

**JPMORGAN CHASE BANK,
NATIONAL ASSOCIATION**

(a wholly-owned subsidiary of JPMorgan Chase & Co.)

CONSOLIDATED FINANCIAL STATEMENTS

For the three years ended December 31, 2024

FOR THE THREE YEARS ENDED DECEMBER 31, 2024

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Report of Independent Auditors

To the Board of Directors and Shareholder of JPMorgan Chase Bank, National Association

Opinion

We have audited the accompanying consolidated financial statements of JPMorgan Chase Bank, National Association and its subsidiaries (the “Company”), which comprise the consolidated balance sheets as of December 31, 2024 and 2023, and the related consolidated statements of income, comprehensive income, changes in stockholder’s equity and cash flows for each of the three years in the period ended December 31, 2024, including the related notes (collectively referred to as the “consolidated financial statements”).

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2024 and 2023, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2024 in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinion

We conducted our audit in accordance with auditing standards generally accepted in the United States of America (US GAAS). Our responsibilities under those standards are further described in the Auditors’ Responsibilities for the Audit of the Consolidated Financial Statements section of our report. We are required to be independent of the Company and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Responsibilities of Management for the Consolidated Financial Statements

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

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

Auditors’ Responsibilities for the Audit of the Consolidated Financial Statements

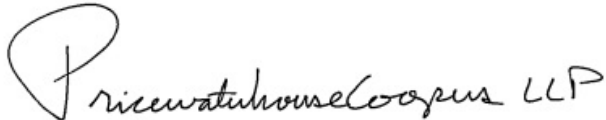
Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors’ report that includes our opinion. Reasonable assurance is a high level of assurance but is not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

In performing an audit in accordance with US GAAS, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the consolidated financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the Company's ability to continue as a going concern for a reasonable period of time.

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

A handwritten signature in cursive script that reads "PricewaterhouseCoopers LLP". The signature is written in black ink and is positioned above the typed name and date.

New York, New York
February 14, 2025

Consolidated statements of income

JPMorgan Chase Bank, National Association
(a wholly-owned subsidiary of JPMorgan Chase & Co.)

Year ended December 31, (in millions)	2024	2023	2022
Revenue			
Investment banking fees	\$ 3,672	\$ 2,525	\$ 2,955
Principal transactions	20,729	20,903	17,895
Lending- and deposit-related fees	7,602	7,410	7,095
Asset management fees	3,077	2,591	2,479
Commissions and other fees	13,829	12,418	11,456
Investment securities losses	(1,021)	(3,180)	(2,380)
Mortgage fees and related income	1,401	1,176	1,250
Card income	5,497	4,784	4,421
Other income	11,920	5,410	5,384
Noninterest revenue	66,706	54,037	50,555
Interest income	169,417	151,415	84,097
Interest expense	74,797	58,431	15,675
Net interest income	94,620	92,984	68,422
Total net revenue	161,326	147,021	118,977
Provision for credit losses	10,621	8,996	6,347
Noninterest expense			
Compensation expense	41,338	37,605	34,000
Occupancy expense	4,743	4,315	4,469
Technology, communications and equipment expense	8,923	8,414	8,646
Professional and outside services	7,220	6,798	6,983
Marketing	4,880	4,551	3,877
Other expense	15,786	16,777	10,761
Total noninterest expense	82,890	78,460	68,736
Income before income tax expense	67,815	59,565	43,894
Income tax expense	15,313	12,069	9,552
Net income	\$ 52,502	\$ 47,496	\$ 34,342

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

Consolidated statements of comprehensive income

JPMorgan Chase Bank, National Association
(a wholly-owned subsidiary of JPMorgan Chase & Co.)

Year ended December 31, (in millions)	2024	2023	2022
Net income	\$ 52,502	\$ 47,496	\$ 34,342
Other comprehensive income/(loss), after-tax			
Unrealized gains/(losses) on investment securities	(113)	5,387	(11,751)
Translation adjustments, net of hedges	(820)	339	(555)
Cash flow hedges	(880)	1,723	(5,359)
Defined benefit pension and OPEB plans	(205)	188	(742)
DVA on fair value option elected liabilities	64	133	265
Total other comprehensive income/(loss), after-tax	(1,954)	7,770	(18,142)
Comprehensive income	\$ 50,548	\$ 55,266	\$ 16,200

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

Consolidated balance sheets

JPMorgan Chase Bank, National Association
(a wholly-owned subsidiary of JPMorgan Chase & Co.)

December 31, (in millions, except share data)	2024	2023
Assets		
Cash and due from banks	\$ 23,204	\$ 28,784
Deposits with banks	444,672	593,706
Federal funds sold and securities purchased under resale agreements (included \$191,008 and \$162,977 at fair value)	261,726	226,683
Securities borrowed (included \$25,267 and \$20,541 at fair value)	52,716	61,199
Trading assets (included assets pledged of \$69,264 and \$75,500)	375,327	329,809
Available-for-sale securities (amortized cost of \$411,008 and \$205,401, included assets pledged of \$12,398 and \$11,880)	406,814	201,676
Held-to-maturity securities	274,468	369,848
Investment securities, net of allowance for credit losses	681,282	571,524
Loans (included \$41,085 and \$38,591 at fair value)	1,345,641	1,320,120
Allowance for loan losses	(24,293)	(22,311)
Loans, net of allowance for loan losses	1,321,348	1,297,809
Accrued interest and accounts receivable	66,738	67,147
Premises and equipment	30,894	28,828
Goodwill, mortgage servicing rights and other intangible assets	50,644	50,295
Other assets (included \$15,027 and \$11,315 at fair value and assets pledged of \$2,336 and \$3,159)	150,710	139,342
Total assets^(a)	\$ 3,459,261	\$ 3,395,126
Liabilities		
Deposits (included \$33,885 and \$78,524 at fair value)	\$ 2,516,998	\$ 2,498,231
Federal funds purchased and securities loaned or sold under repurchase agreements (included \$101,650 and \$67,067 at fair value)	105,421	74,609
Short-term borrowings (included \$21,492 and \$10,260 at fair value)	23,024	11,919
Trading liabilities	115,904	110,862
Accounts payable and other liabilities (included \$9,613 and \$8,255 at fair value)	161,738	170,119
Beneficial interests issued by consolidated variable interest entities	26,626	23,162
Long-term debt (included \$41,226 and \$28,999 at fair value)	196,756	206,945
Total liabilities^(a)	3,146,467	3,095,847
Commitments and contingencies (refer to Notes 26, 27 and 28)		
Stockholder's equity		
Preferred stock (\$1 par value; authorized 15,000,000 shares; issued 0 shares)	—	—
Common stock (\$12 par value; authorized 200,000,000 shares; issued 168,971,750 shares)	2,028	2,028
Additional paid-in capital	119,421	119,356
Retained earnings	203,493	188,089
Accumulated other comprehensive losses	(12,148)	(10,194)
Total stockholder's equity	312,794	299,279
Total liabilities and stockholder's equity	\$ 3,459,261	\$ 3,395,126

(a) The following table presents information on assets and liabilities related to variable interest entities ("VIEs") that are consolidated by the Bank at December 31, 2024 and 2023. The assets of the consolidated VIEs are used to settle the liabilities of those entities. The holders of the beneficial interests generally do not have recourse to the general credit of the Bank. The assets and liabilities in the table below include third-party assets and liabilities of consolidated VIEs (including balances with related parties) and exclude intercompany balances that eliminate in consolidation. Refer to Note 15 for a further discussion.

December 31, (in millions)	2024	2023
Assets		
Trading assets	\$ 2,656	\$ 2,057
Loans	36,502	37,602
All other assets	333	340
Total assets	\$ 39,491	\$ 39,999
Liabilities		
Beneficial interests issued by consolidated VIEs	\$ 26,626	\$ 23,162
All other liabilities	107	119
Total liabilities	\$ 26,733	\$ 23,281

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

Consolidated statements of changes in stockholder's equity

JPMorgan Chase Bank, National Association
(a wholly-owned subsidiary of JPMorgan Chase & Co.)

Year ended December 31, (in millions)	2024	2023	2022
Common stock			
Balance at January 1 and December 31	\$ 2,028	\$ 2,028	\$ 2,028
Additional paid-in capital			
Balance at January 1	119,356	118,293	118,221
Adjustments to capital due to transactions with JPMorgan Chase & Co.	65	1,063	72
Balance at December 31	119,421	119,356	118,293
Retained earnings			
Balance at January 1	188,089	201,263	182,421
Cumulative effect of change in accounting principles	(60)	451	—
Net income	52,502	47,496	34,342
Cash dividends paid to JPMorgan Chase & Co.	(37,000)	(61,000)	(15,500)
Other	(38)	(121)	—
Balance at December 31	203,493	188,089	201,263
Accumulated other comprehensive income/(loss)			
Balance at January 1	(10,194)	(17,964)	178
Other comprehensive income/(loss), after-tax	(1,954)	7,770	(18,142)
Balance at December 31	(12,148)	(10,194)	(17,964)
Total stockholder's equity	\$ 312,794	\$ 299,279	\$ 303,620

Effective January 1, 2024, the Bank adopted the Equity Method and Joint Ventures: Accounting for Investments in Tax Credit Structures Using the Proportional Amortization Method accounting guidance. Effective January 1, 2023, the Bank adopted the Financial Instruments – Credit Losses: Troubled Debt Restructurings, and Derivatives and Hedging: Fair Value Hedging – Portfolio Layer Method accounting guidance. Refer to Note 1 for further information.

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

Consolidated statements of cash flows

JPMorgan Chase Bank, National Association
(a wholly-owned subsidiary of JPMorgan Chase & Co.)

Year ended December 31, (in millions)	2024	2023	2022
Operating activities			
Net income	\$ 52,502	\$ 47,496	\$ 34,342
Adjustments to reconcile net income to net cash provided by operating activities:			
Provision for credit losses	10,621	8,996	6,347
Depreciation and amortization	7,429	6,969	6,590
Deferred tax expense/(benefit)	1,935	(4,194)	(3,542)
Estimated bargain purchase gain associated with the First Republic acquisition	(103)	(2,775)	—
Initial gain on the Visa share exchange	(7,990)	—	—
Other	(1,492)	1,200	2,380
Originations and purchases of loans held-for-sale	(206,739)	(114,496)	(149,091)
Proceeds from sales, securitizations and paydowns of loans held-for-sale	199,401	116,142	167,713
Net change in:			
Trading assets	(45,564)	(28,386)	14,114
Securities borrowed	8,825	(7,421)	10,973
Accrued interest and accounts receivable	197	24,481	(13,088)
Other assets	1,874	(5,279)	(29,954)
Trading liabilities	(6,336)	(6,672)	7,404
Accounts payable and other liabilities	(1,037)	2,359	46,646
Other operating adjustments	7,014	3,959	8
Net cash provided by operating activities	20,537	42,379	100,842
Investing activities			
Net change in:			
Federal funds sold and securities purchased under resale agreements	(34,958)	32,961	(32,211)
Held-to-maturity securities:			
Proceeds from paydowns and maturities	99,363	53,056	48,626
Purchases	(4,709)	(4,141)	(33,676)
Available-for-sale securities:			
Proceeds from paydowns and maturities	38,494	53,740	39,048
Proceeds from sales	104,625	108,406	84,616
Purchases	(352,712)	(115,499)	(126,258)
Proceeds from sales and securitizations of loans held-for-investment	57,921	47,228	44,910
Other changes in loans, net	(83,785)	(87,815)	(128,952)
Net cash used in First Republic acquisition	(2,362)	(9,920)	—
All other investing activities, net	446	(13,900)	(8,017)
Net cash (used in)/provided by investing activities	(177,677)	64,116	(111,914)
Financing activities			
Net change in:			
Deposits	21,566	(44,217)	(111,772)
Federal funds purchased and securities loaned or sold under repurchase agreements	30,799	(11,429)	(15,795)
Short-term borrowings	9,531	(1,011)	(2,122)
Beneficial interests issued by consolidated VIEs	705	8,353	3,042
Proceeds from long-term borrowings	40,799	81,171	16,363
Payments of long-term borrowings	(51,321)	(25,017)	(20,459)
Dividends paid to JPMorgan Chase & Co.	(37,000)	(61,000)	(15,500)
All other financing activities, net	283	1,311	576
Net cash provided by/(used in) financing activities	15,362	(51,839)	(145,667)
Effect of exchange rate changes on cash and due from banks and deposits with banks	(12,836)	1,861	(16,605)
Net (decrease)/increase in cash and due from banks and deposits with banks	(154,614)	56,517	(173,344)
Cash and due from banks and deposits with banks at the beginning of the period	622,490	565,973	739,317
Cash and due from banks and deposits with banks at the end of the period	\$ 467,876	\$ 622,490	\$ 565,973
Cash interest paid	\$ 73,825	\$ 54,028	\$ 13,717
Cash income taxes paid, net ^(a)	8,175	11,831	9,586

(a) Includes \$3.3 billion, \$12.6 billion and \$12.5 billion paid to JPMorgan Chase & Co. in 2024, 2023 and 2022, respectively. Refer to Note 23 for discussion of income taxes.

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

Notes to consolidated financial statements

JPMorgan Chase Bank, National Association
(a wholly-owned subsidiary of JPMorgan Chase & Co.)

Note 1 – Overview and basis of presentation

JPMorgan Chase Bank, National Association (“JPMorgan Chase Bank, N.A.”) and its subsidiaries, (collectively, the “Bank”), is a wholly-owned bank subsidiary of JPMorgan Chase & Co. (“JPMorganChase”), which is a leading financial services firm based in the United States of America (“U.S.”), with operations worldwide. JPMorgan Chase Bank, N.A. is a national banking association that is chartered by the Office of the Comptroller of the Currency (“OCC”), a bureau of the U.S. Department of the Treasury. JPMorgan Chase Bank, N.A.’s main office is located in Columbus, Ohio, and it has U.S. branches in 48 states and Washington, D.C. as of December 31, 2024. JPMorgan Chase Bank, N.A. operates nationally as well as through non-U.S. bank overseas branches and subsidiaries, representative offices and subsidiary foreign banks. The Bank either directly or through such branches, subsidiaries and offices offers a wide range of banking services to its U.S. and non-U.S. customers including 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 Bank 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 Bank, N.A.’s principal operating subsidiaries outside of the U.S. are J.P. Morgan Securities plc and J.P. Morgan SE (“JPMSE”), which are based in the United Kingdom (“U.K.”) and Germany, respectively.

The JPMorgan Chase Bank, N.A. Board of Directors is responsible for the oversight of management of JPMorgan Chase Bank, N.A., which it discharges both acting directly and through the principal standing committees of JPMorganChase’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. Each committee of JPMorganChase’s Board of Directors oversees reputational risks, conduct risks, and environmental, social and governance (“ESG”) matters within its scope of responsibility.

The accounting and financial reporting policies of the Bank conform to accounting principles generally accepted in the U.S. (“U.S. GAAP”). Additionally, where applicable, the policies conform to the accounting and reporting guidelines prescribed by regulatory authorities.

First Republic acquisition

On May 1, 2023, JPMorgan Chase Bank, N.A. acquired certain assets and assumed certain liabilities of First Republic Bank (the “First Republic acquisition”) from the Federal Deposit Insurance Corporation (“FDIC”), as receiver.

As of December 31, 2024, the Bank had substantially completed the conversion of operations, and the integration of clients, products and services, associated with the First Republic acquisition to align with the Bank’s businesses and operations.

Refer to Note 29 for additional information on First Republic.

Supervision and regulation

The Bank is subject to regulation under U.S. federal and state laws, as well as the applicable laws of the jurisdictions outside the U.S. in which the Bank does business.

In the U.S., the Bank is supervised and regulated by the OCC and, with respect to certain matters, by the Federal Deposit Insurance Corporation (the “FDIC”). J.P. Morgan Securities plc is regulated by the U.K. Prudential Regulation Authority (the “PRA”) and the U.K. Financial Conduct Authority (the “FCA”). JPMSE is a Germany-based credit institution jointly regulated by the European Central Bank (“ECB”), the German Financial Supervisory Authority and the German Central Bank, as well as the local regulators in each of the countries in which it operates.

In the U.K., the Bank operates a retail bank through J.P. Morgan Europe Limited (“JPMEL”). JPMEL is regulated by the PRA, and by the FCA with respect to its conduct of financial services in the U.K., including obligations relating to the fair treatment of customers. JPMEL is also regulated by the U.K. Payment Systems Regulator with respect to its operation and use of payment systems. In addition, the retail business of JPMEL is subject to U.K. consumer-protection legislation.

The Bank’s other non-U.S. subsidiaries are regulated by the banking, securities, prudential and conduct regulatory authorities, as applicable, in the countries in which they operate.

JPMorgan Chase Bank, N.A. is registered with the Commodity Futures Trading Commission (“CFTC”) as a “swap dealer” and with the Securities and Exchange Commission (“SEC”) as a “security-based swap dealer.” As a result, JPMorgan Chase Bank, N.A. is subject to a comprehensive regulatory framework for its swap and security-based swap activities.

Restrictions on transactions with affiliates. The Bank is subject to restrictions imposed by federal law on extensions of credit to, investments in stock or securities of, and derivatives, securities lending and certain other transactions with, JPMorgan Chase & Co. and certain other affiliates. These restrictions prevent JPMorgan Chase & Co. and other affiliates from borrowing from such subsidiaries unless the loans are secured in specified amounts and comply with certain other requirements.

Refer to “Supervision and regulation” in the Annual Report on Form 10-K of JPMorganChase for the year ended December 31, 2024, filed with the U.S. Securities and Exchange Commission on February 14, 2025 for additional information concerning the supervision and regulation of JPMorgan Chase Bank, N.A.

Consolidation

The Consolidated Financial Statements include the accounts of the Bank and other entities in which the Bank has a controlling financial interest. All material intercompany balances and transactions between the consolidated Bank group of entities have been eliminated. The Bank regularly enters into transactions with JPMorganChase and its various subsidiaries collectively, JPMorganChase affiliates. These transactions are considered to be related party transactions. Refer to Note 21 for further discussion of the Bank’s related party transactions.

Assets held for clients in an agency or fiduciary capacity by the Bank are not assets of the Bank and are not included on the Consolidated balance sheets.

The Bank determines whether it has a controlling financial interest in an entity by first evaluating whether the entity is a voting interest entity or a variable interest entity.

Voting interest entities

Voting interest entities are entities that have sufficient equity and provide the equity investors voting rights that enable them to make significant decisions relating to the entity’s operations. For these types of entities, the Bank’s determination of whether it has a controlling interest is primarily based on the amount of voting equity interests held. Entities in which the Bank has a controlling financial interest, through ownership of the majority of the entities’ voting equity interests, or through other contractual rights that give the Bank control, are consolidated by the Bank.

Investments in companies in which the Bank has significant influence over operating and financing decisions (but does not own a majority of the voting equity interests) are accounted for (i) in accordance with the equity method of accounting, or (ii) at fair

value if the fair value option was elected. These investments are generally included in other assets, with income or loss included in noninterest revenue.

Certain Bank-sponsored asset management funds are structured as limited partnerships or limited liability companies. The Bank does not generally consolidate these funds as the Bank is not the general partner or managing member and therefore does not have a controlling financial interest.

Variable interest entities

VIEs are entities that, by design, either (1) lack sufficient equity to permit the entity to finance its activities without additional subordinated financial support from other parties, or (2) have equity investors that do not have the ability to make significant decisions relating to the entity’s operations through voting rights, or do not have the obligation to absorb the expected losses, or do not have the right to receive the residual returns of the entity.

The most common type of VIE is a special purpose entity (“SPE”). SPEs are commonly used in securitization transactions in order to isolate certain assets and distribute the cash flows from those assets to investors. The basic SPE structure involves a company selling assets to the SPE; the SPE funds the purchase of those assets by issuing securities to investors. The legal documents that govern the transaction specify how the cash earned on the assets must be allocated to the SPE’s investors and other parties that have rights to those cash flows. SPEs are generally structured to insulate investors from claims on the SPE’s assets by creditors of other entities, including the creditors of the seller of the assets.

The primary beneficiary of a VIE (i.e., the party that has a controlling financial interest) is required to consolidate the assets and liabilities of the VIE. The primary beneficiary is the party that has both (1) the power to direct the activities of the VIE that most significantly impact the VIE’s economic performance; and (2) through its interests in the VIE, the obligation to absorb losses or the right to receive benefits from the VIE that could potentially be significant to the VIE.

To assess whether the Bank has the power to direct the activities of a VIE that most significantly impact the VIE’s economic performance, the Bank considers all the facts and circumstances, including its role in establishing the VIE and its ongoing rights and responsibilities. This assessment includes, first, identifying the activities that most significantly impact the VIE’s economic performance; and second, identifying which party, if any, has power over those activities. In general, the parties that make the most significant decisions affecting the VIE (such as asset managers, collateral managers, servicers, or owners of

Notes to consolidated financial statements

JPMorgan Chase Bank, National Association
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call options or liquidation rights over the VIE's assets) or have the right to unilaterally remove those decision-makers are deemed to have the power to direct the activities of a VIE.

To assess whether the Bank has the obligation to absorb losses of the VIE or the right to receive benefits from the VIE that could potentially be significant to the VIE, the Bank considers all of its economic interests, including debt and equity investments, servicing fees, and derivatives or other arrangements deemed to be variable interests in the VIE. This assessment requires that the Bank apply judgment in determining whether these interests, in the aggregate, are considered potentially significant to the VIE. Factors considered in assessing significance include: the design of the VIE, including its capitalization structure; subordination of interests; payment priority; relative share of interests held across various classes within the VIE's capital structure; and the reasons why the interests are held by the Bank.

The Bank performs on-going reassessments of: (1) whether entities previously evaluated under the majority voting-interest framework have become VIEs, based on certain events, and are therefore subject to the VIE consolidation framework; and (2) whether changes in the facts and circumstances regarding the Bank's involvement with a VIE cause the Bank's consolidation conclusion to change.

Refer to Note 15 for further discussion of Bank-sponsored VIEs.

Revenue recognition

Interest income

The Bank recognizes interest income on loans, debt securities, and other debt instruments, generally on a level-yield basis, based on the underlying contractual rate. Refer to Note 8 for further information.

Revenue from contracts with customers

The Bank recognizes noninterest revenue from certain contracts with customers, in investment banking fees, deposit-related fees, asset management fees, commissions and other fees, and components of card income, when the Bank's related performance obligations are satisfied. Refer to Note 7 for further discussion of the Bank's revenue from contracts with customers.

Principal transactions revenue

The Bank carries a portion of its assets and liabilities at fair value. Changes in fair value are reported primarily in principal transactions revenue. Refer to Notes 3 and 4 for further discussion of fair value measurement. Refer to Note 7 for further discussion of principal transactions revenue.

Use of estimates in the preparation of consolidated financial statements

The preparation of the Consolidated Financial Statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, revenue and expense, and disclosures of contingent assets and liabilities. Actual results could be different from these estimates.

Foreign currency translation

The Bank revalues assets, liabilities, revenue and expense denominated in non-U.S. currencies into U.S. dollars using applicable exchange rates.

Gains and losses relating to translating functional currency financial statements for U.S. reporting are included in the Consolidated statements of comprehensive income. Gains and losses relating to nonfunctional currency transactions, including non-U.S. operations where the functional currency is the U.S. dollar, are reported in the Consolidated statements of income.

Offsetting assets and liabilities

U.S. GAAP permits entities to present derivative receivables and derivative payables with the same counterparty and the related cash collateral receivables and payables on a net basis on the Consolidated balance sheets when a legally enforceable master netting agreement exists. U.S. GAAP also permits securities sold and purchased under repurchase agreements and securities borrowed or loaned under securities loan agreements to be presented net when specified conditions are met, including the existence of a legally enforceable master netting agreement. The Bank has elected to net such balances where it has determined that the specified conditions are met.

The Bank uses master netting agreements with third parties and affiliates to mitigate counterparty credit risk in certain transactions, including derivative contracts, resale, repurchase, securities borrowed and securities loaned agreements. A master netting agreement is a single agreement with a counterparty that permits multiple transactions governed by that agreement to be terminated or accelerated and settled through a single payment in a single currency in the event of a default (e.g., bankruptcy, failure to make a required payment or securities transfer or deliver collateral or margin when due). Upon the exercise of derivatives termination rights by the non-defaulting party (i) all transactions are terminated, (ii) all transactions are valued and the positive values of "in the money" transactions are netted against the negative values of "out of the money" transactions and (iii) the only remaining payment obligation is of one of the parties to pay the netted termination amount.

Upon exercise of default rights under repurchase agreements and securities loan agreements in general (i) all transactions are terminated and accelerated, (ii) all values of securities or cash held or to be delivered are calculated, and all such sums are netted against each other and (iii) the only remaining payment obligation is of one of the parties to pay the netted termination amount.

Typical master netting agreements for these types of transactions also often contain a collateral/margin agreement that provides for a security interest in, or title transfer of, securities or cash collateral/margin to the party that has the right to demand margin (the “demanding party”). The collateral/margin agreement typically requires a party to transfer collateral/margin to the demanding party with a value equal to the amount of the margin deficit on a net basis across all transactions governed by the master netting agreement, less any threshold. The collateral/margin agreement grants to the demanding party, upon default by the counterparty, the right to set-off any amounts payable by the counterparty against any posted collateral or the cash equivalent of any posted collateral/margin. It also grants to the demanding party the right to liquidate collateral/margin and to apply the proceeds to an amount payable by the counterparty.

Refer to Note 6 for further discussion of the Bank’s derivative instruments. Refer to Note 12 for further discussion of the Bank’s securities financing agreements.

Statements of cash flows

For the Bank’s Consolidated statements of cash flows, cash is defined as those amounts included in cash and due from banks and deposits with banks on the Consolidated balance sheets.

Business segments

The Bank is a wholly-owned subsidiary of JPMorganChase and it is managed as a single reportable segment. The Bank’s Chief Financial Officer is the chief operating decision maker (“CODM”) and uses the Bank’s Consolidated Financial Statements to evaluate the Bank’s operating performance and adequacy of its capital and liquidity positions.

