovery) rate[m] 2021 |
|---|---|---|---|---|---|---|
| **Consumer, excluding credit card** | | | | | | |
| Residential real estate | **$ (226)** | $ (275) | **$ 233,454** | $ 220,914 | **(0.10)%** | (0.12)% |
| Auto and other | **495** | 286 | **65,955** | 77,900 | **0.75** | 0.37 |
| **Total consumer, excluding credit card - retained** | **269** | 11 | **299,409** | 298,814 | **0.09** | – |
| **Credit card - retained** | **2,403** | 2,712 | **163,335** | 139,900 | **1.47** | 1.94 |
| **Total consumer - retained** | **$ 2,672** | $ 2,723 | **$ 462,744** | $ 438,714 | **0.58 %** | 0.62 % |

(a) Includes scored mortgage and home equity loans held in CCB and AWM, and scored mortgage loans held in Corporate.
(b) At December 31, 2022 and 2021, excluded operating lease assets of $12.0 billion and $17.1 billion, respectively. These operating lease assets are included in other assets on the Firm's Consolidated balance sheets. Refer to Note 18 for further information.
(c) Includes scored auto and business banking loans and overdrafts.
(d) At December 31, 2022 and 2021, included $350 million and $5.4 billion of loans, respectively, in Business Banking under the PPP. The Firm does not expect to realize material credit losses on PPP loans because the loans are guaranteed by the SBA. Refer to Credit Portfolio on pages 108-109 for a further discussion of the PPP.
(e) Includes scored mortgage loans held in CCB and CIB.
(f) Credit card, home equity and certain business banking lending-related commitments represent the total available lines of credit for these products. The Firm has not experienced, and does not anticipate, that all available lines of credit would be used at the same time. For credit card commitments, and if certain conditions are met, home equity commitments and certain business banking commitments, the Firm can reduce or cancel these lines of credit by providing the borrower notice or, in some cases as permitted by law, without notice. Refer to Note 28 for further information.
(g) Includes billed interest and fees.
(h) Also includes commercial card lending-related commitments primarily in CB and CIB.
(i) Represents the notional amount of protection obtained through the issuance of credit-related notes that reference certain pools of residential real estate and auto loans in the retained consumer portfolio.
(j) At December 31, 2022 and 2021, nonaccrual loans excluded mortgage loans 90 or more days past due and insured by U.S. government agencies of $302 million and $623 million, respectively. These amounts have been excluded from nonaccrual loans based upon the government guarantee. In addition, the Firm's policy is generally to exempt credit card loans from being placed on nonaccrual status, as permitted by regulatory guidance.
(k) Generally excludes loans under payment deferral programs offered in response to the COVID-19 pandemic.
(l) At December 31, 2022 and 2021, nonaccrual loans excluded $101 million and $506 million, respectively, of PPP loans 90 or more days past due and guaranteed by the SBA.
(m) Average consumer loans held-for-sale and loans at fair value were $17.4 billion and $29.1 billion for the years ended December 31, 2022 and 2021, respectively. These amounts were excluded when calculating net charge-off/(recovery) rates.

## Maturities and sensitivity to changes in interest rates

The table below sets forth loan maturities by scheduled repayments, by class of loan and the distribution between fixed and floating interest rates based on the stated terms of the loan agreements. Effective December 31, 2022, the Firm revised its methodology from contractual maturities to scheduled repayments. The Firm estimated the principal repayment amounts for both the residential real estate and auto and other loan classes by calculating the weighted-average loan balance and interest rates for loan pools based on remaining loan term.

| December 31, 2022 (in millions) | Within 1 year[b] | 1-5 years | 5-15 years | After 15 years | Total |
|---|---|---|---|---|---|
| **Consumer, excluding credit card** | | | | | |
| Residential real estate | $ 15,709 | $ 22,984 | $ 81,946 | $ 127,282 | $ 247,921 |
| Auto and other | 17,380 [c] | 42,727 | 3,342 | 5 | 63,454 |
| **Total consumer, excluding credit card loans** | $ 33,089 | $ 65,711 | $ 85,288 | $ 127,287 | $ 311,375 |
| **Total credit card loans** | $ 184,681 | $ 494 [a] | $ – | $ – | $ 185,175 |
| **Total consumer loans** | $ 217,770 | $ 66,205 | $ 85,288 | $ 127,287 | $ 496,550 |
| **Loans due after one year at fixed interest rates** | | | | | |
| Residential real estate | | $ 17,266 | $ 50,589 | $ 77,189 | |
| Auto and other | | 42,652 | 2,716 | 5 | |
| Credit card | | 494 | – | – | |
| **Loans due after one year at variable interest rates[a]** | | | | | |
| Residential real estate | | $ 5,718 | $ 31,357 | $ 50,093 | |
| Auto and other | | 75 | 626 | – | |
| **Total consumer loans** | | $ 66,205 | $ 85,288 | $ 127,287 | |

(a) Credit card loans with maturities greater than one year represent TDRs and are at fixed interest rates. There are no credit card loans due after one year at variable interest rates.
(b) Includes loans held-for-sale and loans at fair value.
(c) Includes overdrafts.

## Consumer, excluding credit card

### Portfolio analysis

Loans decreased from December 31, 2021 driven by residential real estate loans at fair value and auto and other loans, largely offset by higher retained residential real estate loans.

The following discussions provide information concerning individual loan products. Refer to Note 12 for further information about this portfolio, including information about delinquencies, loan modifications and other credit quality indicators.

**Residential real estate:** The residential real estate portfolio, including loans held-for-sale and loans at fair value, predominantly consists of prime mortgage loans and home equity lines of credit.

Retained loans increased compared to December 31, 2021 reflecting originations, net of paydowns. Retained nonaccrual loans decreased from December 31, 2021 reflecting improved credit performance and loan sales. Net recoveries were lower for the year ended December 31, 2022 compared to the prior year driven by lower prepayments due to higher interest rates, partially offset by lower gross charge-offs.

Loans at fair value decreased from December 31, 2021, as warehouse loan sales in Home Lending outpaced originations due to higher interest rates and loan sales in CIB outpaced loan purchase activity. Nonaccrual loans at fair value decreased from December 31, 2021 driven by net portfolio activity in CIB.

The carrying value of home equity lines of credit outstanding was $15.7 billion at December 31, 2022. This amount included $5.1 billion of HELOCs that have recast from interest-only to fully amortizing payments or have been modified and $5.0 billion of interest-only balloon HELOCs, which primarily mature after 2030. The Firm manages the risk of HELOCs during their revolving period by closing or reducing the undrawn line to the extent permitted by law when borrowers are exhibiting a material deterioration in their credit risk profile.

At December 31, 2022 and 2021, the carrying value of interest-only residential mortgage loans were $36.3 billion and $30.0 billion, respectively. These loans have an interest-only payment period generally followed by an adjustable-rate or fixed-rate fully amortizing payment period to maturity and are typically originated as higher-balance loans to higher-income borrowers, predominantly in AWM. The interest-only residential mortgage loan portfolio reflected net recoveries for the year ended December 31, 2022. The credit performance of this portfolio is comparable with the performance of the broader prime mortgage portfolio.

The following table provides a summary of the Firm's residential mortgage portfolio insured and/or guaranteed by U.S. government agencies, predominantly loans held-for-sale and loans at fair value. The Firm monitors its exposure to certain potential unrecoverable claim payments related to government-insured loans and considers this exposure in estimating the allowance for loan losses.

| (in millions) | December 31, 2022 | December 31, 2021 |
|---|---|---|
| Current | $ 659 | $ 689 |
| 30-89 days past due | 136 | 135 |
| 90 or more days past due | 302 | 623 |
| **Total government guaranteed loans** | **$ 1,097** | $ 1,447 |

### Geographic composition and current estimated loan-to-value ratio of residential real estate loans

At December 31, 2022, $152.7 billion, or 64% of the total retained residential real estate loan portfolio, excluding mortgage loans insured by U.S. government agencies, were concentrated in California, New York, Florida, Texas and Illinois, compared with $145.5 billion, or 65% at December 31, 2021.

Average current estimated loan-to-value ("LTV") ratios were relatively flat.

Refer to Note 12 for information on the geographic composition and current estimated LTVs of the Firm's residential real estate loans.

### Modified residential real estate loans

The following table presents information relating to modified retained residential real estate loans for which concessions have been granted to borrowers experiencing financial difficulty, which include both TDRs and modified PCD loans not accounted for as TDRs. The following table does not include loans with short-term or other insignificant modifications that are not considered concessions and, therefore, are not TDRs. Refer to Note 12 for further information on modifications for the years ended December 31, 2022 and 2021.

| (in millions) | December 31, 2022 | December 31, 2021 |
|---|---|---|
| Retained loans | $ 11,579 | $ 13,251 |
| Nonaccrual retained loans[(a)] | 3,300 | 3,938 |

(a) At both December 31, 2022 and 2021, nonaccrual loans included $2.7 billion of TDRs for which the borrowers were less than 90 days past due. Refer to Note 12 for additional information about loans modified in a TDR that are on nonaccrual status.

**Auto and other**: The auto and other loan portfolio, including loans at fair value consists of prime-quality scored auto and business banking loans, as well as overdrafts. The portfolio decreased when compared with December 31, 2021 due to paydowns of scored Auto loans and PPP loan forgiveness in Business Banking predominantly offset by originations of scored Auto loans. Net charge-offs for the year ended December 31, 2022 increased compared to the prior year due to higher scored Auto and overdraft charge-offs, as the prior year benefited from government stimulus and payment assistance programs. The scored Auto net charge-off rates were 0.24% and 0.04% for the years ended December 31, 2022 and 2021, respectively.

## Nonperforming assets

The following table presents information as of December 31, 2022 and 2021, about consumer, excluding credit card, nonperforming assets.

### Nonperforming assets[a]

| December 31, (in millions) | 2022 | 2021 |
|---|---|---|
| **Nonaccrual loans** | | |
| Residential real estate[b] | **$ 4,196** | $ 5,231 |
| Auto and other[c] | **129** | 119 |
| **Total nonaccrual loans** | **4,325** | 5,350 |
| **Assets acquired in loan satisfactions** | | |
| Real estate owned | **129** | 112 |
| Other | **28** | 22 |
| **Total assets acquired in loan satisfactions** | **157** | 134 |
| **Total nonperforming assets** | **$ 4,482** | $ 5,484 |

(a) At December 31, 2022 and 2021, nonperforming assets excluded mortgage loans 90 or more days past due and insured by U.S. government agencies of $302 million and $623 million, respectively. These amounts have been excluded based upon the government guarantee.
(b) Generally excludes loans under payment deferral programs offered in response to the COVID-19 pandemic.
(c) At December 31, 2022 and 2021, nonaccrual loans excluded $101 million and $506 million, respectively, of PPP loans 90 or more days past due and guaranteed by the SBA.

## Nonaccrual loans

The following table presents changes in consumer, excluding credit card, nonaccrual loans for the years ended December 31, 2022 and 2021.

### Nonaccrual loan activity

| Year ended December 31, (in millions) | 2022 | 2021 |
|---|---|---|
| Beginning balance | **$ 5,350** | $ 6,467 |
| Additions: | **2,196** | 2,956 |
| Reductions: | | |
| Principal payments and other[a] | **1,393** | 2,018 |
| Charge-offs | **255** | 229 |
| Returned to performing status | **1,405** | 1,716 |
| Foreclosures and other liquidations | **168** | 110 |
| **Total reductions** | **3,221** | 4,073 |
| **Net changes** | **(1,025)** | (1,117) |
| **Ending balance** | **$ 4,325** | $ 5,350 |

(a) Other reductions include loan sales.

Refer to Note 12 for further information about the consumer credit portfolio, including information about delinquencies, other credit quality indicators, loan modifications and loans that were in the process of active or suspended foreclosure.

## Purchased credit deteriorated ("PCD") loans

The following tables provide credit-related information for PCD loans which are reported in residential real estate.

| (in millions, except ratios) | December 31, 2022 | December 31, 2021 |
|---|---|---|
| **Loan delinquency[a]** | | |
| Current | **$ 10,910** | $ 12,746 |
| 30-149 days past due | **347** | 331 |
| 150 or more days past due | **277** | 664 |
| **Total PCD loans** | **$ 11,534** | $ 13,741 |
| % of 30+ days past due to total retained PCD loans | **5.41 %** | 7.24 % |
| Nonaccrual loans | **$ 1,200** | $ 1,616 |

| Year ended December 31, (in millions, except ratios) | 2022 | 2021 |
|---|---|---|
| Net charge-offs/(recoveries) | **$ (11)** | $ 15 |
| Net charge-off/(recovery) rate | **(0.09)%** | 0.10 % |

(a) At December 31, 2022 and 2021, loans under payment deferral programs offered in response to the COVID-19 pandemic which are still within their deferral period and performing according to their modified terms are generally not considered delinquent.

## Credit card

Total credit card loans increased from December 31, 2021 driven by growth in balances on higher consumer spending and net new originations. The December 31, 2022 30+ and 90+ day delinquency rates of 1.45% and 0.68%, respectively, increased compared to the December 31, 2021 30+ and 90+ day delinquency rates of 1.04% and 0.50%, but remain below pre-pandemic levels. Net charge-offs decreased for the year ended December 31, 2022 compared to the prior year. Delinquency and net charge-off rates continue to benefit from the ongoing financial strength of U.S. consumers. However, median deposit balances declined in the second half of 2022, impacted by the growth in consumer spending.

Consistent with the Firm's policy, all credit card loans typically remain on accrual status until charged off. However, the Firm's allowance for loan losses includes the estimated uncollectible portion of accrued and billed interest and fee income.

### Geographic and FICO composition of credit card loans

At December 31, 2022, $85.4 billion, or 46% of the total retained credit card loan portfolio, was concentrated in California, Texas, New York, Florida and Illinois, compared with $70.5 billion, or 46%, at December 31, 2021.

### Modifications of credit card loans

At December 31, 2022, the Firm had $796 million of credit card loans outstanding that have been modified in TDRs, compared to $1.0 billion at December 31, 2021. These TDRs do not include loans with short-term or other insignificant modifications that are not considered TDRs.

Refer to Note 12 for further information about this portfolio, including information about delinquencies, geographic and FICO composition, and modifications.

## WHOLESALE CREDIT PORTFOLIO

In its wholesale businesses, the Firm is exposed to credit risk primarily through its underwriting, lending, market-making, and hedging activities with and for clients and counterparties, as well as through various operating services (such as cash management and clearing activities), securities financing activities and cash placed with banks. A portion of the loans originated or acquired by the Firm's wholesale businesses is generally retained on the balance sheet. The Firm distributes a significant percentage of the loans that it originates into the market as part of its syndicated loan business and to manage portfolio concentrations and credit risk. The wholesale portfolio is actively managed, in part by conducting ongoing, in-depth reviews of client credit quality and transaction structure, inclusive of collateral where applicable, and of industry, product and client concentrations. Refer to the industry discussion on pages 118-121 for further information.

The Firm's wholesale credit portfolio includes exposure held in CIB, CB, AWM, and Corporate, as well as the risk-rated BWM and auto dealer exposure held in CCB, for which the wholesale methodology is applied when determining the allowance for loan losses.

In 2022, wholesale credit continued to perform well with charge-offs remaining low.

As of December 31, 2022, retained loans increased by $43.3 billion driven by CIB and CB, including higher revolver utilization, partially offset by a decline in AWM. Lending-related commitments decreased $14.5 billion, driven by net portfolio activity in CIB, including a decrease in held-for-sale positions in the bridge financing portfolio, largely offset by net portfolio activity in AWM and CB.

As of December 31, 2022, the investment-grade percentage of the portfolio remained relatively flat at 70%, while criticized exposure decreased by $6.9 billion from $38.2 billion to $31.3 billion. As of December 31, 2022, nonperforming exposure decreased by $406.0 million driven by a decline in lending-related commitments in CIB and loans in AWM as a result of client-specific upgrades, paydowns and cancelled commitments, largely offset by client-specific downgrades in CIB including downgrades to certain Russia and Russia-associated clients in the first quarter of 2022. Refer to Business Developments on page 50 and Country Risk on pages 139-140 for additional information. Refer to Wholesale credit exposure – industry exposures on pages 118-121 for additional information.

### Wholesale credit portfolio

| December 31, (in millions) | Credit exposure | | Nonperforming | |
|---|---|---|---|---|
| | **2022** | 2021 | **2022** | 2021 |
| Loans retained | **$ 603,670** | $ 560,354 | **$ 1,963** | $ 2,054 |
| Loans held-for-sale | **3,352** | 7,401 | **26** | 48 |
| Loans at fair value | **32,075** | 32,357 | **406** | 343 |
| **Loans** | **639,097** | 600,112 | **2,395** | 2,445 |
| Derivative receivables | **70,880** | 57,081 | **296** | 316 |
| Receivables from customers[(a)] | **49,257** | 59,645 | **—** | — |
| **Total wholesale credit-related assets** | **759,234** | 716,838 | **2,691** | 2,761 |
| **Assets acquired in loan satisfactions** | | | | |
| Real estate owned | **NA** | NA | **74** | 101 |
| Other | **NA** | NA | **—** | — |
| **Total assets acquired in loan satisfactions** | **NA** | NA | **74** | 101 |
| Lending-related commitments | **471,980** | 486,445 | **455** | 764 |
| **Total wholesale credit portfolio** | **$1,231,214** | $1,203,283 | **$ 3,220** | $ 3,626 |
| Credit derivatives and credit-related notes used in credit portfolio management activities[(b)] | **$ (18,143)** | $ (18,711) [(c)] | **$ —** | $ — |
| Liquid securities and other cash collateral held against derivatives | **(23,014)** | (10,102) | **NA** | NA |

(a) Receivables from customers reflect held-for-investment margin loans to brokerage clients in CIB, CCB and AWM; these are reported within accrued interest and accounts receivable on the Consolidated balance sheets.

(b) Represents the net notional amount of protection purchased and sold through credit derivatives and credit-related notes used to manage both performing and nonperforming wholesale credit exposures; these derivatives do not qualify for hedge accounting under U.S. GAAP. Refer to Credit derivatives on page 126 and Note 5 for additional information.

(c) Prior-period amounts have been revised to conform with the current presentation.

## Wholesale credit exposure – maturity and ratings profile

The following tables present the maturity and internal risk ratings profiles of the wholesale credit portfolio as of December 31, 2022 and 2021. The Firm generally considers internal ratings with qualitative characteristics equivalent to BBB-/Baa3 or higher as investment grade, and takes into consideration collateral and structural support when determining the internal risk rating for each credit facility. Refer to Note 12 for further information on internal risk ratings.

| | Maturity profile[e] | | | | Ratings profile | | | |
|---|---|---|---|---|---|---|---|---|
| **December 31, 2022** (in millions, except ratios) | 1 year or less | After 1 year through 5 years | After 5 years | Total | Investment-grade | Noninvestment-grade | Total | Total % of IG |
| Loans retained | **$ 204,761** | **$ 253,896** | **$ 145,013** | **$ 603,670** | **$ 425,412** | **$ 178,258** | **$ 603,670** | **70 %** |
| Derivative receivables | | | | **70,880** | | | **70,880** | |
| Less: Liquid securities and other cash collateral held against derivatives | | | | **(23,014)** | | | **(23,014)** | |
| Total derivative receivables, net of collateral | **13,508** | **14,880** | **19,478** | **47,866** | **36,231** | **11,635** | **47,866** | **76** |
| Lending-related commitments | **101,083** | **347,456** | **23,441** | **471,980** | **327,168** | **144,812** | **471,980** | **69** |
| **Subtotal** | **319,352** | **616,232** | **187,932** | **1,123,516** | **788,811** | **334,705** | **1,123,516** | **70** |
| Loans held-for-sale and loans at fair value[a] | | | | **35,427** | | | **35,427** | |
| Receivables from customers | | | | **49,257** | | | **49,257** | |
| **Total exposure – net of liquid securities and other cash collateral held against derivatives** | | | | **$ 1,208,200** | | | **$1,208,200** | |
| Credit derivatives and credit-related notes used in credit portfolio management activities[b][c][d] | **$ (2,817)** | **$ (13,530)** | **$ (1,796)** | **$ (18,143)** | **$ (15,115)** | **$ (3,028)** | **$ (18,143)** | **83 %** |

| | Maturity profile[e] | | | | Ratings profile | | | |
|---|---|---|---|---|---|---|---|---|
| December 31, 2021 (in millions, except ratios) | 1 year or less | After 1 year through 5 years | After 5 years | Total | Investment-grade | Noninvestment-grade | Total | Total % of IG |
| Loans retained | $ 214,064 | $ 218,176 | $ 128,114 | $ 560,354 | $ 410,011 | $ 150,343 | $ 560,354 | 73 % |
| Derivative receivables | | | | 57,081 | | | 57,081 | |
| Less: Liquid securities and other cash collateral held against derivatives | | | | (10,102) | | | (10,102) | |
| Total derivative receivables, net of collateral | 13,648 | 12,814 | 20,517 | 46,979 | 31,934 | 15,045 | 46,979 | 68 |
| Lending-related commitments | 120,929 | 340,308 | 25,208 | 486,445 | 331,116 | 155,329 | 486,445 | 68 |
| **Subtotal** | 348,641 | 571,298 | 173,839 | 1,093,778 | 773,061 | 320,717 | 1,093,778 | 71 |
| Loans held-for-sale and loans at fair value[a] | | | | 39,758 | | | 39,758 | |
| Receivables from customers | | | | 59,645 | | | 59,645 | |
| **Total exposure – net of liquid securities and other cash collateral held against derivatives** | | | | $ 1,193,181 | | | $1,193,181 | |
| Credit derivatives and credit-related notes used in credit portfolio management activities[b][c][d] | $ (7,472) | $ (9,750) | $ (1,489) | $ (18,711) | $ (15,012) | $ (3,699) | $ (18,711) | 80 % |

(a) Loans held-for-sale are primarily related to syndicated loans and loans transferred from the retained portfolio.
(b) These derivatives do not qualify for hedge accounting under U.S. GAAP.
(c) The notional amounts are presented on a net basis by underlying reference entity and the ratings profile shown is based on the ratings of the reference entity on which protection has been purchased. Predominantly all of the credit derivatives entered into by the Firm where it has purchased protection used in credit portfolio management activities are executed with investment-grade counterparties. In addition, the Firm obtains credit protection against certain loans in the retained loan portfolio through the issuance of credit-related notes.
(d) Prior-period amounts have been revised to conform with the current presentation.
(e) The maturity profile of retained loans, lending-related commitments and derivative receivables is generally based on remaining contractual maturity. Derivative contracts that are in a receivable position at December 31, 2022, may become payable prior to maturity based on their cash flow profile or changes in market conditions.

### Wholesale credit exposure – industry exposures

The Firm focuses on the management and diversification of its industry exposures, and pays particular attention to industries with actual or potential credit concerns.

Exposures that are deemed to be criticized align with the U.S. banking regulators' definition of criticized exposures, which consist of the special mention, substandard and doubtful categories. Total criticized exposure, excluding loans held-for-sale and loans at fair value, was $31.3 billion at December 31, 2022 and $38.2 billion at December 31, 2021, representing approximately 2.7% and 3.5% of total wholesale credit exposure, respectively. Criticized exposure decreased driven by net portfolio activity and client-specific upgrades concentrated in Consumer & Retail, Technology, Media & Telecommunications and Real Estate, largely offset by client-specific downgrades. Of the $31.3 billion of criticized exposure at December 31, 2022, approximately half was undrawn and $28.6 billion was performing.

The table below summarizes by industry the Firm's exposures as of December 31, 2022 and 2021. The industry of risk category is generally based on the client or counterparty's primary business activity. Refer to Note 4 for additional information on industry concentrations.

#### Wholesale credit exposure – industries[(a)]

| | | | Noninvestment-grade | | | Selected metrics | | | |
|---|---|---|---|---|---|---|---|---|---|
| As of or for the year ended **December 31, 2022** (in millions) | Credit exposure[(f)(g)] | Investment-grade | Noncriticized | Criticized performing | Criticized nonperforming | 30 days or more past due and accruing loans[(i)] | Net charge-offs/ (recoveries) | Credit derivative hedges and credit-related notes[(h)] | Liquid securities and other cash collateral held against derivative receivables |
| Real Estate | $ 170,857 | $ 129,866 | $ 36,945 | $ 3,609 | $ 437 | $ 543 | $ 19 | $ (113) | $ – |
| Individuals and Individual Entities[(b)] | 130,815 | 112,006 | 18,104 | 360 | 345 | 1,038 | 1 | – | – |
| Consumer & Retail | 120,555 | 60,781 | 51,871 | 7,295 | 608 | 321 | 49 | (1,157) | – |
| Asset Managers | 95,656 | 78,925 | 16,665 | 61 | 5 | 15 | (1) | – | (8,278) |
| Industrials | 72,483 | 39,052 | 30,500 | 2,809 | 122 | 282 | 44 | (1,258) | – |
| Technology, Media & Telecommunications | 72,286 | 39,199 | 25,689 | 7,096 | 302 | 62 | 39 | (1,766) | – |
| Healthcare | 62,613 | 43,839 | 17,117 | 1,479 | 178 | 43 | 27 | (1,055) | – |
| Banks & Finance Cos | 51,816 | 27,811 | 22,994 | 961 | 50 | 36 | – | (262) | (994) |
| Oil & Gas | 38,668 | 20,547 | 17,616 | 474 | 31 | 57 | (6) | (414) | – |
| Utilities | 36,218 | 25,981 | 9,294 | 807 | 136 | 21 | 15 | (607) | (1) |
| State & Municipal Govt[(c)] | 33,847 | 33,191 | 529 | 126 | 1 | 36 | – | (9) | (5) |
| Automotive[(c)] | 33,287 | 23,908 | 8,839 | 416 | 124 | 198 | (2) | (513) | – |
| Insurance | 21,045 | 15,468 | 5,396 | 181 | – | 1 | – | (273) | (7,296) |
| Chemicals & Plastics | 20,030 | 12,134 | 7,103 | 744 | 49 | 10 | 3 | (298) | – |
| Central Govt | 19,095 | 18,698 | 362 | 35 | – | – | 10 | (4,591) | (677) |
| Metals & Mining | 15,915 | 8,825 | 6,863 | 222 | 5 | 7 | (1) | (27) | (4) |
| Transportation | 15,009 | 6,497 | 6,862 | 1,574 | 76 | 24 | 2 | (339) | – |
| Securities Firms | 8,066 | 4,235 | 3,716 | 115 | – | – | (13) | (26) | (2,811) |
| Financial Markets Infrastructure | 4,962 | 4,525 | 437 | – | – | – | – | – | – |
| All other[(d)] | 123,307 | 105,284 | 17,555 | 223 | 245 | 4 | (5) | (5,435) | (2,948) |
| **Subtotal** | $ 1,146,530 | $ 810,772 | $ 304,457 | $ 28,587 | $ 2,714 | $ 2,698 | $ 181 | $ (18,143) | $ (23,014) |
| Loans held-for-sale and loans at fair value | 35,427 | | | | | | | | |
| Receivables from customers | 49,257 | | | | | | | | |
| **Total[(e)]** | $ 1,231,214 | | | | | | | | |

| As of or for the year ended December 31, 2021 (in millions) | Credit exposure[f][g] | Investment-grade | Noninvestment-grade | | | Selected metrics | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Noncriticized | Criticized performing | Criticized nonperforming | 30 days or more past due and accruing loans | Net charge-offs/ (recoveries) | Credit derivative hedges and credit-related notes [h] | Liquid securities and other cash collateral held against derivative receivables |
| Real Estate | $ 155,069 | $ 120,174 | $ 29,642 | $ 4,636 | $ 617 | $ 394 | $ 6 | $ (185) [i] | $ – |
| Individuals and Individual Entities[b] | 141,973 | 122,606 | 18,797 | 99 | 471 | 1,450 | 32 | – | (1) |
| Consumer & Retail | 122,789 | 59,622 | 53,317 | 9,445 | 405 | 288 | 2 | (352) [i] | – |
| Asset Managers | 81,228 | 68,593 | 12,630 | – | 5 | 8 | – | – | (3,900) |
| Industrials | 66,974 | 36,953 | 26,957 | 2,895 | 169 | 428 | 13 | (586) [i] | (1) |
| Technology, Media & Telecommunications | 84,070 | 49,610 | 25,540 | 8,595 | 325 | 58 | (1) | (900) [i] | (12) |
| Healthcare | 59,014 | 42,133 | 15,136 | 1,686 | 59 | 204 | (4) | (490) | (174) |
| Banks & Finance Cos | 54,684 | 29,732 | 23,809 | 1,138 | 5 | 9 | 9 | (503) [i] | (810) |
| Oil & Gas | 42,606 | 20,698 | 20,222 | 1,558 | 128 | 4 | 60 | (564) [i] | – |
| Utilities | 33,203 | 25,069 | 7,011 | 914 | 209 | 11 | 6 | (367) [i] | (4) |
| State & Municipal Govt[c] | 33,216 | 32,522 | 586 | 101 | 7 | 74 | – | – | (14) |
| Automotive | 34,573 | 24,606 | 9,446 | 399 | 122 | 95 | (3) | (463) | – |
| Insurance | 13,926 | 9,943 | 3,887 | 96 | – | – | – | (25) [i] | (2,366) |
| Chemicals & Plastics | 17,660 | 11,319 | 5,817 | 518 | 6 | 7 | – | (89) | – |
| Central Govt | 11,317 | 11,067 | 250 | – | – | – | – | (6,961) | (72) |
| Metals & Mining | 16,696 | 7,848 | 8,491 | 294 | 63 | 27 | 7 | (15) [i] | (4) |
| Transportation | 14,635 | 6,010 | 5,983 | 2,470 | 172 | 21 | 20 | (100) [i] | (24) |
| Securities Firms | 4,180 | 2,599 | 1,578 | – | 3 | – | – | (47) | (217) |
| Financial Markets Infrastructure | 4,377 | 3,987 | 390 | – | – | – | – | – | – |
| All other[d] | 111,690 | 97,537 | 13,580 | 205 | 368 | 242 | (5) | (7,064) [i] | (2,503) |
| **Subtotal** | $ 1,103,880 | $ 782,628 | $ 283,069 | $ 35,049 | $ 3,134 | $ 3,320 | $ 142 | $ (18,711) | $ (10,102) |
| Loans held-for-sale and loans at fair value | 39,758 | | | | | | | | |
| Receivables from customers | 59,645 | | | | | | | | |
| **Total[e]** | $ 1,203,283 | | | | | | | | |

(a) The industry rankings presented in the table as of December 31, 2021, are based on the industry rankings of the corresponding exposures at December 31, 2022, not actual rankings of such exposures at December 31, 2021.

(b) Individuals and Individual Entities predominantly consists of Global Private Bank clients within AWM and J.P. Morgan Wealth Management within CCB, and includes exposure to personal investment companies and personal and testamentary trusts.

(c) In addition to the credit risk exposure to states and municipal governments (both U.S. and non-U.S.) at December 31, 2022 and 2021, noted above, the Firm held: $6.6 billion and $7.1 billion, respectively, of trading assets; $6.8 billion and $15.9 billion, respectively, of AFS securities; and $19.7 billion and $14.0 billion, respectively, of HTM securities, issued by U.S. state and municipal governments. Refer to Note 2 and Note 10 for further information.

(d) All other includes: SPEs and Private education and civic organizations, representing approximately 95% and 5%, respectively, at December 31, 2022 and 94% and 6%, respectively, at December 31, 2021 .

(e) Excludes cash placed with banks of $556.6 billion and $729.6 billion, at December 31, 2022 and 2021, respectively, which is predominantly placed with various central banks, primarily Federal Reserve Banks.

(f) Credit exposure is net of risk participations and excludes the benefit of credit derivatives and credit-related notes used in credit portfolio management activities held against derivative receivables or loans and liquid securities and other cash collateral held against derivative receivables.

(g) Credit exposure includes held-for-sale and fair value option elected lending-related commitments.

(h) Represents the net notional amounts of protection purchased and sold through credit derivatives and credit-related notes used to manage the credit exposures; these derivatives do not qualify for hedge accounting under U.S. GAAP. The All other category includes purchased credit protection on certain credit indices.

(i) Prior-period amounts have been revised to conform with the current presentation.

Presented below is additional detail on certain of the Firm's industry exposures.

## Real Estate

Real Estate exposure was $170.9 billion as of December 31, 2022. Criticized exposure decreased by $1.2 billion from $5.3 billion at December 31, 2021 to $4.0 billion at December 31, 2022, driven by client-specific upgrades and net portfolio activity largely offset by client-specific downgrades.

| | December 31, 2022 | | | | |
|---|---|---|---|---|---|
| (in millions, except ratios) | Loans and Lending-related Commitments | Derivative Receivables | Credit exposure | % Investment-grade | % Drawn[d] |
| Multifamily[a] | **$ 99,555** | **$ 17** | **$ 99,572** | **82 %** | **87 %** |
| Industrial | **15,928** | **1** | **15,929** | **72** | **71** |
| Office | **14,917** | **25** | **14,942** | **74** | **73** |
| Services and Non Income Producing | **13,968** | **10** | **13,978** | **65** | **48** |
| Other Income Producing Properties[b] | **12,701** | **150** | **12,851** | **70** | **62** |
| Retail | **10,192** | **8** | **10,200** | **75** | **68** |
| Lodging | **3,347** | **38** | **3,385** | **6** | **37** |
| **Total Real Estate Exposure[c]** | **$ 170,608** | **$ 249** | **$ 170,857** | **76 %** | **77 %** |

| | December 31, 2021 | | | | |
|---|---|---|---|---|---|
| (in millions, except ratios) | Loans and Lending-related Commitments | Derivative Receivables | Credit exposure | % Investment-grade | % Drawn[d] |
| Multifamily[a] | $ 89,032 | $ 122 | $ 89,154 | 84 % | 89 % |
| Industrial | 11,546 | 66 | 11,612 | 75 | 64 |
| Office | 16,409 | 234 | 16,643 | 75 | 71 |
| Services and Non Income Producing | 11,512 | 24 | 11,536 | 63 | 50 |
| Other Income Producing Properties[b] | 13,018 | 498 | 13,516 | 77 | 55 |
| Retail | 9,580 | 106 | 9,686 | 61 | 69 |
| Lodging | 2,859 | 63 | 2,922 | 5 | 33 |
| **Total Real Estate Exposure** | $ 153,956 | $ 1,113 | $ 155,069 | 77 % | 77 % |

(a) Multifamily exposure is largely in California.
(b) Other Income Producing Properties consists of clients with diversified property types or other property types outside of categories listed in the table above
(c) Real Estate exposure is approximately 79% secured; unsecured exposure is approximately 77% investment-grade.
(d) Represents drawn exposure as a percentage of credit exposure.

## Consumer & Retail

Consumer & Retail exposure was $120.6 billion as of December 31, 2022. Criticized exposure decreased by $1.9 billion from $9.9 billion at December 31, 2021 to $7.9 billion at December 31, 2022, driven by net portfolio activity and client-specific upgrades largely offset by client-specific downgrades.

| | December 31, 2022 | | | | |
|---|---|---|---|---|---|
| (in millions, except ratios) | Loans and Lending-related Commitments | Derivative Receivables | Credit exposure | % Investment-grade | % Drawn[d] |
| Retail[a] | **$ 33,891** | **$ 309** | **$ 34,200** | **50 %** | **33 %** |
| Food and Beverage | **31,706** | **736** | **32,442** | **59** | **39** |
| Business and Consumer Services | **31,256** | **384** | **31,640** | **50** | **40** |
| Consumer Hard Goods | **13,879** | **172** | **14,051** | **51** | **39** |
| Leisure[b] | **8,173** | **49** | **8,222** | **21** | **45** |
| **Total Consumer & Retail[c]** | **$ 118,905** | **$ 1,650** | **$ 120,555** | **50 %** | **38 %** |

| | December 31, 2021 | | | | |
|---|---|---|---|---|---|
| (in millions, except ratios) | Loans and Lending-related Commitments | Derivative Receivables | Credit exposure | % Investment-grade | % Drawn[d] |
| Retail[a] | $ 32,872 | $ 1,152 | $ 34,024 | 50 % | 31 % |
| Food and Beverage | 30,434 | 957 | 31,391 | 59 | 33 |
| Business and Consumer Services | 32,159 | 347 | 32,506 | 46 | 33 |
| Consumer Hard Goods | 17,035 | 111 | 17,146 | 46 | 30 |
| Leisure[b] | 7,620 | 102 | 7,722 | 17 | 34 |
| **Total Consumer & Retail** | $ 120,120 | $ 2,669 | $ 122,789 | 49 % | 32 % |

(a) Retail consists of Home Improvement & Specialty Retailers, Restaurants, Supermarkets, Discount & Drug Stores, Specialty Apparel and Department Stores.
(b) Leisure consists of Gaming, Arts & Culture, Travel Services and Sports & Recreation. As of December 31, 2022, approximately 90% of the noninvestment-grade Leisure portfolio is secured.
(c) Consumer & Retail exposure is approximately 58% secured; unsecured exposure is approximately 80% investment-grade.
(d) Represents drawn exposure as a percent of credit exposure.

## Oil & Gas

Oil & Gas exposure was $38.7 billion as of December 31, 2022. Criticized exposure decreased by $1.2 billion from $1.7 billion at December 31, 2021 to $505 million at December 31, 2022, driven by net portfolio activity and client-specific upgrades partially offset by client-specific downgrades.

| | December 31, 2022 | | | | |
|---|---|---|---|---|---|
| (in millions, except ratios) | Loans and Lending-related Commitments | Derivative Receivables | Credit exposure | % Investment-grade | % Drawn[c] |
| Exploration & Production ("E&P") and Oil field Services | **$ 17,729** | **$ 4,666** | **$ 22,395** | **50 %** | **25 %** |
| Other Oil & Gas[a] | **15,818** | **455** | **16,273** | **57** | **25** |
| **Total Oil & Gas[b]** | **$ 33,547** | **$ 5,121** | **$ 38,668** | **53 %** | **25 %** |

| | December 31, 2021 | | | | |
|---|---|---|---|---|---|
| (in millions, except ratios) | Loans and Lending-related Commitments | Derivative Receivables | Credit exposure | % Investment-grade | % Drawn[c] |
| Exploration & Production ("E&P") and Oil field Services | $ 17,631 | $ 5,452 | $ 23,083 | 39 % | 26 % |
| Other Oil & Gas[a] | 18,941 | 582 | 19,523 | 60 | 26 |
| **Total Oil & Gas** | $ 36,572 | $ 6,034 | $ 42,606 | 49 % | 26 % |

(a) Other Oil & Gas includes Integrated Oil & Gas companies, Midstream/Oil Pipeline companies and refineries.
(b) Oil & Gas exposure is approximately 41% secured, over half of which is reserve-based lending to the Exploration & Production sub-sector; unsecured exposure is approximately 61% investment-grade.
(c) Represents drawn exposure as a percent of credit exposure.