Basel III finalization

Banking supervisors globally continue to refine and enhance the Basel III capital framework for financial institutions. In July 2023, U.S. banking regulators released a proposal to amend the U.S. risk-based capital framework to incorporate certain elements of the revised international Basel III capital framework. The proposal would significantly revise risk-based capital requirements for banks with assets of \$100 billion or more, including the JPMorganChase and

other U.S. global systemically important banks (“GSIBs”). Finalization of the proposal, including the required implementation date, is uncertain. JPMorganChase continues to monitor developments and potential impacts.

In the EU and U.K., regulators have finalized the rules implementing their Basel III frameworks. The new rules became effective in the EU beginning January 1, 2025, with market risk aspects delayed until January 1, 2026. In January 2025, the PRA announced that it intends to delay the implementation of the new rules in the U.K. to January 1, 2027. There are certain transitional arrangements applicable in both the EU and U.K. until 2032 and 2030, respectively.

Accounting standard adopted January 1, 2024 Investments - Equity Method and Joint Ventures: Accounting for Investments in Tax Credit Structures Using the Proportional Amortization Method

The guidance expanded the types of tax-oriented investments, beyond affordable housing tax credit investments, that the Bank can elect on a program by program basis, to be accounted for using the proportional amortization method. This method requires the cost of eligible investments, within an elected program, to be amortized in proportion to the tax benefits received with the resulting amortization reported directly in income tax expense, which aligns with the associated tax credits and other tax benefits. Eligible investments must meet certain criteria, including that substantially all of the return is from income tax credits and other income tax benefits.

This guidance was adopted on January 1, 2024 under the modified retrospective method. The adoption of this guidance resulted in a change to the classification and timing of the amortization associated with certain of the Bank’s alternative energy tax-oriented investments. As a result of the adoption, the amortization of these investments that was previously recognized in other income is now recognized in income tax expense. The change in accounting resulted in a decrease to retained earnings of \$60 million.

The guidance requires additional disclosure for all investments that generate income tax credits and other income tax benefits from a tax-oriented investment program for which the Bank has elected to apply the proportional amortization method. The guidance also requires a reevaluation of eligible investments when significant modifications or events occur that result in a change in the nature of the investment or a change in the Bank’s relationship with the underlying project.

Refer to Notes 15 and 23 for additional information.

Notes to consolidated financial statements

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Fair Value Measurement: Fair Value Measurement of Equity Securities Subject to Contractual Sale Restrictions

The guidance clarifies that a contractual sale restriction is not considered in measuring fair value. The guidance also requires disclosure for investments in equity securities subject to contractual sale restrictions, including: 1) fair value of these investments, 2) nature and remaining duration of the restriction(s) and 3) circumstances that could cause a lapse in the restriction(s).

The guidance was adopted prospectively on January 1, 2024, with no impact to the Bank's Consolidated Financial Statements.

Segment Reporting: Improvements to Reportable Segment Disclosures

The guidance requires disclosure of significant segment expenses that are readily provided to the CODM and included in segment profit or loss, as well as disclosure of the composition and aggregate amount of other segment items, which represent the difference between profit or loss and segment revenues less significant segment expenses. The guidance also requires disclosure of the title and position of the CODM and an explanation of how the CODM uses the reported segment measures in assessing segment performance and deciding how to allocate resources.

The guidance was adopted for the Bank's December 31, 2024 financial statements. The adoption of this guidance resulted in additional disclosure relating to the CODM and the information regularly reviewed by the CODM.

Accounting standards adopted January 1, 2023 Derivatives and Hedging: Fair Value Hedging – Portfolio Layer Method

The adoption of this guidance expanded the ability to hedge a portfolio of fixed-rate assets in a qualifying hedge accounting relationship. As permitted by the guidance, the Bank elected to transfer held-to-maturity ("HTM") securities to available-for-sale ("AFS") and designated those securities in a portfolio layer method hedge upon adoption. The adoption impact of the transfer on retained earnings was not material.

Financial Instruments – Credit Losses: Troubled Debt Restructurings ("TDRs")

The adoption of this guidance eliminated the requirement to measure the allowance for TDRs using a discounted cash flow ("DCF") methodology and allowed the option of a non-DCF portfolio-based approach for modified loans to troubled borrowers. The Bank elected this option for all portfolios of modified loans to troubled borrowers except collateral-dependent loans and nonaccrual risk-rated loans, for which the Bank elected to continue applying a DCF methodology. The adoption of this guidance under the modified retrospective method on January 1, 2023, resulted in a \$446 million increase to retained earnings.

Significant accounting policies

The following table identifies the Bank's other significant accounting policies and the Note and page where a detailed description of each policy can be found.

Fair value measurement	Note 3	page 14
Fair value option	Note 4	page 34
Derivative instruments	Note 6	page 39
Noninterest revenue and noninterest expense	Note 7	page 55
Interest income and Interest expense	Note 8	page 59
Pension and other postretirement employee benefit plans	Note 9	page 60
Employee share-based incentives	Note 10	page 63
Investment securities	Note 11	page 65
Securities financing activities	Note 12	page 70
Loans	Note 13	page 73
Allowance for credit losses	Note 14	page 95
Variable interest entities	Note 15	page 101
Goodwill, mortgage servicing rights, and other intangible assets	Note 16	page 110
Premises and equipment	Note 17	page 114
Leases	Note 19	page 115
Long-term debt	Note 20	page 117
Related party transactions	Note 21	page 118
Income taxes	Note 23	page 121
Off-balance sheet lending-related financial instruments, guarantees and other commitments	Note 26	page 127
Litigation	Note 28	page 135

Note 2 - Accounting and reporting developments

FASB Standards Issued but not yet Adopted as of December 31, 2024

Standard	Summary of guidance	Effects on financial statements
<p>Income Taxes: Improvements to Income tax disclosures</p> <p><i>Issued December 2023</i></p>	<ul style="list-style-type: none"> Requires disclosure of income taxes paid disaggregated by 1) federal, state, and foreign taxes and 2) individual jurisdiction on the basis of a quantitative threshold of equal to or greater than 5 percent of total income taxes paid (net of refunds received). Requires disclosure of the effective tax rate reconciliation by specific categories, at a minimum, with accompanying qualitative disclosures, and separate disclosure of reconciling items based on quantitative thresholds. Requires categories within the effective tax rate reconciliation to be further disaggregated if quantitative thresholds are met. 	<ul style="list-style-type: none"> Required effective date: Annual financial statements for the year ending December 31, 2025. The guidance can be applied on a prospective basis with the option to apply the standard retrospectively. The Bank is evaluating the potential impact on the Consolidated Financial Statements disclosures.
<p>Income Statement - Reporting Comprehensive Income - Expense Disaggregation Disclosures: Disaggregation of Income Statement Expenses</p> <p><i>Issued November 2024</i></p>	<ul style="list-style-type: none"> Requires additional annual and interim disclosures about specific types of expenses presented in the Consolidated statements of income. 	<ul style="list-style-type: none"> Required effective date: Annual financial statements for the year ending December 31, 2027, and interim financial statements for the year ending December 31, 2028. ^(a) The guidance can be applied on a prospective basis with the option to apply the standard retrospectively. The Bank is evaluating the potential impact on the Consolidated Financial Statements disclosures, as well as the Bank's planned date of adoption.

(a) Early adoption is permitted.

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Note 3 – Fair value measurement

The Bank carries a portion of its assets and liabilities at fair value. These assets and liabilities are predominantly carried at fair value on a recurring basis (i.e., assets and liabilities that are measured and reported at fair value on the Bank's Consolidated balance sheets). Certain assets, liabilities and unfunded lending-related commitments are measured at fair value on a nonrecurring basis; that is, they are not measured at fair value on an ongoing basis but are subject to fair value adjustments only in certain circumstances (for example, when there is evidence of impairment).

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Fair value is based on quoted market prices or inputs, where available. If prices or quotes are not available, fair value is based on valuation models and other valuation techniques that consider relevant transaction characteristics (such as maturity) and use, as inputs, observable or unobservable market parameters, including yield curves, interest rates, volatilities, prices (such as commodity, equity or debt prices), correlations, foreign exchange rates and credit curves. Fair value may also incorporate valuation adjustments.

The level of precision in estimating unobservable market inputs or other factors can affect the amount of gain or loss recorded for a particular position. Furthermore, while the Bank 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 Bank's businesses and portfolios.

The Bank uses various methodologies and assumptions in the determination of fair value. The use of different methodologies or assumptions by other market participants compared with those used by the Bank could result in the Bank deriving a different estimate of fair value at the reporting date.

Valuation process

Risk-taking functions are responsible for providing fair value estimates for assets and liabilities carried on the Consolidated balance sheets at fair value. JPMorganChase's Valuation Control Group ("VCG"), which is part of JPMorganChase's Finance function and independent of the risk-taking functions, is responsible for verifying these estimates and determining any fair value adjustments that may be required to ensure that the Bank's positions are recorded at fair value. In addition, JPMorganChase's Valuation Governance Forum ("VGF"), which is composed of senior finance and risk executives, is

responsible for overseeing the management of risks arising from valuation activities conducted across JPMorganChase. The Firmwide VGF is chaired by the Firmwide head of the VCG (under the direction of JPMorganChase's Controller).

Price verification process

The VCG verifies fair value estimates provided by the risk-taking functions by leveraging independently derived prices, valuation inputs and other market data, where available. Where independent prices or inputs are not available, the VCG performs additional review to ensure the reasonableness of the estimates. The additional review may include evaluating the limited market activity including client unwinds, benchmarking valuation inputs to those used for similar instruments, decomposing the valuation of structured instruments into individual components, comparing expected to actual cash flows, reviewing profit and loss trends, and reviewing trends in collateral valuation. There are also additional levels of management review for more significant or complex positions.

The VCG determines any valuation adjustments that may be required to the estimates provided by the risk-taking functions. No adjustments to quoted prices are applied for instruments classified within level 1 of the fair value hierarchy (refer to the discussion of the fair value hierarchy on page 15 for further information). For other positions, judgment is required to assess the need for valuation adjustments to appropriately reflect liquidity considerations, unobservable parameters, and, for certain portfolios that meet specified criteria, the size of the net open risk position. The determination of such adjustments follows a consistent framework across the Bank:

- Liquidity valuation adjustments are considered where an observable external price or valuation parameter exists but is of lower reliability, potentially due to lower market activity. Liquidity valuation adjustments are made based on current market conditions. Factors that may be considered in determining the liquidity adjustment include analysis of: (1) the estimated bid-offer spread for the instrument being traded; (2) alternative pricing points for similar instruments in active markets; and (3) the range of reasonable values that the price or parameter could take.
- The Bank manages certain portfolios of financial instruments on the basis of net open risk exposure and, as permitted by U.S. GAAP, has elected to estimate the fair value of such portfolios on the basis of a transfer of the entire net open risk position in an orderly transaction. Where this is the

case, valuation adjustments may be necessary to reflect the cost of exiting a larger-than-normal market-size net open risk position. Where applied, such adjustments are based on factors that a relevant market participant would consider in the transfer of the net open risk position, including the size of the adverse market move that is likely to occur during the period required to sufficiently reduce the net open risk position.

- Uncertainty adjustments related to unobservable parameters may be made when positions are valued using prices or input parameters to valuation models that are unobservable due to a lack of market activity or because they cannot be implied from observable market data. Such prices or parameters must be estimated and are, therefore, subject to management judgment. Adjustments are made to reflect the uncertainty inherent in the resulting valuation estimate.
- Where appropriate, the Bank also applies adjustments to its estimates of fair value in order to appropriately reflect counterparty credit quality (credit valuation adjustments (“CVA”)), the Bank’s own creditworthiness (debit valuation adjustments (“DVA”)) and the impact of funding (funding valuation adjustments (“FVA”)), using a consistent framework across the Bank.

Valuation model review and approval

If prices or quotes are not available for an instrument or a similar instrument, fair value is generally determined using valuation models that consider relevant transaction terms such as maturity and use as inputs market-based or independently sourced parameters. Where this is the case the price verification process described above is applied to the inputs in those models.

Under the Bank’s Estimations and Model Risk Management Policy, Model Risk Governance and Review (“MRGR”) reviews and approves new models, as well as material changes to existing models, prior to implementation in the operating environment. In certain circumstances exceptions may be granted to the Bank’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.

Fair value hierarchy

A three-level fair value hierarchy has been established under U.S. GAAP for disclosure of fair value measurements. The fair value hierarchy is based on the observability of inputs to the valuation of an asset or liability as of the measurement date. The three levels are defined as follows.

- Level 1 – inputs to the valuation methodology are quoted prices (unadjusted) for identical assets or liabilities in active markets.
- Level 2 – inputs to the valuation methodology include quoted prices for similar assets and liabilities in active markets, and inputs that are observable for the asset or liability, either directly or indirectly, for substantially the full term of the financial instrument.
- Level 3 – one or more inputs to the valuation methodology are unobservable and significant to the fair value measurement.

A financial instrument’s categorization within the fair value hierarchy is based on the lowest level of input that is significant to the fair value measurement.

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The following table describes the valuation methodologies generally used by the Bank to measure its significant products/instruments at fair value, including the general classification of such instruments pursuant to the fair value hierarchy.

Product/instrument	Valuation methodology	Classifications in the fair value hierarchy
Securities financing agreements	<p>Valuations are based on discounted cash flows, which consider:</p> <ul style="list-style-type: none"> • Derivative features: refer to the discussion of derivatives below for further information • Market rates for the respective maturity • Collateral characteristics 	Predominantly level 2
Loans and lending-related commitments – wholesale	<p>Where observable market data is available, valuations are based on:</p> <ul style="list-style-type: none"> • Observed market prices (circumstances are infrequent) • Relevant broker quotes • Observed market prices for similar instruments <p>Where observable market data is unavailable or limited, valuations are based on discounted cash flows, which consider the following:</p> <ul style="list-style-type: none"> • Credit spreads derived from the cost of credit default swaps (“CDS”); or benchmark credit curves developed by the Bank, by industry and credit rating • Prepayment speed • Collateral characteristics 	Level 2 or 3
Loans carried at fair value (trading loans and non-trading loans) and associated lending-related commitments		
Loans – consumer	<p>Fair value is based on observable market prices for mortgage-backed securities (“MBS”) with similar collateral and incorporates adjustments to these prices to account for differences between the securities and the value of the underlying loans, which include credit characteristics, portfolio composition, and liquidity.</p>	Predominantly level 2
Loans carried at fair value – residential mortgage loans expected to be sold		
Investment and trading securities	<p>Quoted market prices</p> <p>In the absence of quoted market prices, securities are valued based on:</p> <ul style="list-style-type: none"> • Observable market prices for similar securities • Relevant broker quotes • Discounted cash flows <p>In addition, the following inputs to discounted cash flows are used for the following products:</p> <p>Mortgage- and asset-backed securities (“ABS”) specific inputs:</p> <ul style="list-style-type: none"> • Collateral characteristics • Deal-specific payment and loss allocations • Current market assumptions related to yield, prepayment speed, conditional default rates and loss severity <p>Collateralized loan obligations (“CLOs”) specific inputs:</p> <ul style="list-style-type: none"> • Collateral characteristics • Deal-specific payment and loss allocations • Expected prepayment speed, conditional default rates, loss severity • Credit spreads • Credit rating data 	<p>Level 1</p> <p>Level 2 or 3</p>
Physical commodities	Valued using observable market prices or data.	Predominantly level 1 or 2

Product/instrument	Valuation methodology	Classifications in the fair value hierarchy
Derivatives	Actively traded derivatives, e.g., exchange traded derivatives, that are valued using quoted prices.	Level 1
	<p>Derivatives that are valued using models such as the Black-Scholes option pricing model, simulation models, or a combination of models that may use observable or unobservable valuation inputs as well as considering the contractual terms.</p> <p>The key valuation inputs used will depend on the type of derivative and the nature of the underlying instruments and may include equity prices, commodity prices, foreign exchange rates, volatilities, correlations, CDS spreads, recovery rates and prepayment speed.</p> <p>In addition, specific inputs used for derivatives that are valued based on models with significant unobservable inputs are as follows:</p> <p>Interest rate and FX exotic derivatives specific inputs include:</p> <ul style="list-style-type: none"> • Interest rate curve • Interest rate volatility • Interest rate spread volatility • Bermudan switch value • Interest rate correlation • Interest rate-FX correlation • Foreign exchange correlation <p>Credit derivatives specific inputs include:</p> <ul style="list-style-type: none"> • Credit correlation between the underlying debt instruments <p>Equity derivatives specific inputs include:</p> <ul style="list-style-type: none"> • Forward equity price • Equity volatility • Equity correlation • Equity-FX correlation • Equity-IR correlation <p>Commodity derivatives specific inputs include:</p> <ul style="list-style-type: none"> • Forward commodity price • Commodity volatility • Commodity correlation <p>Additionally, adjustments are made to reflect counterparty credit quality (CVA) and the impact of funding (FVA).</p>	Level 2 or 3
Mortgage servicing rights ("MSRs")	Refer to Mortgage servicing rights in Note 16.	Level 3
Fund investments (e.g., mutual/collective investment funds, private equity funds, hedge funds, and real estate funds)	Net asset value ("NAV")	Level 1
	<ul style="list-style-type: none"> • NAV is supported by the ability to redeem and purchase at the NAV level • Adjustments to the NAV as required, for restrictions on redemption (e.g., lock-up periods or withdrawal limitations) or where observable activity is limited 	Level 2 or 3 ^(a)
Beneficial interests issued by consolidated VIEs	Valued using observable market information, where available. In the absence of observable market information, valuations are based on the fair value of the underlying assets held by the VIE.	Level 2 or 3
Structured notes (included in deposits, short-term borrowings and long-term debt)	<ul style="list-style-type: none"> • Valuations are based on discounted cash flow analyses that consider the embedded derivative and the terms and payment structure of the note. • The embedded derivative features are considered using models such as the Black-Scholes option pricing model, simulation models, or a combination of models that may use observable or unobservable valuation inputs, depending on the embedded derivative. The specific inputs used vary according to the nature of the embedded derivative features, as described in the discussion above regarding derivatives valuation. Adjustments are then made to this base valuation to reflect the Bank's own credit risk (DVA). 	Level 2 or 3

(a) Excludes certain investments that are measured at fair value using the net asset value per share (or its equivalent) as a practical expedient.

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The following table presents the assets and liabilities reported at fair value as of December 31, 2024 and 2023, by major product category and fair value hierarchy.

Assets and liabilities measured at fair value on a recurring basis

December 31, 2024 (in millions)	Fair value hierarchy			Derivative netting adjustments ^(a)	Total fair value
	Level 1	Level 2	Level 3		
Federal funds sold and securities purchased under resale agreements	\$ —	\$ 191,008	\$ —	\$ —	\$ 191,008
Securities borrowed	—	25,267	—	—	25,267
Trading assets:					
Debt instruments:					
Mortgage-backed securities:					
U.S. GSEs and government agencies ^(a)	—	24,779	481	—	25,260
Residential – nonagency	—	589	4	—	593
Commercial – nonagency	—	255	4	—	259
Total mortgage-backed securities	—	25,623	489	—	26,112
U.S. Treasury, GSEs and government agencies ^(a)	29,332	1,022	—	—	30,354
Obligations of U.S. states and municipalities	—	3,495	—	—	3,495
Certificates of deposit, bankers' acceptances and commercial paper	—	3,547	—	—	3,547
Non-U.S. government debt securities	34,113	54,210	152	—	88,475
Corporate debt securities	—	23,960	144	—	24,104
Loans	—	10,162	1,070	—	11,232
Asset-backed securities	—	586	9	—	595
Total debt instruments	63,445	122,605	1,864	—	187,914
Equity securities	96,838	988	22	—	97,848
Physical commodities ^(b)	5,069	571	—	—	5,640
Other	—	20,077	123	—	20,200
Total debt and equity instruments^(c)	165,352	144,241	2,009	—	311,602
Derivative receivables:					
Interest rate	545	349,007	3,820	(328,387)	24,985
Credit	—	10,612	779	(10,482)	909
Foreign exchange	197	268,981	1,511	(245,211)	25,478
Equity	—	68,281	6,794	(67,275)	7,800
Commodity	—	20,146	358	(15,951)	4,553
Total derivative receivables	742	717,027	13,262	(667,306)	63,725
Total trading assets	166,094	861,268	15,271	(667,306)	375,327
Available-for-sale securities:					
Mortgage-backed securities:					
U.S. GSEs and government agencies ^(a)	—	91,893	—	—	91,893
Residential – nonagency	—	4,811	—	—	4,811
Commercial – nonagency	—	4,057	8	—	4,065
Total mortgage-backed securities	—	100,761	8	—	100,769
U.S. Treasury and government agencies	234,491	288	—	—	234,779
Obligations of U.S. states and municipalities	—	17,913	—	—	17,913
Non-U.S. government debt securities	23,973	12,272	—	—	36,245
Corporate debt securities	—	44	—	—	44
Asset-backed securities:					
Collateralized loan obligations	—	14,943	—	—	14,943
Other ^(a)	—	2,121	—	—	2,121
Total available-for-sale securities	258,464	148,342	8	—	406,814
Loans	—	38,719	2,366	—	41,085
Mortgage servicing rights	—	—	9,121	—	9,121
Other assets ^(d)	9,626	4,678	638	—	14,942
Total assets measured at fair value on a recurring basis	\$ 434,184	\$ 1,269,282	\$ 27,404	\$ (667,306)	\$ 1,063,564
Deposits	\$ —	\$ 31,695	\$ 2,190	\$ —	\$ 33,885
Federal funds purchased and securities loaned or sold under repurchase agreements	—	101,650	—	—	101,650
Short-term borrowings	—	18,101	3,391	—	21,492
Trading liabilities:					
Debt and equity instruments ^(c)	56,105	21,023	43	—	77,171
Derivative payables:					
Interest rate	303	323,033	6,035	(320,517)	8,854
Credit	—	13,355	1,127	(12,595)	1,887
Foreign exchange	187	260,761	1,603	(246,997)	15,554
Equity	—	69,625	7,686	(68,740)	8,571
Commodity	—	18,856	529	(15,518)	3,867
Total derivative payables	490	685,630	16,980	(664,367)	38,733
Total trading liabilities	56,595	706,653	17,023	(664,367)	115,904
Accounts payable and other liabilities	9,173	397	43	—	9,613
Long-term debt	—	27,664	13,562	—	41,226
Total liabilities measured at fair value on a recurring basis	\$ 65,768	\$ 886,160	\$ 36,209	\$ (664,367)	\$ 323,770

December 31, 2023 (in millions)	Fair value hierarchy			Derivative netting adjustments ^(a)	Total fair value
	Level 1	Level 2	Level 3		
Federal funds sold and securities purchased under resale agreements	\$ —	\$ 162,977	\$ —	\$ —	\$ 162,977
Securities borrowed	—	20,541	—	—	20,541
Trading assets:					
Debt instruments:					
Mortgage-backed securities:					
U.S. GSEs and government agencies ^(a)	—	9,465	758	—	10,223
Residential – nonagency	—	756	4	—	760
Commercial – nonagency	—	278	5	—	283
Total mortgage-backed securities	—	10,499	767	—	11,266
U.S. Treasury, GSEs and government agencies ^(a)	37,419	769	—	—	38,188
Obligations of U.S. states and municipalities	—	3,565	5	—	3,570
Certificates of deposit, bankers' acceptances and commercial paper	—	278	—	—	278
Non-U.S. government debt securities	24,846	55,178	179	—	80,203
Corporate debt securities	—	24,261	211	—	24,472
Loans	—	7,831	606	—	8,437
Asset-backed securities	—	399	—	—	399
Total debt instruments	62,265	102,780	1,768	—	166,813
Equity securities	84,503	546	41	—	85,090
Physical commodities ^(b)	1,380	2,433	—	—	3,813
Other	—	18,776	142	—	18,918
Total debt and equity instruments^(c)	148,148	124,535	1,951	—	274,634
Derivative receivables:					
Interest rate	817	301,350	4,322	(280,229)	26,260
Credit	—	8,376	1,056	(8,867)	565
Foreign exchange	149	208,604	1,097	(191,832)	18,018
Equity	—	54,205	6,447	(55,278)	5,374
Commodity	—	19,498	189	(14,729)	4,958
Total derivative receivables	966	592,033	13,111	(550,935)	55,175
Total trading assets	149,114	716,568	15,062	(550,935)	329,809
Available-for-sale securities:					
Mortgage-backed securities:					
U.S. GSEs and government agencies ^(a)	—	85,170	—	—	85,170
Residential – nonagency	—	3,639	—	—	3,639
Commercial – nonagency	—	2,803	—	—	2,803
Total mortgage-backed securities	—	91,612	—	—	91,612
U.S. Treasury and government agencies	57,683	122	—	—	57,805
Obligations of U.S. states and municipalities	—	21,367	—	—	21,367
Non-U.S. government debt securities	13,095	8,187	—	—	21,282
Corporate debt securities	—	87	—	—	87
Asset-backed securities:					
Collateralized loan obligations	—	6,752	—	—	6,752
Other ^(a)	—	2,771	—	—	2,771
Total available-for-sale securities	70,778	130,898	—	—	201,676
Loans	—	35,537	3,054	—	38,591
Mortgage servicing rights	—	—	8,522	—	8,522
Other assets ^(d)	7,957	3,131	179	—	11,267
Total assets measured at fair value on a recurring basis	\$ 227,849	\$ 1,069,652	\$ 26,817	\$ (550,935)	\$ 773,383
Deposits	\$ —	\$ 76,688	\$ 1,836	\$ —	\$ 78,524
Federal funds purchased and securities loaned or sold under repurchase agreements	—	67,067	—	—	67,067
Short-term borrowings	—	8,712	1,548	—	10,260
Trading liabilities:					
Debt and equity instruments ^(c)	51,341	24,127	30	—	75,498
Derivative payables:					
Interest rate	1,087	281,813	6,375	(278,417)	10,858
Credit	—	11,366	776	(11,068)	1,074
Foreign exchange	147	216,916	1,164	(205,622)	12,605
Equity	—	55,392	6,827	(56,669)	5,550
Commodity	—	19,518	481	(14,722)	5,277
Total derivative payables	1,234	585,005	15,623	(566,498)	35,364
Total trading liabilities	52,575	609,132	15,653	(566,498)	110,862
Accounts payable and other liabilities	7,361	845	49	—	8,255
Long-term debt	—	18,209	10,790	—	28,999
Total liabilities measured at fair value on a recurring basis	\$ 59,936	\$ 780,653	\$ 29,876	\$ (566,498)	\$ 303,967

- (a) At December 31, 2024 and 2023, included total U.S. GSE obligations of \$67.1 billion and \$37.3 billion, respectively, which were mortgage-related.
- (b) Physical commodities inventories are generally accounted for at the lower of cost or net realizable value. "Net realizable value" is a term defined in U.S. GAAP as not exceeding fair value less costs to sell ("transaction costs"). Transaction costs for the Bank's physical commodities inventories are either not applicable or immaterial to the value of the inventory. Therefore, net realizable value approximates fair value for the Bank's physical commodities inventories. When fair value hedging has been applied (or when net realizable value is below cost), the carrying value of physical commodities approximates fair value, because under fair value hedge accounting, the cost basis is adjusted for changes in fair value. Refer to Note 6 for a further discussion of the Bank's hedge accounting relationships. To provide consistent fair value disclosure information, all physical commodities inventories have been included in each period presented.
- (c) Balances reflect the reduction of securities owned (long positions) by the amount of identical securities sold but not yet purchased (short positions).