### Loans

In its wholesale businesses, the Firm provides loans to a variety of clients, ranging from large corporate and institutional clients to high-net-worth individuals. Refer to Note 12 for a further discussion on loans, including information about delinquencies, loan modifications and other credit quality indicators.

The following table presents the change in the nonaccrual loan portfolio for the years ended December 31, 2022 and 2021. Since December 31, 2021, nonaccrual loan exposure decreased by $50 million driven by Individuals and Individual Entities and Transportation due to client-specific upgrades and net portfolio activity, largely offset by Consumer & Retail due to client-specific downgrades.

#### Wholesale nonaccrual loan activity

| Year ended December 31, (in millions) | **2022** | 2021 |
|---|---|---|
| Beginning balance | **$ 2,445** | $ 4,106 |
| Additions | **2,119** | 2,909 |
| Reductions: | | |
| Paydowns and other | **1,329** | 2,676 |
| Gross charge-offs | **213** | 268 |
| Returned to performing status | **594** | 1,106 |
| Sales | **33** | 520 |
| **Total reductions** | **2,169** | 4,570 |
| **Net changes** | **(50)** | (1,661) |
| **Ending balance** | **$ 2,395** | $ 2,445 |

The following table presents net charge-offs/recoveries, which are defined as gross charge-offs less recoveries, for the years ended December 31, 2022 and 2021. The amounts in the table below do not include gains or losses from sales of nonaccrual loans recognized in noninterest revenue.

#### Wholesale net charge-offs/(recoveries)

| Year ended December 31, (in millions, except ratios) | **2022** | 2021 |
|---|---|---|
| Loans | | |
| Average loans retained | **$ 582,021** | $ 526,557 |
| Gross charge-offs | **322** | 283 |
| Gross recoveries collected | **(141)** | (141) |
| Net charge-offs/(recoveries) | **181** | 142 |
| Net charge-off/(recovery) rate | **0.03 %** | 0.03 % |

**Maturities and sensitivity to changes in interest rates**

The table below sets forth wholesale loan maturities and the distribution between fixed and floating interest rates based on the stated terms of the loan agreements by loan class. Effective December 31, 2022, the Firm revised its methodology from contractual maturities to scheduled repayments. Refer to Note 12 for further information on loan classes.

| **December 31, 2022** (in millions, except ratios) | 1 year or less[(a)] | After 1 year through 5 years | After 5 years through 15 years | After 15 years | Total |
|---|---|---|---|---|---|
| Wholesale loans: | | | | | |
| Secured by real estate | **$ 9,275** | **$ 43,060** | **$ 41,234** | **$ 41,277** | **$ 134,846** |
| Commercial and industrial | **54,408** | **115,823** | **8,493** | **193** | **178,917** |
| Other | **166,967** | **122,062** | **32,291** | **4,014** | **325,334** |
| **Total wholesale loans** | **$ 230,650** | **$ 280,945** | **$ 82,018** | **$ 45,484** | **$ 639,097** |
| **Loans due after one year at fixed interest rates** | | | | | |
| Secured by real estate | | **$ 6,087** | **$ 6,387** | **$ 724** | |
| Commercial and industrial | | **5,432** | **1,107** | **4** | |
| Other | | **23,303** | **14,792** | **2,786** | |
| **Loans due after one year at variable interest rates** | | | | | |
| Secured by real estate | | **$ 36,972** | **$ 34,847** | **$ 40,553** | |
| Commercial and industrial | | **110,391** | **7,387** | **189** | |
| Other | | **98,760** | **17,498** | **1,228** | |
| **Total wholesale loans** | | **$ 280,945** | **$ 82,018** | **$ 45,484** | |

(a) Includes loans held-for-sale, demand loans and overdrafts.

The following table presents net charge-offs/recoveries, average retained loans and net charge-off/recovery rate by loan class for the year ended December 31, 2022 and 2021.

| | Year ended December 31, | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Secured by real estate | | Commercial and industrial | | Other | | Total | |
| (in millions, except ratios) | **2022** | 2021 | **2022** | 2021 | **2022** | 2021 | **2022** | 2021 |
| Net charge-offs/(recoveries) | **$ 6** | $ 13 | **$ 145** | $ 105 | **$ 30** | $ 24 | **$ 181** | $ 142 |
| Average retained loans | **122,904** | 118,417 | **160,611** | 138,015 | **298,506** | 270,125 | **582,021** | 526,557 |
| Net charge-off/(recovery) rate | **— %** | 0.01 % | **0.09 %** | 0.08 % | **0.01 %** | 0.01 % | **0.03 %** | 0.03 % |

### Lending-related commitments

The Firm uses lending-related financial instruments, such as commitments (including revolving credit facilities) and guarantees, to address the financing needs of its clients. The contractual amounts of these financial instruments represent the maximum possible credit risk should the clients draw down on these commitments or when the Firm fulfills its obligations under these guarantees, and the clients subsequently fail to perform according to the terms of these contracts. Most of these commitments and guarantees have historically been refinanced, extended, cancelled, or expired without being drawn upon or a default occurring. As a result, the Firm does not believe that the total contractual amount of these wholesale lending-related commitments is representative of the Firm's expected future credit exposure or funding requirements. Refer to Note 28 for further information on wholesale lending-related commitments.

### Receivables from customers

Receivables from customers reflect held-for-investment margin loans to brokerage clients in CIB, CCB and AWM that are collateralized by assets maintained in the clients' brokerage accounts (e.g., cash on deposit, and liquid and readily marketable debt or equity securities). Because of this collateralization, no allowance for credit losses is generally held against these receivables. To manage its credit risk, the Firm establishes margin requirements and monitors the required margin levels on an ongoing basis, and requires clients to deposit additional cash or other collateral, or to reduce positions, when appropriate. These receivables are reported within accrued interest and accounts receivable on the Firm's Consolidated balance sheets.

### Derivative contracts

Derivatives enable clients and counterparties to manage risk, including credit risk and risks arising from fluctuations in interest rates, foreign exchange and equities and commodities prices. The Firm makes markets in derivatives in order to meet these needs and uses derivatives to manage certain risks associated with net open risk positions from its market-making activities, including the counterparty credit risk arising from derivative receivables. The Firm also uses derivative instruments to manage its own credit risk and other market risk exposure. The nature of the counterparty and the settlement mechanism of the derivative affect the credit risk to which the Firm is exposed. For OTC derivatives, the Firm is exposed to the credit risk of the derivative counterparty. For exchange-traded derivatives ("ETD"), such as futures and options, and cleared over-the-counter ("OTC-cleared") derivatives, the Firm can also be exposed to the credit risk of the relevant CCP. Where possible, the Firm seeks to mitigate its credit risk exposures arising from derivative contracts through the use of legally enforceable master netting arrangements and collateral agreements. The percentage of the Firm's OTC derivative transactions subject to collateral agreements — excluding foreign exchange spot trades, which are not typically covered by collateral agreements due to their short maturity and centrally cleared trades that are settled daily — was approximately 87% and 88% at December 31, 2022 and 2021, respectively. Refer to Note 5 for additional information on the Firm's use of collateral agreements and further discussion of derivative contracts, counterparties and settlement types.

The fair value of derivative receivables reported on the Consolidated balance sheets were $70.9 billion and $57.1 billion at December 31, 2022 and 2021, respectively. The increase was primarily driven by higher foreign exchange as a result of market movements. Derivative receivables represent the fair value of the derivative contracts after giving effect to legally enforceable master netting agreements and the related cash collateral held by the Firm.

In addition, the Firm held liquid securities and other cash collateral that may be used as security when the fair value of the client's exposure is in the Firm's favor. For these purposes, the definition of liquid securities is consistent with the definition of high quality liquid assets as defined in the LCR rule.

In management's view, the appropriate measure of current credit risk should also take into consideration other collateral, which generally represents securities that do not qualify as high quality liquid assets under the LCR rule. The benefits of these additional collateral amounts for each counterparty are subject to a legally enforceable master netting agreement and limited to the net amount of the derivative receivables for each counterparty.

The Firm also holds additional collateral (primarily cash, G7 government securities, other liquid government agency and guaranteed securities, and corporate debt and equity securities) delivered by clients at the initiation of transactions, as well as collateral related to contracts that have a non-daily call frequency and collateral that the Firm has agreed to return but has not yet settled as of the reporting date. Although this collateral does not reduce the balances and is not included in the tables below, it is available as security against potential exposure that could arise should the fair value of the client's derivative contracts move in the Firm's favor. Refer to Note 5 for additional information on the Firm's use of collateral agreements.

The following tables summarize the net derivative receivables and the internal ratings profile for the periods presented.

### Derivative receivables

| December 31, (in millions) | 2022 | 2021 |
|---|---|---|
| **Total, net of cash collateral** | **$ 70,880** | $ 57,081 |
| Liquid securities and other cash collateral held against derivative receivables | **(23,014)** | (10,102) |
| **Total, net of liquid securities and other cash collateral** | **$ 47,866** | $ 46,979 |
| Other collateral held against derivative receivables | **(1,261)** | (1,544) |
| **Total, net of collateral** | **$ 46,605** | $ 45,435 |

## Ratings profile of derivative receivables

| December 31, (in millions, except ratios) | 2022 Exposure net of collateral | 2022 % of exposure net of collateral | 2021 Exposure net of collateral | 2021 % of exposure net of collateral |
|---|---|---|---|---|
| Investment-grade | **$ 35,097** | **75 %** | $ 30,278 | 67 % |
| Noninvestment-grade | **11,508** | **25** | 15,157 | 33 |
| **Total** | **$ 46,605** | **100 %** | $ 45,435 | 100 % |

While useful as a current view of credit exposure, the net fair value of the derivative receivables does not capture the potential future variability of that credit exposure. To capture the potential future variability of credit exposure, the Firm calculates, on a client-by-client basis, three measures of potential derivatives-related credit loss: Peak, Derivative Risk Equivalent ("DRE"), and Average exposure ("AVG"). These measures all incorporate netting and collateral benefits, where applicable.

Peak represents a conservative measure of potential derivative exposure, including the benefit of collateral, to a counterparty calculated in a manner that is broadly equivalent to a 97.5% confidence level over the life of the transaction. Peak is the primary measure used by the Firm for setting credit limits for derivative contracts, senior management reporting and derivatives exposure management.

DRE exposure is a measure that expresses the risk of derivative exposure, including the benefit of collateral, on a basis intended to be equivalent to the risk of loan exposures. DRE is a less extreme measure of potential credit loss than Peak and is used as an input for aggregating derivative credit risk exposures with loans and other credit risk.

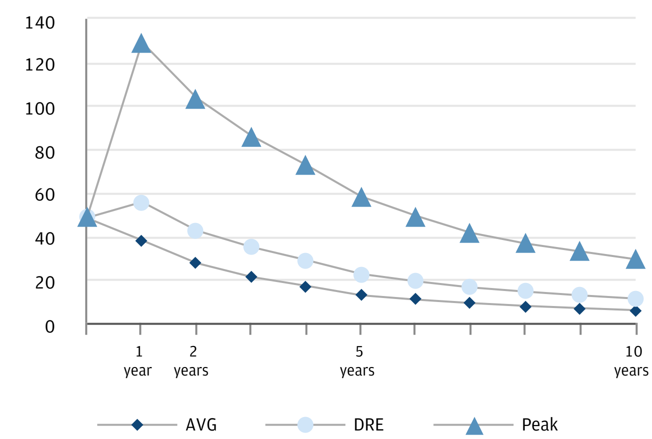
Finally, AVG is a measure of the expected fair value of the Firm's derivative exposure, including the benefit of collateral, at future time periods. AVG over the total life of the derivative contract is used as the primary metric for pricing purposes and is used to calculate credit risk capital and CVA, as further described below.

The fair value of the Firm's derivative receivables incorporates CVA to reflect the credit quality of counterparties. CVA is based on the Firm's AVG to a counterparty and the counterparty's credit spread in the credit derivatives market. The Firm believes that active risk management is essential to controlling the dynamic credit risk in the derivatives portfolio. In addition, the Firm's risk management process for derivatives exposures takes into consideration the potential impact of wrong-way risk, which is broadly defined as the risk that exposure to a counterparty is positively correlated with the impact of a default by the same counterparty, which could cause exposure to increase at the same time as the counterparty's capacity to meet its obligations is decreasing. Many factors may influence the nature and magnitude of these correlations over time. To the extent that these correlations are identified, the Firm may adjust the CVA associated with a particular counterparty's AVG. The Firm risk manages exposure to changes in CVA by entering into credit derivative contracts, as well as interest rate, foreign exchange, equity and commodity derivative contracts.

The below graph shows exposure profiles to the Firm's current derivatives portfolio over the next 10 years as calculated by the Peak, DRE and AVG metrics. The three measures generally show that exposure will decline after the first year, if no new trades are added to the portfolio.

### Exposure profile of derivatives measures

December 31, 2022
(in billions)



### Credit derivatives

The Firm uses credit derivatives for two primary purposes: first, in its capacity as a market-maker, and second, as an end-user to manage the Firm's own credit risk associated with various exposures.

### Credit portfolio management activities

Included in the Firm's end-user activities are credit derivatives used to mitigate the credit risk associated with traditional lending activities (loans and lending-related commitments) and derivatives counterparty exposure in the Firm's wholesale businesses (collectively, "credit portfolio management activities"). Information on credit portfolio management activities is provided in the table below.

The Firm also uses credit derivatives as an end-user to manage other exposures, including credit risk arising from certain securities held in the Firm's market-making businesses. These credit derivatives are not included in credit portfolio management activities.

### Credit derivatives and credit-related notes used in credit portfolio management activities

| December 31, (in millions) | Notional amount of protection purchased and sold[(a)] 2022 | 2021 | |
|---|---|---|---|
| Credit derivatives and credit-related notes used to manage: | | | |
| Loans and lending-related commitments | $ **6,422** | $ 4,138 | |
| Derivative receivables | **11,721** | 14,573 | (b) |
| **Credit derivatives and credit-related notes used in credit portfolio management activities** | **$ 18,143** | $ 18,711 | |

(a) Amounts are presented net, considering the Firm's net protection purchased or sold with respect to each underlying reference entity or index.

(b) Prior-period amount has been revised to conform with the current presentation

The credit derivatives used in credit portfolio management activities do not qualify for hedge accounting under U.S. GAAP; these derivatives are reported at fair value, with gains and losses recognized in principal transactions revenue. In contrast, the loans and lending-related commitments being risk-managed are accounted for on an accrual basis. This asymmetry in accounting treatment, between loans and lending-related commitments and the credit derivatives used in credit portfolio management activities, causes earnings volatility that is not representative, in the Firm's view, of the true changes in value of the Firm's overall credit exposure.

The effectiveness of credit default swaps ("CDS") as a hedge against the Firm's exposures may vary depending on a number of factors, including the named reference entity (i.e., the Firm may experience losses on specific exposures that are different than the named reference entities in the purchased CDS); the contractual terms of the CDS (which may have a defined credit event that does not align with an actual loss realized by the Firm); and the maturity of the Firm's CDS protection (which in some cases may be shorter than the Firm's exposures). However, the Firm generally seeks to purchase credit protection with a maturity date that is the same or similar to the maturity date of the exposure for which the protection was purchased, and remaining differences in maturity are actively monitored and managed by the Firm. Refer to Credit derivatives in Note 5 for further information on credit derivatives and derivatives used in credit portfolio management activities.

## ALLOWANCE FOR CREDIT LOSSES

The Firm's allowance for credit losses represents management's estimate of expected credit losses over the remaining expected life of the Firm's financial assets measured at amortized cost and certain off-balance sheet lending-related commitments. The Firm's allowance for credit losses comprises:

- the allowance for loan losses, which covers the Firm's retained loan portfolios (scored and risk-rated) and is presented separately on the Consolidated balance sheets,
- the allowance for lending-related commitments, which is reflected in accounts payable and other liabilities on the Consolidated balance sheets, and
- the allowance for credit losses on investment securities, which is reflected in investment securities on the Consolidated balance sheets.

*Discussion of changes in the allowance*

The allowance for credit losses as of December 31, 2022 was $22.2 billion, reflecting a net addition of $3.5 billion from December 31, 2021, consisting of:

- $2.3 billion in wholesale, driven by deterioration in the Firm's macroeconomic outlook and loan growth, predominantly in CB and CIB, and
- $1.2 billion in consumer, predominantly driven by Card Services, reflecting higher outstanding balances and deterioration in the Firm's macroeconomic outlook, partially offset by a reduction in the allowance related to a decrease in uncertainty associated with borrower behavior as the effects of the pandemic gradually recede.

Deterioration in the Firm's macroeconomic outlook included both updates to the central scenario in the fourth quarter of 2022, which now reflects a mild recession, as well as the impact of the increased weight placed on the adverse scenarios beginning in the first quarter of 2022 due to the effects associated with higher inflation, changes in monetary policy, and geopolitical risks, including the war in Ukraine.

The Firm's allowance for credit losses is estimated using a weighted average of five internally developed macroeconomic scenarios. The adverse scenarios incorporate more punitive macroeconomic factors than the central case assumptions provided in the table below, resulting in a weighted average U.S. unemployment rate peaking at 5.6% in the second quarter of 2024, and a 1.2% lower U.S. real GDP exiting the second quarter of 2024.

The Firm's central case assumptions reflected U.S. unemployment rates and U.S. real GDP as follows:

| | **Assumptions at December 31, 2022** | | |
|---|---|---|---|
| | **2Q23** | **4Q23** | **2Q24** |
| U.S. unemployment rate[(a)] | **3.8 %** | **4.3 %** | **5.0 %** |
| YoY growth in U.S. real GDP[(b)] | **1.5 %** | **0.4 %** | **– %** |

| | Assumptions at December 31, 2021 | | |
|---|---|---|---|
| | 2Q22 | 4Q22 | 2Q23 |
| U.S. unemployment rate[(a)] | 4.2 % | 4.0 % | 3.9 % |
| YoY growth in U.S. real GDP[(b)] | 3.1 % | 2.8 % | 2.1 % |

(a) Reflects quarterly average of forecasted U.S. unemployment rate.
(b) The year over year growth in U.S. real GDP in the forecast horizon of the central scenario is calculated as the percentage change in U.S. real GDP levels from the prior year.

Subsequent changes to this forecast and related estimates will be reflected in the provision for credit losses in future periods.

Refer to Critical Accounting Estimates Used by the Firm on pages 149-152 for further information on the allowance for credit losses and related management judgments.
Refer to Consumer Credit Portfolio on pages 110-115, Wholesale Credit Portfolio on pages 116-126 for additional information on the consumer and wholesale credit portfolios.

## Allowance for credit losses and related information

| Year ended December 31, (in millions, except ratios) | 2022 Consumer, excluding credit card | 2022 Credit card | 2022 Wholesale | 2022 Total | 2021 Consumer, excluding credit card | 2021 Credit card | 2021 Wholesale | 2021 Total |
|---|---|---|---|---|---|---|---|---|
| **Allowance for loan losses** | | | | | | | | |
| Beginning balance at January 1, | **$ 1,765** | **$ 10,250** | **$ 4,371** | **$ 16,386** | $ 3,636 | $ 17,800 | $ 6,892 | $ 28,328 |
| Gross charge-offs | **812** | **3,192** | **322** | **4,326** | 630 | 3,651 | 283 | 4,564 |
| Gross recoveries collected | **(543)** | **(789)** | **(141)** | **(1,473)** | (619) | (939) | (141) | (1,699) |
| **Net charge-offs** | **269** | **2,403** | **181** | **2,853** | 11 | 2,712 | 142 | 2,865 |
| Provision for loan losses | **543** | **3,353** | **2,293** | **6,189** | (1,858) | (4,838) | (2,375) | (9,071) |
| Other | **1** | **–** | **3** | **4** | (2) | – | (4) | (6) |
| **Ending balance at December 31,** | **$ 2,040** | **$ 11,200** | **$ 6,486** | **$ 19,726** | $ 1,765 | $ 10,250 | $ 4,371 | $ 16,386 |
| **Allowance for lending-related commitments** | | | | | | | | |
| Beginning balance at January 1, | **$ 113** | **$ –** | **$ 2,148** | **$ 2,261** | $ 187 | $ – | $ 2,222 | $ 2,409 |
| Provision for lending-related commitments | **(37)** | **–** | **157** | **120** | (75) | – | (74) | (149) |
| Other | **–** | **–** | **1** | **1** | 1 | – | – | 1 |
| **Ending balance at December 31,** | **$ 76** | **$ –** | **$ 2,306** | **$ 2,382** | $ 113 | $ – | $ 2,148 | $ 2,261 |
| **Impairment methodology** | | | | | | | | |
| Asset-specific[(a)] | **$ (624)** | **$ 223** | **$ 467** | **$ 66** | $ (665) | $ 313 | $ 263 | $ (89) |
| Portfolio-based | **2,664** | **10,977** | **6,019** | **19,660** | 2,430 | 9,937 | 4,108 | 16,475 |
| **Total allowance for loan losses** | **$ 2,040** | **$ 11,200** | **$ 6,486** | **$ 19,726** | $ 1,765 | $ 10,250 | $ 4,371 | $ 16,386 |
| **Impairment methodology** | | | | | | | | |
| Asset-specific | **$ –** | **$ –** | **$ 90** | **$ 90** | $ – | $ – | $ 167 | $ 167 |
| Portfolio-based | **76** | **–** | **2,216** | **2,292** | 113 | – | 1,981 | 2,094 |
| **Total allowance for lending-related commitments** | **$ 76** | **$ –** | **$ 2,306** | **$ 2,382** | $ 113 | $ – | $ 2,148 | $ 2,261 |
| **Total allowance for investment securities** | **NA** | **NA** | **NA** | **$ 96** | NA | NA | NA | $ 42 |
| **Total allowance for credit losses[(b)]** | **$ 2,116** | **$ 11,200** | **$ 8,792** | **$ 22,204** | $ 1,878 | $ 10,250 | $ 6,519 | $ 18,689 |
| **Memo:** | | | | | | | | |
| Retained loans, end of period | **$ 300,753** | **$ 185,175** | **$ 603,670** | **$ 1,089,598** | $295,556 | $154,296 | $560,354 | $1,010,206 |
| Retained loans, average | **299,409** | **163,335** | **582,021** | **1,044,765** | 298,814 | 139,900 | 526,557 | 965,271 |
| **Credit ratios** | | | | | | | | |
| Allowance for loan losses to retained loans | **0.68 %** | **6.05 %** | **1.07 %** | **1.81 %** | 0.60 % | 6.64 % | 0.78 % | 1.62 % |
| Allowance for loan losses to retained nonaccrual loans[(c)] | **53** | **NM** | **330** | **338** | 36 | NM | 213 | 236 |
| Allowance for loan losses to retained nonaccrual loans excluding credit card | **53** | **NM** | **330** | **146** | 36 | NM | 213 | 89 |
| Net charge-off rates | **0.09** | **1.47** | **0.03** | **0.27** | – | 1.94 | 0.03 | 0.30 |

(a) Includes collateral dependent loans, including those considered TDRs and those for which foreclosure is deemed probable, modified PCD loans, and non-collateral dependent loans that have been modified or are reasonably expected to be modified in a TDR. Also includes risk-rated loans that have been placed on nonaccrual status for the wholesale portfolio segment. The asset-specific credit card allowance for loan losses modified or reasonably expected to be modified in a TDR is calculated based on the loans' original contractual interest rates and does not consider any incremental penalty rates.

(b) At December 31, 2022, excludes an allowance for credit losses associated with certain accounts receivable in CIB of $21 million.

(c) The Firm's policy is generally to exempt credit card loans from being placed on nonaccrual status as permitted by regulatory guidance.

## Allocation of allowance for loan losses

The table below presents a breakdown of the allowance for loan losses by loan class. Refer to Note 12 for further information on loan classes.

| December 31, (in millions, except ratios) | 2022 Allowance for loan losses | 2022 Percent of retained loans to total retained loans | 2021 Allowance for loan losses | 2021 Percent of retained loans to total retained loans |
|---|---|---|---|---|
| Residential real estate | **$ 1,070** | **22 %** | $ 817 | 22 % |
| Auto and other | **970** | **6** | 948 | 7 |
| **Consumer, excluding credit card** | **2,040** | **28** | 1,765 | 29 |
| **Credit card** | **11,200** | **17** | 10,250 | 15 |
| **Total consumer** | **13,240** | **45** | 12,015 | 45 |
| Secured by real estate | **1,782** | **12** | 1,495 | 12 |
| Commercial and industrial | **3,507** | **15** | 1,881 | 14 |
| Other | **1,197** | **28** | 995 | 29 |
| **Total wholesale** | **6,486** | **55** | 4,371 | 55 |
| **Total** | **$ 19,726** | **100 %** | $ 16,386 | 100 % |

## INVESTMENT PORTFOLIO RISK MANAGEMENT

Investment portfolio risk is the risk associated with the loss of principal or a reduction in expected returns on investments arising from the investment securities portfolio or from principal investments. The investment securities portfolio is predominantly held by Treasury and CIO in connection with the Firm's balance sheet and asset-liability management objectives. Principal investments are predominantly privately-held financial instruments and are managed in the LOBs and Corporate. Investments are typically intended to be held over extended periods and, accordingly, the Firm has no expectation for short-term realized gains with respect to these investments.

### Investment securities risk

Investment securities risk includes the exposure associated with a default in the payment of principal and interest. This risk is mitigated given that the investment securities portfolio held by Treasury and CIO predominantly consists of high-quality securities. At December 31, 2022, the Treasury and CIO investment securities portfolio, net of the allowance for credit losses, was $629.3 billion, and the average credit rating of the securities comprising the portfolio was AA+ (based upon external ratings where available, and where not available, based primarily upon internal risk ratings). Refer to Corporate segment results on pages 79-80 and Note 10 for further information on the investment securities portfolio and internal risk ratings. Refer to Liquidity Risk Management on pages 97-104 for further information on related liquidity risk. Refer to Market Risk Management on pages 131-138 for further information on the market risk inherent in the portfolio.

*Governance and oversight*

Investment securities risks are governed by the Firm's Risk Appetite framework, and reviewed at the CTC Risk Committee with regular updates provided to the Board Risk Committee.

The Firm's independent control functions are responsible for reviewing the appropriateness of the carrying value of investment securities in accordance with relevant policies. Approved levels for investment securities are established for each risk category, including capital and credit risks.

### Principal investment risk

Principal investments are typically privately-held financial instruments representing ownership interests or other forms of junior capital. In general, principal investments include tax-oriented investments and investments made to enhance or accelerate the Firm's business strategies and exclude those that are consolidated on the Firm's balance sheets. These investments are made by dedicated investing businesses or as part of a broader business strategy. The Firm's principal investments are managed by the LOBs and Corporate and are reflected within their respective financial results. The Firm's investments will continue to evolve in line with its strategies, including the Firm's commitment to support underserved communities and minority-owned businesses.

The table below presents the aggregate carrying values of the principal investment portfolios as of December 31, 2022 and 2021.

| (in billions) | December 31, 2022 | December 31, 2021 |
|---|---|---|
| Tax-oriented investments, primarily in alternative energy and affordable housing | **$ 26.2** | $ 23.2 |
| Private equity, various debt and equity instruments, and real assets | **10.8** (a) | 7.3 |
| **Total carrying value** | **$ 37.0** | $ 30.5 |

(a) Includes the Firm's 40% ownership in C6 Bank and 49% ownership in Viva Wallet.

*Governance and oversight*

The Firm's approach to managing principal risk is consistent with the Firm's risk governance structure. The Firm has established a Firmwide risk policy framework for all principal investing activities that includes approval by executives who are independent from the investing businesses, as appropriate.

The Firm's independent control functions are responsible for reviewing the appropriateness of the carrying value of investments in accordance with relevant policies. As part of the risk governance structure, approved levels for investments are established and monitored for each relevant business or segment in order to manage the overall size of the portfolios. The Firm also conducts stress testing on these portfolios using specific scenarios that estimate losses based on significant market moves and/or other risk events.

Market risk is the risk associated with the effect of changes in market factors such as interest and foreign exchange rates, equity and commodity prices, credit spreads or implied volatilities, on the value of assets and liabilities held for both the short and long term.

### Market Risk Management

Market Risk Management monitors market risks throughout the Firm and defines market risk policies and procedures.

Market Risk Management seeks to manage risk, facilitate efficient risk/return decisions, reduce volatility in operating performance and provide transparency into the Firm's market risk profile for senior management, the Board of Directors and regulators. Market Risk Management is responsible for the following functions:

- Maintaining a market risk policy framework
- Independently measuring, monitoring and controlling LOB, Corporate, and Firmwide market risk
- Defining, approving and monitoring of limits
- Performing stress testing and qualitative risk assessments

## Risk measurement

### Measures used to capture market risk

There is no single measure to capture market risk and therefore Market Risk Management uses various metrics, both statistical and nonstatistical, to assess risk including:

- Value-at-risk (VaR)
- Stress testing
- Profit and loss drawdowns
- Earnings-at-risk
- Other sensitivity-based measures

### Risk monitoring and control

Market risk exposure is managed primarily through a series of limits set in the context of the market environment and business strategy. In setting limits, Market Risk Management takes into consideration factors such as market volatility, product liquidity, accommodation of client business, and management judgment. Market Risk Management maintains different levels of limits. Firm level limits include VaR and stress limits. Similarly, LOB and Corporate limits include VaR and stress limits and may be supplemented by certain nonstatistical risk measures such as profit and loss drawdowns. Limits may also be set within the LOBs and Corporate, as well as at the legal entity level.

Market Risk Management sets limits and regularly reviews and updates them as appropriate. Senior management is responsible for reviewing and approving certain of these risk limits on an ongoing basis. Limits that have not been reviewed within specified time periods by Market Risk Management are reported to senior management. The LOBs and Corporate are responsible for adhering to established limits against which exposures are monitored and reported.

Limit breaches are required to be reported in a timely manner to limit approvers, which include Market Risk Management and senior management. In the event of a breach, Market Risk Management consults with senior members of appropriate groups within the Firm to determine the suitable course of action required to return the applicable positions to compliance, which may include a reduction in risk in order to remedy the breach or granting a temporary increase in limits to accommodate an expected increase in client activity and/or market volatility. Certain Firm, Corporate or LOB-level limit breaches are escalated as appropriate.

Models used to measure market risk are inherently imprecise and are limited in their ability to measure certain risks or to predict losses. This imprecision may be heightened when sudden or severe shifts in market conditions occur. For additional discussion on model uncertainty refer to Estimations and Model Risk Management on page 148.

Market Risk Management periodically reviews the Firm's existing market risk measures to identify opportunities for enhancement, and to the extent appropriate, will calibrate those measures accordingly over time.

The following table summarizes the predominant business activities and related market risks, as well as positions which give rise to market risk and certain measures used to capture those risks, for each LOB and Corporate.

In addition to the predominant business activities, each LOB and Corporate may engage in principal investing activities. To the extent principal investments are deemed market risk sensitive, they are reflected in relevant risk measures and captured in the table below. Refer to Investment Portfolio Risk Management on page 130 for additional discussion on principal investments.

| LOBs and Corporate | Predominant business activities | Related market risks | Positions included in Risk Management VaR | Positions included in earnings-at-risk | Positions included in other sensitivity-based measures |
|---|---|---|---|---|---|
| ***CCB*** | • Originates and services mortgage loans<br>• Originates loans and takes deposits | • Risk from changes in the probability of newly originated mortgage commitments closing<br>• Interest rate risk and prepayment risk | • Mortgage commitments, classified as derivatives<br>• Warehouse loans that are fair value option elected, classified as loans – debt instruments<br>• MSRs<br>• Hedges of mortgage commitments, warehouse loans and MSRs, classified as derivatives<br>• Interest-only and mortgage-backed securities, classified as trading assets debt instruments, and related hedges, classified as derivatives<br>• Fair value option elected liabilities[a] | • Retained loan portfolio<br>• Deposits | • Fair value option elected liabilities DVA[a] |
| ***CIB*** | • Makes markets and services clients across fixed income, foreign exchange, equities and commodities<br>• Originates loans and takes deposits | • Risk of loss from adverse movements in market prices and implied volatilities across interest rate, foreign exchange, credit, commodity and equity instruments<br>• Basis and correlation risk from changes in the way asset values move relative to one another<br>• Interest rate risk and prepayment risk | • Trading assets/liabilities – debt and marketable equity instruments, and derivatives, including hedges of the retained loan portfolio<br>• Certain securities purchased, loaned or sold under resale agreements and securities borrowed<br>• Fair value option elected liabilities[a]<br>• Certain fair value option elected loans<br>• Derivative CVA and associated hedges<br>• Marketable equity investments | • Retained loan portfolio<br>• Deposits | • Privately held equity and other investments measured at fair value; and certain real estate-related fair value option elected loans<br>• Derivatives FVA and fair value option elected liabilities DVA(a)<br>• Credit risk component of CVA and associated hedges for counterparties with credit spreads that have widened to elevated levels |
| ***CB*** | • Originates loans and takes deposits | • Interest rate risk and prepayment risk | • Marketable equity investments[b] | • Retained loan portfolio<br>• Deposits | |
| ***AWM*** | • Provides initial capital investments in products such as mutual funds and capital invested alongside third-party investors<br>• Originates loans and takes deposits | • Risk from adverse movements in market factors (e.g., market prices, rates and credit spreads)<br>• Interest rate risk and prepayment risk | • Debt securities held in advance of distribution to clients, classified as trading assets - debt instruments[b] | • Retained loan portfolio<br>• Deposits | • Initial seed capital investments and related hedges, classified as derivatives<br>• Certain deferred compensation and related hedges, classified as derivatives<br>• Capital invested alongside third-party investors, typically in privately distributed collective vehicles managed by AWM (i.e., co-investments) |
| ***Corporate*** | • Manages the Firm's liquidity, funding, capital, structural interest rate and foreign exchange risks | • Structural interest rate risk from the Firm's traditional banking activities<br>• Structural non-USD foreign exchange risks | • Derivative positions measured through noninterest revenue in earnings<br>• Marketable equity investments | • Deposits with banks<br>• Investment securities portfolio and related interest rate hedges<br>• Long-term debt and related interest rate hedges<br>• Deposits | • Privately held equity and other investments measured at fair value<br>• Foreign exchange exposure related to Firm-issued non-USD long-term debt ("LTD") and related hedges |

(a) Reflects structured notes in Risk Management VaR and the DVA on structured notes in other sensitivity-based measures.
(b) The AWM and CB contributions to Firmwide average VaR were not material for the years ended December 31, 2022 and 2021.

## Value-at-risk

JPMorgan Chase utilizes value-at-risk ("VaR"), a statistical risk measure, to estimate the potential loss from adverse market moves in the current market environment. The Firm has a single VaR framework used as a basis for calculating Risk Management VaR and Regulatory VaR.

The framework is employed across the Firm using historical simulation based on data for the previous 12 months. The framework's approach assumes that historical changes in market values are representative of the distribution of potential outcomes in the immediate future. The Firm believes the use of Risk Management VaR provides a daily measure of risk that is closely aligned to risk management decisions made by the LOBs and Corporate and, along with other market risk measures, provides the appropriate information needed to respond to risk events.

The Firm's Risk Management VaR is calculated assuming a one-day holding period and an expected tail-loss methodology which approximates a 95% confidence level. Risk Management VaR provides a consistent framework to measure risk profiles and levels of diversification across product types and is used for aggregating risks and monitoring limits across businesses. VaR results are reported to senior management, the Board of Directors and regulators.

Underlying the overall VaR model framework are individual VaR models that simulate historical market returns for individual risk factors and/or product types. To capture material market risks as part of the Firm's risk management framework, comprehensive VaR model calculations are performed daily for businesses whose activities give rise to market risk. These VaR models are granular and incorporate numerous risk factors and inputs to simulate daily changes in market values over the historical period; inputs are selected based on the risk profile of each portfolio, as sensitivities and historical time series used to generate daily market values may be different across product types or risk management systems. The VaR model results across all portfolios are aggregated at the Firm level.

As VaR is based on historical data, it is an imperfect measure of market risk exposure and potential future losses. In addition, based on their reliance on available historical data, limited time horizons, and other factors, VaR measures are inherently limited in their ability to measure certain risks and to predict losses, particularly those associated with market illiquidity and sudden or severe shifts in market conditions.

For certain products, specific risk parameters are not captured in VaR due to the lack of liquidity and availability of appropriate historical data. The Firm uses proxies to estimate the VaR for these and other products when daily time series are not available. It is likely that using an actual price-based time series for these products, if available, would affect the VaR results presented. The Firm therefore considers other nonstatistical measures such as stress testing, in addition to VaR, to capture and manage its market risk positions.

The daily market data used in VaR models may be different than the independent third-party data collected for VCG price testing in its monthly valuation process. For example, in cases where market prices are not observable, or where proxies are used in VaR historical time series, the data sources may differ. Refer to Valuation process in Note 2 for further information on the Firm's valuation process. As VaR model calculations require daily data and a consistent source for valuation, it may not be practical to use the data collected in the VCG monthly valuation process for VaR model calculations.