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- (d) Certain investments that are measured at fair value using the net asset value per share (or its equivalent) as a practical expedient are not required to be classified in the fair value hierarchy. At December 31, 2024 and 2023 the fair values of these investments, which include certain hedge funds, private equity funds, real estate and other funds, were \$85 million and \$48 million, respectively, primarily reported in other assets.
- (e) As permitted under U.S. GAAP, the Bank has elected to net derivative receivables and derivative payables and the related cash collateral received and paid when a legally enforceable master netting agreement exists. The level 3 balances would be reduced if netting were applied, including the netting benefit associated with cash collateral. Additionally, includes derivative receivables and payables with affiliates on a net basis. Refer to Note 21 for information regarding our derivative activities with affiliates.

Level 3 valuations

The Bank has established well-structured processes for determining fair value, including for instruments where fair value is estimated using significant unobservable inputs (level 3). Refer to pages 14-17 of this Note for further information on the Bank's valuation process and a detailed discussion of the determination of fair value for individual financial instruments.

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 Bank. 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, due to the lack of observability of significant inputs, management must assess relevant empirical data in deriving valuation inputs including 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.

The following table presents the Bank's primary level 3 financial instruments, the valuation techniques used to measure the fair value of those financial instruments, the significant unobservable inputs, the range of values for those inputs and the weighted or arithmetic averages of such inputs. While the determination to classify an instrument within level 3 is based on the significance of the unobservable inputs to the overall fair value measurement, level 3 financial instruments typically include observable components (that is, components that are actively quoted and can be validated to external sources) in addition to the unobservable components. The level 1 and/or level 2 inputs are not included in the table. In addition, the Bank manages the risk of the observable components of level 3 financial instruments using securities and derivative positions that are classified within levels 1 or 2 of the fair value hierarchy.

The range of values presented in the table is representative of the highest and lowest level input

used to value the significant groups of instruments within a product/instrument classification. Where provided, the weighted averages of the input values presented in the table are calculated based on the fair value of the instruments that the input is being used to value.

In the Bank's view, the input range, weighted and arithmetic average values do not reflect the degree of input uncertainty or an assessment of the reasonableness of the Bank's estimates and assumptions. Rather, they reflect the characteristics of the various instruments held by the Bank and the relative distribution of instruments within the range of characteristics. For example, two option contracts may have similar levels of market risk exposure and valuation uncertainty, but may have significantly different implied volatility levels because the option contracts have different underlyings, tenors, or strike prices. The input range and weighted and arithmetic average values will therefore vary from period-to-period and parameter-to-parameter based on the characteristics of the instruments held by the Bank at each balance sheet date.

Level 3 inputs^(a)

December 31, 2024

Product/Instrument	Fair value (in millions)	Principal valuation technique	Unobservable inputs ^(g)	Range of input values		Average ⁽ⁱ⁾		
Residential mortgage-backed securities and loans ^(b)	\$ 854	Discounted cash flows	Yield	0%	103%	8%		
			Prepayment speed	3%	13%	8%		
			Conditional default rate	0%	7%	0%		
			Loss severity	0%	107%	5%		
Commercial mortgage-backed securities and loans ^(c)	1,392	Market comparables	Price	\$5	\$84	\$81		
Corporate debt securities	144	Market comparables	Price	\$0	\$148	\$71		
Loans ^(d)	1,687	Market comparables	Price	\$0	\$107	\$79		
Non-U.S. government debt securities	152	Market comparables	Price	\$0	\$103	\$95		
Net interest rate derivatives	(2,223)	Option pricing	Interest rate volatility	9bps	1,097bps	119bps		
			Interest rate spread volatility	37bps	77bps	64bps		
			Bermudan switch value	0%	45%	18%		
			Interest rate correlation	(82)%	97%	64%		
			IR-FX correlation	(35)%	60%	5%		
	8	Discounted cash flows	Prepayment speed	0%	21%	7%		
Net credit derivatives	(378)	Discounted cash flows	Credit correlation	31%	79%	47%		
			Credit spread	0bps	2,717bps	331bps		
			Recovery rate	10%	90%	61%		
	30	Market comparables	Price	\$0	\$115	\$76		
Net foreign exchange derivatives	(50)	Option pricing	IR-FX correlation	(40)%	60%	22%		
			Discounted cash flows	Prepayment speed		11%	11%	
				Interest rate curve	1%	27%	7%	
Net equity derivatives	(892)	Option pricing	Forward equity price ^(h)	76%	153%	100%		
			Equity volatility	3%	135%	31%		
			Equity correlation	(10)%	100%	56%		
			Equity-FX correlation	(83)%	65%	(34)%		
			Equity-IR correlation	5%	25%	14%		
Net commodity derivatives	(171)	Option pricing	Oil commodity forward	\$87 / BBL	\$291 / BBL	\$160 / BBL		
			Natural gas commodity forward	\$2 / MMBTU	\$7 / MMBTU	\$4 / MMBTU		
			Commodity volatility	2%	43%	5%		
			Commodity correlation	(35)%	98%	(9)%		
MSRs	9,121	Discounted cash flows	Refer to Note 16					
Long-term debt, short-term borrowings, and deposits ^(e)	17,896	Option pricing	Interest rate volatility	9bps	1097bps	119bps		
			Bermudan switch value	0%	45%	18%		
			Interest rate correlation	(82)%	97%	64%		
			IR-FX correlation	(35)%	60%	5%		
			Equity volatility	2%	125%	29%		
			Equity correlation	(10)%	100%	56%		
			Equity-FX correlation	(83)%	65%	(34)%		
			Equity-IR correlation	5%	25%	14%		
			Discounted cash flows	1,247	Credit correlation	30%	57%	46%
					Credit spread	2bps	270bps	83bps
Recovery rate	20%	40%			35%			
Yield	5%	20%			10%			
			Loss severity	0%	100%	50%		
Other level 3 assets and liabilities, net ^(f)	706							

(a) The categories presented in the table have been aggregated based upon the product type, which may differ from their classification on the Consolidated balance sheets. Furthermore, the inputs presented for each valuation technique in the table are, in some cases, not applicable to every instrument valued using the technique as the characteristics of the instruments can differ.

(b) Comprises U.S. GSE and government agency securities of \$481 million, nonagency securities of \$4 million and non-trading loans of \$369 million.

(c) Comprises nonagency securities of \$12 million, trading loans of \$65 million and non-trading loans of \$1.3 billion.

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- (d) Comprises trading loans of \$1.0 billion and non-trading loans of \$682 million.
- (e) Long-term debt, short-term borrowings and deposits include structured notes issued by the Bank that are financial instruments that typically contain embedded derivatives. The estimation of the fair value of structured notes includes the derivative features embedded within the instrument. The significant unobservable inputs are broadly consistent with those presented for derivative receivables.
- (f) Includes other equity instruments of \$54 million with level 3 inputs comparable to net equity derivatives. All other level 3 assets and liabilities are insignificant both individually and in aggregate.
- (g) Price is a significant unobservable input for certain instruments. When quoted market prices are not readily available, reliance is generally placed on price-based internal valuation techniques. The price input is expressed assuming a par value of \$100.
- (h) Forward equity price is expressed as a percentage of the current equity price.
- (i) Amounts represent weighted averages except for derivative related inputs where arithmetic averages are used.

Changes in and ranges of unobservable inputs

The following discussion provides a description of the impact on a fair value measurement of a change in each unobservable input in isolation, and the interrelationship between unobservable inputs, where relevant and significant. The impact of changes in inputs may not be independent, as a change in one unobservable input may give rise to a change in another unobservable input. Where relationships do exist between two unobservable inputs, those relationships are discussed below. Relationships may also exist between observable and unobservable inputs (for example, as observable interest rates rise, unobservable prepayment rates decline); such relationships have not been included in the discussion below. In addition, for each of the individual relationships described below, the inverse relationship would also generally apply.

The following discussion also provides a description of attributes of the underlying instruments and external market factors that affect the range of inputs used in the valuation of the Bank's positions.

Yield – The yield of an asset is the interest rate used to discount future cash flows in a discounted cash flow calculation. An increase in the yield, in isolation, would result in a decrease in a fair value measurement.

Credit spread – The credit spread is the amount of additional annualized return over the market interest rate that a market participant would demand for taking exposure to the credit risk of an instrument. The credit spread for an instrument forms part of the discount rate used in a discounted cash flow calculation. Generally, an increase in the credit spread would result in a decrease in a fair value measurement.

The yield and the credit spread of a particular mortgage-backed security primarily reflect the risk inherent in the instrument. The yield is also impacted by the absolute level of the coupon paid by the instrument (which may not correspond directly to the level of inherent risk). Therefore, the range of yield and credit spreads reflects the range of risk inherent in various instruments owned by the Bank. The risk inherent in mortgage-backed securities is driven by the subordination of the security being valued and the characteristics of the underlying mortgages within the collateralized pool, including borrower FICO scores, loan-to-value ("LTV") ratios for residential mortgages

and the nature of the property and/or any tenants for commercial mortgages. For corporate debt securities, obligations of U.S. states and municipalities and other similar instruments, credit spreads reflect the credit quality of the obligor and the tenor of the obligation.

Prepayment speed – The prepayment speed is a measure of the voluntary unscheduled principal repayments of a prepayable obligation in a collateralized pool. Prepayment speeds generally decline as borrower delinquencies rise. An increase in prepayment speeds, in isolation, would result in a decrease in a fair value measurement of assets valued at a premium to par and an increase in a fair value measurement of assets valued at a discount to par.

Prepayment speeds may vary from collateral pool to collateral pool, and are driven by the type and location of the underlying borrower, and the remaining tenor of the obligation as well as the level and type (e.g., fixed or floating) of interest rate being paid by the borrower. Typically collateral pools with higher borrower credit quality have a higher prepayment rate than those with lower borrower credit quality, all other factors being equal.

Conditional default rate – The conditional default rate is a measure of the reduction in the outstanding collateral balance underlying a collateralized obligation as a result of defaults. While there is typically no direct relationship between conditional default rates and prepayment speeds, collateralized obligations for which the underlying collateral has high prepayment speeds will tend to have lower conditional default rates. An increase in conditional default rates would generally be accompanied by an increase in loss severity and an increase in credit spreads. An increase in the conditional default rate, in isolation, would result in a decrease in a fair value measurement. Conditional default rates reflect the quality of the collateral underlying a securitization and the structure of the securitization itself. Based on the types of securities owned in the Bank's market-making portfolios, conditional default rates are most typically at the lower end of the range presented.

Loss severity – The loss severity (the inverse concept is the recovery rate) is the expected amount of future realized losses resulting from the ultimate liquidation of a particular loan, expressed as the net amount of loss relative to the outstanding loan balance. An

increase in loss severity is generally accompanied by an increase in conditional default rates. An increase in the loss severity, in isolation, would result in a decrease in a fair value measurement.

The loss severity applied in valuing a mortgage-backed security depends on factors relating to the underlying mortgages, including the LTV ratio, the nature of the lender's lien on the property and other instrument-specific factors.

Correlation – Correlation is a measure of the relationship between the movements of two variables. Correlation is a pricing input for a derivative product where the payoff is driven by one or more underlying risks. Correlation inputs are related to the type of derivative (e.g., interest rate, credit, equity, foreign exchange and commodity) due to the nature of the underlying risks. When parameters are positively correlated, an increase in one parameter will result in an increase in the other parameter. When parameters are negatively correlated, an increase in one parameter will result in a decrease in the other parameter. An increase in correlation can result in an increase or a decrease in a fair value measurement. Given a short correlation position, an increase in correlation, in isolation, would generally result in a decrease in a fair value measurement.

The level of correlation used in the valuation of derivatives with multiple underlying risks depends on a number of factors including the nature of those risks. For example, the correlation between two credit risk exposures would be different than that between two interest rate risk exposures. Similarly, the tenor of the transaction may also impact the correlation input, as the relationship between the underlying risks may be different over different time periods. Furthermore, correlation levels are dependent on market conditions and could have a relatively wide range of levels within or across asset classes over time, particularly in volatile market conditions.

Volatility – Volatility is a measure of the variability in possible returns for an instrument, parameter or market index given how much the particular instrument, parameter or index changes in value over time. Volatility is a pricing input for options, including equity options, commodity options, and interest rate options. Given a long position in an option, an increase in volatility, in isolation, would generally result in an increase in a fair value measurement.

The level of volatility used in the valuation of a particular option-based derivative depends on a number of factors, including the nature of the risk underlying the option (e.g., the volatility of a particular equity security may be significantly different from that of a particular commodity index), the tenor of the derivative as well as the strike price of the option.

Bermudan switch value – The switch value is the difference between the overall value of a Bermudan swaption, which can be exercised at multiple points in time, and its most expensive European swaption and reflects the additional value that the multiple exercise dates provide the holder. Switch values are dependent on market conditions and can vary greatly depending on a number of factors, such as the tenor of the underlying swap as well as the strike price of the option. An increase in switch value, in isolation, would generally result in an increase in a fair value measurement.

Interest rate curve – The interest rate curve represents the relationship of interest rates over differing tenors. The interest rate curve is used to set interest rate and foreign exchange derivative cash flows and is also a pricing input used in the discounting of any derivative cash flow.

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Forward price – The forward price is the price at which the buyer agrees to purchase the asset underlying a forward contract on the predetermined future delivery date, and is such that the value of the contract is zero at inception.

The forward price is used as an input in the valuation of certain derivatives and depends on a number of factors including interest rates, the current price of the underlying asset, and the expected income to be received and costs to be incurred by the seller as a result of holding that asset until the delivery date. An increase in the forward can result in an increase or a decrease in a fair value measurement.

Changes in level 3 recurring fair value measurements

The following tables include a rollforward of the Consolidated balance sheets amounts (including changes in fair value) for financial instruments classified by the Bank within level 3 of the fair value hierarchy for the years ended December 31, 2024, 2023 and 2022. When a determination is made to classify a financial instrument within level 3, the determination is based on the significance of the unobservable inputs to the overall fair value measurement. However, level 3 financial instruments typically include, in addition to the unobservable or level 3 components, observable components (that is, components that are actively quoted and can be validated to external sources); accordingly, the gains and losses in the table below include changes in fair value due in part to observable factors that are part of the valuation methodology. The Bank risk-manages the observable components of level 3 financial instruments using securities and derivative positions that are classified within level 1 or 2 of the fair value hierarchy; as these level 1 and level 2 risk management instruments are not included below, the gains or losses in the following tables do not reflect the effect of the Bank's risk management activities related to such level 3 instruments.

Year ended December 31, 2024 (in millions)	Fair value measurements using significant unobservable inputs							Fair value at Dec. 31, 2024	Change in unrealized gains/(losses) related to financial instruments held at Dec. 31, 2024
	Fair value at January 1, 2024	Total realized/ unrealized gains/ (losses)	Purchases ^(a)	Sales	Settlements ^(h)	Transfers into level 3	Transfers (out of) level 3		
Assets: ^(a)									
Trading assets:									
Debt instruments:									
Mortgage-backed securities:									
U.S. GSEs and government agencies	\$ 758	\$ 18	\$ 45	\$ (260)	\$ (80)	\$ —	\$ —	\$ 481	\$ (3)
Residential – nonagency	4	6	—	(6)	—	—	—	4	—
Commercial – nonagency	5	(1)	—	—	—	—	—	4	—
Total mortgage-backed securities	767	23	45	(266)	(80)	—	—	489	(3)
Obligations of U.S. states and municipalities	5	—	—	—	—	—	(5)	—	—
Non-U.S. government debt securities	179	(6)	165	(175)	—	17	(28)	152	(10)
Corporate debt securities	211	4	407	(282)	(149)	4	(51)	144	15
Loans	606	73	793	(568)	(61)	805	(578)	1,070	49
Asset-backed securities	—	—	9	(1)	—	1	—	9	—
Total debt instruments	1,768	94	1,419	(1,292)	(290)	827	(662)	1,864	51
Equity securities	41	(19)	108	(93)	—	84	(99)	22	(280)
Other	142	(4)	235	—	(242)	17	(25)	123	4
Total trading assets – debt and equity instruments	1,951	71	1,762	(1,385)	(532)	928	(786)	2,009	(225)
Net derivative receivables: ^(b)									
Interest rate	(2,053)	816	389	(451)	(502)	(165)	(249)	(2,215)	(233)
Credit	280	(227)	(2)	(19)	(375)	(6)	1	(348)	(347)
Foreign exchange	(67)	366	178	(667)	(81)	194	(15)	(92)	774
Equity	(380)	(1,110)	2,893	(3,327)	657	176	199	(892)	154
Commodity	(292)	5	31	(218)	281	(4)	26	(171)	58
Total net derivative receivables	(2,512)	(150)	3,489	(4,682)	(20)	195	(38)	(3,718)	406
Available-for-sale securities:									
Mortgage-backed securities									
Commercial – nonagency	—	—	—	—	—	8	—	8	—
Corporate debt securities	—	—	—	—	—	—	—	—	—
Total available-for-sale securities	—	—	—	—	—	8	—	8	—
Loans	3,054	272	398	(756)	(992)	815	(425)	2,366	70
Mortgage servicing rights	8,522	762	926	(21)	(1,068)	—	—	9,121	762
Other assets	179	44	428	(8)	—	—	(5)	638	42

Year ended December 31, 2024 (in millions)	Fair value measurements using significant unobservable inputs							Fair value at Dec. 31, 2024	Change in unrealized (gains)/losses related to financial instruments held at Dec. 31, 2024	
	Fair value at January 1, 2024	Total realized/ unrealized (gains)/ losses	Purchases	Sales	Issuances	Settlements ^(h)	Transfers into level 3			Transfers (out of) level 3
Liabilities: ^(a)										
Deposits	\$ 1,836	\$ (17)	\$ —	\$ —	\$ 2,006	\$ (1,518)	\$ 35	\$ (152)	\$ 2,190	\$ (45)
Short-term borrowings	1,548	124	—	—	7,649	(5,942)	18	(6)	3,391	75
Trading liabilities – debt and equity instruments	30	(5)	(40)	23	—	—	46	(11)	43	2
Accounts payable and other liabilities	49	(6)	—	—	—	—	—	—	43	(6)
Long-term debt	10,790	72	—	—	10,360	(7,567)	282	(375)	13,562	267

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Year ended December 31, 2023 (in millions)	Fair value measurements using significant unobservable inputs								Fair value at Dec. 31, 2023	Change in unrealized gains/(losses) related to financial instruments held at Dec. 31, 2023
	Fair value at January 1, 2023	Total realized/ unrealized gains/ (losses)	Purchases ^(a)	Sales	Settlements ^(h)	Transfers into level 3	Transfers (out of) level 3			
Assets: ^(a)										
Trading assets:										
Debt instruments:										
Mortgage-backed securities:										
U.S. GSEs and government agencies	\$ 742	\$ 4	\$ 224	\$ (126)	\$ (86)	\$ —	\$ —	\$ 758	\$ 4	
Residential – nonagency	4	5	—	(6)	—	1	—	4	—	
Commercial – nonagency	—	(1)	—	—	—	6	—	5	(1)	
Total mortgage-backed securities	746	8	224	(132)	(86)	7	—	767	3	
Obligations of U.S. states and municipalities	5	—	—	—	—	—	—	5	—	
Non-U.S. government debt securities	155	74	217	(254)	—	22	(35)	179	74	
Corporate debt securities	201	16	196	(192)	—	70	(80)	211	11	
Loans	687	5	954	(467)	(457)	384	(500)	606	26	
Asset-backed securities	1	—	6	(10)	—	3	—	—	—	
Total debt instruments	1,795	103	1,597	(1,055)	(543)	486	(615)	1,768	114	
Equity securities	166	(30)	100	(181)	(16)	157	(155)	41	(37)	
Other	347	(107)	160	—	(220)	6	(44)	142	25	
Total trading assets – debt and equity instruments	2,308	(34) ^(c)	1,857	(1,236)	(779)	649	(814)	1,951	102 ^(c)	
Net derivative receivables: ^(b)										
Interest rate	(1,698)	218	252	(470)	996	(1,062)	(289)	(2,053)	11	
Credit	99	305	(56)	(32)	(28)	(33)	25	280	224	
Foreign exchange	561	(26)	151	(229)	(220)	117	(421)	(67)	(176)	
Equity	1,106	(326)	2,911	(2,785)	(1,219)	629	(696)	(380)	(825)	
Commodity	(174)	(177)	61	(294)	87	(2)	207	(292)	(122)	
Total net derivative receivables	(106)	(6) ^(c)	3,319	(3,810)	(384)	(351)	(1,174)	(2,512)	(888) ^(c)	
Available-for-sale securities:										
Mortgage-backed securities										
Commercial – nonagency	—	—	—	—	—	—	—	—	—	
Corporate debt securities	239	24	—	(225)	—	—	(38)	—	—	
Total available-for-sale securities	239	24 ^(d)	—	(225)	—	—	(38)	—	— ^(d)	
Loans	1,394	288 ^(c)	2,398	(120)	(1,147)	1,305	(1,064)	3,054	274 ^(c)	
Mortgage servicing rights	7,973	467 ^(e)	1,281	(188)	(1,011)	—	—	8,522	467 ^(e)	
Other assets	143	36 ^(c)	—	—	—	—	—	179	36 ^(c)	
Fair value measurements using significant unobservable inputs										
Year ended December 31, 2023 (in millions)	Fair value at January 1, 2023	Total realized/ unrealized (gains)/ losses	Purchases	Sales	Issuances	Settlements ^(h)	Transfers into level 3	Transfers (out of) level 3	Fair value at Dec. 31, 2023	Change in unrealized (gains)/losses related to financial instruments held at Dec. 31, 2023
Liabilities: ^(a)										
Deposits	\$ 2,166	\$ 97 ^{(c)(f)}	\$ —	\$ —	\$ 940	\$ (1,042)	\$ —	\$ (325)	\$ 1,836	\$ 74 ^{(c)(f)}
Short-term borrowings	1,257	141 ^{(c)(f)}	—	—	4,192	(4,031)	2	(13)	1,548	(4) ^{(c)(f)}
Trading liabilities – debt and equity instruments	76	(14) ^(c)	(31)	7	—	—	9	(17)	30	(2) ^(c)
Accounts payable and other liabilities	53	(4) ^(c)	—	—	—	—	—	—	49	(4) ^(c)
Long-term debt	11,648	845 ^{(c)(f)}	—	—	4,626	(5,981)	51	(399)	10,790	650 ^{(c)(f)}

Fair value measurements using significant unobservable inputs										
Year ended December 31, 2022 (in millions)	Fair value at January 1, 2022	Total realized/ unrealized gains/ (losses)	Purchases ^(a)	Sales	Issuances	Settlements ^(h)	Transfers into level 3	Transfers (out of) level 3	Fair value at Dec. 31, 2022	Change in unrealized gains/ (losses) related to financial instruments held at Dec. 31, 2022
Assets: ^(a)										
Trading assets:										
Debt instruments:										
Mortgage-backed securities:										
U.S. GSEs and government agencies	\$ 254	\$ 29	\$ 643	\$ (102)		\$ (82)	\$ —	\$ —	\$ 742	\$ 29
Residential – nonagency	9	(1)	—	—		—	—	(4)	4	—
Commercial – nonagency	1	—	—	—		—	2	(3)	—	—
Total mortgage-backed securities	264	28	643	(102)		(82)	2	(7)	746	29
Obligations of U.S. states and municipalities	5	—	—	—		—	—	—	5	—
Non-U.S. government debt securities	81	(92)	494	(338)		(4)	84	(70)	155	(145)
Corporate debt securities	267	(24)	126	(170)		(61)	147	(84)	201	(48)
Loans	654	(38)	596	(582)		(228)	920	(635)	687	(11)
Asset-backed securities	4	—	—	—		—	1	(4)	1	—
Total debt instruments	1,275	(126)	1,859	(1,192)		(375)	1,154	(800)	1,795	(175)
Equity securities	32	(835)	357	(270)		—	923	(41)	166	(652)
Other	602	(47)	702	—		(902)	3	(11)	347	(85)
Total trading assets – debt and equity instruments	1,909	(1,008)	2,918	(1,462)		(1,277)	2,080	(852)	2,308	(912)
Net derivative receivables: ^(b)										
Interest rate	(2,834)	1,142	311	(967)		306	718	(374)	(1,698)	1,155
Credit	88	225	16	(10)		(196)	6	(30)	99	170
Foreign exchange	(356)	773	214	(175)		98	3	4	561	495
Equity	(778)	2,530	2,933	(3,210)		(23)	343	(689)	1,106	1,628
Commodity	(962)	756	114	(331)		242	7	—	(174)	555
Total net derivative receivables	(4,842)	5,426	3,588	(4,693)		427	1,077	(1,089)	(106)	4,003
Available-for-sale securities:										
Mortgage-backed securities										
Commercial – nonagency	—	—	—	—		—	—	—	—	—
Corporate debt securities	161	5	88	—		(15)	—	—	239	5
Total available-for-sale securities	161	5	88	—		(15)	—	—	239	5
Loans	1,904	(108)	454	(261)		(818)	1,053	(830)	1,394	(76)
Mortgage servicing rights	5,494	2,039	2,198	(822)		(936)	—	—	7,973	2,039
Other assets	77	68	—	—		(2)	—	—	143	68
Fair value measurements using significant unobservable inputs										
Year ended December 31, 2022 (in millions)	Fair value at January 1, 2022	Total realized/ unrealized (gains)/ losses	Purchases	Sales	Issuances	Settlements ^(h)	Transfers into level 3	Transfers (out of) level 3	Fair value at Dec. 31, 2022	Change in unrealized (gains)/losses related to financial instruments held at Dec. 31, 2022
Liabilities: ^(a)										
Deposits	\$ 2,329	\$ (296)	\$ —	\$ —	\$ 531	\$ (115)	\$ —	\$ (283)	\$ 2,166	\$ (76)
Short-term borrowings	2,376	(461)	—	—	3,859	(4,519)	16	(14)	1,257	86
Trading liabilities – debt and equity instruments	29	(45)	(22)	69	—	—	52	(7)	76	76
Accounts payable and other liabilities	69	(16)	—	—	—	—	—	—	53	(16)
Long-term debt	13,925	(1,696)	—	—	5,283	(5,836)	549	(577)	11,648	(1,360)

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- (a) Level 3 assets at fair value as a percentage of total Bank assets at fair value (including assets measured at fair value on a nonrecurring basis) were 3% at December 31, 2024 and 4% at both December 31, 2023 and 2022. Level 3 liabilities at fair value as a percentage of total Bank liabilities at fair value (including liabilities measured at fair value on a nonrecurring basis) were 11%, 10% and 12% at December 31, 2024, 2023 and 2022, respectively.
- (b) All level 3 derivatives are presented on a net basis, irrespective of the underlying counterparty.
- (c) Primarily reported in principal transactions revenue, except for changes in fair value for mortgage loans, and lending-related commitments originated with the intent to sell, and mortgage loan purchase commitments, which are reported in mortgage fees and related income.
- (d) Realized gains/(losses) on AFS securities are reported in investment securities gains/(losses). Unrealized gains/(losses) are reported in OCI. Realized and unrealized gains/(losses) recorded on level 3 AFS securities were not material for the years ended December 31, 2024, 2023 and 2022.
- (e) Changes in fair value for MSRs are reported in mortgage fees and related income.
- (f) Realized (gains)/losses due to DVA for fair value option elected liabilities are reported in principal transactions revenue, and were not material for the years ended December 31, 2024, 2023 and 2022. Unrealized (gains)/losses are reported in OCI, and were \$(71) million, \$(79) million and \$(143) million for the years ended December 31, 2024, 2023 and 2022, respectively.
- (g) Loan originations are included in purchases.
- (h) Includes financial assets and liabilities that have matured, been partially or fully repaid, impacts of modifications, deconsolidations associated with beneficial interests in VIEs and other items.