The Firm's VaR model calculations are periodically evaluated and enhanced in response to changes in the composition of the Firm's portfolios, changes in market conditions, improvements in the Firm's modeling techniques and measurements, and other factors. Such changes may affect historical comparisons of VaR results. Refer to Estimations and Model Risk Management on page 148 for information regarding model reviews and approvals.

The Firm calculates separately a daily aggregated VaR in accordance with regulatory rules ("Regulatory VaR"), which is used to derive the Firm's regulatory VaR-based capital requirements under Basel III capital rules. This Regulatory VaR model framework currently assumes a ten business-day holding period and an expected tail loss methodology which approximates a 99% confidence level. Regulatory VaR is applied to "covered" positions as defined by Basel III capital rules, which may be different than the positions included in the Firm's Risk Management VaR. For example, credit derivative hedges of accrual loans are included in the Firm's Risk Management VaR, while Regulatory VaR excludes these credit derivative hedges. In addition, in contrast to the Firm's Risk Management VaR, Regulatory VaR currently excludes the diversification benefit for certain VaR models.

Refer to JPMorgan Chase's Basel III Pillar 3 Regulatory Capital Disclosures reports, which are available on the Firm's website, for additional information on Regulatory VaR and the other components of market risk regulatory capital for the Firm (e.g., VaR-based measure, stressed VaR-based measure and the respective backtesting).

The table below shows the results of the Firm's Risk Management VaR measure using a 95% confidence level. VaR can vary significantly as positions change, market volatility fluctuates, and diversification benefits change.

### Total VaR

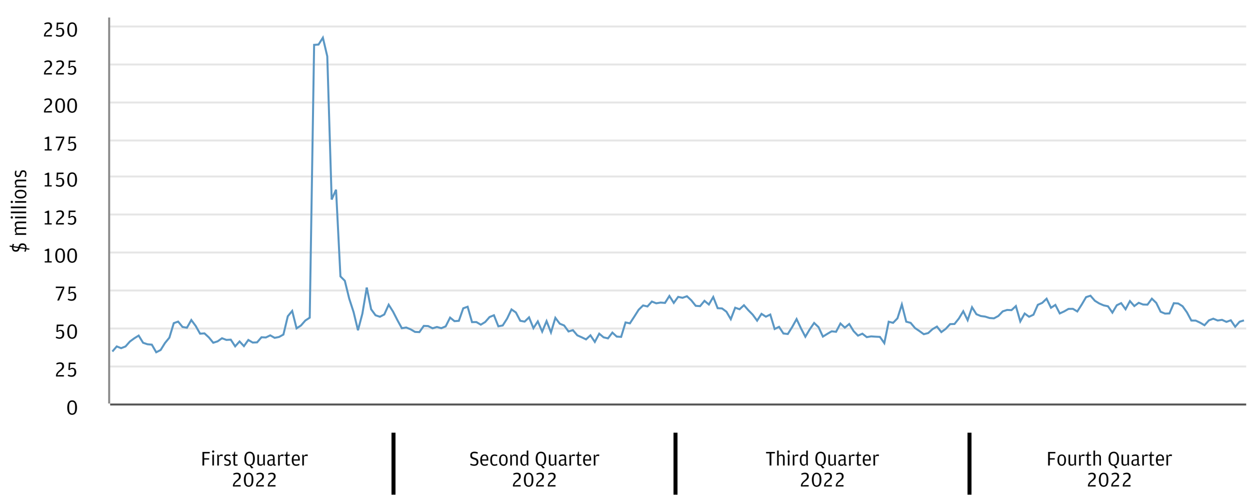
| As of or for the year ended December 31, | 2022 | | | 2021 | | |
|---|---|---|---|---|---|---|
| (in millions) | Avg. | Min | Max | Avg. | Min | Max |
| **CIB trading VaR by risk type** | | | | | | |
| Fixed income | **$ 59** | **$ 33** | **$ 82** | $ 60 | $ 30 | $ 153 |
| Foreign exchange | **8** | **3** | **15** | 6 | 2 | 27 |
| Equities | **12** | **7** | **20** | 16 | 8 | 38 |
| Commodities and other | **15** | **10** | **28** | 19 | 9 | 43 |
| Diversification benefit to CIB trading VaR | **(43)** [(a)] | **NM** [(e)] | **NM** [(e)] | (49) [(a)] | NM [(e)] | NM [(e)] |
| **CIB trading VaR** | **51** | **34** | **69** | 52 | 22 | 134 |
| Credit Portfolio VaR | **16** [(b)(c)] | **4** [(b)] | **235** [(b)(c)] | 6 | 4 | 12 |
| Diversification benefit to CIB VaR | **(10)** [(a)] | **NM** [(e)] | **NM** [(e)] | (6) [(a)] | NM [(e)] | NM [(e)] |
| **CIB VaR** | **57** | **35** | **240** | 52 | 22 | 133 |
| CCB VaR | **6** | **2** | **20** | 5 | 3 | 11 |
| Corporate and other LOB VaR | **12** [(d)] | **9** | **16** [(d)] | 24 [(d)] | 14 | 94 [(d)] |
| Diversification benefit to other VaR | **(4)** [(a)] | **NM** [(e)] | **NM** [(e)] | (4) [(a)] | NM [(e)] | NM [(e)] |
| **Other VaR** | **14** | **10** | **24** | 25 | 14 | 94 |
| Diversification benefit to CIB and other VaR | **(13)** [(a)] | **NM** [(e)] | **NM** [(e)] | (22) [(a)] | NM [(e)] | NM [(e)] |
| **Total VaR** | **$ 58** | **$ 34** | **$ 242** | $ 55 | $ 24 | $ 153 |

(a) Diversification benefit represents the difference between the portfolio VaR and the sum of its individual components. This reflects the non-additive nature of VaR due to imperfect correlation across LOBs, Corporate, and risk types.
(b) In the first quarter of 2022, in line with the Firm's internal model governance, the credit risk component of CVA related to certain counterparties was removed from Credit Portfolio VaR due to the widening of the credit spreads for those counterparties to elevated levels. The related hedges were also removed to maintain consistency. This exposure is now reflected in other sensitivity-based measures.
(c) In March 2022, the effects of nickel price increases and the associated volatility in the nickel market resulted in elevated average and maximum Credit Portfolio VaR.
(d) The decrease in Corporate and other LOB VaR was driven by lower market values for a legacy private equity position in Corporate which is publicly traded.
(e) The maximum and minimum VaR for each portfolio may have occurred on different trading days than the components, and consequently, diversification benefit is not meaningful.

Average Total VaR increased by $3 million for the year ended December 31, 2022 when compared with the prior year. The increase was driven by the effects of nickel price increases and the associated volatility in the nickel market observed in March 2022 impacting Credit Portfolio VaR, predominantly offset by a decrease in Corporate and other LOB VaR.

The following graph presents daily Risk Management VaR for the four trailing quarters. The movement in VaR in March 2022 was driven by changes in nickel-related counterparty exposure in the Firm's Credit Portfolio.

**Daily Risk Management VaR**



## VaR backtesting

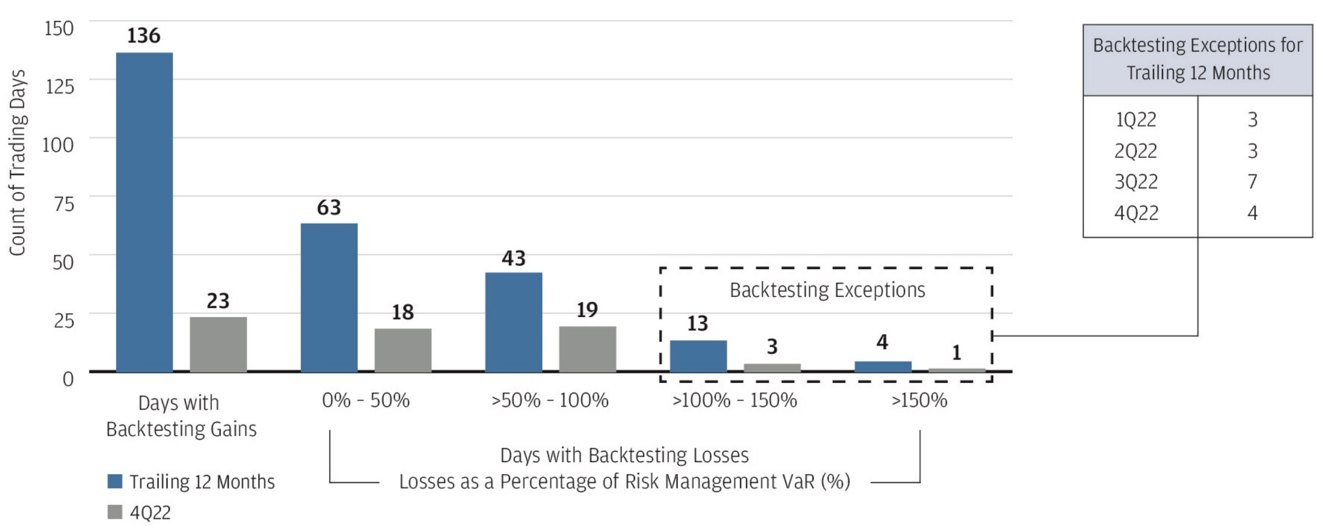
The Firm performs daily VaR model backtesting, which compares the daily Risk Management VaR results with the daily gains and losses that are utilized for VaR backtesting purposes. The gains and losses depicted in the chart below do not reflect the Firm's reported revenue as they exclude certain components of total net revenue, such as those associated with the execution of new transactions (i.e., intraday client-driven trading and intraday risk management activities), fees, commissions, other valuation adjustments and net interest income. These excluded components of total net revenue may more than offset the backtesting gain or loss on a particular day. The definition of backtesting gains and losses above is consistent with the requirements for backtesting under Basel III capital rules.

A backtesting exception occurs when the daily backtesting loss exceeds the daily Risk Management VaR for the prior day. Under the Firm's Risk Management VaR methodology, assuming current changes in market values are consistent with the historical changes used in the simulation, the Firm would expect to incur VaR backtesting exceptions five times every 100 trading days on average. The number of VaR backtesting exceptions observed can differ from the statistically expected number of backtesting exceptions if the current level of market volatility is materially different from the level of market volatility during the 12 months of historical data used in the VaR calculation.

For the 12 months ended December 31, 2022, the Firm posted backtesting gains on 136 of the 259 days, and observed 17 VaR backtesting exceptions. Firmwide backtesting loss days can differ from the loss days for which Fixed Income Markets and Equity Markets posted losses, as disclosed in CIB Markets revenue, as the population of positions which compose each metric are different and due to the exclusion of certain components of total net revenue in backtesting gains and losses as described above. For more information on CIB Markets revenue, refer to pages 70-71.

The following chart presents the distribution of Firmwide daily backtesting gains and losses for the trailing 12 months and three months ended December 31, 2022. The daily backtesting losses are displayed as a percentage of the corresponding daily Risk Management VaR. The count of days with backtesting losses are shown in aggregate, in fifty percentage point intervals. Backtesting exceptions are displayed within the intervals that are greater than one hundred percent. The results in the chart below differ from the results of backtesting disclosed in the Market Risk section of the Firm's Basel III Pillar 3 Regulatory Capital Disclosures reports, which are based on Regulatory VaR applied to the Firm's covered positions.

**Distribution of Daily Backtesting Gains and Losses**



## Other risk measures

### Stress testing

Along with VaR, stress testing is an important tool used to assess risk. While VaR reflects the risk of loss due to adverse changes in markets using recent historical market behavior, stress testing reflects the risk of loss from hypothetical changes in the value of market risk sensitive positions applied simultaneously. Stress testing measures the Firm's vulnerability to losses under a range of stressed but possible economic and market scenarios. The results are used to understand the exposures responsible for those potential losses and are measured against limits.

The Firm's stress framework covers market risk sensitive positions in the LOBs and Corporate. The framework is used to calculate multiple magnitudes of potential stress for both market rallies and market sell-offs, assuming significant changes in market factors such as credit spreads, equity prices, interest rates, currency rates and commodity prices, and combines them in multiple ways to capture an array of hypothetical economic and market scenarios.

The Firm generates a number of scenarios that focus on tail events in specific asset classes and geographies, including how the event may impact multiple market factors simultaneously. Scenarios also incorporate specific idiosyncratic risks and stress basis risk between different products. The flexibility in the stress framework allows the Firm to construct new scenarios that can test the outcomes against possible future stress events. Stress testing results are reported periodically to senior management of the Firm, as appropriate.

Stress scenarios are governed by the overall stress framework, under the oversight of Market Risk Management, and the models to calculate the stress results are subject to the Firm's Estimations and Model Risk Management Policy. The Firmwide Market Risk Stress Methodology Committee reviews and approves changes to stress testing methodology and scenarios across the Firm. Significant changes to the framework are escalated to senior management, as appropriate.

The Firm's stress testing framework is utilized in calculating the Firm's CCAR and other stress test results, which are reported periodically to the Board of Directors. In addition, stress testing results are incorporated into the Firm's Risk Appetite framework, and are reported periodically to the Board Risk Committee.

### Profit and loss drawdowns

Profit and loss drawdowns are used to highlight trading losses above certain levels of risk tolerance. A profit and loss drawdown is a decline in revenue from its year-to-date peak level.

### Earnings-at-risk

The effect of interest rate exposure on the Firm's reported net income is important as interest rate risk represents one of the Firm's significant market risks. Interest rate risk arises not only from trading activities but also from the Firm's traditional banking activities, which include extension of loans and credit facilities, taking deposits, issuing debt and the investment securities portfolio. Refer to the table on page 132 for a summary by LOB and Corporate, identifying positions included in earnings-at-risk.

The CTC Risk Committee establishes the Firm's structural interest rate risk policy and related limits, which are subject to approval by the Board Risk Committee. Treasury and CIO, working in partnership with the LOBs, calculates the Firm's structural interest rate risk profile and reviews it with senior management, including the CTC Risk Committee. In addition, oversight of structural interest rate risk is managed through a dedicated risk function reporting to the CTC CRO. This risk function is responsible for providing independent oversight and governance around assumptions and establishing and monitoring limits for structural interest rate risk. The Firm manages structural interest rate risk generally through its investment securities portfolio and interest rate derivatives.

Structural interest rate risk can arise due to a variety of factors, including:

- Differences in timing among the maturity or repricing of assets, liabilities and off-balance sheet instruments
- Differences in the amounts of assets, liabilities and off-balance sheet instruments that are maturing or repricing at the same time
- Differences in the amounts by which short-term and long-term market interest rates change (for example, changes in the slope of the yield curve)
- The impact of changes in the maturity of various assets, liabilities or off-balance sheet instruments as interest rates change

The Firm manages interest rate exposure related to its assets and liabilities on a consolidated, Firmwide basis. Business units transfer their interest rate risk to Treasury and CIO through funds transfer pricing, which takes into account the elements of interest rate exposure that can be risk-managed in financial markets. These elements include asset and liability balances and contractual rates of interest, contractual principal payment schedules, expected prepayment experience, interest rate reset dates and maturities, rate indices used for repricing, and any interest rate ceilings or floors for adjustable rate products.

One way that the Firm evaluates its structural interest rate risk is through earnings-at-risk. Earnings-at-risk estimates the Firm's interest rate exposure for a given interest rate scenario. It is presented as a sensitivity to a baseline, which includes net interest income and certain interest rate sensitive fees. The baseline uses market interest rates and, in the case of deposits, pricing assumptions. The Firm conducts simulations of changes to this baseline for interest rate-sensitive assets and liabilities denominated in U.S. dollars and other currencies ("non-U.S. dollar" currencies). These simulations primarily include retained loans, deposits, deposits with banks, investment securities, long-term debt and any related interest rate hedges, and funds transfer pricing of other positions in risk management VaR and other sensitivity-based measures as described on page 132.

Earnings-at-risk scenarios estimate the potential change to a net interest income baseline over the following 12 months utilizing multiple assumptions. These scenarios include a parallel shift involving changes to both short-term and long-term rates by an equal amount; a steeper yield curve involving holding short-term rates constant and increasing long-term rates; and a flatter yield curve involving increasing short-term rates and holding long-term rates constant or holding short-term rates constant and decreasing long-term rates. These scenarios consider many different factors, including:

- The impact on exposures as a result of instantaneous changes in interest rates from baseline rates.
- Forecasted balance sheet, as well as modeled prepayment and reinvestment behavior, but excluding assumptions about actions that could be taken by the Firm or its clients and customers in response to instantaneous rate changes. Mortgage prepayment assumptions are based on the interest rates used in the scenarios compared with underlying contractual rates, the time since origination, and other factors which are updated periodically based on historical experience. Deposit forecasts are a key assumption in the Firm's earnings-at-risk. The baseline reflects certain assumptions relating to the reversal of Quantitative Easing that are highly uncertain and require management judgment. Therefore, the actual amount of deposits held by the Firm, at any particular time, could be impacted by actions the Federal Reserve may take as part of monetary policy, including through the use of the Reverse Repurchase Facility. In addition, there are other factors that impact the amount of deposits held at the Firm such as the level of loans across the industry and competition for deposits.
- The pricing sensitivity of deposits, known as deposit betas, represent the amount by which deposit rates paid could change upon a given change in market interest rates. The deposit rates paid in these scenarios differ from actual deposit rates paid, due to repricing lags and other factors.

The Firm's earnings-at-risk scenarios are periodically evaluated and enhanced in response to changes in the composition of the Firm's balance sheet, changes in market conditions, improvements in the Firm's simulation and other factors. The Firm is currently evaluating the modeling of repricing lags for deposits in its earnings-at-risk scenarios. Incorporating repricing lags, in the current environment, would significantly affect the U.S. dollar interest rate scenarios, with higher interest rate scenarios expected to result in a positive impact, and lower interest rate scenarios expected to result in a negative impact, on the Firm's earnings-at-risk. While a relevant measure of the Firm's interest rate exposure, the earnings-at-risk analysis does not represent a forecast of the Firm's net interest income (Refer to Outlook on page 49 for additional information).

The Firm's U.S. dollar sensitivities are presented in the table below.

| December 31, (in billions) | 2022 | 2021 |
|---|---|---|
| **Parallel shift:** | | |
| +100 bps shift in rates | **$ (2.0)** | $ 5.0 |
| -100 bps shift in rates | **2.4** | NM [(a)] |
| **Steeper yield curve:** | | |
| +100 bps shift in long-term rates | **0.8** | 1.8 |
| -100 bps shift in short-term rates | **3.2** | NM [(a)] |
| **Flatter yield curve:** | | |
| +100 bps shift in short-term rates | **(2.8)** | 3.2 |
| -100 bps shift in long-term rates | **(0.9)** | NM [(a)] |

(a) Given the level of market interest rates, these scenarios were not considered to be meaningful as of December 31, 2021.

The change in the Firm's U.S. dollar sensitivities as of December 31, 2022 compared to December 31, 2021 reflected updates to the Firm's baseline for higher interest rates and higher corresponding modeled deposit betas, as well as the impact of changes in the Firm's balance sheet.

As of December 31, 2022, the Firm's sensitivity to the +/-100 basis points parallel and short-term shift in rates is primarily the result of a greater impact from liabilities repricing compared to the impact of assets repricing, while a +/-100 basis points shift in long-term rates is primarily the result of a greater impact from assets repricing compared to the impact of liabilities repricing.