Level 3 analysis

Consolidated balance sheets changes

The following describes significant changes to level 3 assets since December 31, 2023, for those items measured at fair value on a recurring basis. Refer to Assets and liabilities measured at fair value on a nonrecurring basis on page 30 for further information on changes impacting items measured at fair value on a nonrecurring basis.

For the year ended December 31, 2024

Level 3 assets were \$27.4 billion at December 31, 2024, reflecting an increase of \$587 million from December 31, 2023.

The increase for the year ended December 31, 2024 was driven by:

- \$151 million increase in gross derivative receivables due to gains, purchases and net transfers offset by settlements.
- \$599 million increase in MSRs.
- \$459 million increase in other assets primarily due to purchases,

largely offset by:

- \$688 million decrease in non-trading loans due to sales and settlements largely offset by gains, purchases and net transfers.

Refer to the sections below for additional information.

Transfers between levels for instruments carried at fair value on a recurring basis

During the year ended December 31, 2024, significant transfers from level 2 into level 3 included the following:

- \$928 million of total debt and equity instruments, predominantly due to trading loans, driven by a decrease in observability.
- \$1.0 billion of gross interest rate derivative receivables and \$1.2 billion of gross interest rate derivative payables as a result of a decrease in observability and an increase in the significance of unobservable inputs.
- \$2.3 billion of gross equity derivative receivables and \$2.2 billion of gross equity derivative payables

as a result of a decrease in observability and an increase in the significance of unobservable inputs.

- \$815 million of non-trading loans driven by a decrease in observability.

During the year ended December 31, 2024, significant transfers from level 3 into level 2 included the following:

- \$786 million of total debt and equity instruments, largely due to trading loans, driven by an increase in observability.
- \$2.2 billion of gross equity derivative receivables and \$2.4 billion of gross equity derivative payables as a result of an increase in observability and a decrease in the significance of unobservable inputs.

During the year ended December 31, 2023, significant transfers from level 2 into level 3 included the following:

- \$1.0 billion of gross interest rate derivative receivables as a result of a decrease in observability and an increase in the significance of unobservable inputs and \$2.1 billion of gross interest rate derivative payables as a result of transition to term SOFR for certain interest rate options.
- \$2.1 billion of gross equity derivative receivables and \$1.5 billion of gross equity derivative payables as a result of a decrease in observability and an increase in the significance of unobservable inputs.
- \$1.3 billion of non-trading loans driven by a decrease in observability.

During the year ended December 31, 2023, significant transfers from level 3 into level 2 included the following:

- \$814 million of total debt and equity instruments, largely due to trading loans, driven by an increase in observability.
- \$978 million of gross interest rate derivative receivables as a result of an increase in observability and a decrease in the significance of unobservable inputs.

- \$3.3 billion of gross equity derivative receivables and \$2.6 billion of gross equity derivative payables as a result of an increase in observability and a decrease in the significance of unobservable inputs.
- \$1.1 billion of non-trading loans as a result of an increase in observability and a decrease in the significance of unobservable inputs.

During the year ended December 31, 2022, significant transfers from level 2 into level 3 included the following:

- \$2.1 billion of total debt and equity instruments, predominantly due to equity securities of \$923 million driven by a decrease in observability as a result of restricted access to certain markets and trading loans of \$920 million driven by a decrease in observability.
- \$1.6 billion of gross interest rate derivative receivables and \$909 million of gross interest rate derivative payables as a result of a decrease in observability and an increase in the significance of unobservable inputs.
- \$3.0 billion of gross equity derivative receivables and \$2.6 billion of gross equity derivative payables as a result of a decrease in observability and an increase in the significance of unobservable inputs.
- \$1.1 billion of non-trading loans driven by a decrease in observability.

During the year ended December 31, 2022, significant transfers from level 3 into level 2 included the following:

- \$852 million of total debt and equity instruments, largely due to trading loans, driven by an increase in observability.
- \$1.2 billion of gross interest rate derivative receivables and \$811 million of gross interest rate derivative payables as a result of an increase in observability and a decrease in the significance of unobservable inputs.
- \$3.6 billion of gross equity derivative receivables and \$2.9 billion of gross equity derivative payables as a result of an increase in observability and a decrease in the significance of unobservable inputs.
- \$830 million of non-trading loans driven by an increase in observability.

All transfers are based on changes in the observability and/or significance of the valuation inputs and are assumed to occur at the beginning of the quarterly reporting period in which they occur.

Gains and losses

The following describes significant components of total realized/unrealized gains/(losses) for instruments measured at fair value on a recurring basis for the years ended December 31, 2024, 2023 and 2022.

These amounts exclude any effects of the Bank's risk management activities where the financial instruments are classified as level 1 and 2 of the fair value hierarchy. Refer to Changes in level 3 recurring fair value measurements rollforward tables on pages 24–28 for further information on these instruments.

2024

- \$999 million of net gains on assets, predominantly driven by gains in MSR's reflecting lower prepayment speeds on higher rates.
- \$168 million of net losses on liabilities, driven by losses in short-term borrowings and long-term debt due to market movements.

2023

- \$775 million of net gains on assets, largely driven by gains in MSR's reflecting lower prepayment speeds on higher rates.
- \$1.1 billion of net losses on liabilities, predominantly driven by losses in long-term debt due to market movements.

2022

- \$6.4 billion of net gains on assets, largely driven by gains in net equity derivative receivables due to market movements and gains in MSR's reflecting lower prepayment speeds on higher rates.
- \$2.5 billion of net gains on liabilities, largely driven by a decline in the fair value of long-term debt due to market movements.

Refer to Note 16 for information on MSR's.

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Assets and liabilities measured at fair value on a nonrecurring basis

The following tables present the assets held as of December 31, 2024 and 2023, for which nonrecurring fair value adjustments were recorded during the years ended December 31, 2024 and 2023, by major product category and fair value hierarchy. There were no liabilities measured at fair value on a nonrecurring basis at both December 31, 2024 and 2023.

December 31, 2024 (in millions)	Fair value hierarchy			Total fair value
	Level 1	Level 2	Level 3	
Loans	\$ —	\$ 738	\$ 664	\$ 1,402
Other assets ^(a)	—	9	448	457
Total assets measured at fair value on a nonrecurring basis	\$ —	\$ 747	\$ 1,112	\$ 1,859

December 31, 2023 (in millions)	Fair value hierarchy			Total fair value
	Level 1	Level 2	Level 3	
Loans	\$ —	\$ 464	\$ 1,051	\$ 1,515
Other assets	—	32	859	891
Total assets measured at fair value on a nonrecurring basis	\$ —	\$ 496	\$ 1,910	\$ 2,406

(a) Included equity securities without readily determinable fair values that were adjusted based on observable price changes in orderly transactions from an identical or similar investment of the same issuer (measurement alternative). Of the \$448 million in level 3 assets measured at fair value on a nonrecurring basis as of December 31, 2024, \$68 million related to equity securities adjusted based on the measurement alternative. These equity securities are classified as level 3 due to the infrequency of the observable prices and/or the restrictions on the shares. Also, included impairments on certain equity method investments.

Nonrecurring fair value changes

The following table presents the total change in value of assets and liabilities for which fair value adjustments have been recognized for the years ended December 31, 2024, 2023 and 2022, related to assets and liabilities held at those dates.

December 31, (in millions)	2024	2023	2022
Loans	\$(302)	\$ (271)	\$ (57)
Other assets ^(a)	(301)	(323)	(4)
Accounts payable and other liabilities	—	—	(83)
Total nonrecurring fair value losses	\$(603)	\$(594)	\$ (144)

(a) Included \$15 million at December 31, 2024, and \$62 million at both December 31, 2023 and 2022 of net gains/(losses) as a result of the measurement alternative. The current period also included impairments on certain equity method investments.

Equity securities without readily determinable fair values

The Bank measures certain equity securities without readily determinable fair values at cost less impairment (if any), plus or minus observable price changes from an identical or similar investment of the same issuer (i.e., measurement alternative), with such changes recognized in other income.

In its determination of the new carrying values upon observable price changes, the Bank may adjust the prices if deemed necessary to arrive at the Bank's estimated fair values. Such adjustments may include adjustments to reflect the different rights and obligations of similar securities, and other adjustments that are consistent with the Bank's valuation techniques for private equity direct investments.

The following table presents the carrying value of equity securities without readily determinable fair values held as of December 31, 2024 and 2023, that are measured under the measurement alternative and the related adjustments recorded during the periods presented for those securities with observable price changes. These securities are included in the nonrecurring fair value tables when applicable price changes are observable.

As of or for the year ended December 31, (in millions)	2024	2023
Other assets		
Carrying value ^(a)	\$ 246	\$ 452
Upward carrying value changes ^(b)	\$ 17	62
Downward carrying value changes/impairment ^(c)	(2)	—

(a) The period-end carrying values reflect cumulative purchases and sales in addition to upward and downward carrying value changes.

(b) The cumulative upward carrying value changes between January 1, 2018 and December 31, 2024 were \$52 million.

(c) The cumulative downward carrying value changes/impairment between January 1, 2018 and December 31, 2024 were \$(15) million.

Included in other assets above is the Bank's interest in approximately 18.6 million Visa Class B-2 common shares ("Visa B-2 shares") and 37.2 million Visa Class B common shares ("Visa B shares") reflected in the Bank's principal investment portfolio as of December 31, 2024 and 2023, respectively.

The Visa B shares were redenominated to Visa Class B-1 common shares ("Visa B-1 shares") on January 24, 2024. On April 8, 2024, Visa commenced an initial exchange offer for any and all outstanding Visa B-1 shares. On May 6, 2024, the Bank announced that Visa had accepted the Bank's tender of its 37.2 million Visa B-1 shares in exchange for a combination of Visa B-2 shares and Visa Class C common shares ("Visa C shares"), resulting in an initial gain of \$8.0 billion based on the fair value of the Visa C shares. In addition, the second quarter of 2024 also reflected other Visa-related activity, including the fair value changes of the Visa C shares and derivative instruments, as well as dividends, resulting in the \$7.9 billion net gain on Visa shares in the quarter. As of September 30, 2024, the Bank had disposed of all of its Visa C shares through sales in the second and third quarters of 2024 and through a \$1.0 billion contribution to JPMorgan Chase's Foundation in the second quarter of 2024.

The Visa B-2 shares are subject to certain transfer restrictions and are convertible into Visa Class A common shares ("Visa A shares") at a specified conversion rate upon final resolution of certain litigation matters involving Visa. The conversion rate of Visa B-2 shares to Visa A shares was 1.5430 at December 31, 2024 and may be adjusted by Visa depending on developments related to the litigation matters. The outcome of those litigation matters, and the effect that the resolution of those matters may have on the conversion rate, is unknown. Accordingly, as of December 31, 2024, there is significant uncertainty regarding when the transfer restrictions on Visa B-2 shares may be terminated and what the final conversion rate for the Visa B-2 shares will be. As a result of these considerations, as well as differences in voting rights, Visa B-2 shares are not considered to be similar to Visa A shares, and are held at their nominal carryover basis.

Separately, in connection with sales of Visa B shares prior to 2024, the Bank has entered into derivative instruments with the purchasers of the shares under which the Bank retains the risk associated with changes in the conversion rate. Under the terms of the derivative instruments, the Bank will (a) make or receive payments based on subsequent changes in the conversion rate and (b) make periodic interest payments to the purchasers of the Visa B shares. The payments under the derivative instruments will continue as long as the Visa B-2 shares associated with the previously sold Visa B shares remain subject to transfer restrictions. The derivative instruments are accounted for at fair value using a discounted cash flow methodology based upon the Bank's estimate of the timing and magnitude of final resolution of the litigation matters. The derivative instruments are recorded in trading liabilities, and changes in fair value are recognized in other income. The notional amount of shares associated with those derivative instruments has been adjusted as a result of the Visa exchange offer. As of December 31, 2024, the Bank held derivative instruments associated with 11.6 million Visa B-2 shares related to Visa B share sales prior to 2024, which are all subject to similar terms and conditions.

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Additional disclosures about the fair value of financial instruments that are not carried on the Consolidated balance sheets at fair value

U.S. GAAP requires disclosure of the estimated fair value of certain financial instruments, which are included in the following table. However, this table does not include other items, such as nonfinancial assets, intangible assets, certain financial instruments, and customer relationships. In the opinion of management, these items, in the aggregate, add significant value to the Bank.

Financial instruments for which carrying value approximates fair value

Certain financial instruments that are not carried at fair value on the Consolidated balance sheets are carried

at amounts that approximate fair value, due to their short-term nature and generally negligible credit risk. These instruments include cash and due from banks, deposits with banks, federal funds sold, securities purchased under resale agreements and securities borrowed, short-term receivables and accrued interest receivable, short-term borrowings, federal funds purchased, securities loaned and sold under repurchase agreements, accounts payable, and accrued liabilities. In addition, U.S. GAAP requires that the fair value of deposit liabilities with no stated maturity (i.e., demand, savings and certain money market deposits) be equal to their carrying value; recognition of the inherent funding value of these instruments is not permitted.

The following table presents, by fair value hierarchy classification, the carrying values and estimated fair values at December 31, 2024 and 2023, of financial assets and liabilities, excluding financial instruments that are carried at fair value on a recurring basis, and their classification within the fair value hierarchy.

(in billions)	December 31, 2024					December 31, 2023				
	Carrying value	Estimated fair value hierarchy			Total estimated fair value	Carrying value	Estimated fair value hierarchy			Total estimated fair value
		Level 1	Level 2	Level 3			Level 1	Level 2	Level 3	
Financial assets										
Cash and due from banks	\$ 23.2	\$ 23.2	\$ —	\$ —	\$ 23.2	\$ 28.8	\$ 28.8	\$ —	\$ —	\$ 28.8
Deposits with banks	444.7	444.6	0.1	—	444.7	593.7	593.2	0.5	—	593.7
Accrued interest and accounts receivable	66.6	—	66.6	—	66.6	66.9	—	66.8	0.1	66.9
Federal funds sold and securities purchased under resale agreements	70.7	—	70.7	—	70.7	63.7	—	63.7	—	63.7
Securities borrowed	27.4	—	27.4	—	27.4	40.7	—	40.7	—	40.7
Investment securities, held-to-maturity	274.5	97.4	150.5	—	247.9	369.8	160.6	182.2	—	342.8
Loans, net of allowance for loan losses ^(a)	1,280.3	—	263.9	1,005.7	1,269.6	1,259.2	—	282.1	961.8	1,243.9
Other	71.7	—	70.4	1.4	71.8	71.2	—	70.0	1.4	71.4
Financial liabilities										
Deposits	\$2,483.1	\$ —	\$2,483.4	\$ —	\$ 2,483.4	\$ 2,419.7	\$ —	\$ 2,420.1	\$ —	\$ 2,420.1
Federal funds purchased and securities loaned or sold under repurchase agreements	3.8	—	3.8	—	3.8	7.5	—	7.5	—	7.5
Short-term borrowings	1.5	—	1.5	—	1.5	1.7	—	1.7	—	1.7
Accounts payable and other liabilities ^(b)	117.0	—	105.1	11.4	116.5	127.5	—	119.0	8.0	127.0
Beneficial interests issued by consolidated VIEs	26.6	—	26.7	—	26.7	23.2	—	23.2	—	23.2
Long-term debt	155.5	—	103.9	50.7	154.6	177.9	—	125.8	51.3	177.1

- (a) Fair value is typically estimated using a discounted cash flow model that incorporates the characteristics of the underlying loans (including principal, contractual interest rate and contractual fees) and other key inputs, including expected lifetime credit losses, interest rates, prepayment rates, and primary origination or secondary market spreads. For certain loans, the fair value is measured based on the value of the underlying collateral. Carrying value of the loan takes into account the loan's allowance for loan losses, which represents the loan's expected credit losses over its remaining expected life. The difference between the estimated fair value and carrying value of a loan is generally attributable to changes in market interest rates, including credit spreads, market liquidity premiums and other factors that affect the fair value of a loan but do not affect its carrying value.
- (b) Excludes lending-related commitments disclosed in the table below.

The majority of the Bank's lending-related commitments are not carried at fair value on a recurring basis on the Consolidated balance sheets. The carrying value and the estimated fair value of these wholesale lending-related commitments were as follows for the periods indicated.

(in billions)	December 31, 2024					December 31, 2023				
	Carrying value ^{(a)(b)(c)}	Estimated fair value hierarchy			Total estimated fair value	Carrying value ^{(a)(b)(c)}	Estimated fair value hierarchy			Total estimated fair value
		Level 1	Level 2	Level 3			Level 1	Level 2	Level 3	
Wholesale lending-related commitments	\$ 2.7	\$ —	\$ —	\$ 4.4	\$ 4.4	\$ 3.0	\$ —	\$ —	\$ 4.8	\$ 4.8

(a) Excludes the current carrying values of the guarantee liability and the offsetting asset, each of which is recognized at fair value at the inception of the guarantees.

(b) Includes the wholesale allowance for lending-related commitments.

(c) As of December 31, 2024 and 2023, included fair value adjustments associated with First Republic for other unfunded commitments to extend credit totaling \$699 million and \$1.1 billion, respectively, recorded in accounts payable and other liabilities on the Consolidated balance sheets. Refer to Notes 26 and 29 for additional information.

The Bank does not estimate the fair value of consumer off-balance sheet lending-related commitments. In many cases, the Bank can reduce or cancel these commitments with or without notice to the borrower, as permitted by law, or in accordance with the contract. Refer to page 16 of this Note for a further discussion of the valuation of lending-related commitments.

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Note 4 – Fair value option

The fair value option provides an option to elect fair value for selected financial assets, financial liabilities, unrecognized firm commitments, and written loan commitments.

The Bank has elected to measure certain instruments at fair value for several reasons including to mitigate income statement volatility caused by the differences between the measurement basis of elected instruments (e.g., certain instruments that otherwise would be accounted for on an accrual basis) and the associated risk management arrangements that are accounted for on a fair value basis, as well as to better reflect those instruments that are managed on a fair value basis.

The Bank's election of fair value includes the following instruments:

- Loans purchased or originated as part of securitization warehousing activity, subject to bifurcation accounting, or managed on a fair value basis, including lending-related commitments
- Certain securities financing agreements
- Owned beneficial interests in securitized financial assets that contain embedded credit derivatives, which would otherwise be required to be separately accounted for as a derivative instrument
- Structured notes and other hybrid instruments, which are predominantly financial instruments that contain embedded derivatives, that are issued or transacted as part of client-driven activities
- Certain long-term beneficial interests issued by consolidated securitization trusts where the underlying assets are carried at fair value

Changes in fair value under the fair value option election

The following table presents the changes in fair value included in the Consolidated statements of income for the years ended December 31, 2024, 2023 and 2022, for items for which the fair value option was elected. The profit and loss information presented below only includes the financial instruments that were elected to be measured at fair value; related risk management instruments, which are required to be measured at fair value, are not included in the table.

December 31, (in millions)	2024			2023			2022		
	Principal transactions	All other income	Total changes in fair value recorded ^(e)	Principal transactions	All other income	Total changes in fair value recorded ^(e)	Principal transactions	All other income	Total changes in fair value recorded ^(e)
Federal funds sold and securities purchased under resale agreements	\$ 85	\$ —	\$ 85	\$ 184	\$ —	\$ 184	\$ (209)	\$ —	\$ (209)
Securities borrowed	341	—	341	135	—	135	(497)	—	(497)
Trading assets:									
Debt and equity instruments, excluding loans	6,767	—	6,767	3,251	—	3,251	(2,009)	—	(2,009)
Loans reported as trading assets:									
Changes in instrument-specific credit risk	372	—	372	278	—	278	(137)	—	(137)
Other changes in fair value	8	10 ^(c)	18	(3)	5 ^(c)	2	(59)	—	(59)
Loans:									
Changes in instrument-specific credit risk	517	(6) ^(c)	511	309	(4) ^(c)	305	(243)	21 ^(c)	(222)
Other changes in fair value	77	371 ^(c)	448	428	216 ^(c)	644	(1,338)	(794) ^(c)	(2,132)
Other assets	23	—	23	250	—	250	1	—	1
Deposits ^(a)	(3,412)	—	(3,412)	(2,593)	—	(2,593)	908	—	908
Federal funds purchased and securities loaned or sold under repurchase agreements	(13)	—	(13)	(137)	—	(137)	570	—	570
Short-term borrowings ^(a)	(1,574)	—	(1,574)	(532)	—	(532)	1,226	—	1,226
Trading liabilities	—	—	—	—	—	—	(1)	—	(1)
Other liabilities	(11)	—	(11)	(16)	—	(16)	(11)	—	(11)
Long-term debt ^{(a)(b)}	(4,072)	(4) ^(d)	(4,076)	(3,063)	(79) ^{(c)(d)}	(3,142)	2,494	103 ^{(c)(d)}	2,597

- (a) Unrealized gains/(losses) due to instrument-specific credit risk (DVA) for liabilities for which the fair value option has been elected are recorded in OCI, while realized gains/(losses) are recorded in principal transactions revenue. Realized gains/(losses) due to instrument-specific credit risk recorded in principal transactions revenue were not material for the years ended December 31, 2024, 2023 and 2022.
- (b) Long-term debt measured at fair value predominantly relates to structured notes. Although the risk associated with the structured notes is actively managed, the gains/(losses) reported in this table do not include the income statement impact of the risk management instruments used to manage such risk.
- (c) Reported in mortgage fees and related income.
- (d) Reported in other income.
- (e) Changes in fair value exclude contractual interest, which is included in interest income and interest expense for all instruments other than certain hybrid financial instruments. Refer to Note 8 for further information regarding interest income and interest expense.

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Determination of instrument-specific credit risk for items for which the fair value option was elected

The following describes how the gains and losses that are attributable to changes in instrument-specific credit risk, were determined.

- Loans and lending-related commitments: For floating-rate instruments, all changes in value are attributed to instrument-specific credit risk. For fixed-rate instruments, an allocation of the changes in value for the period is made between those changes in value that are interest rate-related and changes in value that are credit-related. Allocations are generally based on an analysis of borrower-specific credit spread and recovery information,

where available, or benchmarking to similar entities or industries.

- Long-term debt: Changes in value attributable to instrument-specific credit risk were derived principally from observable changes in the Bank's credit spread as observed in the bond market.
- Securities financing agreements: Generally, for these types of agreements, there is a requirement that collateral be maintained with a market value equal to or in excess of the principal amount loaned; as a result, there would be no adjustment or an immaterial adjustment for instrument-specific credit risk related to these agreements.

Difference between aggregate fair value and aggregate remaining contractual principal balance outstanding

The following table reflects the difference between the aggregate fair value and the aggregate remaining contractual principal balance outstanding as of December 31, 2024 and 2023, for loans, long-term debt and long-term beneficial interests for which the fair value option has been elected.

December 31, (in millions)	2024			2023		
	Contractual principal outstanding	Fair value	Fair value over/(under) contractual principal outstanding	Contractual principal outstanding	Fair value	Fair value over/(under) contractual principal outstanding
Loans						
Nonaccrual loans						
Loans reported as trading assets	\$ 2,241	\$ 456	\$ (1,785)	\$ 2,295	\$ 518	\$ (1,777)
Loans	1,651	1,465	(186)	832	730	(102)
Subtotal	3,892	1,921	(1,971)	3,127	1,248	(1,879)
90 or more days past due and government guaranteed						
Loans ^(a)	50	45	(5)	65	58	(7)
All other performing loans^(b)						
Loans reported as trading assets	12,080	10,776	(1,304)	9,058	7,919	(1,139)
Loans ^(c)	40,068	39,575	(493)	38,656	37,803	(853)
Subtotal	52,148	50,351	(1,797)	47,714	45,722	(1,992)
Total loans	\$ 56,090	\$ 52,317	\$ (3,773)	\$ 50,906	\$ 47,028	\$ (3,878)
Long-term debt						
Principal-protected debt	\$ 15,046 ^(e)	\$ 14,640	\$ (406)	\$ 7,033 ^(e)	\$ 6,751	\$ (282)
Nonprincipal-protected debt ^(d)	NA	26,586	NA	NA	22,248	NA
Total long-term debt	NA	\$ 41,226	NA	NA	\$ 28,999	NA

(a) These balances are excluded from nonaccrual loans as the loans are insured and/or guaranteed by U.S. government agencies.

(b) There were no performing loans that were ninety days or more past due as of December 31, 2024 and 2023.

(c) Includes loans insured and/or guaranteed by U.S. government agencies less than 90 days past due.

(d) Remaining contractual principal is not applicable to nonprincipal-protected structured notes. Unlike principal-protected structured notes, for which the Bank is obligated to return a stated amount of principal at maturity, nonprincipal-protected structured notes do not obligate the Bank to return a stated amount of principal at maturity, but to return an amount based on the performance of an underlying variable or derivative feature embedded in the note. However, investors are exposed to the credit risk of the Bank as issuer for both nonprincipal-protected and principal-protected notes.

(e) Where the Bank issues principal-protected zero-coupon or discount notes, the balance reflects the contractual principal payment at maturity or, if applicable, the contractual principal payment at the Bank's next call date.

At December 31, 2024 and 2023, the contractual amount of lending-related commitments for which the fair value option was elected was \$12.2 billion and \$9.5 billion, respectively, with a corresponding fair value of \$50 million and \$95 million, respectively. Refer to Note 26 for further information regarding off-balance sheet lending-related financial instruments.

Note 5 – Credit risk concentrations

Concentrations of credit risk arise when a number of clients, counterparties or customers are engaged in similar business activities or activities in the same geographic region, or when they have similar economic features that would cause their ability to meet contractual obligations to be similarly affected by changes in economic conditions.

The Bank regularly monitors various segments of its credit portfolios to assess potential credit risk concentrations and to obtain additional collateral when deemed necessary and permitted under the Bank's agreements. Senior management is significantly involved in the credit approval and review process, and risk levels are adjusted as needed to reflect the Bank's risk appetite.

In the Bank's consumer portfolio, concentrations are managed primarily by product and by U.S. geographic region, with a key focus on trends and concentrations at the portfolio level, where potential credit risk concentrations can be remedied through changes in underwriting policies and portfolio guidelines. Refer to Note 13 for additional information on the geographic composition of the Bank's consumer loan portfolios. In the wholesale portfolio, credit risk concentrations are evaluated primarily by industry and monitored regularly on both an aggregate portfolio level and on an individual client or counterparty basis.

The Bank's wholesale exposure is managed through loan syndications and participations, loan sales, securitizations, credit derivatives, master netting agreements, collateral and other risk-reduction techniques. Refer to Note 13 for additional information on loans.

The Bank does not believe that its exposure to any particular loan product or industry segment results in a significant concentration of credit risk.

Terms of loan products and collateral coverage are included in the Bank's assessment when extending credit and establishing its allowance for credit losses. Refer to Note 14 for additional information on the allowance for credit losses.

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The table below presents both on-balance sheet and off-balance sheet consumer and wholesale credit exposure by the Bank's three credit portfolio segments as of December 31, 2024 and 2023. The wholesale industry of risk category is generally based on the client or counterparty's primary business activity.

December 31, (in millions)	2024				2023			
	Credit exposure ^(h)	On-balance sheet		Off-balance sheet ⁽ⁱ⁾	Credit exposure ^(h)	On-balance sheet		Off-balance sheet ⁽ⁱ⁾
		Loans	Derivatives			Loans	Derivatives	
Consumer, excluding credit card	\$ 437,635	\$ 392,791	\$ —	\$ 44,844	\$ 455,475	\$ 410,072	\$ —	\$ 45,403
Credit card^(a)	1,234,171	232,860	—	1,001,311	1,126,793	211,123	—	915,670
Total consumer^(a)	1,671,806	625,651	—	1,046,155	1,582,268	621,195	—	961,073
Wholesale^(b)								
Real Estate	206,942	169,400	310	37,232	208,146	166,257	420	41,469
Individuals and Individual Entities ^(c)	143,006	129,178	1,259	12,569	144,315	124,853	725	18,737
Asset Managers	134,360	58,716	15,216	60,428	128,374	52,173	9,905	66,296
Consumer & Retail	129,738	46,504	1,609	81,625	127,049	46,260	2,014	78,775
Technology, Media & Telecommunications	84,462	21,450	2,448	60,564	77,046	22,450	2,451	52,145
Industrials	72,453	24,008	2,035	46,410	75,067	26,545	1,335	47,187
Banks & Finance Companies	65,539	40,157	8,205	17,177	57,450	33,872	3,339	20,239
Healthcare	64,039	23,141	601	40,297	64,846	23,092	1,574	40,180
Utilities	35,653	6,136	2,503	27,014	35,864	7,018	3,297	25,549
State & Municipal Govt ^(d)	34,960	19,203	369	15,388	35,854	19,887	442	15,525
Automotive	34,336	17,696	794	15,846	33,977	17,459	428	16,090
Oil & Gas	31,716	7,226	1,145	23,345	34,475	8,480	705	25,290
Insurance	24,266	2,533	9,702	12,031	20,351	2,425	7,138	10,788
Chemicals & Plastics	20,782	6,176	267	14,339	20,698	6,442	441	13,815
Transportation	16,812	5,374	567	10,871	16,053	5,073	555	10,425
Metals & Mining	15,858	4,425	562	10,871	15,507	4,655	274	10,578
Central Govt	13,794	4,715	6,217	2,862	17,704	5,463	10,668	1,573
Securities Firms	7,892	1,822	3,182	2,888	7,020	721	3,282	3,017
Financial Markets Infrastructure	3,818	16	1,782	2,020	4,248	86	2,152	2,010
All other ^(e)	140,441	100,482	4,952	35,007	134,288	96,542	4,030	33,716
Subtotal	1,280,867	688,358	63,725	528,784	1,258,332	669,753	55,175	533,404
Loans held-for-sale and loans at fair value	31,632	31,632	—	—	29,172	29,172	—	—
Receivables from customers ^(f)	14,234	—	—	—	10,934	—	—	—
Total wholesale	1,326,733	719,990	63,725	528,784	1,298,438	698,925	55,175	533,404
Total exposure^(g)	\$2,998,539	\$1,345,641	\$ 63,725	\$1,574,939	\$2,880,706	\$ 1,320,120	\$ 55,175	\$1,494,477

(a) Also includes commercial card lending-related commitments.

(b) The industry rankings presented in the table as of December 31, 2023, are based on the industry rankings of the corresponding exposures at December 31, 2024, not actual rankings of such exposures at December 31, 2023.

(c) Individuals and Individual Entities predominantly consists of global private bank clients and includes exposure to personal investment companies and personal and testamentary trusts.

(d) In addition to the credit risk exposure to states and municipal governments (both U.S. and non-U.S.) at December 31, 2024 and 2023, noted above, the Bank held: \$3.5 billion and \$3.6 billion, respectively, of trading assets; \$17.9 billion and \$21.4 billion, respectively, of AFS securities; and \$9.3 billion and \$9.9 billion, respectively, of HTM securities, issued by U.S. state and municipal governments. Refer to Note 3 and Note 11 for further information.

(e) All other includes: SPEs and Private education and civic organizations, representing approximately 94% and 6%, respectively, at both December 31, 2024 and 2023. Refer to Note 15 for more information on exposures to SPEs.

(f) Receivables from customers reflect held-for-investment margin loans to brokerage clients that are collateralized by assets maintained in the clients' brokerage accounts (including cash on deposit, and primarily liquid and readily marketable debt or equity securities).

(g) Excludes cash placed with banks of \$457.8 billion and \$612.4 billion, at December 31, 2024 and 2023, respectively, which is predominantly placed with various central banks, primarily Federal Reserve Banks.

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

(i) Represents lending-related financial instruments.

Note 6 – Derivative instruments

Derivative contracts derive their value from underlying asset prices, indices, reference rates, other inputs or a combination of these factors and may expose counterparties to risks and rewards of an underlying asset or liability without having to initially invest in, own or exchange the asset or liability. The Bank makes markets in derivatives for clients and also uses derivatives to hedge or manage its own risk exposures. Predominantly all of the Bank's derivatives are entered into for market-making or risk management purposes.

Market-making derivatives

The majority of the Bank's derivatives are entered into for market-making purposes. Clients use derivatives to mitigate or modify interest rate, credit, foreign exchange, equity and commodity risks. The Bank actively manages the risks from its exposure to these derivatives by entering into other derivative contracts or by purchasing or selling other financial instruments that partially or fully offset the exposure from client derivatives.

Risk management derivatives

The Bank manages certain market and credit risk exposures using derivative instruments, including derivatives in hedge accounting relationships and other derivatives that are used to manage risks associated with specified assets and liabilities.

The Bank generally uses interest rate derivatives to manage the risk associated with changes in interest rates. Fixed-rate assets and liabilities appreciate or depreciate in market value as interest rates change. Similarly, interest income and expense increase or decrease as a result of variable-rate assets and liabilities resetting to current market rates, and as a result of the repayment and subsequent origination or issuance of fixed-rate assets and liabilities at current market rates. Gains and losses on the derivative instruments related to these assets and liabilities are expected to substantially offset this variability.

Foreign currency derivatives are used to manage the foreign exchange risk associated with certain foreign currency-denominated (i.e., non-U.S. dollar) assets and liabilities and forecasted transactions, as well as the Bank's net investments in certain non-U.S. subsidiaries or branches whose functional currencies are not the U.S. dollar. As a result of fluctuations in foreign currencies, the U.S. dollar-equivalent values of the foreign currency-denominated assets and liabilities or the forecasted revenues or expenses increase or decrease. Gains or losses on the derivative instruments related to these foreign currency-denominated assets or liabilities, or forecasted transactions, are expected to substantially offset this variability.

Commodities derivatives are used to manage the price risk of certain commodities inventories. Gains or losses on these derivative instruments are expected to substantially offset the depreciation or appreciation of the related inventory.

Credit derivatives are used to manage the counterparty credit risk associated with loans and lending-related commitments. Credit derivatives compensate the purchaser when the entity referenced in the contract experiences a credit event, such as bankruptcy or a failure to pay an obligation when due. Credit derivatives primarily consist of CDS. Refer to the Credit derivatives section on pages 51-54 of this Note for a further discussion of credit derivatives.

Refer to the risk management derivatives gains and losses table on page 51 and the hedge accounting gains and losses tables on pages 48-51 of this Note for more information about risk management derivatives.

Derivative counterparties and settlement types

The Bank enters into over-the-counter ("OTC") derivatives with third parties and JPMorganChase affiliates, which are negotiated and settled bilaterally with the derivative counterparty. The Bank also enters into, as principal, certain exchange-traded derivatives ("ETD") such as futures and options, and "cleared" over-the-counter ("OTC-cleared") derivative contracts with central counterparties ("CCPs"). ETD contracts are generally standardized contracts traded on an exchange and cleared by the CCP, which is the Bank's counterparty from the inception of the transactions. OTC-cleared derivatives are traded on a bilateral basis and then novated to the CCP for clearing.

Derivative clearing services

The Bank provides clearing services for clients in which the Bank acts as a clearing member at certain exchanges and clearing houses. The Bank does not reflect the clients' derivative contracts in its Consolidated Financial Statements. Refer to Note 26 for further information on the Bank's clearing services.

Accounting for derivatives

All free-standing derivatives that the Bank executes for its own account are required to be recorded on the Consolidated balance sheets at fair value.

As permitted under U.S. GAAP, the Bank nets derivative assets and liabilities, and the related cash collateral receivables and payables, when a legally enforceable master netting agreement exists between the Bank and the derivative counterparty. Refer to Note 1 for further discussion of the offsetting of assets and liabilities. The accounting for changes in value of a derivative depends on whether or not the transaction has been designated and qualifies for hedge accounting. Derivatives that are not designated as hedges are reported and measured

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at fair value through earnings. The tabular disclosures on pages 43-51 of this Note provide additional information on the amount of, and reporting for, derivative assets, liabilities, gains and losses. Refer to Notes 3 and 4 for a further discussion of derivatives embedded in structured notes.

Derivatives designated as hedges

The Bank applies hedge accounting to certain derivatives executed for risk management purposes – generally interest rate, foreign exchange and commodity derivatives. However, the Bank does not seek to apply hedge accounting to all of the derivatives associated with its risk management activities. For example, the Bank does not apply hedge accounting to purchased CDS used to manage the credit risk of loans and lending-related commitments, because of the difficulties in qualifying such contracts as hedges. For the same reason, the Bank does not apply hedge accounting to certain interest rate and foreign exchange derivatives used for risk management purposes.

To qualify for hedge accounting, a derivative must be highly effective at reducing the risk associated with the exposure being hedged. In addition, for a derivative to be designated as a hedge, the risk management objective and strategy must be documented. Hedge documentation must identify the derivative hedging instrument, the asset or liability or forecasted transaction and type of risk to be hedged, and how the effectiveness of the derivative is assessed prospectively and retrospectively. To assess effectiveness, the Bank uses statistical methods such as regression analysis, nonstatistical methods such as dollar-value comparisons of the change in the fair value of the derivative to the change in the fair value or cash flows of the hedged item, and qualitative comparisons of critical terms and the evaluation of any changes in those terms. The extent to which a derivative has been, and is expected to continue to be, highly effective at offsetting changes in the fair value or cash flows of the hedged item must be assessed and documented at least quarterly. If it is determined that a derivative is not highly effective at hedging the designated exposure, hedge accounting is discontinued.

There are three types of hedge accounting designations: fair value hedges, cash flow hedges and net investment hedges.

The Bank uses fair value hedges primarily to hedge fixed-rate long-term debt, AFS securities and certain commodities inventories. For qualifying fair value

hedges, the changes in the fair value of the derivative, and in the value of the hedged item for the risk being hedged, are recognized in earnings. Certain amounts excluded from the assessment of effectiveness are recorded in OCI and recognized in earnings over the life of the derivative. If the hedge relationship is terminated, then the adjustment to the hedged item continues to be reported as part of the basis of the hedged item and, for interest-bearing financial instruments, is amortized to earnings as a yield adjustment. Derivative amounts affecting earnings are recognized consistent with the classification of the hedged item – primarily net interest income and principal transactions revenue.

The Bank employs the portfolio layer method to manage the interest rate risk of portfolios of fixed-rate assets. Throughout the life of the open hedge, basis adjustments are maintained at the portfolio level and are only allocated to individual assets under certain circumstances. These include instances where the portfolio amount falls below the hedged layer amounts, or in cases of voluntary de-designation.

The Bank uses cash flow hedges primarily to hedge the exposure to variability in forecasted cash flows from floating-rate assets and liabilities and foreign currency-denominated revenue and expense. For qualifying cash flow hedges, changes in the fair value of the derivative are recorded in OCI and recognized in earnings as the hedged item affects earnings. Derivative amounts affecting earnings are recognized consistent with the classification of the hedged item – primarily noninterest revenue, net interest income and compensation expense. If the hedge relationship is terminated, then the change in value of the derivative recorded in accumulated other comprehensive income/(loss) (“AOCI”) is recognized in earnings when the cash flows that were hedged affect earnings. For hedge relationships that are discontinued because a forecasted transaction is expected to not occur according to the original hedge forecast, any related derivative values recorded in AOCI are immediately recognized in earnings.

The Bank uses net investment hedges to protect the value of the Bank’s net investments in certain non-U.S. subsidiaries or branches whose functional currencies are not the U.S. dollar. For qualifying net investment hedges, changes in the fair value of the derivatives due to changes in spot foreign exchange rates are recorded in OCI as translation adjustments. Amounts excluded from the assessment of effectiveness are recorded directly in earnings.

The following table outlines the Bank's primary uses of derivatives and the related hedge accounting designation or disclosure category.

Type of Derivative	Use of Derivative	Designation and disclosure	Page reference
Manage specifically identified risk exposures in qualifying hedge accounting relationships:			
• Interest rate	Hedge fixed-rate assets and liabilities	Fair value hedge	48-49
• Interest rate	Hedge floating-rate assets and liabilities	Cash flow hedge	50
• Foreign exchange	Hedge foreign currency-denominated assets and liabilities	Fair value hedge	48-49
• Foreign exchange	Hedge foreign currency-denominated forecasted revenue and expense	Cash flow hedge	50
• Foreign exchange	Hedge the value of the Bank's investments in non-U.S. dollar functional currency entities	Net investment hedge	51
• Commodity	Hedge commodity inventory	Fair value hedge	48-49
Manage specifically identified risk exposures not designated in qualifying hedge accounting			51
• Interest rate	Manage the risk associated with mortgage commitments, warehouse loans and MSR's	Specified risk management	51
• Credit	Manage the credit risk associated with wholesale lending exposures	Specified risk management	51
• Interest rate and foreign exchange	Manage the risk associated with certain other specified assets and liabilities	Specified risk management	51
Market-making derivatives and other activities:			
• Various	Market-making and related risk management	Market-making and other	51
• Various	Other derivatives	Market-making and other	51

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Notional amount of derivative contracts

The following table summarizes the notional amount of free-standing derivative contracts outstanding as of December 31, 2024 and 2023.

December 31, (in billions)	Notional amounts ^(b)	
	2024	2023
Interest rate contracts		
Swaps	\$ 21,565	\$ 24,044
Futures and forwards	1,995	2,239
Written options	3,075	3,378
Purchased options	3,107	3,378
Total interest rate contracts	29,742	33,039
Credit derivatives^(a)	1,211	1,053
Foreign exchange contracts		
Cross-currency swaps	4,563	4,765
Spot, futures and forwards	7,033	6,990
Written options	1,015	831
Purchased options	984	799
Total foreign exchange contracts	13,595	13,385
Equity contracts		
Swaps	1,223	876
Futures and forwards	195	140
Written options	638	600
Purchased options	586	577
Total equity contracts	2,642	2,193
Commodity contracts		
Swaps	178	252
Spot, futures and forwards	340	156
Written options	157	146
Purchased options	137	126
Total commodity contracts	812	680
Total derivative notional amounts	\$ 48,002	\$ 50,350

(a) Refer to the Credit derivatives discussion on pages 51-54 for more information on volumes and types of credit derivative contracts.

(b) Represents the sum of gross long and gross short notional derivative contracts with third-parties and JPMorganChase affiliates. Refer to Note 21 for additional information on related party derivatives.

While the notional amounts disclosed above give an indication of the volume of the Bank's derivatives activity, the notional amounts significantly exceed, in the Bank's view, the possible losses that could arise from such transactions. For most derivative contracts, the notional amount is not exchanged; it is simply a reference amount used to calculate payments.

Impact of derivatives on the Consolidated balance sheets

The tables below include derivative receivables and payables with affiliates on a net basis. Refer to Note 21 for information regarding our derivative activities with affiliates.

The following table summarizes information on derivative receivables and payables (before and after netting adjustments) that are reflected on the Bank's Consolidated balance sheets as of December 31, 2024 and 2023, by accounting designation (e.g., whether the derivatives were designated in qualifying hedge accounting relationships or not) and contract type.

Free-standing derivative receivables and payables^(a)

December 31, 2024 (in millions)	Gross derivative receivables				Gross derivative payables			
	Not designated as hedges	Designated as hedges	Total derivative receivables	Net derivative receivables ^(b)	Not designated as hedges	Designated as hedges	Total derivative payables	Net derivative payables ^(b)
Trading assets and liabilities								
Interest rate	\$ 353,372	\$ —	\$ 353,372	\$ 24,985	\$ 329,370	\$ 1	\$ 329,371	\$ 8,854
Credit	11,391	—	11,391	909	14,482	—	14,482	1,887
Foreign exchange	268,936	1753	270,689	25,478	262,356	195	262,551	15,554
Equity	75,075	—	75,075	7,800	77,311	—	77,311	8,571
Commodity	20,421	83	20,504	4,553	19,315	70	19,385	3,867
Total fair value of trading assets and liabilities	\$ 729,195	\$ 1,836	\$ 731,031	\$ 63,725	\$ 702,834	\$ 266	\$ 703,100	\$ 38,733

December 31, 2023 (in millions)	Gross derivative receivables				Gross derivative payables			
	Not designated as hedges	Designated as hedges	Total derivative receivables	Net derivative receivables ^(b)	Not designated as hedges	Designated as hedges	Total derivative payables	Net derivative payables ^(b)
Trading assets and liabilities								
Interest rate	\$ 306,489	\$ —	\$ 306,489	\$ 26,260	\$ 289,275	\$ —	\$ 289,275	\$ 10,858
Credit	9,432	—	9,432	565	12,142	—	12,142	1,074
Foreign exchange	209,731	119	209,850	18,018	216,785	1,442	218,227	12,605
Equity	60,652	—	60,652	5,374	62,219	—	62,219	5,550
Commodity	19,533	154	19,687	4,958	19,946	53	19,999	5,277
Total fair value of trading assets and liabilities	\$ 605,837	\$ 273	\$ 606,110	\$ 55,175	600,367	\$ 1,495	\$ 601,862	\$ 35,364

(a) Balances exclude structured notes for which the fair value option has been elected. Refer to Note 4 for further information.

(b) As permitted under U.S. GAAP, the Bank has elected to net derivative receivables and derivative payables and the related cash collateral receivables and payables when a legally enforceable master netting agreement exists.

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Derivatives netting

The following tables present, as of December 31, 2024 and 2023, gross and net derivative receivables and payables by contract and settlement type. Derivative receivables and payables, as well as the related cash collateral from the same counterparty, have been netted on the Consolidated balance sheets where the Bank has obtained an appropriate legal opinion with respect to the master netting agreement. Where such a legal opinion has not been either sought or obtained, amounts are not eligible for netting on the Consolidated balance sheets, and those derivative receivables and payables are shown separately in the tables.

In addition to the cash collateral received and transferred that is presented on a net basis with derivative receivables and payables, the Bank receives and transfers additional collateral (financial instruments and cash). These amounts mitigate counterparty credit risk associated with the Bank's derivative instruments, but are not eligible for net presentation:

- collateral that consists of liquid securities and other cash collateral held at third-party custodians, which are shown separately as "Collateral not nettable on the Consolidated balance sheets" in the tables, up to the fair value exposure amount;
- the amount of collateral held or transferred that exceeds the fair value exposure at the individual counterparty level, as of the date presented, which is excluded from the tables; and
- collateral held or transferred that relates to derivative receivables or payables where an appropriate legal opinion has not been either sought or obtained with respect to the master netting agreement, which is excluded from the tables.

December 31, (in millions)	2024			2023		
	Gross derivative receivables	Amounts netted on the Consolidated balance sheets	Net derivative receivables	Gross derivative receivables	Amounts netted on the Consolidated balance sheets	Net derivative receivables
U.S. GAAP nettable derivative receivables						
Interest rate contracts:						
OTC	\$ 222,834	\$ (198,900)	\$ 23,934	\$ 234,039	\$ (209,657)	\$ 24,382
OTC-cleared	129,479	(129,299)	180	70,328	(70,184)	144
Exchange-traded ^(a)	190	(188)	2	399	(388)	11
Total interest rate contracts	352,503	(328,387)	24,116	304,766	(280,229)	24,537
Credit contracts:						
OTC	8,983	(8,239)	744	7,434	(6,990)	444
OTC-cleared	2,267	(2,243)	24	1,904	(1,877)	27
Total credit contracts	11,250	(10,482)	768	9,338	(8,867)	471
Foreign exchange contracts:						
OTC	267,379	(244,534)	22,845	207,705	(191,371)	16,334
OTC-cleared	685	(677)	8	469	(459)	10
Exchange-traded ^(a)	34	—	34	6	(2)	4
Total foreign exchange contracts	268,098	(245,211)	22,887	208,180	(191,832)	16,348
Equity contracts:						
OTC	63,722	(58,144)	5,578	47,021	(45,141)	1,880
Exchange-traded ^(a)	10,492	(9,131)	1,361	11,516	(10,137)	1,379
Total equity contracts	74,214	(67,275)	6,939	58,537	(55,278)	3,259
Commodity contracts:						
OTC	13,242	(10,784)	2,458	12,317	(9,416)	2,901
OTC-cleared	126	(84)	42	133	(123)	10
Exchange-traded ^(a)	5,179	(5,083)	96	5,214	(5,190)	24
Total commodity contracts	18,547	(15,951)	2,596	17,664	(14,729)	2,935
Derivative receivables with appropriate legal opinion	724,612	(667,306)	57,306 ^(d)	598,485	(550,935)	47,550 ^(d)
Derivative receivables where an appropriate legal opinion has not been either sought or obtained	6,419		6,419	7,625		7,625
Total derivative receivables recognized on the Consolidated balance sheets	\$ 731,031		\$ 63,725	\$ 606,110		\$ 55,175
Collateral not nettable on the Consolidated balance sheets ^{(b)(c)}			(28,151)			(22,444)
Net amounts			\$ 35,574			\$ 32,731

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December 31, (in millions)	2024			2023		
	Gross derivative payables	Amounts netted on the Consolidated balance sheets	Net derivative payables	Gross derivative payables	Amounts netted on the Consolidated balance sheets	Net derivative payables
U.S. GAAP nettable derivative payables						
Interest rate contracts:						
OTC	\$ 195,469	\$ (187,681)	\$ 7,788	\$ 212,611	\$ (203,535)	\$ 9,076
OTC-cleared	132,693	(132,484)	209	74,771	(74,494)	277
Exchange-traded ^(a)	362	(352)	10	434	(388)	46
Total interest rate contracts	328,524	(320,517)	8,007	287,816	(278,417)	9,399
Credit contracts:						
OTC	12,068	(10,830)	1,238	10,439	(9,432)	1,007
OTC-cleared	1,779	(1,765)	14	1,639	(1,636)	3
Total credit contracts	13,847	(12,595)	1,252	12,078	(11,068)	1,010
Foreign exchange contracts:						
OTC	259,853	(246,319)	13,534	215,357	(205,152)	10,205
OTC-cleared	772	(678)	94	552	(470)	82
Exchange-traded ^(a)	14	—	14	6	—	6
Total foreign exchange contracts	260,639	(246,997)	13,642	215,915	(205,622)	10,293
Equity contracts:						
OTC	65,634	(59,609)	6,025	49,230	(46,532)	2,698
Exchange-traded ^(a)	9,519	(9,131)	388	10,313	(10,137)	176
Total equity contracts	75,153	(68,740)	6,413	59,543	(56,669)	2,874
Commodity contracts:						
OTC	12,147	(10,515)	1,632	12,426	(9,410)	3,016
OTC-cleared	84	(84)	—	120	(120)	—
Exchange-traded ^(a)	5,182	(4,919)	263	5,376	(5,192)	184
Total commodity contracts	17,413	(15,518)	1,895	17,922	(14,722)	3,200
Derivative payables with appropriate legal opinion	695,576	(664,367)	31,209 ^(d)	593,274	(566,498)	26,776 ^(d)
Derivative payables where an appropriate legal opinion has not been either sought or obtained	7,524		7,524	8,588		8,588
Total derivative payables recognized on the Consolidated balance sheets	\$ 703,100		\$ 38,733	\$ 601,862		\$ 35,364
Collateral not nettable on the Consolidated balance sheets ^{(b)(c)}			(10,032)			(4,276)
Net amounts			\$ 28,701			\$ 31,088

(a) Exchange-traded derivative balances that relate to futures contracts are settled daily.