The Firm's non-U.S. dollar sensitivities are presented in the table below.

| December 31, (in billions) | 2022 | 2021 |
|---|---|---|
| **Parallel shift:** | | |
| +100 bps shift in rates | **$ 0.7** | $ 0.8 |
| -100 bps shift in rates | **$ (0.6)** | NM [(a)] |
| **Steeper yield curve:** | | |
| -100 bps shift in short-term rates | **$ (0.6)** | NM [(a)] |
| **Flatter yield curve:** | | |
| +100 bps shift in short-term rates | **0.6** | 0.8 |

(a) Given the level of market interest rates, these scenarios were not considered to be meaningful as of December 31, 2021.

The results of the non-U.S. dollar interest rate scenario involving a steeper/flatter yield curve with long-term rates increasing/decreasing by 100 basis points and short-term rates staying at current levels were not material to the Firm's earnings-at-risk at December 31, 2022 and 2021.

### Non-U.S. dollar foreign exchange risk

Non-U.S. dollar FX risk is the risk that changes in foreign exchange rates affect the value of the Firm's assets or liabilities or future results. The Firm has structural non-U.S. dollar FX exposures arising from capital investments, forecasted expense and revenue, the investment securities portfolio and non-U.S. dollar-denominated debt issuance. Treasury and CIO, working in partnership with the LOBs, primarily manage these risks on behalf of the Firm. Treasury and CIO may hedge certain of these risks using derivatives. Refer to Business Segment Results on page 62 for additional information.

### Other sensitivity-based measures

The Firm quantifies the market risk of certain debt and equity and credit and funding-related exposures by assessing the potential impact on net revenue, other comprehensive income ("OCI") and noninterest expense due to changes in relevant market variables. Refer to the predominant business activities that give rise to market risk on page 132 for additional information on the positions captured in other sensitivity-based measures.

The table below represents the potential impact to net revenue, OCI or noninterest expense for market risk sensitive instruments that are not included in VaR or earnings-at-risk. Where appropriate, instruments used for hedging purposes are reported net of the positions being hedged. The sensitivities disclosed in the table below may not be representative of the actual gain or loss that would have been realized at December 31, 2022 and 2021, as the movement in market parameters across maturities may vary and are not intended to imply management's expectation of future changes in these sensitivities.

| **Gain/(loss)** (in millions)<br>**Activity** | **Description** | **Sensitivity measure** | **December 31, 2022** | December 31, 2021 |
|---|---|---|---|---|
| **Debt and equity**[(a)] | | | | |
| Asset Management activities | Consists of seed capital and related hedges; fund co-investments[(c)]; and certain deferred compensation and related hedges[(d)] | 10% decline in market value | **$ (56)** | $ (69) |
| Other debt and equity | Consists of certain real estate-related fair value option elected loans, privately held equity and other investments held at fair value[(c)] | 10% decline in market value | **(1,046)** | (971) |
| **Credit- and funding-related exposures** | | | | |
| Non-USD LTD cross-currency basis | Represents the basis risk on derivatives used to hedge the foreign exchange risk on the non-USD LTD[(e)] | 1 basis point parallel tightening of cross currency basis | **(12)** | (16) |
| Non-USD LTD hedges foreign currency ("FX") exposure | Primarily represents the foreign exchange revaluation on the fair value of the derivative hedges[(e)] | 10% depreciation of currency | **3** | 15 |
| Derivatives – funding spread risk | Impact of changes in the spread related to derivatives FVA[(c)] | 1 basis point parallel increase in spread | **(4)** | (7) |
| CVA - counterparty credit risk[(b)] | Credit risk component of CVA and associated hedges | 10% credit spread widening | **(1)** | N/A |
| Fair value option elected liabilities - funding spread risk | Impact of changes in the spread related to fair value option elected liabilities DVA[(e)] | 1 basis point parallel increase in spread | **43** | 41 |
| Fair value option elected liabilities – interest rate sensitivity | Interest rate sensitivity on fair value option elected liabilities resulting from a change in the Firm's own credit spread[(e)] | 1 basis point parallel increase in spread | **—** | (3) |
| | Interest rate sensitivity related to risk management of changes in the Firm's own credit spread on the fair value option elected liabilities noted above[(c)] | 1 basis point parallel increase in spread | **—** | 3 |

(a) Excludes equity securities without readily determinable fair values that are measured under the measurement alternative. Refer to Note 2 for additional information.
(b) In the first quarter of 2022, in line with the Firm's internal model governance, the credit risk component of CVA related to certain counterparties was removed from Credit Portfolio VaR due to the widening of the credit spreads for those counterparties to elevated levels. The related hedges were also removed to maintain consistency. This exposure is now reflected in other sensitivity-based measures.
(c) Impact recognized through net revenue.
(d) Impact recognized through noninterest expense.
(e) Impact recognized through OCI.

The Firm, through its LOBs and Corporate, may be exposed to country risk resulting from financial, economic, political or other significant developments which adversely affect the value of the Firm's exposures related to a particular country or set of countries. The Country Risk Management group actively monitors the various portfolios which may be impacted by these developments and measures the extent to which the Firm's exposures are diversified given the Firm's strategy and risk tolerance relative to a country.

## Organization and management

Country Risk Management is an independent risk management function that assesses, manages and monitors exposure to country risk across the Firm.

The Firm's country risk management function includes the following activities:

- Maintaining policies, procedures and standards consistent with a comprehensive country risk framework
- Assigning sovereign ratings, assessing country risks and establishing risk tolerance relative to a country
- Measuring and monitoring country risk exposure and stress across the Firm
- Managing and approving country limits and reporting trends and limit breaches to senior management
- Developing surveillance tools, such as signaling models and ratings indicators, for early identification of potential country risk concerns
- Providing country risk scenario analysis

## Sources and measurement

The Firm is exposed to country risk through its lending and deposits, investing, and market-making activities, whether cross-border or locally funded. Country exposure includes activity with both government and private-sector entities in a country.

Under the Firm's internal country risk management approach, attribution of exposure to an individual country is based on the country where the largest proportion of the assets of the counterparty, issuer, obligor or guarantor are located or where the largest proportion of its revenue is derived, which may be different than the domicile (i.e. legal residence) or country of incorporation.

Individual country exposures reflect an aggregation of the Firm's risk to an immediate default, with zero recovery, of the counterparties, issuers, obligors or guarantors attributed to that country. Activities which result in contingent or indirect exposure to a country are not included in the country exposure measure (for example, providing clearing services or secondary exposure to collateral on securities financing receivables).

Assumptions are sometimes required in determining the measurement and allocation of country exposure, particularly in the case of certain non-linear or index products, or where the nature of the counterparty, issuer, obligor or guarantor is not suitable for attribution to an individual country. The use of different measurement approaches or assumptions could affect the amount of reported country exposure.

Under the Firm's internal country risk measurement framework:

- Deposits with banks are measured as the cash balances placed with central banks, commercial banks, and other financial institutions
- Lending exposures are measured at the total committed amount (funded and unfunded), net of the allowance for credit losses and eligible cash and marketable securities collateral received
- Securities financing exposures are measured at their receivable balance, net of eligible collateral received
- Debt and equity securities are measured at the fair value of all positions, including both long and short positions
- Counterparty exposure on derivative receivables is measured at the derivative's fair value, net of the fair value of the eligible collateral received
- Credit derivatives exposure is measured at the net notional amount of protection purchased or sold for the same underlying reference entity, inclusive of the fair value of the derivative receivable or payable, reflecting the manner in which the Firm manages these exposures

The Firm's internal country risk reporting differs from the reporting provided under the FFIEC bank regulatory requirements.

## Stress testing

Stress testing is an important component of the Firm's country risk management framework, which aims to estimate and limit losses arising from a country crisis by measuring the impact of adverse asset price movements to a country based on market shocks combined with counterparty specific assumptions. Country Risk Management periodically designs and runs tailored stress scenarios to test vulnerabilities to individual countries or sets of countries in response to specific or potential market events, sector performance concerns, sovereign actions and geopolitical risks. These tailored stress results are used to inform potential risk reduction across the Firm, as necessary.

## Risk reporting

Country exposure and stress are measured and reported regularly, and used by Country Risk Management to identify trends and monitor high usages and breaches against limits.

For country risk management purposes, the Firm may report exposure to jurisdictions that are not fully autonomous, including Special Administrative Regions ("SAR") and dependent territories, separately from the independent sovereign states with which they are associated.

The following table presents the Firm's top 20 exposures by country (excluding the U.S.) as of December 31, 2022, and their comparative exposures as of December 31, 2021. The selection of countries represents the Firm's largest total exposures by individual country, based on the Firm's internal country risk management approach, and does not represent the Firm's view of any existing or potentially adverse credit conditions. Country exposures may fluctuate from period to period due to client activity and market flows.

The increase in exposure to Germany and the decrease in exposure to the U.K. were primarily due to changes in cash placements with the central banks of those countries driven by balance sheet and liquidity management activities.

The decrease in exposure to Australia was driven by reductions in cash placed with the central bank of Australia and government debt securities, due to client-driven market-making activities and lower client cash deposits resulting from higher interest rates.

As of December 31, 2022, exposure to Russia was approximately $500 million. This amount excludes certain deposits placed on behalf of clients, largely at the Russian National Settlement Depository. In accordance with requirements of the Bank of Russia, these deposits were transferred to the Depository Insurance Agency of Russia on February 3, 2023.

## Top 20 country exposures (excluding the U.S.)[a]

| December 31, (in billions) | 2022 | | | | | 2021[f] |
|---|---|---|---|---|---|---|
| | Deposits with banks[b] | Lending[c] | Trading and investing[d] | Other[e] | Total exposure | Total exposure |
| Germany | **$ 79.5** | **$ 11.3** | **$ 1.9** | **$ 0.5** | **$ 93.2** | $ 61.7 |
| United Kingdom | **30.8** | **23.0** | **14.5** | **1.8** | **70.1** | 96.4 |
| Japan | **48.2** | **3.1** | **4.2** | **0.3** | **55.8** | 45.5 |
| Australia | **15.9** | **6.2** | **3.6** | **–** | **25.7** | 39.1 |
| France | **0.4** | **11.4** | **2.6** | **3.7** | **18.1** | 14.0 |
| Brazil | **4.2** | **4.9** | **8.7** | **–** | **17.8** | 12.0 |
| Switzerland | **8.8** | **3.3** | **1.6** | **1.6** | **15.3** | 20.9 |
| Canada | **2.6** | **10.2** | **1.5** | **0.1** | **14.4** | 16.9 |
| China | **2.5** | **5.7** | **5.5** | **–** | **13.7** | 18.6 |
| South Korea | **1.4** | **3.5** | **4.9** | **0.2** | **10.0** | 8.7 |
| Singapore | **1.2** | **4.6** | **3.7** | **0.4** | **9.9** | 12.3 |
| Belgium | **6.3** | **1.7** | **1.2** | **–** | **9.2** | 6.8 |
| India | **1.3** | **4.0** | **2.8** | **0.9** | **9.0** | 14.7 |
| Saudi Arabia | **0.7** | **5.6** | **1.6** | **–** | **7.9** | 9.1 |
| Netherlands | **0.2** | **7.2** | **(0.8)** | **0.5** | **7.1** | 6.8 |
| Spain | **0.4** | **4.9** | **0.5** | **–** | **5.8** | 10.1 |
| Mexico | **0.5** | **4.4** | **0.5** | **–** | **5.4** | 4.9 |
| Luxembourg | **0.9** | **2.9** | **1.5** | **–** | **5.3** | 11.5 |
| Hong Kong SAR | **2.8** | **0.9** | **0.7** | **0.1** | **4.5** | 5.9 |
| Sweden | **1.1** | **3.1** | **0.2** | **–** | **4.4** | 4.4 |

(a) Country exposures presented in the table reflect 87% and 88% of total Firmwide non-U.S. exposure, where exposure is attributed to an individual country, at December 31, 2022 and 2021, respectively.
(b) Predominantly represents cash placed with central banks.
(c) Includes loans and accrued interest receivable, lending-related commitments (net of eligible collateral and the allowance for credit losses). Excludes intra-day and operating exposures, such as those from settlement and clearing activities.
(d) Includes market-making inventory, Investment securities, and counterparty exposure on derivative and securities financings net of eligible collateral and hedging. Includes exposure from single reference entity ("single-name"), index and other multiple reference entity transactions for which one or more of the underlying reference entities is in a country listed in the above table.
(e) Includes physical commodities inventory and clearing house guarantee funds.
(f) The country rankings presented in the table as of December 31, 2021, are based on the country rankings of the corresponding exposures at December 31, 2022, not actual rankings of such exposures at December 31, 2021.

Climate risk is the risk associated with the impacts of climate change on the Firm's clients, customers, operations and business strategy. Climate change is viewed as a driver of risk that may impact existing types of risks managed by the Firm. Climate risk is categorized into physical risk and transition risk.

Physical risk refers to economic costs and financial loss associated with a changing climate. Acute physical risk drivers include the increased frequency or severity of climate and weather events, such as floods, wildfires and tropical storms. Chronic physical risk drivers include more gradual shifts in the climate, such as rising sea levels, persistent changes in precipitation levels and increases in average ambient temperatures.

Transition risk refers to the financial and economic implications associated with a societal adjustment to a low-carbon economy. Transition risk drivers include possible changes in public policy, adoption of new technologies and shifts in consumer preferences. Transition risks may also be influenced by changes in the physical climate.

### Organization and management

The Firm has a Climate Risk Management function that is responsible for establishing the Firmwide framework and strategy for managing climate risk. The Climate Risk Management function engages across the Firm to help integrate climate risk considerations into existing risk management frameworks, as appropriate.

Other responsibilities of Climate Risk Management include:

- Setting policies, standards, procedures and processes to support identification, escalation, monitoring and management of climate risk across the Firm
- Developing metrics, scenarios, and stress testing mechanisms designed to assess the range of potential climate-related financial and economic impacts to the Firm
- Establishing a Firmwide climate risk data strategy and the supporting climate risk technology infrastructure

The LOBs and Corporate are responsible for the identification, assessment and management of climate risks present in their business activities and for adherence to applicable climate-related laws, rules and regulations.

### Governance and oversight

The Firm's approach to managing climate risk is consistent with the Firm's risk governance structure. The LOBs and Corporate are responsible for integrating climate risk management into existing governance frameworks, or creating new governance frameworks, as appropriate.

The LOBs, Corporate and Climate Risk Management are responsible for providing the Board Risk Committee with information on significant climate risks and climate-related initiatives, as appropriate.

## OPERATIONAL RISK MANAGEMENT

Operational risk is the risk of an adverse outcome resulting from inadequate or failed internal processes or systems; human factors; or external events impacting the Firm's processes or systems. Operational Risk includes compliance, conduct, legal, and estimations and model risk. Operational risk is inherent in the Firm's activities and can manifest itself in various ways, including fraudulent acts, business disruptions (including those caused by extraordinary events beyond the Firm's control), cyber attacks, inappropriate employee behavior, failure to comply with applicable laws, rules and regulations or failure of vendors or other third party providers to perform in accordance with their agreements. Operational Risk Management attempts to manage operational risk at appropriate levels in light of the Firm's financial position, the characteristics of its businesses, and the markets and regulatory environments in which it operates.

### Operational Risk Management Framework

The Firm's Compliance, Conduct, and Operational Risk ("CCOR") Management Framework is designed to enable the Firm to govern, identify, measure, monitor and test, manage and report on the Firm's operational risk.

*Operational Risk Governance*

The LOBs and Corporate are responsible for the management of operational risk. The Control Management Organization, which consists of control managers within each LOB and Corporate, is responsible for the day-to-day execution of the CCOR Framework.

The Firm's Global Chief Compliance Officer ("CCO") and FRE for Operational Risk and Qualitative Risk Appetite is responsible for defining the CCOR Management Framework and establishing the minimum standards for its execution. The LOB and Corporate aligned CCOR Lead Officers report to the Global CCO and FRE for Operational Risk and Qualitative Risk Appetite and are independent of the respective businesses or functions they oversee. The CCOR Management Framework is included in the Risk Governance and Oversight Policy that is reviewed and approved by the Board Risk Committee periodically.

*Operational Risk Identification*

The Firm utilizes a structured risk and control self-assessment process that is executed by the LOBs and Corporate. As part of this process, the LOBs and Corporate evaluate the effectiveness of their respective control environment to assess where controls have failed, and to determine where remediation efforts may be required. The Firm's Operational Risk and Compliance organization ("Operational Risk and Compliance") provides oversight of and challenge to these evaluations and may also perform independent assessments of significant operational risk events and areas of concentrated or emerging risk.

*Operational Risk Measurement*

Operational Risk and Compliance performs an independent assessment of the operational risks inherent within the LOBs and Corporate, which includes evaluating the effectiveness of the control environments and reporting the results to senior management.

In addition, Operational Risk and Compliance assesses operational risks through quantitative means, including operational risk-based capital and estimation of operational risk losses under both baseline and stressed conditions.

The primary component of the operational risk capital estimate is the Loss Distribution Approach ("LDA") statistical model, which simulates the frequency and severity of future operational risk loss projections based on historical data. The LDA model is used to estimate an aggregate operational risk loss over a one-year time horizon, at a 99.9% confidence level. The LDA model incorporates actual internal operational risk losses in the quarter following the period in which those losses were realized, and the calculation generally continues to reflect such losses even after the issues or business activities giving rise to the losses have been remediated or reduced.

As required under the Basel III capital framework, the Firm's operational risk-based capital methodology, which uses the Advanced Measurement Approach ("AMA"), incorporates internal and external losses as well as management's view of tail risk captured through operational risk scenario analysis, and evaluation of key business environment and internal control metrics. The Firm does not reflect the impact of insurance in its AMA estimate of operational risk capital.

The Firm considers the impact of stressed economic conditions on operational risk losses and develops a forward looking view of material operational risk events that may occur in a stressed environment. The Firm's operational risk stress testing framework is utilized in calculating results for the Firm's CCAR and other stress testing processes.

Refer to Capital Risk Management on pages 86-96 for information related to operational risk RWA, and CCAR.

*Operational Risk Monitoring and testing*

The results of risk assessments performed by Operational Risk and Compliance are used in connection with their independent monitoring and testing compliance of the LOBs and Corporate with laws, rules and regulations. Through monitoring and testing, Operational Risk and Compliance independently identify areas of heightened operational risk and tests the effectiveness of controls within the LOBs and Corporate.

*Management of Operational Risk*
The operational risk areas or issues identified through monitoring and testing are escalated to the LOBs and Corporate to be remediated through action plans, as needed, to mitigate operational risk. Operational Risk and Compliance may advise the LOBs and Corporate in the development and implementation of action plans.

*Operational Risk Reporting*
All employees of the Firm are expected to escalate risks appropriately. Risks identified by Operational Risk and Compliance are escalated to the appropriate LOB and Corporate Control Committees, as needed. Operational Risk and Compliance has established standards designed to ensure that consistent operational risk reporting and operational risk reports are produced on a Firmwide basis as well as by the LOBs and Corporate. Reporting includes the evaluation of key risk and performance indicators against established thresholds as well as the assessment of different types of operational risk against stated risk appetite. The standards reinforce escalation protocols to senior management and to the Board of Directors.