(b) Includes liquid securities and other cash collateral held at third-party custodians related to derivative instruments where an appropriate legal opinion has been obtained. For some counterparties, the collateral amounts of financial instruments may exceed the derivative receivables and derivative payables balances. Where this is the case, the total amount reported is limited to the net derivative receivables and net derivative payables balances with that counterparty.

(c) Derivative collateral relates only to OTC and OTC-cleared derivative instruments.

(d) Net derivatives receivable included cash collateral netted of \$63.8 billion and \$55.3 billion at December 31, 2024 and 2023, respectively. Net derivatives payable included cash collateral netted of \$60.8 billion and \$70.8 billion at December 31, 2024 and 2023, respectively. Derivative cash collateral relates to OTC and OTC-cleared derivative instruments.

Liquidity risk and credit-related contingent features

In addition to the specific market risks introduced by each derivative contract type, derivatives expose the Bank to credit risk — the risk that derivative counterparties may fail to meet their payment obligations under the derivative contracts and the collateral, if any, held by the Bank proves to be of insufficient value to cover the payment obligation. It is the policy of the Bank to actively pursue, where possible, the use of legally enforceable master netting arrangements and collateral agreements to mitigate derivative counterparty credit risk inherent in derivative receivables.

While derivative receivables expose the Bank to credit risk, derivative payables expose the Bank to liquidity risk, as the derivative contracts typically require the Bank to post cash or securities collateral with counterparties as the fair value of the contracts moves in the counterparties' favor or upon specified downgrades in JPMorgan Chase Bank, N.A.'s and its subsidiaries' respective credit ratings. Certain derivative contracts also provide for termination of the contract, generally upon a downgrade of either the Bank or the counterparty, at the fair value of the derivative contracts. The following table shows the aggregate fair value of net derivative payables related to OTC and OTC-cleared derivatives that contain contingent collateral or termination features that may be triggered upon a ratings downgrade, and the associated collateral the Bank has posted in the normal course of business, at December 31, 2024 and 2023.

OTC and OTC-cleared derivative payables containing downgrade triggers

(in millions)	December 31, 2024	December 31, 2023
Aggregate fair value of net derivative payables	\$ 15,359	\$ 14,628
Collateral posted	15,191	14,645

The following table shows the impact of a single-notch and two-notch downgrade of the long-term issuer ratings of the Bank and its subsidiaries at December 31, 2024 and 2023, related to OTC and OTC-cleared derivative contracts with contingent collateral or termination features that may be triggered upon a ratings downgrade. Derivatives contracts generally require additional collateral to be posted or terminations to be triggered when the predefined rating threshold is breached. A downgrade by a single rating agency that does not result in a rating lower than a preexisting corresponding rating provided by another major rating agency will generally not result in additional collateral (except in certain instances in which additional initial margin may be required upon a ratings downgrade), nor in termination payment requirements. The liquidity impact in the table is calculated based upon a downgrade below the lowest current rating of the rating agencies referred to in the derivative contract.

Liquidity impact of downgrade triggers on OTC and OTC-cleared derivatives

(in millions)	December 31, 2024		December 31, 2023	
	Single-notch downgrade	Two-notch downgrade	Single-notch downgrade	Two-notch downgrade
Amount of additional collateral to be posted upon downgrade ^(a)	\$ 119	\$ 1,205	\$ 75	\$ 1,153
Amount required to settle contracts with termination triggers upon downgrade ^(b)	78	457	93	583

(a) Includes the additional collateral to be posted for initial margin.

(b) Amounts represent fair values of derivative payables, and do not reflect collateral posted.

Derivatives executed in contemplation of a sale of the underlying financial asset

In certain instances the Bank enters into transactions in which it transfers financial assets but maintains the economic exposure to the transferred assets by entering into a derivative with the same counterparty in contemplation of the initial transfer. The Bank generally accounts for such transfers as collateralized financing transactions as described in Note 12, but in limited circumstances they may qualify to be accounted for as a sale and a derivative under U.S. GAAP. The amount of such transfers accounted for as a sale where the associated derivative was outstanding was not material at December 31, 2024 and 2023.

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Impact of derivatives on the Consolidated statements of income

The following tables provide information related to gains and losses recorded on derivatives based on their hedge accounting designation or purpose. Refer to Note 21 for information regarding our derivative activities with affiliates.

Fair value hedge gains and losses

The following tables present derivative instruments, by contract type, used in fair value hedge accounting relationships, as well as pre-tax gains/(losses) recorded on such derivatives and the related hedged items for the years ended December 31, 2024, 2023 and 2022, respectively. The Bank includes gains/(losses) on the hedging derivative in the same line item in the Consolidated statements of income as the related hedged item.

Year ended December 31, 2024 (in millions)	Gains/(losses) recorded in income			Income statement impact of excluded components ^(e)		OCI impact
	Derivatives	Hedged items	Income statement impact	Amortization approach	Changes in fair value	Derivatives - Gains/(losses) recorded in OCI ^(f)
Contract type						
Interest rate ^{(a)(b)}	\$ 3,445	\$ (2,697)	\$ 748	\$ —	\$ 725	\$ —
Foreign exchange ^(c)	1,612	(1,387)	225	—	225	—
Commodity ^(d)	143	(118)	25	—	25	—
Total	\$ 5,200	\$ (4,202)	\$ 998	\$ —	\$ 975	\$ —

Year ended December 31, 2023 (in millions)	Gains/(losses) recorded in income			Income statement impact of excluded components ^(e)		OCI impact
	Derivatives	Hedged items	Income statement impact	Amortization approach	Changes in fair value	Derivatives - Gains/(losses) recorded in OCI ^(f)
Contract type						
Interest rate ^{(a)(b)}	\$ (656)	\$ 1,041	\$ 385	\$ —	\$ 280	\$ —
Foreign exchange ^(c)	(280)	519	239	—	239	—
Commodity ^(d)	1,028	(549)	479	—	478	—
Total	\$ 92	\$ 1,011	\$ 1,103	\$ —	\$ 997	\$ —

Year ended December 31, 2022 (in millions)	Gains/(losses) recorded in income			Income statement impact of excluded components ^(e)		OCI impact
	Derivatives	Hedged items	Income statement impact	Amortization approach	Changes in fair value	Derivatives - Gains/(losses) recorded in OCI ^(f)
Contract type						
Interest rate ^{(a)(b)}	\$ 7,253	\$ (7,463)	\$ (210)	\$ —	\$ (63)	\$ —
Foreign exchange ^(c)	982	(877)	105	—	105	—
Commodity ^(d)	(35)	112	77	—	77	—
Total	\$ 8,200	\$ (8,228)	\$ (28)	\$ —	\$ 119	\$ —

- (a) Primarily consists of hedges of the benchmark (e.g., Secured Overnight Financing Rate (“SOFR”)) interest rate risk of fixed-rate long-term debt and AFS securities. Gains and losses were recorded in net interest income.
- (b) Includes the amortization of income/expense associated with the inception hedge accounting adjustment applied to the hedged item. Excludes the accrual of interest on interest rate swaps and the related hedged items.
- (c) Primarily consists of hedges of the foreign currency risk of AFS securities for changes in spot foreign currency rates. Gains and losses related to the derivatives and the hedged items due to changes in foreign currency rates and the income statement impact of excluded components were recorded primarily in principal transactions revenue and net interest income.
- (d) Consists of overall fair value hedges of physical commodities inventories that are generally carried at the lower of cost or net realizable value (net realizable value approximates fair value). Gains and losses were recorded in principal transactions revenue.
- (e) The assessment of hedge effectiveness excludes certain components of the changes in fair values of the derivatives and hedged items such as forward points on foreign exchange forward contracts, time values and cross-currency basis spreads. Excluded components may impact earnings either through amortization of the initial amount over the life of the derivative or through fair value changes recognized in the current period.
- (f) Represents the change in value of amounts excluded from the assessment of effectiveness under the amortization approach, predominantly cross-currency basis spreads. The amount excluded at inception of the hedge is recognized in earnings over the life of the derivative.

As of December 31, 2024 and 2023, the following amounts were recorded on the Consolidated balance sheets related to certain cumulative fair value hedge basis adjustments that are expected to reverse through the income statement in future periods as an adjustment to yield.

December 31, 2024 (in millions)	Carrying amount of the hedged items ^{(a),(b)}	Cumulative amount of fair value hedging adjustments included in the carrying amount of hedged items: ^(d)		
		Active hedging relationships	Discontinued hedging relationships ^(e)	Total
Assets				
Investment securities - AFS	\$ 203,141 ^(c)	\$ (1,675)	\$ (1,959)	\$ (3,634)
Liabilities				
Long-term debt	\$ 3,484	\$ —	\$ 56	\$ 56
Beneficial interests issued by consolidated VIEs	5,312	(30)	(5)	(35)
<hr/>				
December 31, 2023 (in millions)	Carrying amount of the hedged items ^{(a),(b)}	Cumulative amount of fair value hedging adjustments included in the carrying amount of hedged items: ^(d)		
		Active hedging relationships	Discontinued hedging relationships ^(e)	Total
Assets				
Investment securities - AFS	\$ 151,752 ^(c)	\$ 549	\$ (2,010)	\$ (1,461)
Liabilities				
Long-term debt	\$ 3,786	\$ 22	\$ 61	\$ 83
Beneficial interests issued by consolidated VIEs	—	—	—	—

- (a) Excludes physical commodities with a carrying value of \$4.4 billion and \$3.6 billion at December 31, 2024 and 2023, respectively, to which the Bank applies fair value hedge accounting. As a result of the application of hedge accounting, these inventories are carried at fair value, thus recognizing unrealized gains and losses in current periods. Since the Bank exits these positions at fair value, there is no incremental impact to net income in future periods.
- (b) Excludes hedged items where only foreign currency risk is the designated hedged risk, as basis adjustments related to foreign currency hedges will not reverse through the income statement in future periods. At December 31, 2024 and 2023, the carrying amount excluded for AFS securities was \$28.7 billion and \$19.3 billion, respectively.
- (c) Carrying amount represents the amortized cost, net of allowance if applicable. At December 31, 2024 and December 31, 2023, the amortized cost of the portfolio layer method closed portfolios was \$72.8 billion and \$83.9 billion, of which \$41.2 billion and \$68.0 billion was designated as hedged, respectively. The amount designated as hedged is the sum of the notional amounts of all outstanding layers in each portfolio, which includes both spot starting and forward starting layers. At December 31, 2024 and December 31, 2023, the cumulative amount of basis adjustments was \$(1.7) billion and \$(165) million, which is comprised of \$(1.2) billion and \$73 million for active hedging relationships, and \$(566) million and \$(238) million for discontinued hedging relationships, respectively. Refer to Note 11 for additional information.
- (d) Positive (negative) amounts related to assets represent cumulative fair value hedge basis adjustments that will reduce (increase) net interest income in future periods. Positive (negative) amounts related to liabilities represent cumulative fair value hedge basis adjustments that will increase (reduce) net interest income in future periods.
- (e) Represents basis adjustments existing on the balance sheet date associated with hedged items that have been de-designated from qualifying fair value hedging relationships.

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Cash flow hedge gains and losses

The following tables present derivative instruments, by contract type, used in cash flow hedge accounting relationships, and the pre-tax gains/(losses) recorded on such derivatives, for the years ended December 31, 2024, 2023 and 2022, respectively. The Bank includes the gains/(losses) on the hedging derivative in the same line item in the Consolidated statements of income as the change in cash flows on the related hedged item.

Year ended December 31, 2024 (in millions)	Derivatives gains/(losses) recorded in income and other comprehensive income/(loss)		
	Amounts reclassified from AOCI to income	Amounts recorded in OCI	Total change in OCI for period
Contract type			
Interest rate ^(a)	\$ (2,668)	\$ (3,603)	\$ (935)
Foreign exchange ^(b)	87	(139)	(226)
Total	\$ (2,581)	\$ (3,742)	\$ (1,161)

Year ended December 31, 2023 (in millions)	Derivatives gains/(losses) recorded in income and other comprehensive income/(loss)		
	Amounts reclassified from AOCI to income	Amounts recorded in OCI	Total change in OCI for period
Contract type			
Interest rate ^(a)	\$ (1,838)	\$ 274	\$ 2,112
Foreign exchange ^(b)	64	209	145
Total	\$ (1,774)	\$ 483	\$ 2,257

Year ended December 31, 2022 (in millions)	Derivatives gains/(losses) recorded in income and other comprehensive income/(loss)		
	Amounts reclassified from AOCI to income	Amounts recorded in OCI	Total change in OCI for period
Contract type			
Interest rate ^(a)	\$ (152)	\$ (7,131)	\$ (6,979)
Foreign exchange ^(b)	(267)	(340)	(73)
Total	\$ (419)	\$ (7,471)	\$ (7,052)

(a) Primarily consists of hedges of SOFR-indexed floating-rate assets. Gains and losses were recorded in net interest income.

(b) Primarily consists of hedges of the foreign currency risk of non-U.S. dollar-denominated revenue and expense. The income statement classification of gains and losses follows the hedged item – primarily noninterest revenue and compensation expense.

The Bank did not experience any forecasted transactions that failed to occur for the years ended 2024, 2023 and 2022.

Over the next 12 months, the Bank expects that approximately \$(1.6) billion (after-tax) of net losses recorded in AOCI at December 31, 2024, related to cash flow hedges will be recognized in income. For cash flow hedges that have been terminated, the maximum length of time over which the derivative results recorded in AOCI will be recognized in earnings is approximately seven years, corresponding to the timing of the originally hedged forecasted cash flows. For open cash flow hedges, the maximum length of time over which forecasted transactions are hedged is approximately seven years. The Bank's longer-dated forecasted transactions relate to core lending and borrowing activities.

Net investment hedge gains and losses

The following table presents hedging instruments, by contract type, that were used in net investment hedge accounting relationships, and the pre-tax gains/(losses) recorded on such instruments for the years ended December 31, 2024, 2023 and 2022.

Year ended December 31, (in millions)	2024		2023		2022	
	Amounts recorded in income ^{(a)(b)}	Amounts recorded in OCI	Amounts recorded in income ^{(a)(b)}	Amounts recorded in OCI	Amounts recorded in income ^{(a)(b)}	Amounts recorded in OCI
Foreign exchange derivatives	\$ 400	\$ 4,109	\$ 347	\$ (1,543)	\$ (77)	\$ 2,845

- (a) Certain components of hedging derivatives are permitted to be excluded from the assessment of hedge effectiveness, such as forward points on foreign exchange forward contracts. The Bank elects to record changes in fair value of these amounts directly in other income.
- (b) Excludes amounts reclassified from AOCI to income on the sale or liquidation of hedged entities. During the year ended December 31, 2024, the Bank reclassified a net pre-tax gain of \$38 million to other income/expense. The amounts reclassified for the years ended December 31, 2023 and 2022 were not material. Refer to Note 22 for further information.

Gains and losses on derivatives used for specified risk management purposes

The following table presents pre-tax gains/(losses) recorded on a limited number of derivatives, not designated in hedge accounting relationships, that are used to manage risks associated with certain specified assets and liabilities, including certain risks arising from mortgage commitments, warehouse loans, MSR, wholesale lending exposures, and foreign currency denominated assets and liabilities.

Year ended December 31, (in millions)	Derivatives gains/(losses) recorded in income		
	2024	2023	2022
Contract type			
Interest rate ^(a)	\$ (426)	\$ (135)	\$ (830)
Credit ^(b)	(604)	(441)	51
Foreign exchange ^(c)	8	(66)	51
Total	\$ (1,022)	\$ (642)	\$ (728)

- (a) Primarily represents interest rate derivatives used to hedge the interest rate risk inherent in mortgage commitments, warehouse loans and MSR, as well as written commitments to originate warehouse loans. Gains and losses were recorded predominantly in mortgage fees and related income.
- (b) Relates to credit derivatives used to mitigate credit risk associated with lending exposures in the Bank's wholesale businesses. These derivatives do not include credit derivatives used to mitigate counterparty credit risk arising from derivative receivables, which is included in gains and losses on derivatives related to market-making activities and other derivatives. Gains and losses were recorded in principal transactions revenue.
- (c) Primarily relates to derivatives used to mitigate foreign exchange risk of specified foreign currency-denominated assets and liabilities. Gains and losses were recorded in principal transactions revenue.

Gains and losses on derivatives related to market-making activities and other derivatives

The Bank makes markets in derivatives in order to meet the needs of customers 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. All derivatives not included in the hedge accounting or specified risk management categories above are included in this category. Gains and losses on these derivatives are primarily recorded in principal transactions revenue. Refer to Note 7 for information on principal transactions revenue.

Credit derivatives

Credit derivatives are financial instruments whose value is derived from the credit risk associated with the debt of a third-party issuer (the reference entity) and which allow one party (the protection purchaser) to transfer that risk to another party (the protection seller). Credit derivatives expose the protection purchaser to the creditworthiness of the protection seller, as the protection seller is required to make payments under the contract when the reference entity experiences a credit event, such as a bankruptcy, a failure to pay its obligation or a restructuring. The seller of credit protection receives a premium for providing protection but has the risk that the underlying instrument referenced in the contract will be subject to a credit event.

The Bank is both a purchaser and seller of protection in the credit derivatives market and uses these derivatives for two primary purposes. First, in its capacity as a market-maker, the Bank actively manages a portfolio of credit derivatives by purchasing and selling credit protection, predominantly on corporate debt obligations, to meet the needs of customers. Second, as an end-user, the Bank uses credit derivatives to manage credit risk associated with lending exposures (loans and unfunded commitments) in its wholesale and consumer activities and derivatives counterparty exposures in its wholesale activities, and to manage

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the credit risk arising from certain financial instruments in the Bank's market-making activities. Following is a summary of various types of credit derivatives.

Credit default swaps

Credit derivatives may reference the credit of either a single reference entity ("single-name"), broad-based index or portfolio. The Bank purchases and sells protection on both single-name and index-reference obligations. Single-name CDS and index CDS contracts are either OTC or OTC-cleared derivative contracts. Single-name CDS are used to manage the default risk of a single reference entity, while index CDS contracts are used to manage the credit risk associated with the broader credit markets or credit market segments. Like the S&P 500 and other market indices, a CDS index consists of a portfolio of CDS across many reference entities. New series of CDS indices are periodically established with a new underlying portfolio of reference entities to reflect changes in the credit markets. If one of the reference entities in the index experiences a credit event, then the reference entity that defaulted is removed from the index. CDS can also be referenced against specific portfolios of reference names or against customized exposure levels: for example, to provide protection against the first \$1 million of realized credit losses in a \$10 million portfolio of exposure. Such structures are commonly known as tranche CDS.

For both single-name CDS contracts and index CDS contracts, upon the occurrence of a credit event, under the terms of a CDS contract neither party to the CDS contract has recourse to the reference entity. The protection purchaser has recourse to the protection seller for the difference between the face value of the CDS contract and the fair value of the reference obligation at settlement of the credit derivative contract, also known as the recovery value. The protection purchaser does not need to hold the debt instrument of the underlying reference entity in order to receive amounts due under the CDS contract when a credit event occurs.

Credit-related notes

A credit-related note is a funded derivative with a credit risk component where the issuer of the credit-related note purchases from the note investor credit protection on a reference entity or an index. Under the contract, the investor pays the issuer the par value of the note at the inception of the transaction, and in return, the issuer makes periodic payments to the investor, based on the credit risk of the referenced entity. The issuer also repays the investor the par value of the note at maturity unless the reference entity (or one of the entities that makes up a reference index) experiences a specified credit event. If a credit event occurs, the issuer is not obligated to repay the par value of the note, but rather, the issuer pays the investor the difference between the par value of the note and the fair value of the defaulted reference obligation at the time of settlement. Neither party to the credit-related note has recourse to the defaulting reference entity.

The following tables present a summary of the notional amounts of credit derivatives and credit-related notes the Bank sold and purchased as of December 31, 2024 and 2023. Upon a credit event, the Bank as a seller of protection would typically pay out a percentage of the full notional amount of net protection sold, as the amount actually required to be paid on the contracts takes into account the recovery value of the reference obligation at the time of settlement. The Bank manages the credit risk on contracts to sell protection by purchasing protection with identical or similar underlying reference entities. Other purchased protection referenced in the following tables includes credit derivatives bought on related, but not identical, reference positions (including indices, portfolio coverage and other reference points) as well as protection purchased by the Bank through credit-related notes. Other purchased protection also includes credit protection against certain loans in the retained lending portfolio through the issuance of credit derivatives and credit-related notes.

The Bank does not use notional amounts of credit derivatives as the primary measure of risk management for such derivatives, because the notional amount does not take into account the probability of the occurrence of a credit event, the recovery value of the reference obligation, or related cash instruments and economic hedges, each of which reduces, in the Bank's view, the risks associated with such derivatives.

Total credit derivatives and credit-related notes

December 31, 2024 (in millions)	Maximum payout/Notional amount			
	Protection sold	Protection purchased with identical underlyings ^(b)	Net protection (sold)/ purchased ^(c)	Other protection purchased ^(d)
Credit derivatives				
Credit default swaps	\$ (450,753)	\$ 475,053	\$ 24,300	\$ 7,244
Other credit derivatives ^(a)	(125,134)	143,182	18,048	9,276
Total credit derivatives	(575,887)	618,235	42,348	16,520
Credit-related notes	—	—	—	10,471
Total	\$ (575,887)	\$ 618,235	\$ 42,348	\$ 26,991

December 31, 2023 (in millions)	Maximum payout/Notional amount			
	Protection sold	Protection purchased with identical underlyings ^(b)	Net protection (sold)/ purchased ^(c)	Other protection purchased ^(d)
Credit derivatives				
Credit default swaps	\$ (448,674)	\$ 472,484	\$ 23,810	\$ 7,548
Other credit derivatives ^(a)	(44,252)	63,891	19,639	15,816
Total credit derivatives	(492,926)	536,375	43,449	23,364
Credit-related notes	—	—	—	8,562
Total	\$ (492,926)	\$ 536,375	\$ 43,449	\$ 31,926

(a) Other credit derivatives predominantly consist of credit swap options and total return swaps.

(b) Represents the total notional amount of protection purchased where the underlying reference instrument is identical to the reference instrument on protection sold; the notional amount of protection purchased for each individual identical underlying reference instrument may be greater or lower than the notional amount of protection sold.

(c) Does not take into account the fair value of the reference obligation at the time of settlement, which would generally reduce the amount the seller of protection pays to the buyer of protection in determining settlement value.

(d) Represents protection purchased by the Bank on referenced instruments (single-name, portfolio or index) where the Bank has not sold any protection on the identical reference instrument. Also includes credit protection against certain loans and lending-related commitments in the retained lending portfolio through the issuance of credit derivatives and credit-related notes.

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The following tables summarize the notional amounts by the ratings, maturity profile, and total fair value, of credit derivatives as of December 31, 2024 and 2023, where the Bank is the seller of protection. The maturity profile is based on the remaining contractual maturity of the credit derivative contracts. The ratings profile is based on the rating of the reference entity on which the credit derivative contract is based. The ratings and maturity profile of credit derivatives where the Bank is the purchaser of protection are comparable to the profile reflected below.

Protection sold – credit derivatives ratings^(a)/maturity profile

December 31, 2024 (in millions)	<1 year	1–5 years	>5 years	Total notional amount	Fair value of receivables ^(b)	Fair value of payables ^(b)	Net fair value
Risk rating of reference entity							
Investment-grade	\$ (142,167)	\$ (287,751)	\$ (30,423)	\$ (460,341)	\$ 4,877	\$ (1,376)	\$ 3,501
Noninvestment-grade	(42,706)	(71,294)	(1,547)	(115,547)	1,943	(1,709)	234
Total	\$ (184,873)	\$ (359,045)	\$ (31,970)	\$ (575,888)	\$ 6,820	\$ (3,085)	\$ 3,735
December 31, 2023 (in millions)	<1 year	1–5 years	>5 years	Total notional amount	Fair value of receivables ^(b)	Fair value of payables ^(b)	Net fair value
Risk rating of reference entity							
Investment-grade	\$ (90,961)	\$ (270,544)	\$ (25,596)	\$ (387,101)	\$ 3,758	\$ (1,290)	\$ 2,468
Noninvestment-grade	(31,763)	(71,494)	(2,568)	(105,825)	2,594	(1,124)	1,470
Total	\$ (122,724)	\$ (342,038)	\$ (28,164)	\$ (492,926)	\$ 6,352	\$ (2,414)	\$ 3,938

(a) The ratings scale is primarily based on external credit ratings defined by S&P and Moody's.

(b) Amounts are shown on a gross basis, before the benefit of legally enforceable master netting agreements including cash collateral netting.

Note 7 – Noninterest revenue and noninterest expense

Noninterest revenue

The Bank records noninterest revenue from certain contracts with customers in investment banking fees, deposit-related fees, asset management fees, commissions and other fees, and components of card income. The related contracts are often terminable on demand and the Bank has no remaining obligation to deliver future services. For arrangements with a fixed term, the Bank may commit to deliver services in the future. Revenue associated with these remaining performance obligations typically depends on the occurrence of future events or underlying asset values, and is not recognized until the outcome of those events or values are known.

Investment banking fees

This revenue category includes debt and equity underwriting and advisory fees. As an underwriter, the Bank helps clients raise capital via public offering and private placement of various types of debt and equity instruments. Underwriting fees are primarily based on the issuance price and quantity of the underlying instruments, and are recognized as revenue typically upon execution of the client's transaction. The Bank also manages and syndicates loan arrangements. Credit arrangement and syndication fees, included within debt underwriting fees, are recorded as revenue after satisfying certain retention, timing and yield criteria.

The Bank also provides advisory services by assisting its clients with mergers and acquisitions, divestitures, restructuring and other complex transactions. Advisory fees are recognized as revenue typically upon execution of the client's transaction.

The following table presents the components of investment banking fees.

Year ended December 31, (in millions)	2024	2023	2022
Underwriting			
Equity	\$ 437	\$ 257	\$ 239
Debt	2,320	1,489	1,689
Total underwriting	2,757	1,746	1,928
Advisory	915	779	1,027
Total investment banking fees	\$ 3,672	\$ 2,525	\$ 2,955

Principal transactions

Principal transactions revenue is driven by many factors, including:

- 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 Bank and the price at which another market participant is willing and able to buy it from the Bank, and vice versa; and
- realized and unrealized gains and losses on financial instruments and commodities transactions, including those accounted for under the fair value option, primarily used in client-driven market-making activities.
 - Realized gains and losses result from the sale of instruments, closing out or termination of transactions, or interim cash payments.
 - Unrealized gains and losses result from changes in valuation.

In connection with its client-driven market-making activities, the Bank transacts in debt and equity instruments, derivatives and commodities, including physical commodities inventories and financial instruments that reference commodities.

Principal transactions revenue also includes realized and unrealized gains and losses related to:

- derivatives designated in qualifying hedge accounting relationships, primarily fair value hedges of commodity and foreign exchange risk;
- derivatives used for specific risk management purposes, primarily to mitigate credit, foreign exchange and interest rate risks.

Refer to Note 6 for further information on the income statement classification of gains and losses from derivatives activities.

In the financial commodity markets, the Bank transacts in OTC derivatives (e.g., swaps, forwards, options) and ETD that reference a wide range of underlying commodities. In the physical commodity markets, the Bank primarily purchases and sells precious metals and natural gas.

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The following table presents all realized and unrealized gains and losses recorded in principal transactions revenue. This table excludes interest income and interest expense on trading assets and liabilities, which are an integral part of the overall performance of the Bank's client-driven market-making activities and fund deployment activities. Refer to Note 8 for further information on interest income and interest expense.

Trading revenue is presented primarily by instrument type. The Bank's client-driven market-making activities generally utilize a variety of instrument types in connection with their market-making and related risk-management activities; accordingly, the trading revenue presented in the table below is not representative of the total revenue of the Bank's client-driven market making activities.

Year ended December 31, (in millions)	2024	2023	2022
Trading revenue by instrument type			
Interest rate ^(a)	\$ 3,087	\$ 4,363	\$ 3,211
Credit ^(b)	580	790	918 ^(c)
Foreign exchange	4,544	4,885	4,972
Equity	11,660	8,909	6,722
Commodity	858	1,956	2,071
Total trading revenue	20,729	20,903	17,894
Private equity gains	—	—	1
Principal transactions	\$ 20,729	\$ 20,903	\$ 17,895

(a) Includes the impact of changes in funding valuation adjustments on derivatives.

(b) Includes the impact of changes in credit valuation adjustments on derivatives, net of the associated hedging activities.

(c) Includes net markdowns on held-for-sale positions, primarily unfunded commitments, in the bridge financing portfolio.

Lending- and deposit-related fees

Lending-related fees include fees earned from loan commitments, standby letters of credit, financial guarantees, and other loan-servicing activities. Deposit-related fees include fees earned from performing cash management activities, and providing overdraft and other deposit account services. Deposit-related fees also include the impact of credits earned by clients that reduce such fees. Lending- and deposit-related fees are recognized over the period in which the related service is provided. Refer to Note 26 for further information on lending-related commitments.

The following table presents the components of lending- and deposit-related fees.

Year ended December 31, (in millions)	2024	2023	2022
Lending-related fees	\$ 2,188 ^(a)	\$ 2,362 ^(a)	\$ 1,465
Deposit-related fees	5,414	5,048	5,630
Total lending- and deposit-related fees	\$ 7,602	\$ 7,410	\$ 7,095

(a) Includes the amortization of the fair value discount on certain acquired lending-related commitments associated with First

Republic. The discount is deferred in other liabilities and recognized on a straight-line basis over the commitment period and was largely recognized in 2023 as the commitments were generally short term. Refer to Note 29 for additional information.

Asset management fees

Investment management fees include fees associated with assets the Bank manages on behalf of its clients, including investors in Bank-sponsored funds and owners of separately managed investment accounts. Management fees are typically based on the value of assets under management and are collected and recognized at the end of each period over which the management services are provided and the value of the managed assets is known. The Bank also receives performance-based management fees, which are earned based on exceeding certain benchmarks or other performance targets and are accrued and recognized when the probability of reversal is remote, typically at the end of the related billing period.

All other asset management fees include commissions earned on the sales or distribution of mutual funds to clients. These fees are recorded as revenue at the time the service is rendered or, in the case of certain distribution fees, based on the underlying fund's asset value or investor redemption activity.

The following table presents the components of asset management fees.

Year ended December 31, (in millions)	2024	2023	2022
Asset management fees			
Investment management fees	\$ 3,016	\$ 2,540	\$ 2,427
All other asset management fees	61	51	52
Total asset management fees	\$ 3,077	\$ 2,591	\$ 2,479

Commissions and other fees

This revenue category includes commissions and fees from brokerage and custody services, and other products.

Brokerage commissions represents commissions earned when the Bank acts as a broker, by facilitating its clients' purchases and sales of securities and other financial instruments. Brokerage commissions are collected and recognized as revenue upon occurrence of the client transaction. The Bank reports certain costs paid to third-party clearing houses and exchanges net against commission revenue.

Administration fees predominantly include fees for custody, funds services, securities lending and securities clearance. These fees are recorded as revenue over the period in which the related service is provided.

The following table presents the components of commissions and other fees.

Year ended December 31, (in millions)	2024	2023	2022
Commissions and other fees			
Brokerage commissions and fees	\$ 1,432	\$ 1,240	\$ 1,241
Administration fees	2,498	2,285	2,337
All other commissions and fees ^(a)	9,899	8,893	7,878
Total commissions and other fees	\$ 13,829	\$ 12,418	\$ 11,456

(a) Includes fees earned for operational support and services provided to JPMorganChase affiliates. Refer to Note 21 for additional information.

Mortgage fees and related income

This revenue category reflects production and net mortgage servicing revenue.

Production revenue includes fees and income recognized as earned on mortgage loans originated with the intent to sell, and the impact of risk management activities associated with the mortgage pipeline and warehouse loans. Production revenue also includes gains and losses on sales and lower of cost or fair value adjustments on mortgage loans held-for-sale (excluding certain repurchased loans insured by U.S. government agencies), and changes in the fair value of financial instruments measured under the fair value option.

Net mortgage servicing revenue includes operating revenue earned from servicing third-party mortgage loans, which is recognized over the period in which the service is provided; changes in the fair value of MSR; the impact of risk management activities associated with MSR; and gains and losses on securitization of excess mortgage servicing. Net mortgage servicing revenue also includes gains and losses on sales and lower of cost or fair value adjustments of certain repurchased loans insured by U.S. government agencies.

Refer to Note 16 for further information on risk management activities and MSR.

Net interest income from mortgage loans is recorded in interest income.

Card income

This revenue category includes interchange and other income from credit and debit card transactions; and fees earned from processing card transactions for merchants, both of which are recognized when purchases are made by a cardholder and presented net of certain transaction-related costs. Card income also includes account origination costs and annual fees, which are deferred and recognized on a straight-line basis over a 12-month period.

Certain credit card products offer the cardholder the ability to earn points based on account activity, which the cardholder can choose to redeem for cash and non-cash rewards. The cost to the Bank related to these proprietary rewards programs varies based on multiple factors including the terms and conditions of the rewards programs, cardholder activity, cardholder reward redemption rates and cardholder reward selections.

The Bank maintains a liability for its obligations under its rewards programs and reports the current-period cost as a reduction of card income.

Credit card revenue sharing agreements

The Bank has contractual agreements with numerous co-brand partners that grant the Bank exclusive rights to issue co-branded credit card products and market them to the customers of such partners. These partners endorse the co-brand credit card programs and provide their customer or member lists to the Bank. The partners may also conduct marketing activities and provide rewards redeemable under their own loyalty programs that the Bank will grant to co-brand credit cardholders based on account activity. The terms of these agreements generally range from five to ten years.

The Bank typically makes payments to the co-brand credit card partners based on the cost of partners' marketing activities and loyalty program rewards provided to credit cardholders, new account originations and sales volumes. Payments to partners based on marketing efforts undertaken by the partners are expensed by the Bank as incurred and reported as marketing expense. Payments for partner loyalty program rewards are reported as a reduction of card income when incurred. Payments to partners based on new credit card account originations are accounted for as direct loan origination costs and are deferred and recognized as a reduction of card income on a straight-line basis over a 12-month period. Payments to partners based on sales volumes are reported as a reduction of card income when the related interchange income is earned.

The following table presents the components of card income:

Year ended December 31, (in millions)	2024	2023	2022
Interchange and merchant processing income	\$ 33,847	\$ 31,021	\$ 28,085
Reward costs and partner payments	(26,784)	(24,601)	(22,162)
All other ^(a)	(1,566)	(1,636)	(1,502)
Total card income	\$ 5,497	\$ 4,784	\$ 4,421

(a) Predominantly represents the amortization of account origination costs and annual fees, which are deferred and recognized on a straight-line basis over a 12-month period.

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Other income

The following table presents certain components of other income:

Year ended December 31, (in millions)	2024	2023	2022
Operating lease income	\$ 2,795	\$ 2,841	\$ 3,651
Gain on Visa shares	\$ 7,990 ^(a)	\$ —	\$ 914 ^(b)
Estimated bargain purchase gain associated with the First Republic acquisition	103	2,775	—

(a) Relates to the initial gain recognized on May 6, 2024 on the Visa C shares. Refer to Note 3 for additional information.

(b) Relates to the sale of Visa B shares.

Refer to Note 19 for additional information on operating leases.

Noninterest expense

Other expense

Other expense on the Bank's Consolidated statements of income included:

Year ended December 31, (in millions)	2024	2023	2022
Legal expense	\$ 867	\$ 852	\$ 54
FDIC-related expense	1,893 ^(b)	4,203 ^(b)	860
Operating losses	1,388	1,195	1,093
Contribution of Visa shares ^(a)	1,000	—	—

(a) Represents the contribution of a portion of Visa C shares to the JPMorgan Chase Foundation during the first half of 2024. Refer to Note 3 for additional information.

(b) Included an increase of \$725 million during 2024 to the FDIC special assessment reflecting the FDIC's revised estimate of Deposit Insurance Fund losses. During 2023 included the \$2.9 billion FDIC special assessment.

Note 8 – Interest income and interest expense

Interest income and interest expense are recorded in the Consolidated statements of income and classified based on the nature of the underlying asset or liability.

Interest income and interest expense includes the current-period interest accruals for financial instruments measured at fair value, except for derivatives and certain financial instruments containing embedded derivatives; for those instruments, all changes in fair value including any interest elements, are primarily reported in principal transactions revenue. For financial instruments that are not measured at fair value, the related interest is included within interest income or interest expense, as applicable. Interest income and interest expense also includes the effect of derivatives that qualify for hedge accounting where applicable.

Interest income on loans and securities include the amortization and accretion of purchase premiums and discounts, as well as net deferred fees and costs on loans. These amounts are deferred in loans and investment securities, respectively, and recognized on a level-yield basis.

Refer to Notes 6, 11, 12, 13 and 20 for further information on accounting for interest income and interest expense related to hedge accounting, investment securities, securities financing activities (i.e., securities purchased or sold under resale or repurchase agreements; securities borrowed; and securities loaned), loans and long-term debt, respectively.

The following table presents the components of interest income and interest expense:

Year ended December 31, (in millions)	2024	2023	2022
Interest income			
Loans	\$92,182 ^(b)	\$83,232 ^(b)	\$52,657
Taxable securities	21,945	17,384	10,361
Non-taxable securities ^(a)	1,197	1,335	973
Total investment securities	23,142 ^(b)	18,719 ^(b)	11,334
Trading assets-debt instruments	10,692	8,014	4,735
Federal funds sold and securities purchased under resale agreements	13,332	12,119	4,081
Securities borrowed	2,264	2,071	478
Deposits with banks	22,148	21,702	9,040
All other interest-earning assets	5,657	5,558	1,772
Total interest income	169,417	151,415	84,097
Interest expense			
Interest-bearing deposits	53,102	43,566	11,210
Federal funds purchased and securities loaned or sold under repurchase agreements	7,191	5,029	1,411
Trading liabilities - debt, short-term and all other interest-bearing liabilities	4,241	3,835	1,693
Long-term debt	8,886	5,039	1,131
Beneficial interest issued by consolidated VIEs	1,377	962	230
Total interest expense	74,797	58,431	15,675
Net interest income	94,620	92,984	68,422
Provision for credit losses	10,621	8,996	6,347
Net interest income after provision for credit losses	\$83,999	\$83,988	\$62,075

(a) Represents securities that are tax-exempt for U.S. federal income tax purposes.

(b) Includes the accretion of the purchase discount on certain acquired loans and investment securities associated with First Republic. Refer to Note 29 for additional information.

Note 9 – Pension and other postretirement employee benefit plans

The Bank has various defined benefit pension plans and other postretirement employee benefit (“OPEB”) plans that provide benefits to its employees in the U.S. and certain non-U.S. locations. Substantially all the defined benefit pension plans are closed to new participants. The principal defined benefit pension plan in the U.S., which covered substantially all U.S. employees, was closed to new participants and frozen for existing participants on January 1, 2020, (and January 1, 2019 for new hires on or after December 2, 2017). Interest credits continue to accrue to participants’ accounts based on their accumulated balances.

The Bank maintains unfunded postretirement benefit plans that provide medical and life insurance for certain eligible employees and retirees as well as their dependents covered under these programs. None of these plans have a material impact on the Bank’s Consolidated Financial Statements.

The Bank also provides a qualified defined contribution plan in the U.S. and maintains other similar arrangements in certain non-U.S. locations. The most significant of these plans is the JPMorgan Chase 401(k) Savings Plan (“the 401(k) Savings Plan”), which covers substantially all U.S. employees. Employees can contribute to the 401(k) Savings Plan on a pretax and/or Roth 401(k) after-tax basis. The Bank makes annual matching and pay credit contributions to the 401(k) Savings Plan on behalf of eligible participants.

The following table presents the pretax benefit obligations, plan assets, the net funded status, and the amounts recorded in AOCI on the Consolidated balance sheets for the Bank’s significant defined benefit pension and OPEB plans.

As of or for the year ended December 31, (in millions)	2024	2023
Projected benefit obligations	\$ (13,003)	\$ (13,471)
Fair value of plan assets	17,679	18,016
Net funded status	4,676	4,545
Accumulated other comprehensive income/(loss)	(2,381)	(2,115)

The weighted-average discount rate used to value the benefit obligations as of December 31, 2024 and 2023, was 5.37% and 5.02%, respectively.

Gains and losses

Gains or losses resulting from changes in the benefit obligation and the fair value of plan assets are recorded in OCI. Amortization of net gains or losses are recognized as part of the net periodic benefit cost over subsequent periods, if, as of the beginning of the year, the net gain or loss exceeds 10% of the greater of the projected benefit obligation or the fair value of the plan assets. Amortization is generally over the average expected remaining lifetime of plan participants, given the frozen status of most plans. For the year ended December 31, 2024, the net loss was attributable to lower than expected returns on plan assets, partially offset by projected benefit obligation net gains primarily related to changes in the discount rate. For the year ended December 31, 2023, the net gain was attributable to market-driven increases in the fair value of plan assets, partially offset by changes in the discount rate and interest crediting rate.

The following table presents the net periodic benefit costs reported in the Consolidated statements of income for the Bank's defined benefit pension, defined contribution and OPEB plans, and in other comprehensive income for the defined benefit pension and OPEB plans.

Year ended December 31, (in millions)	2024	2023	2022
Total net periodic defined benefit plan cost/(credit) ^{(a)(b)}	\$ (344)	\$ (220)	\$ (106) ^(c)
Total defined contribution plans	1,581	1,410	1,257
Total pension and OPEB cost included in noninterest expense	\$ 1,237	\$ 1,190	\$ 1,151
Total recognized in other comprehensive (income)/loss	\$ 265	\$ (248)	\$ 973

(a) The service cost component of net periodic defined benefit cost is reported in compensation expense; all other components of net periodic defined benefit costs are reported in other expense in the Consolidated statements of income.

(b) Includes \$(47) million, \$(30) million and \$(12) million, for the years ended December 31, 2024, 2023 and 2022, respectively, that was charged by the Bank to JPMorganChase and its non-bank subsidiaries for their share of the U.S. qualified defined benefit pension plan expense.

(c) Includes pension settlement losses of \$92 million for the year ended December 31, 2022.

The following table presents the weighted-average actuarial assumptions used to determine the net periodic benefit costs for the defined benefit pension and OPEB plans.

Year ended December 31,	2024	2023	2022
Discount rate	5.02 %	5.13 %	2.53 %
Expected long-term rate of return on plan assets	6.16	5.76	3.78

Plan assumptions

The Bank's expected long-term rate of return is a blended weighted average, by asset allocation of the projected long-term returns for the various asset classes, taking into consideration local market conditions and the specific allocation of plan assets. Returns on asset classes are developed using a forward-looking approach and are not strictly based on historical returns, with consideration given to current market conditions and the portfolio mix of each plan.

The discount rates used in determining the benefit obligations are generally provided by the Bank's actuaries, with the Bank's principal defined benefit pension plan using a rate that was selected by reference to the yields on portfolios of bonds with maturity dates and coupons that closely match the plan's projected annual cash flows.

Investment strategy and asset allocation

The assets of the Bank's defined benefit pension plans are held in various trusts and are invested in well-diversified portfolios of equity and fixed income securities, cash and cash equivalents, and alternative investments. The Bank regularly reviews the asset allocations and asset managers, as well as other factors that could impact the portfolios, which are rebalanced when deemed necessary. As of December 31, 2024, the approved asset allocation ranges by asset class for the Bank's principal defined benefit plan are 41-100% debt securities, 0-40% equity securities, 0-1% real estate, and 0-8% alternatives.

Assets held by the Bank's defined benefit pension plans do not include securities issued by JPMorganChase or its affiliates, except through indirect exposures through investments in exchange traded funds, mutual funds and collective investment funds managed by third-parties. The defined benefit pension plans hold investments that are sponsored or managed by affiliates of JPMorganChase in the amount of \$1.8 billion as of both December 31, 2024 and 2023.

Fair value measurement of the plans' assets and liabilities

Refer to Note 3 for information on fair value measurements, including descriptions of level 1, 2, and 3 of the fair value hierarchy and the valuation methods employed by the Bank.

Pension plan assets and liabilities measured at fair value

December 31, (in millions)	2024				2023			
	Level 1 ^(a)	Level 2 ^(b)	Level 3 ^(c)	Total fair value	Level 1 ^(a)	Level 2 ^(b)	Level 3 ^(c)	Total fair value
Assets measured at fair value classified in the fair value hierarchy	\$ 6,524	\$ 9,224	\$ 322	\$ 16,070	\$ 6,190	\$ 9,839	\$ 336	\$ 16,365
Assets measured at fair value using NAV as a practical expedient	—	—	—	2,101	—	—	—	2,097
Net defined benefit pension plan payables	—	—	—	(492)	—	—	—	(446)
Total fair value of plan assets	—	—	—	\$ 17,679	—	—	—	\$ 18,016

(a) Consists predominantly of equity securities, U.S. federal, state, and local and non-U.S. government debt securities, and cash equivalents.

(b) Consists predominantly of corporate debt securities, fund investments and mortgage-backed securities.

(c) Consists predominantly of fund investments and participating annuity contracts.

Estimated future benefit payments

The following table presents benefit payments expected to be paid for the defined benefit pension and OPEB plans for the years indicated.

Year ended December 31, (in millions)	
2025	\$ 1,028
2026	1,010
2027	999
2028	966
2029	968
Years 2030–2034	4,653

Note 10 – Employee share-based incentives

Employee share-based awards

The Bank's employees receive annual incentive compensation based on their performance, the performance of their business and JPMorganChase's consolidated operating results. The Bank's employees participate, to the extent they meet minimum eligibility requirements, in various share-based incentive plans sponsored by JPMorganChase.

In 2024, 2023 and 2022, JPMorganChase granted long-term share-based awards to certain employees under its Long-Term Incentive Plan ("LTIP"), as amended and restated effective May 18, 2021, and subsequently amended effective May 21, 2024. Under the terms of the LTIP, as of December 31, 2024, 81 million shares of JPMorganChase's common stock were available for issuance through May 2028. The LTIP is the only active plan under which JPMorganChase is currently granting share-based incentive awards. In the following discussion, the LTIP constitutes JPMorganChase's share-based incentive plans.

Restricted stock units ("RSUs") are awarded at no cost to the recipient upon their grant. Generally, RSUs are granted annually and vest at a rate of 50% after two years and 50% after three years and are converted into shares of common stock as of the vesting date. In addition, RSUs typically include full-career eligibility provisions, which allow employees to continue to vest upon voluntary termination based on age and/or service-related requirements, subject to post-employment and other restrictions. All RSU awards are subject to forfeiture until vested and contain clawback provisions that may result in cancellation under certain specified circumstances. Predominantly all RSUs entitle the recipient to receive cash payments equivalent to any dividends paid on the underlying common stock during the period the RSUs are outstanding.

Performance share units ("PSUs") are granted annually, and approved by JPMorganChase's Board of Directors, to members of JPMorganChase's Operating Committee under the variable compensation program. PSUs are subject to JPMorganChase's achievement of specified performance criteria over a three-year period. The number of awards that vest can range from zero to 150% of the grant amount. In addition, dividends that accrue during the vesting period are reinvested in dividend equivalent share units. PSUs and the related dividend equivalent share units are converted into shares of common stock after vesting.

Once the PSUs and dividend equivalent share units have vested, the shares of common stock that are delivered, after applicable tax withholding, must be retained for an additional holding period, for a total combined vesting and holding period of approximately five to eight years from the grant date depending on regulations in certain countries.

Under the LTI Plans, stock appreciation rights ("SARs") were granted with an exercise price equal to the fair value of JPMorganChase's common stock on the grant date. SARs expire ten years after the grant date. There were no grants of SARs in 2024, 2023 or 2022.

The Bank separately recognizes compensation expense for each tranche of each award, net of estimated forfeitures, as if it were a separate award with its own vesting date. Generally, for each tranche granted, compensation expense is recognized on a straight-line basis from the grant date until the vesting date of the respective tranche, provided that the employees will not become full-career eligible during the vesting period. For awards with full-career eligibility provisions and awards granted with no future substantive service requirement, the Bank accrues the estimated value of awards expected to be awarded to employees as of the grant date without giving consideration to the impact of post-employment restrictions. For each tranche granted to employees who will become full-career eligible during the vesting period, compensation expense is recognized on a straight-line basis from the grant date until the earlier of the employee's full-career eligibility date or the vesting date of the respective tranche.

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RSUs, PSUs and SARs activity

Generally, compensation expense for RSUs and PSUs is measured based on the number of units granted multiplied by the stock price at the grant date, and for SARs, is measured at the grant date using the Black-Scholes valuation model. Compensation expense for these awards is recognized in net income as described previously. The following table summarizes the Bank's RSUs, PSUs and SARs activity for 2024.

Year ended December 31, 2024 (in thousands, except weighted-average data, and where otherwise stated)	RSUs/PSUs		SARs			
	Number of units	Weighted-average grant date fair value	Number of awards	Weighted-average exercise price	Weighted-average remaining contractual life (in years)	Aggregate intrinsic value
Outstanding, January 1	37,637	\$ 139.93	2,250	\$ 152.19		
Granted	14,703	165.58	—	—		
Exercised or vested	(13,686)	141.57	—	—		
Forfeited	(1,479)	145.76	—	—		
Canceled	NA	NA	—	—		
Transferred	(37)	139.93	—	—		
Outstanding, December 31	37,138	\$ 149.23	2,250	\$ 152.19	6.7	\$ 198,113
Exercisable, December 31	NA	NA	—	—	—	—

The total fair value of RSUs and PSUs that vested during the years ended December 31, 2024, 2023 and 2022, was \$2.4 billion, \$1.8 billion and \$2.3 billion, respectively. There were no SARs exercised in 2024. The total intrinsic value of SARs exercised during the years ended December 31, 2023 and 2022, was \$20 million and \$71 million, respectively.