## Subcategories and examples of operational risks

Operational risk can manifest itself in various ways. Operational risk subcategories include Compliance risk, Conduct risk, Legal risk, and Estimations and Model risk. Refer to pages 145, 146, 147 and 148, respectively for more information on Compliance, Conduct, Legal, and Estimations and Model risk. Details on other select examples of operational risks such as cybersecurity, business and technology resiliency, payment fraud and third-party outsourcing are provided below.

*War in Ukraine and Sanctions*
In response to the war in Ukraine, numerous financial and economic sanctions have been imposed on Russia and Russia-associated entities and individuals by various governments around the world, including the authorities in the U.S., U.K. and EU. These sanctions are complex and continue to evolve. The Firm continues to face increased operational risk associated with addressing these complex compliance-related matters. To manage this increased risk, the Firm has implemented controls reasonably designed to mitigate the risk of non-compliance and to prevent dealing with sanctioned persons or in property subject to sanctions, as well as to block or restrict payments as required by the applicable regulations.

*Cybersecurity risk*
Cybersecurity risk is the risk of the Firm's exposure to harm or loss resulting from misuse or abuse of technology by malicious actors. Cybersecurity risk is an important and continuously evolving focus for the Firm. Significant resources are devoted to protecting and enhancing the security of computer systems, software, networks, storage devices, and other technology assets. The Firm's security efforts are designed to protect against, among other things, cybersecurity attacks by unauthorized parties attempting to obtain access to confidential information, destroy data, disrupt or degrade service, sabotage systems or cause other damage.

The Firm has experienced, and expects that it will continue to experience, a higher volume and complexity of cyber attacks against the backdrop of heightened geopolitical tensions. The Firm has implemented precautionary measures and controls reasonably designed to address this increased risk, such as enhanced threat monitoring. There can be no assurance that the measures taken by the Firm will be successful in defending against cyber attacks.

Ongoing business expansions may expose the Firm to potential new threats as well as expanded regulatory scrutiny including the introduction of new cybersecurity requirements. The Firm continues to make significant investments in enhancing its cyber defense capabilities and to strengthen its partnerships with the appropriate government and law enforcement agencies and other businesses in order to understand the full spectrum of cybersecurity risks in the operating environment, enhance defenses and improve resiliency against cybersecurity threats. The Firm actively participates in discussions and simulations of cybersecurity risks both internally and with law enforcement, government officials, peer and industry groups, and has significantly increased efforts to educate employees and certain clients on the topic of cybersecurity risks.

Third parties with which the Firm does business or that facilitate the Firm's business activities (e.g., vendors, supply chain, exchanges, clearing houses, central depositories, and financial intermediaries) are also sources of cybersecurity risk to the Firm. Third party cybersecurity incidents such as system breakdowns or failures, misconduct by the employees of such parties, or cyber attacks, including ransomware and supply-chain compromises, could affect their ability to deliver a product or service to the Firm or result in lost or compromised information of the Firm or its clients. Clients are also sources of cybersecurity risk to the Firm and its information assets, particularly when their activities and systems are beyond the Firm's own security and control systems. As a result, the Firm engages in regular and ongoing discussions with certain vendors and clients regarding cybersecurity risks and opportunities to improve security. However, where cybersecurity incidents occur as a result of client failures to maintain the security of their own systems and processes, clients are responsible for losses incurred.

To help safeguard the confidentiality, integrity and availability of the Firm's infrastructure, resources and information, the Firm maintains a Information Security Program designed to prevent, detect, and respond to cyberattacks. The Board of Directors is periodically provided with updates on the Firm's Information Security Program, recommended changes, cybersecurity policies and practices, ongoing efforts to improve security, as well as the Firm's efforts regarding significant cybersecurity events. In addition, the Firm has a cybersecurity incident response plan ("IRP") designed to enable the Firm to respond to attempted cybersecurity incidents, coordinate such responses with law enforcement and other government agencies, and notify clients and customers, as applicable. Among other key focus areas, the IRP is designed to mitigate the risk of insider trading connected to a cybersecurity incident, and includes various escalation points.

The Global Cybersecurity and Technology Controls organization, working with each of the Firm's LOBs and Corporate, is responsible for identifying technology and cybersecurity risks and is responsible for the controls to manage threats. The organization consists of business aligned information security personnel that are supported within the organization by the following products and services that execute the Information Security Program for the Firm:

- Cyber Operations
- Identity & Access Management
- Governance, Risk & Controls
- Global Technology Product Security

The Global Cybersecurity and Technology Controls governance structure is designed to identify, escalate, and mitigate information security risks. This structure uses key governance forums to disseminate information and monitor technology efforts. These forums are established at multiple levels throughout the Firm. The forums are used to escalate information security risks or other matters as appropriate.

The IRM function provides oversight of the activities designed to identify, assess, measure, and mitigate cybersecurity risk.

The Firm's Security Awareness Program includes training that reinforces the Firm's Information Technology Risk and Security Management policies, standards and practices, as well as the expectation that employees comply with these policies. The Security Awareness Program engages personnel through training on how to identify potential cybersecurity risks and protect the Firm's resources and information. This training is mandatory for all employees globally on a periodic basis, and it is supplemented by Firmwide testing initiatives, including periodic phishing tests. The Firm provides specialized security training for certain employee roles such as application developers. Finally, the Firm's Global Privacy Program requires all employees to take periodic awareness training on data privacy. This privacy-focused training includes information about confidentiality and security, as well as responding to unauthorized access to or use of information.

*Business and technology resiliency risk*
Disruptions can occur due to forces beyond the Firm's control such as the spread of infectious diseases or pandemics, severe weather, power or telecommunications loss, failure of a third party to provide expected services, cyberattacks and terrorism. The Firmwide Business Resiliency Program is designed to enable the Firm to prepare for, adapt to, withstand and recover from business disruptions including occurrence of an extraordinary event beyond its control that may impact critical business functions and supporting assets (i.e., staff, technology, facilities and third parties). The program includes governance, awareness training, planning and testing of recovery strategies, as well as strategic and tactical initiatives to identify, assess, and manage business interruption and public safety risks.

*Payment fraud risk*
Payment fraud risk is the risk of external and internal parties unlawfully obtaining personal monetary benefit through misdirected or otherwise improper payment. The Firm employs various controls for managing payment fraud risk as well as providing employee and client education and awareness trainings.

*Third-party outsourcing risk*
The Firm's Third-Party Oversight ("TPO") and Inter-affiliates Oversight ("IAO") frameworks assist the LOBs and Corporate in selecting, documenting, onboarding, monitoring and managing their supplier relationships including services provided by affiliates. The objectives of the TPO framework are to hold suppliers and other third parties to a high level of operational performance and to mitigate key risks, including data loss and business disruptions. The Corporate Third-Party Oversight group is responsible for Firmwide training, monitoring, reporting and standards.

### Insurance
One of the ways in which operational risk may be mitigated is through insurance maintained by the Firm. The Firm purchases insurance from commercial insurers and maintains a wholly-owned captive insurer, Park Assurance Company. Insurance may also be required by third parties with whom the Firm does business.

Compliance risk, a subcategory of operational risk, is the risk of failing to comply with laws, rules, regulations or codes of conduct and standards of self-regulatory organizations.

## Overview

Each of the LOBs and Corporate hold primary ownership of and accountability for managing their compliance risk. The Firm's Operational Risk and Compliance Organization ("Operational Risk and Compliance"), which is independent of the LOBs and Corporate, provides independent review, monitoring and oversight of business operations with a focus on compliance with the laws, rules, and regulations applicable to the delivery of the Firm's products and services to clients and customers.

These compliance risks relate to a wide variety of laws, rules and regulations varying across the LOBs and Corporate, and jurisdictions, and include risks related to financial products and services, relationships and interactions with clients and customers, and employee activities. For example, compliance risks include those associated with anti-money laundering compliance, trading activities, market conduct, and complying with the laws, rules, and regulations related to the offering of products and services across jurisdictional borders. Compliance risk is also inherent in the Firm's fiduciary activities, including the failure to exercise the applicable standard of care to act in the best interest of fiduciary clients and customers or to treat fiduciary clients and customers fairly.

Other functions provide oversight of significant regulatory obligations that are specific to their respective areas of responsibility.

Operational Risk and Compliance implements policies and standards designed to govern, identify, measure, monitor and test, manage, and report on compliance risk.

## Governance and oversight

Operational Risk and Compliance is led by the Firm's Global CCO and FRE for Operational Risk and Qualitative Risk Appetite.

The Firm maintains oversight and coordination of its compliance risk through the implementation of the CCOR Management Framework. The Firm's Global CCO and FRE for Operational Risk and Qualitative Risk Appetite also provides regular updates to the Board Risk Committee and the Audit Committee on significant compliance risk issues, as appropriate.

*Code of Conduct*

The Firm has a Code of Conduct (the "Code") that sets forth the Firm's expectation that employees will conduct themselves with integrity at all times and provides the principles that govern employee conduct with clients, customers, shareholders and one another, as well as with the markets and communities in which the Firm does business. The Code requires employees to promptly report any potential or actual violation of the Code, any Firm policy, or any law or regulation applicable to the Firm's business. It also requires employees to report any illegal conduct, or conduct that violates the underlying principles of the Code, by any of the Firm's employees, clients, customers, suppliers, contract workers, business partners, or agents. Training is assigned to newly hired employees upon joining the Firm, and to current employees periodically on an ongoing basis. Employees are required to affirm their compliance with the Code annually.

Employees can report any potential or actual violations of the Code through the Firm's Conduct Hotline by phone or the internet. The Hotline is anonymous, except in certain non-U.S. jurisdictions where laws prohibit anonymous reporting, and is available at all times globally, with translation services. It is administered by an outside service provider. The Code prohibits retaliation against anyone who raises an issue or concern in good faith. Periodically, the Audit Committee receives reports on the Code of Conduct program.

## CONDUCT RISK MANAGEMENT

Conduct risk, a subcategory of operational risk, is the risk that any action or misconduct by an employee could lead to unfair client or customer outcomes, impact the integrity of the markets in which the Firm operates, harm employees or the Firm, or compromise the Firm's reputation.

### Overview

Each LOB and Corporate is accountable for identifying and managing its conduct risk to provide appropriate engagement, ownership and sustainability of a culture consistent with the Firm's How We Do Business Principles (the "Principles"). The Principles serve as a guide for how employees are expected to conduct themselves. With the Principles serving as a guide, the Firm's Code sets out the Firm's expectations for each employee and provides information and resources to help employees conduct business ethically and in compliance with applicable laws, rules and regulations everywhere the Firm operates. Refer to Compliance Risk Management on page 145 for further discussion of the Code.

### Governance and oversight

The Conduct Risk Program is governed by the CCOR Management policy, which establishes the framework for governance, identification, measurement, monitoring and testing, management and reporting conduct risk in the Firm.

The Firm has a senior forum that provides oversight of the Firm's conduct initiatives to develop a more holistic view of conduct risks and to connect key programs across the Firm in order to identify opportunities and emerging areas of focus. This forum is responsible for setting overall program direction for strategic enhancements to the Firm's employee conduct framework and reviewing the consolidated Firmwide Conduct Risk Appetite Assessment.

Conduct risk management encompasses various aspects of people management practices throughout the employee life cycle, including recruiting, onboarding, training and development, performance management, promotion and compensation processes. Each LOB, Treasury and CIO, and each designated corporate function completes an assessment of conduct risk periodically, reviews metrics and issues which may involve conduct risk, and provides conduct education as appropriate.

Legal risk, a subcategory of operational risk, is the risk of loss primarily caused by the actual or alleged failure to meet legal obligations that arise from the rule of law in jurisdictions in which the Firm operates, agreements with clients and customers, and products and services offered by the Firm.

## Overview

The global Legal function ("Legal") provides legal services and advice to the Firm. Legal is responsible for managing the Firm's exposure to legal risk by:

- managing actual and potential litigation and enforcement matters, including internal reviews and investigations related to such matters
- advising on products and services, including contract negotiation and documentation
- advising on offering and marketing documents and new business initiatives
- managing dispute resolution
- interpreting existing laws, rules and regulations, and advising on changes to them
- advising on advocacy in connection with contemplated and proposed laws, rules and regulations, and
- providing legal advice to the LOBs, Corporate and the Board.

Legal selects, engages and manages outside counsel for the Firm on all matters in which outside counsel is engaged. In addition, Legal advises the Firm's Conflicts Office which reviews the Firm's wholesale transactions that may have the potential to create conflicts of interest for the Firm.

## Governance and oversight

The Firm's General Counsel reports to the CEO and is a member of the Operating Committee, the Firmwide Risk Committee and the Firmwide Control Committee. The Firm's General Counsel and other members of Legal report on significant legal matters to the Firm's Board of Directors and to the Audit Committee.

Legal serves on and advises various committees and advises the Firm's LOBs and Corporate on potential reputation risk issues.

## ESTIMATIONS AND MODEL RISK MANAGEMENT

Estimations and Model risk, a subcategory of operational risk, is the potential for adverse consequences from decisions based on incorrect or misused estimation outputs.

The Firm uses models and other analytical and judgment-based estimations across various businesses and functions. The estimation methods are of varying levels of sophistication and are used for many purposes, such as the valuation of positions and measurement of risk, assessing regulatory capital requirements, conducting stress testing, evaluating the allowance for credit losses and making business decisions. A dedicated independent function, Model Risk Governance and Review ("MRGR"), defines and governs the Firm's policies relating to the management of model risk and risks associated with certain analytical and judgment-based estimations, such as those used in risk management, budget forecasting and capital planning and analysis.

The governance of analytical and judgment-based estimations within MRGR's scope follows a consistent approach which is used for models, as described in detail below.

Model risks are owned by the users of the models within the Firm based on the specific purposes of such models. Users and developers of models are responsible for developing, implementing and testing their models, as well as referring models to MRGR for review and approval. Once models have been approved, model users and developers are responsible for maintaining a robust operating environment, and must monitor and evaluate the performance of the models on an ongoing basis. Model users and developers may seek to enhance models in response to changes in the portfolios and in product and market developments, as well as to capture improvements in available modeling techniques and systems capabilities.

Models are tiered based on an internal standard according to their complexity, the exposure associated with the model and the Firm's reliance on the model. This tiering is subject to the approval of MRGR. In its review of a model, MRGR considers whether the model is suitable for the specific purposes for which it will be used. When reviewing a model, MRGR analyzes and challenges the model methodology and the reasonableness of model assumptions, and may perform or require additional testing, including back-testing of model outcomes. Model reviews are approved by the appropriate level of management within MRGR based on the relevant model tier.

Under the Firm's Estimations and Model Risk Management Policy, MRGR reviews and approves new models, as well as material changes to existing models, prior to their use. In certain circumstances, exceptions may be granted to the Firm's policy to allow a model to be used prior to review or approval. MRGR may also require the user to take appropriate actions to mitigate the model risk if it is to be used in the interim. These actions will depend on the model and may include, for example, limitation of trading activity.

While models are inherently imprecise, the degree of imprecision or uncertainty can be heightened by the market or economic environment. This is particularly true when the current and forecasted environments are significantly different from the historical environments upon which the models were developed, as the Firm experienced during the early stages of the COVID-19 pandemic. This increased uncertainty may necessitate a greater degree of judgment and analytics to inform any adjustments that the Firm may make to model outputs than would otherwise be the case.

Refer to Critical Accounting Estimates Used by the Firm on pages 149-152 and Note 2 for a summary of model-based valuations and other valuation techniques.

JPMorgan Chase's accounting policies and use of estimates are integral to understanding its reported results. The Firm's most complex accounting estimates require management's judgment to ascertain the appropriate carrying value of assets and liabilities. The Firm has established policies and control procedures intended to ensure that estimation methods, including any judgments made as part of such methods, are well-controlled, independently reviewed and applied consistently from period to period. The methods used and judgments made reflect, among other factors, the nature of the assets or liabilities and the related business and risk management strategies, which may vary across the Firm's businesses and portfolios. In addition, the policies and procedures are intended to ensure that the process for changing methodologies occurs in an appropriate manner. The Firm believes its estimates for determining the carrying value of its assets and liabilities are appropriate. The following is a brief description of the Firm's critical accounting estimates involving significant judgments.

## Allowance for credit losses

The Firm's allowance for credit losses represents management's estimate of expected credit losses over the remaining expected life of the Firm's financial assets measured at amortized cost and certain off-balance sheet lending-related commitments. The allowance for credit losses comprises:

- The allowance for loan losses, which covers the Firm's retained loan portfolios (scored and risk-rated),
- The allowance for lending-related commitments, and
- The allowance for credit losses on investment securities.

The allowance for credit losses involves significant judgment on a number of matters including development and weighting of macroeconomic forecasts, incorporation of historical loss experience, assessment of risk characteristics, assignment of risk ratings, valuation of collateral, and the determination of remaining expected life. Refer to Note 10 and Note 13 for further information on these judgments as well as the Firm's policies and methodologies used to determine the Firm's allowance for credit losses.

One of the most significant judgments involved in estimating the Firm's allowance for credit losses relates to the macroeconomic forecasts used to estimate credit losses over the eight-quarter forecast period within the Firm's methodology. The eight-quarter forecast incorporates hundreds of macroeconomic variables ("MEVs") that are relevant for exposures across the Firm, with modeled credit losses being driven primarily by a subset of less than twenty variables. The specific variables that have the greatest effect on the modeled losses of each portfolio vary by portfolio and geography.

- Key MEVs for the consumer portfolio include regional U.S. unemployment rates, HPI and U.S. real GDP.
- Key MEVs for the wholesale portfolio include U.S. real GDP, U.S. unemployment, U.S. equity prices, U.S. interest rates, corporate credit spreads, oil prices, commercial real estate prices and HPI.

Changes in the Firm's assumptions and forecasts of economic conditions could significantly affect its estimate of expected credit losses in the portfolio at the balance sheet date or lead to significant changes in the estimate from one reporting period to the next.

It is difficult to estimate how potential changes in any one factor or input might affect the overall allowance for credit losses because management considers a wide variety of factors and inputs in estimating the allowance for credit losses. Changes in the factors and inputs considered may not occur at the same rate and may not be consistent across all geographies or product types, and changes in factors and inputs may be directionally inconsistent, such that improvement in one factor or input may offset deterioration in others.

To consider the impact of a hypothetical alternate macroeconomic forecast, the Firm compared the modeled credit losses determined using its central and relative adverse macroeconomic scenarios, which are two of the five scenarios considered in estimating the allowances for loan losses and lending-related commitments. The central and relative adverse scenarios each included a full suite of MEVs, but differed in the levels, paths and peaks/troughs of those variables over the eight-quarter forecast period.

For example, compared to the Firm's central scenario shown on page 127 and in Note 13, the Firm's relative adverse scenario assumes an elevated U.S. unemployment rate, averaging approximately 1.9% higher over the eight-quarter forecast, with a peak difference of approximately 2.8% in the fourth quarter of 2023; lower U.S. real GDP with a slower recovery, remaining nearly 3.1% lower at the end of the eight-quarter forecast, with a peak difference of approximately 3.9% in the fourth quarter of 2023; and lower national HPI with a peak difference of approximately 8.4% in the third quarter of 2024.

This analysis is not intended to estimate expected future changes in the allowance for credit losses, for a number of reasons, including:

- The allowance as of December 31, 2022, reflects credit losses beyond those estimated under the central scenario due to the weight placed on the adverse scenarios.
- The impacts of changes in many MEVs are both interrelated and nonlinear, so the results of this analysis cannot be simply extrapolated for more severe changes in macroeconomic variables.
- Expectations of future changes in portfolio composition and borrower behavior can significantly affect the allowance for credit losses.

To demonstrate the sensitivity of credit loss estimates to macroeconomic forecasts as of December 31, 2022, the

Firm compared the modeled estimates under its relative adverse scenario to its central scenario. Without considering offsetting or correlated effects in other qualitative components of the Firm's allowance for credit losses, the comparison between these two scenarios for the exposures below reflect the following differences:

- An increase of approximately $500 million for residential real estate loans and lending-related commitments
- An increase of approximately $2.2 billion for credit card loans
- An increase of approximately $3.9 billion for wholesale loans and lending-related commitments

This analysis relates only to the modeled credit loss estimates and is not intended to estimate changes in the overall allowance for credit losses as it does not reflect any potential changes in other adjustments to the quantitative calculation, which would also be influenced by the judgment management applies to the modeled lifetime loss estimates to reflect the uncertainty and imprecision of these modeled lifetime loss estimates based on then-current circumstances and conditions.

Recognizing that forecasts of macroeconomic conditions are inherently uncertain, particularly in light of the recent economic conditions, the Firm believes that its process to consider the available information and associated risks and uncertainties is appropriately governed and that its estimates of expected credit losses were reasonable and appropriate for the period ended December 31, 2022.

## Fair value

JPMorgan Chase carries a portion of its assets and liabilities at fair value. The majority of such assets and liabilities are measured at fair value on a recurring basis, including derivatives, structured note products and certain securities financing agreements. Certain assets and liabilities are measured at fair value on a nonrecurring basis, including certain mortgage, home equity and other loans, where the carrying value is based on the fair value of the underlying collateral.

*Assets measured at fair value*

The following table includes the Firm's assets measured at fair value and the portion of such assets that are classified within level 3 of the fair value hierarchy. Refer to Note 2 for further information.

| December 31, 2022 (in millions, except ratios) | Total assets at fair value | Total level 3 assets |
|---|---|---|
| Federal funds sold and securities purchased under resale agreements | $ 311,883 | $ – |
| Securities borrowed | 70,041 | – |
| Trading assets: | | |
| Trading-debt and equity instruments | 382,876 | 2,909 |
| Derivative receivables[(a)] | 70,880 | 10,682 |
| Total trading assets | 453,756 | 13,591 |
| AFS securities | 205,857 | 239 |
| Loans | 42,079 | 1,418 |
| MSRs | 7,973 | 7,973 |
| Other | 14,014 | 405 |
| **Total assets measured at fair value on a recurring basis** | 1,105,603 | 23,626 |
| Total assets measured at fair value on a nonrecurring basis | 2,658 | 1,979 |
| **Total assets measured at fair value** | $ 1,108,261 | $ 25,605 |
| **Total Firm assets** | $ 3,665,743 | |
| Level 3 assets at fair value as a percentage of total Firm assets[(a)] | | 0.7% |
| Level 3 assets at fair value as a percentage of total Firm assets at fair value[(a)] | | 2.3% |

(a) For purposes of the table above, the derivative receivables total reflects the impact of netting adjustments; however, the $10.7 billion of derivative receivables classified as level 3 does not reflect the netting adjustment as such netting is not relevant to a presentation based on the transparency of inputs to the valuation of an asset. The level 3 balances would be reduced if netting were applied, including the netting benefit associated with cash collateral.

*Valuation*

Details of the Firm's processes for determining fair value are set out in Note 2. Estimating fair value requires the application of judgment. The type and level of judgment required is largely dependent on the amount of observable market information available to the Firm. For instruments valued using internally developed valuation models and other valuation techniques that use significant unobservable inputs and are therefore classified within level 3 of the fair value hierarchy, judgments used to estimate fair value are more significant than those required when estimating the fair value of instruments classified within levels 1 and 2.

In arriving at an estimate of fair value for an instrument within level 3, management must first determine the appropriate valuation model or other valuation technique to use. Second, the lack of observability of certain significant inputs requires management to assess relevant empirical data in deriving valuation inputs including, for example, transaction details, yield curves, interest rates, prepayment speed, default rates, volatilities, correlations, prices (such as commodity, equity or debt prices), valuations of comparable instruments, foreign exchange rates and credit curves. Refer to Note 2 for a further discussion of the valuation of level 3 instruments, including unobservable inputs used.

For instruments classified in levels 2 and 3, management judgment must be applied to assess the appropriate level of valuation adjustments to reflect counterparty credit quality, the Firm's creditworthiness, market funding rates, liquidity considerations, unobservable parameters, and for portfolios that meet specified criteria, the size of the net open risk position. The judgments made are typically affected by the type of product and its specific contractual terms, and the level of liquidity for the product or within the market as a whole. In periods of heightened market volatility and uncertainty judgments are further affected by the wider variation of reasonable valuation estimates, particularly for positions that are less liquid. Refer to Note 2 for a further discussion of valuation adjustments applied by the Firm.

Imprecision in estimating unobservable market inputs or other factors can affect the amount of gain or loss recorded for a particular position. Furthermore, while the Firm believes its valuation methods are appropriate and consistent with those of other market participants, the methods and assumptions used reflect management judgment and may vary across the Firm's businesses and portfolios.

The Firm uses various methodologies and assumptions in the determination of fair value. The use of methodologies or assumptions different than those used by the Firm could result in a different estimate of fair value at the reporting date. Refer to Note 2 for a detailed discussion of the Firm's valuation process and hierarchy, and its determination of fair value for individual financial instruments.

### Goodwill impairment

Under U.S. GAAP, goodwill must be allocated to reporting units and tested for impairment at least annually. The Firm's process and methodology used to conduct goodwill impairment testing is described in Note 15.

Management applies significant judgment when testing goodwill for impairment. The goodwill associated with each business combination is allocated to the related reporting units for goodwill impairment testing.

For the year ended December 31, 2022, the Firm reviewed current economic conditions, estimated market cost of equity, as well as actual business results and projections of business performance. Based on such reviews, the Firm has concluded that goodwill was not impaired as of December 31, 2022. For each of the reporting units, fair value exceeded carrying value by at least 10% and there was no indication of a significant risk of goodwill impairment based on current projections and valuations.

The projections for the Firm's reporting units are consistent with management's current business outlook assumptions in the short term, and the Firm's best estimates of long-term growth and return on equity in the longer term. Where possible, the Firm uses third-party and peer data to benchmark its assumptions and estimates.

Refer to Note 15 for additional information on goodwill, including the goodwill impairment assessment as of December 31, 2022.

### Credit card rewards liability

JPMorgan Chase offers credit cards with various rewards programs which allow cardholders to earn rewards points based on their account activity and the terms and conditions of the rewards program. Generally, there are no limits on the points that an eligible cardholder can earn, nor do the points expire, and the points can be redeemed for a variety of rewards, including cash (predominantly in the form of account credits), gift cards and travel. The Firm maintains a rewards liability which represents the estimated cost of rewards points earned and expected to be redeemed by cardholders. The liability is accrued as the cardholder earns the benefit and is reduced when the cardholder redeems points. This liability was $11.3 billion and $9.8 billion at December 31, 2022 and 2021, respectively, and is recorded in accounts payable and other liabilities on the Consolidated balance sheets. The increase in the liability was driven by continued growth in rewards points earned on increased cardholder spending and promotional offers outpacing redemptions throughout 2022.

The rewards liability is sensitive to redemption rate ("RR") and cost per point ("CPP") assumptions. The RR assumption is used to estimate the number of points earned by customers that will be redeemed over the life of the account. The CPP assumption is used to estimate the cost of future point redemptions. These assumptions are evaluated periodically considering historical actuals, cardholder redemption behavior and management judgment. Updates to these assumptions will impact the rewards liability. As of December 31, 2022, a combined increase of 25 basis points in RR and 1 basis point in CPP would increase the rewards liability by approximately $315 million.

### Income taxes

JPMorgan Chase is subject to the income tax laws of the various jurisdictions in which it operates, including U.S. federal, state and local, and non-U.S. jurisdictions. These laws are often complex and may be subject to different interpretations. To determine the financial statement impact of accounting for income taxes, including the provision for income tax expense and unrecognized tax benefits, JPMorgan Chase must make assumptions and judgments about how to interpret and apply these complex tax laws to numerous transactions and business events, as well as make judgments regarding the timing of when certain items may affect taxable income in the U.S. and non-U.S. tax jurisdictions.

JPMorgan Chase's interpretations of tax laws around the world are subject to review and examination by the various taxing authorities in the jurisdictions where the Firm operates, and disputes may occur regarding its view on a tax position. These disputes over interpretations with the various taxing authorities may be settled by audit, administrative appeals or adjudication in the court systems of the tax jurisdictions in which the Firm operates. JPMorgan Chase regularly reviews whether it may be assessed additional income taxes as a result of the resolution of these matters, and the Firm records additional unrecognized tax benefits, as appropriate. In addition, the Firm may revise its estimate of income taxes due to changes in income tax laws, legal interpretations, and business strategies. It is possible that revisions in the Firm's estimate of income taxes may materially affect the Firm's results of operations in any reporting period.

Deferred taxes arise from differences between assets and liabilities measured for financial reporting versus income tax return purposes. Deferred tax assets are recognized if, in management's judgment, their realizability is determined to be more likely than not. Deferred taxes are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred taxes of a change in tax rates is recognized within the provision for income taxes in the period enacted.

The Firm has also recognized deferred tax assets in connection with certain tax attributes, including net operating loss ("NOL") carryforwards and foreign tax credit ("FTC") carryforwards. The Firm performs regular reviews to ascertain whether its deferred tax assets are realizable. These reviews include management's estimates and assumptions regarding future taxable income, including foreign source income, and may incorporate various tax planning strategies, including strategies that may be available to utilize NOLs and FTCs before they expire. In connection with these reviews, if it is determined that a deferred tax asset is not realizable, a valuation allowance is established. The valuation allowance may be reversed in a subsequent reporting period if the Firm determines that, based on revised estimates of future taxable income or changes in tax planning strategies, it is more likely than not that all or part of the deferred tax asset will become realizable. As of December 31, 2022, management has determined it is more likely than not that the Firm will realize its deferred tax assets, net of the existing valuation allowance.

The Firm adjusts its unrecognized tax benefits as necessary when new information becomes available, including changes in tax law and regulations, and interactions with taxing authorities. Uncertain tax positions that meet the more-likely-than-not recognition threshold are measured to determine the amount of benefit to recognize. An uncertain tax position is measured at the largest amount of benefit that management believes is more likely than not to be realized upon settlement. It is possible that the reassessment of JPMorgan Chase's unrecognized tax benefits may have a material impact on its effective income tax rate in the period in which the reassessment occurs. Although the Firm believes that its estimates are reasonable, the final tax amount could be different from the amounts reflected in the Firm's income tax provisions and accruals. To the extent that the final outcome of these amounts is different than the amounts recorded, such differences will generally impact the Firm's provision for income taxes in the period in which such a determination is made.

The Firm's provision for income taxes is composed of current and deferred taxes. The current and deferred tax provisions are calculated based on estimates and assumptions that could differ from the actual results reflected in income tax returns filed during the subsequent year. Adjustments based on filed returns are generally recorded in the period when the tax returns are filed and the global tax implications are known, which could impact the Firm's effective tax rate.

Refer to Note 25 for additional information on income taxes.

### Litigation reserves

Refer to Note 30 for a description of the significant estimates and judgments associated with establishing litigation reserves.

**Financial Accounting Standards Board (“FASB”) Standards Adopted since January 1, 2021**

| Standard | Summary of guidance | Effects on financial statements |
|---|---|---|
| Reference Rate Reform<br><br>*Issued March 2020 and updated January 2021 and December 2022* | • Provides optional expedients and exceptions to current accounting guidance when financial instruments, hedge accounting relationships, and other transactions are amended due to reference rate reform.<br>• Provides an election to account for certain contract amendments related to reference rate reform as modifications rather than extinguishments without the requirement to assess the significance of the amendments.<br>• Allows for changes in critical terms of a hedge accounting relationship without automatic termination of that relationship. Provides various practical expedients and elections designed to allow hedge accounting to continue uninterrupted during the transition period.<br>• Provides a one-time election to transfer securities out of the held-to-maturity classification if certain criteria are met.<br>• The January 2021 update provides an election to account for derivatives modified to change the rate used for discounting, margining, or contract price alignment (collectively “discounting transition”) as modifications.<br>• The December 2022 update extends the termination date of the optional expedients and exceptions to current accounting guidance to December 31, 2024. | • Issued and effective March 12, 2020. The January 7, 2021 and December 21, 2022 updates were effective when issued.<br>• The Firm elected to apply certain of the practical expedients related to contract modifications and hedge accounting relationships, and discounting transition beginning in the third quarter of 2020. The discounting transition election was applied retrospectively. The main purpose of the practical expedients is to ease the administrative burden of accounting for contracts impacted by reference rate reform. These elections did not have a material impact on the Consolidated Financial Statements. |

**FASB Standards Issued but Not Adopted as of December 31, 2022**

| Standard | Summary of guidance | Effects on financial statements |
|---|---|---|
| Derivatives and Hedging: Fair Value Hedging – Portfolio Layer Method<br><br>*Issued March 2022* | • Expands the current ability to hedge a portfolio of prepayable assets to allow more of the portfolio to be hedged. Non-prepayable assets can also be included in the same portfolio, thus increasing the size of the portfolio and the amount available to be hedged.<br>• Clarifies the types of derivatives that can be used as hedges, and the balance sheet presentation and disclosure requirements for the hedge accounting adjustments.<br>• Allows a one-time reclassification from HTM to AFS upon adoption. | • Adopted prospectively on January 1, 2023 and, as permitted by the guidance, in January 2023 the Firm transferred and designated approximately $7.0 billion of HTM securities into a closed AFS securities portfolio hedged under the portfolio layer method. |
| Financial Instruments – Credit Losses: Troubled Debt Restructurings and Vintage Disclosures<br><br>*Issued March 2022* | • Eliminates existing accounting and disclosure requirements for Troubled Debt Restructurings, including the requirement to measure the allowance using a discounted cash flow methodology.<br>• Requires disclosure of loan modifications for borrowers experiencing financial difficulty involving principal forgiveness, interest rate reduction, other-than-insignificant payment delay, term extension or a combination of these modifications.<br>• Requires disclosure of current period loan charge-off information by origination year.<br>• May be adopted prospectively, or by using a modified retrospective method wherein the effect of adoption is reflected as an adjustment to retained earnings at the effective date. | • Adopted January 1, 2023.<br>• This guidance was adopted using a modified retrospective method which resulted in a net decrease to the allowance for credit losses of approximately $600 million and an increase to retained earnings of approximately $450 million after-tax, predominantly driven by residential real estate and credit card. Refer to Note 1 for further information. |

## FORWARD-LOOKING STATEMENTS

From time to time, the Firm has made and will make forward-looking statements. 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 "anticipate," "target," "expect," "estimate," "intend," "plan," "goal," "believe," or other words of similar meaning. Forward-looking statements provide JPMorgan Chase's current expectations or forecasts of future events, circumstances, results or aspirations. JPMorgan Chase's disclosures in this 2022 Form 10-K contain forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. The Firm also may make forward-looking statements in its other documents filed or furnished with the SEC. In addition, the Firm's senior management may make forward-looking statements orally to investors, analysts, representatives of the media and others.

All forward-looking statements are, by their nature, subject to risks and uncertainties, many of which are beyond the Firm's control. JPMorgan Chase's actual future results may differ materially from those set forth in its forward-looking statements. While there is no assurance that any list of risks and uncertainties or risk factors is complete, below are certain factors which could cause actual results to differ from those in the forward-looking statements:

- Local, regional and global business, economic and political conditions and geopolitical events, including the war in Ukraine;
- Changes in laws, rules, and regulatory requirements, including capital and liquidity requirements affecting the Firm's businesses, and the ability of the Firm to address those requirements;
- Heightened regulatory and governmental oversight and scrutiny of JPMorgan Chase's business practices, including dealings with retail customers;
- Changes in trade, monetary and fiscal policies and laws;
- Changes in the level of inflation;
- Changes in income tax laws, rules, and regulations;
- Securities and capital markets behavior, including changes in market liquidity and volatility;
- Changes in investor sentiment or consumer spending or savings behavior;
- Ability of the Firm to manage effectively its capital and liquidity;
- Changes in credit ratings assigned to the Firm or its subsidiaries;
- Damage to the Firm's reputation;
- Ability of the Firm to appropriately address social, environmental and sustainability concerns that may arise, including from its business activities;
- Ability of the Firm to deal effectively with an economic slowdown or other economic or market disruption, including, but not limited to, in the interest rate environment;
- Technology changes instituted by the Firm, its counterparties or competitors;
- The effectiveness of the Firm's control agenda;
- Ability of the Firm to develop or discontinue products and services, and the extent to which products or services previously sold by the Firm require the Firm to incur liabilities or absorb losses not contemplated at their initiation or origination;
- Acceptance of the Firm's new and existing products and services by the marketplace and the ability of the Firm to innovate and to increase market share;
- Ability of the Firm to attract and retain qualified and diverse employees;
- Ability of the Firm to control expenses;
- Competitive pressures;
- Changes in the credit quality of the Firm's clients, customers and counterparties;
- Adequacy of the Firm's risk management framework, disclosure controls and procedures and internal control over financial reporting;
- Adverse judicial or regulatory proceedings;
- Changes in applicable accounting policies, including the introduction of new accounting standards;
- Ability of the Firm to determine accurate values of certain assets and liabilities;
- Occurrence of natural or man-made disasters or calamities, including health emergencies, the spread of infectious diseases, epidemics or pandemics, an outbreak or escalation of hostilities or other geopolitical instabilities, the effects of climate change or extraordinary events beyond the Firm's control, and the Firm's ability to deal effectively with disruptions caused by the foregoing;
- Ability of the Firm to maintain the security of its financial, accounting, technology, data processing and other operational systems and facilities;
- Ability of the Firm to withstand disruptions that may be caused by any failure of its operational systems or those of third parties;
- Ability of the Firm to effectively defend itself against cyber attacks and other attempts by unauthorized parties to access information of the Firm or its customers or to disrupt the Firm's systems; and
- The other risks and uncertainties detailed in Part I, Item 1A: Risk Factors in JPMorgan Chase's 2022 Form 10-K.

Any forward-looking statements made by or on behalf of the Firm speak only as of the date they are made, and JPMorgan Chase does not undertake to update any forward-looking statements. The reader should, however, consult any further disclosures of a forward-looking nature the Firm may make in any subsequent Form 10-Ks, Quarterly Reports on Form 10-Qs, or Current Reports on Form 8-K.