Compensation expense

The Bank recognized the following compensation expense related to its participation in various employee share-based incentive plans in its Consolidated statements of income.

Year ended December 31, (in millions)	2024	2023	2022
Cost of prior grants of RSUs, PSUs and SARs that are amortized over their applicable vesting periods	\$ 1,223	\$ 1,121	\$ 893
Accrual of estimated costs of share-based awards to be granted in future periods, predominantly those to full-career eligible employees	1,334	1,162	1,126
Total compensation expense related to employee share-based incentive plans	\$2,557	\$ 2,283	\$ 2,019

There are no separate plans solely for the employees of the Bank and, therefore, the share-based compensation expense for the Bank is determined based upon employee participation in the JPMorganChase plans and effected through a charge from JPMorganChase, which is cash settled.

At December 31, 2024, approximately \$708 million (pretax) of compensation expense related to unvested awards had not yet been charged to net income. That cost is expected to be amortized into compensation expense over a weighted-average period of 1.6 years. The Bank does not capitalize any compensation expense related to share-based compensation awards to employees.

Tax benefits

Income tax benefits (including tax benefits from dividends or dividend equivalents) related to share-based incentive arrangements recognized in the Bank's Consolidated statements of income for the years ended December 31, 2024, 2023 and 2022, were \$767 million, \$620 million and \$642 million, respectively.

Note 11 – Investment securities

Investment securities consist of debt securities that are classified as AFS or HTM. Debt securities classified as trading assets are discussed in Note 3.

Predominantly all of the Bank's AFS and HTM securities are held in connection with its asset-liability management activities.

AFS securities are carried at fair value on the Consolidated balance sheets. Unrealized gains and losses, after any applicable hedge accounting adjustments or allowance for credit losses, are reported in AOCI. The specific identification method is used to determine realized gains and losses on AFS securities, which are included in investment securities gains/(losses) on the Consolidated statements of income. HTM securities, which the Bank has the intent and ability to hold until maturity, are carried at amortized cost, net of allowance for credit losses, on the Consolidated balance sheets.

For both AFS and HTM securities, purchase discounts or premiums are generally amortized into interest income on a level-yield basis over the contractual life of the security. However, premiums on certain callable debt securities are amortized to the earliest call date.

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The amortized costs and estimated fair values of the investment securities portfolio were as follows for the dates indicated.

December 31, (in millions)	2024				2023			
	Amortized cost ^{(d)(e)}	Gross unrealized gains	Gross unrealized losses	Fair value	Amortized cost ^{(d)(e)}	Gross unrealized gains	Gross unrealized losses	Fair value
Available-for-sale securities								
Mortgage-backed securities:								
U.S. GSEs and government agencies	95,671	251	4,029	91,893	\$ 88,377	\$ 870	\$ 4,077	\$ 85,170
Residential:								
U.S.	4,242	16	50	4,208	2,086	10	68	2,028
Non-U.S.	600	3	—	603	1,608	4	1	1,611
Commercial	4,115	20	70	4,065	2,930	12	139	2,803
Total mortgage-backed securities	104,628	290	4,149	100,769	95,001	896	4,285	91,612
U.S. Treasury and government agencies	235,495	545	1,261	234,779	58,051	276	522	57,805
Obligations of U.S. states and municipalities	18,337	110	534	17,913	21,243	390	266	21,367
Non-U.S. government debt securities	36,655	94	504	36,245	21,387	254	359	21,282
Corporate debt securities	45	—	1	44	88	—	1	87
Asset-backed securities:								
Collateralized loan obligations	14,887	59	3	14,943	6,769	11	28	6,752
Other	2,114	16	9	2,121	2,789	8	26	2,771
Unallocated portfolio layer fair value basis adjustments ^(a)	(1,153)	—	(1,153)	NA	73	(73)	—	NA
Total available-for-sale securities	411,008	1,114	5,308	406,814	205,401	1,762	5,487	201,676
Held-to-maturity securities^(b)								
Mortgage-backed securities:								
U.S. GSEs and government agencies	97,177	6	13,531	83,652	105,614	39	11,643	94,010
U.S. Residential	8,605	4	904	7,705	9,709	4	970	8,743
Commercial	8,817	24	389	8,452	10,534	13	581	9,966
Total mortgage-backed securities	114,599	34	14,824	99,809	125,857	56	13,194	112,719
U.S. Treasury and government agencies	108,632	—	11,212	97,420	173,666	—	13,074	160,592
Obligations of U.S. states and municipalities	9,310	32	631	8,711	9,945	74	591	9,428
Asset-backed securities:								
Collateralized loan obligations	40,573	84	14	40,643	58,565	47	352	58,260
Other	1,354	2	39	1,317	1,815	1	61	1,755
Total held-to-maturity securities^(c)	274,468	152	26,720	247,900	369,848	178	27,272	342,754
Total investment securities, net of allowance for credit losses	\$ 685,476	\$ 1,266	\$ 32,028	\$ 654,714	\$ 575,249	\$ 1,940	\$ 32,759	\$ 544,430

(a) Represents the amount of portfolio layer method basis adjustments related to AFS securities hedged in a closed portfolio. Under U.S. GAAP portfolio layer method basis adjustments are not allocated to individual securities, however the amounts impact the unrealized gains or losses in the table for the types of securities being hedged. Refer to Note 1 and Note 6 for additional information.

(b) The Bank purchased \$4.7 billion, \$4.1 billion and \$33.7 billion of HTM securities for the years ended December 31, 2024, 2023 and 2022, respectively.

(c) Effective January 1, 2023, the Bank adopted the portfolio layer method hedge accounting guidance which permitted a transfer of HTM securities to AFS upon adoption. The Bank transferred obligations of U.S. states and municipalities with a carrying value of \$7.1 billion resulting in the recognition of \$38 million net pre-tax unrealized losses in AOCI. This transfer was a non-cash transaction. Refer to Note 22 for additional information.

(d) The amortized cost of investment securities is reported net of allowance for credit losses of \$105 million, \$94 million and \$67 million at December 31, 2024, 2023 and 2022, respectively.

(e) Excludes \$3.7 billion and \$2.8 billion of accrued interest receivable at December 31, 2024 and 2023, respectively, included in accrued interest and accounts receivable on the Consolidated balance sheets. The Bank generally does not recognize an allowance for credit losses on accrued interest receivable, consistent with its policy to write them off no later than 90 days past due by reversing interest income. The Bank did not reverse through interest income any accrued interest receivable for the years ended December 31, 2024 and 2023.

At December 31, 2024, the investment securities portfolio consisted of debt securities with an average credit rating of AA+ (based upon external ratings where available, and where not available, based primarily upon internal risk ratings). Risk ratings are used to identify the credit quality of securities and differentiate risk within the portfolio. The Bank's internal risk ratings generally align with the qualitative characteristics (e.g., borrower capacity to meet financial commitments and vulnerability to changes in the economic environment) defined by S&P and

Moody's, however the quantitative characteristics (e.g., probability of default ("PD") and loss given default ("LGD")) may differ as they reflect internal historical experiences and assumptions. Risk ratings are assigned at acquisition, reviewed on a regular and ongoing basis by Credit Risk Management and adjusted as necessary over the life of the investment for updated information affecting the issuer's ability to fulfill its obligations.

AFS securities impairment

The following tables present the fair value and gross unrealized losses by aging category for AFS securities at December 31, 2024 and 2023. The tables exclude U.S. Treasury and government agency securities and U.S. GSE and government agency MBS with unrealized losses of \$5.3 billion and \$4.6 billion, at December 31, 2024 and 2023, respectively; changes in the value of these securities are generally driven by changes in interest rates rather than changes in their credit profile given the explicit or implicit guarantees provided by the U.S. government.

Year ended December 31, 2024 (in millions)	Available-for-sale securities with gross unrealized losses					
	Less than 12 months		12 months or more		Total fair value	Total gross unrealized losses
	Fair value	Gross unrealized losses	Fair value	Gross unrealized losses		
Available-for-sale securities						
Mortgage-backed securities:						
Residential:						
U.S.	\$ 1,505	\$ 6	\$ 925	\$ 44	\$ 2,430	\$ 50
Non-U.S.	—	—	30	—	30	—
Commercial	763	8	1,184	62	1,947	70
Total mortgage-backed securities	2,268	14	2,139	106	4,407	120
Obligations of U.S. states and municipalities	10,037	233	2,412	301	12,449	534
Non-U.S. government debt securities	14,234	234	4,184	270	18,418	504
Corporate debt securities	9	1	4	—	13	1
Asset-backed securities:						
Collateralized loan obligations	2	—	375	3	377	3
Other	214	1	200	8	414	9
Total available-for-sale securities with gross unrealized losses	\$ 26,764	\$ 483	\$ 9,314	\$ 688	\$ 36,078	\$ 1,171

Year ended December 31, 2023 (in millions)	Available-for-sale securities with gross unrealized losses					
	Less than 12 months		12 months or more		Total fair value	Total gross unrealized losses
	Fair value	Gross unrealized losses	Fair value	Gross unrealized losses		
Available-for-sale securities						
Mortgage-backed securities:						
Residential:						
U.S.	\$ 81	\$ —	\$ 1,160	\$ 68	\$ 1,241	\$ 68
Non-U.S.	—	—	722	1	722	1
Commercial	228	3	1,775	136	2,003	139
Total mortgage-backed securities	309	3	3,657	205	3,966	208
Obligations of U.S. states and municipalities	2,134	20	2,278	246	4,412	266
Non-U.S. government debt securities	7,145	24	4,987	335	12,132	359
Corporate debt securities	9	—	66	1	75	1
Asset-backed securities:						
Collateralized loan obligations	932	2	3,744	26	4,676	28
Other	208	1	1,288	25	1,496	26
Total available-for-sale securities with gross unrealized losses	\$ 10,737	\$ 50	\$ 16,020	\$ 838	\$ 26,757	\$ 888

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AFS securities are considered impaired if the fair value is less than the amortized cost.

The Bank recognizes impairment losses in earnings if the Bank has the intent to sell the debt security, or if it is more likely than not that the Bank will be required to sell the debt security before recovery of its amortized cost. In these circumstances the impairment loss is recognized in investment securities gains/(losses) in the Consolidated Statements of Income and is equal to the full difference between the amortized cost (net of allowance if applicable) and the fair value of the security.

For impaired debt securities that the Bank has the intent and ability to hold, the securities are evaluated to determine if a credit loss exists. If it is determined that a credit loss exists, that loss is recognized as an allowance for credit losses through the provision for credit losses in the Consolidated Statements of Income, limited by the amount of impairment. Any impairment on debt securities that the Bank has the intent and ability to hold not due to credit losses is recorded in OCI.

Factors considered in evaluating credit losses include adverse conditions specifically related to the industry, geographic area or financial condition of the issuer or underlying collateral of a security; and payment structure of the security.

When assessing securities issued in a securitization for credit losses, the Bank estimates cash flows considering relevant market and economic data, underlying loan-level data, and structural features of the securitization, such as subordination, excess spread, overcollateralization or other forms of credit enhancement, and compares the losses projected for the underlying collateral (“pool losses”) against the level of credit enhancement in the securitization structure to determine whether these features are sufficient to absorb the pool losses, or whether a credit loss exists.

For beneficial interests in securitizations that are rated below “AA” at their acquisition, or that can be contractually prepaid or otherwise settled in such a way that the Bank would not recover substantially all of its recorded investment, the Bank evaluates impairment for credit losses when there is an adverse change in expected cash flows.

HTM securities – credit risk

Allowance for credit losses

The allowance for credit losses on HTM securities represents expected credit losses over the remaining expected life of the securities.

The allowance for credit losses on HTM obligations of U.S. states and municipalities and commercial

mortgage-backed securities is calculated by applying statistical credit loss factors (estimated PD and LGD) to the amortized cost. The credit loss factors are derived using a weighted average of five internally developed eight-quarter macroeconomic scenarios, followed by a single year straight-line interpolation to revert to long run historical information for periods beyond the forecast period. Refer to Note 14 for further information on the eight-quarter macroeconomic forecast.

The allowance for credit losses on HTM collateralized loan obligations and U.S. residential mortgage-backed securities is calculated as the difference between the amortized cost and the present value of the cash flows expected to be collected, discounted at the security’s effective interest rate. These cash flow estimates are developed based on expectations of underlying collateral performance derived using the eight-quarter macroeconomic forecast and the single year straight-line interpolation, as well as considering the structural features of the security.

The application of different inputs and assumptions into the calculation of the allowance for credit losses is subject to significant management judgment, and emphasizing one input or assumption over another, or considering other inputs or assumptions, could affect the estimate of the allowance for credit losses on HTM securities.

Credit quality indicator

The primary credit quality indicator for HTM securities is the risk rating assigned to each security. At both December 31, 2024 and 2023, all HTM securities were rated investment grade and were current and accruing, with approximately 99% rated at least AA+ (based upon external ratings where available, and where not available, based primarily upon internal risk ratings).

Allowance for credit losses on investment securities

The allowance for credit losses on investment securities was \$105 million, \$94 million and \$67 million as of December 31, 2024, 2023 and 2022, respectively, which included a cumulative-effect adjustment to retained earnings related to the transfer of HTM securities to AFS for the year ended December 31, 2023.

Selected impacts of investment securities on the Consolidated statements of income

Year ended December 31, (in millions)	2024	2023	2022
Realized gains	\$ 593	\$ 622	\$ 198
Realized losses	(1,614)	(3,802)	(2,578)
Investment securities losses	\$(1,021)	\$(3,180)	\$(2,380)
Provision for credit losses	\$ 11	\$ 33	\$ 25

Contractual maturities and yields

The following table presents the amortized cost and estimated fair value at December 31, 2024, of the Bank's investment securities portfolio by contractual maturity.

By remaining maturity December 31, 2024 (in millions)	Due in one year or less	Due after one year through five years	Due after five years through 10 years	Due after 10 years ^(c)	Total
Available-for-sale securities					
Mortgage-backed securities					
Amortized cost	\$ 132	\$ 9,410	\$ 4,059	\$ 91,029	\$ 104,630
Fair value	130	9,345	4,041	87,253	100,769
Average yield ^(a)	3.32 %	4.58 %	5.25 %	4.75 %	4.75 %
U.S. Treasury and government agencies					
Amortized cost	\$ 20,685	\$ 169,162	\$ 38,667	\$ 6,981	\$ 235,495
Fair value	20,730	169,145	38,619	6,285	234,779
Average yield ^(a)	4.50 %	4.57 %	4.96 %	5.53 %	4.65 %
Obligations of U.S. states and municipalities					
Amortized cost	\$ 4	\$ 16	\$ 92	\$ 18,225	\$ 18,337
Fair value	4	16	90	17,803	17,913
Average yield ^(a)	1.59 %	3.95 %	4.46 %	5.32 %	5.32 %
Non-U.S. government debt securities					
Amortized cost	\$ 13,331	\$ 11,769	\$ 7,609	\$ 3,946	\$ 36,655
Fair value	13,327	11,701	7,403	3,814	36,245
Average yield ^(a)	4.24 %	4.32 %	2.82 %	4.15 %	3.96 %
Corporate debt securities					
Amortized cost	\$ 31	\$ 9	\$ 5	\$ —	\$ 45
Fair value	31	9	4	—	44
Average yield ^(a)	6.00 %	4.06 %	4.19 %	— %	5.41 %
Asset-backed securities					
Amortized cost	\$ —	\$ 368	\$ 1,598	\$ 15,035	\$ 17,001
Fair value	—	370	1,607	15,087	17,064
Average yield ^(a)	— %	6.14 %	6.02 %	5.96 %	5.97 %
Total available-for-sale securities					
Amortized cost ^(b)	\$ 34,183	\$ 190,734	\$ 52,030	\$ 135,216	\$ 412,163
Fair value	34,222	190,586	51,764	130,242	406,814
Average yield ^(a)	4.39 %	4.56 %	4.70 %	4.98 %	4.70 %
Held-to-maturity securities					
Mortgage-backed securities					
Amortized cost	\$ 104	\$ 7,994	\$ 6,077	\$ 100,495	\$ 114,670
Fair value	101	7,453	5,352	86,903	99,809
Average yield ^(a)	0.97 %	2.63 %	2.67 %	2.95 %	2.92 %
U.S. Treasury and government agencies					
Amortized cost	\$ 20,083	\$ 40,497	\$ 48,052	\$ —	\$ 108,632
Fair value	\$ 19,500	\$ 37,715	\$ 40,205	\$ —	\$ 97,420
Average yield ^(a)	0.43 %	1.23 %	1.25 %	— %	1.09 %
Obligations of U.S. states and municipalities					
Amortized cost	\$ —	\$ 9	\$ 307	\$ 9,026	\$ 9,342
Fair value	—	9	276	8,426	8,711
Average yield ^(a)	— %	4.76 %	3.25 %	3.97 %	3.95 %
Asset-backed securities					
Amortized cost	\$ —	\$ 134	\$ 22,433	\$ 19,360	\$ 41,927
Fair value	—	134	22,466	19,360	41,960
Average yield ^(a)	— %	5.94 %	5.57 %	5.73 %	5.65 %
Total held-to-maturity securities					
Amortized cost ^(b)	\$ 20,187	\$ 48,634	\$ 76,869	\$ 128,881	\$ 274,571
Fair value	19,601	45,311	68,299	114,689	247,900
Average yield ^(a)	0.43 %	1.47 %	2.63 %	3.44 %	2.64 %

- (a) Average yield is computed using the effective yield of each security owned at the end of the period, weighted based on the amortized cost of each security. The effective yield considers the contractual coupon, amortization of premiums and accretion of discounts, and the effect of related hedging derivatives, including closed portfolio hedges. Taxable-equivalent amounts are used where applicable. The effective yield excludes unscheduled principal prepayments; and accordingly, actual maturities of securities may differ from their contractual or expected maturities as certain securities may be prepaid. However, for certain callable debt securities, the average yield is calculated to the earliest call date.
- (b) For purposes of this table, the amortized cost of available-for-sale securities excludes the allowance for credit losses of \$2 million and the portfolio layer fair value hedge basis adjustments of \$(1.2) billion at December 31, 2024. The amortized cost of held-to-maturity securities also excludes the allowance for credit losses of \$103 million at December 31, 2024.

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- (c) Substantially all of the Bank's U.S. residential MBS and collateralized mortgage obligations are due in 10 years or more, based on contractual maturity. The estimated weighted-average life, which reflects anticipated future prepayments, is approximately eight years for agency residential MBS, six years for agency residential collateralized mortgage obligations, and five years for nonagency residential collateralized mortgage obligations.

Note 12 – Securities financing activities

The Bank enters into resale, repurchase, securities borrowed and securities loaned agreements (collectively, “securities financing agreements”) primarily to finance the Bank's inventory positions, acquire securities to cover short sales, accommodate customers' financing needs, settle other securities obligations and to deploy the Bank's excess cash.

Securities financing agreements are treated as collateralized financings on the Bank's Consolidated balance sheets. Where appropriate under applicable accounting guidance, securities financing agreements with the same counterparty are reported on a net basis. Refer to Note 1 for further discussion of the offsetting of assets and liabilities. Fees received and paid in connection with securities financing agreements are recorded over the life of the agreement in interest income and interest expense on the Consolidated statements of income.

The Bank has elected the fair value option for certain securities financing agreements. Refer to Note 4 for further information regarding the fair value option. The securities financing agreements for which the fair value option has been elected are reported within securities purchased under resale agreements, securities loaned or sold under repurchase agreements, and securities borrowed on the Consolidated balance sheets. Generally, for agreements carried at fair value, current-period interest accruals are recorded within interest income and interest expense, with changes in fair value reported in principal transactions revenue. However, for financial instruments containing embedded derivatives that would be separately accounted for in accordance with accounting guidance for hybrid instruments, all changes in fair value, including any interest elements, are reported in principal transactions revenue.

Securities financing agreements not elected under the fair value option are measured at amortized cost. As a result of the Bank's credit risk mitigation practices described below, the Bank did not hold any allowance for credit losses with respect to resale and securities borrowed arrangements as of December 31, 2024 and 2023.

Credit risk mitigation practices

Securities financing agreements expose the Bank primarily to credit and liquidity risk. To manage these risks, the Bank monitors the value of the underlying securities (predominantly high-quality securities collateral, including government-issued debt and U.S. GSEs and government agencies MBS) that it has received from or provided to its counterparties compared to the value of cash proceeds and exchanged collateral, and either requests additional collateral or returns securities or collateral when appropriate. Margin levels are initially established based upon the counterparty, the type of underlying securities, and the permissible collateral, and are monitored on an ongoing basis.

In resale and securities borrowed agreements, the Bank is exposed to credit risk to the extent that the value of the securities received is less than initial cash principal advanced and any collateral amounts exchanged. In repurchase and securities loaned agreements, credit risk exposure arises to the extent that the value of underlying securities advanced exceeds the value of the initial cash principal received, and any collateral amounts exchanged.

Additionally, the Bank typically enters into master netting agreements and other similar arrangements with its counterparties, which provide for the right to liquidate the underlying securities and any collateral amounts exchanged in the event of a counterparty default. It is also the Bank's policy to take possession, where possible, of the securities underlying resale and securities borrowed agreements. Refer to Note 27 for further information regarding assets pledged and collateral received in securities financing agreements.

The table below summarizes the gross and net amounts of the Bank's securities financing agreements, as of December 31, 2024 and 2023. When the Bank has obtained an appropriate legal opinion with respect to a master netting agreement with a counterparty and where other relevant netting criteria under U.S. GAAP are met, the Bank nets, on the Consolidated balance sheets, the balances outstanding under its securities financing agreements with the same counterparty. In addition, the Bank exchanges securities and/or cash collateral with its counterparty to reduce the economic exposure with the counterparty, but such collateral is not eligible for net Consolidated balance sheet presentation. Where the Bank has obtained an appropriate legal opinion with respect to the counterparty master netting agreement, such collateral, along with securities

financing balances that do not meet all these relevant netting criteria under U.S. GAAP, is presented in the table below as "Amounts not nettable on the Consolidated balance sheets," and reduces the "Net amounts" presented. Where a legal opinion has not been either sought or obtained, the securities financing balances are presented gross in the "Net amounts" below. In transactions where the Bank is acting as the lender in a securities-for-securities lending agreement and receives securities that can be pledged or sold as collateral, the Bank recognizes the securities received at fair value within other assets and the obligation to return those securities within accounts payable and other liabilities on the Consolidated balance sheets.

December 31, 2024					
(in millions)	Gross amounts	Amounts netted on the Consolidated balance sheets	Amounts presented on the Consolidated balance sheets	Amounts not nettable on the Consolidated balance sheets ^(b)	Net amounts ^(c)
Assets					
Securities purchased under resale agreements	\$ 395,547	\$ (133,850)	\$ 261,697	\$ (251,684)	\$ 10,013
Securities borrowed	54,109	(1,393)	52,716	(46,607)	6,109
Liabilities					
Securities sold under repurchase agreements	\$ 237,189	\$ (133,850)	\$ 103,339	\$ (101,446)	\$ 1,893
Securities loaned and other ^(a)	12,478	(1,393)	11,085	(11,079)	6
December 31, 2023					
(in millions)	Gross amounts	Amounts netted on the Consolidated balance sheets	Amounts presented on the Consolidated balance sheets	Amounts not nettable on the Consolidated balance sheets ^(b)	Net amounts ^(c)
Assets					
Securities purchased under resale agreements	\$ 358,661	\$ (132,002)	\$ 226,659	\$ (218,289)	\$ 8,370
Securities borrowed	62,345	(1,146)	61,199	(50,818)	10,381
Liabilities					
Securities sold under repurchase agreements	\$ 200,976	\$ (132,002)	\$ 68,974	\$ (67,652)	\$ 1,322
Securities loaned and other ^(a)	14,200	(1,146)	13,054	(12,753)	301

(a) Includes securities-for-securities lending agreements of \$9.6 billion and \$8.2 billion at December 31, 2024 and 2023, respectively, accounted for at fair value, where the Bank is acting as lender.

(b) In some cases, collateral exchanged with a counterparty exceeds the net asset or liability balance with that counterparty. In such cases, the amounts reported in this column are limited to the related net asset or liability with that counterparty.

(c) Includes securities financing agreements that provide collateral rights, but where an appropriate legal opinion with respect to the master netting agreement has not been either sought or obtained. At December 31, 2024 and 2023, included \$8.5 billion and \$7.0 billion, respectively, of securities purchased under resale agreements; \$4.5 billion and \$8.9 billion, respectively, of securities borrowed; \$866 million and \$806 million, respectively, of securities sold under repurchase agreements. There were no securities loaned and other agreements where the Bank has not received an appropriate legal opinion at December 31, 2024 and 2023.

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The tables below present as of December 31, 2024 and 2023 the types of financial assets pledged in securities financing agreements and the remaining contractual maturity of the securities financing agreements.

December 31, (in millions)	Gross liability balance			
	2024		2023	
	Securities sold under repurchase agreements	Securities loaned and other	Securities sold under repurchase agreements	Securities loaned and other
Mortgage-backed securities:				
U.S. GSEs and government agencies	\$ 5,119	\$ —	\$ 4,841	\$ —
Residential - nonagency	2	—	—	—
Commercial - nonagency	—	—	3	—
U.S. Treasury, GSEs and government agencies	103,407	394	92,188	610
Obligations of U.S. states and municipalities	—	1	—	—
Non-U.S. government debt	117,120	2,979	96,684	2,837
Corporate debt securities	11,541	1,543	7,259	865
Asset-backed securities	—	—	1	—
Equity securities	—	7,561	—	9,888
Total	\$ 237,189	\$ 12,478	\$ 200,976	\$ 14,200

December 31, 2024 (in millions)	Remaining contractual maturity of the agreements				
	Overnight and continuous	Up to 30 days	30 – 90 days	Greater than 90 days	Total
Total securities sold under repurchase agreements	\$ 98,058	\$ 107,375	\$ 12,174	\$ 19,582	\$ 237,189
Total securities loaned and other	10,594	1,517	1	366	12,478

December 31, 2023 (in millions)	Remaining contractual maturity of the agreements				
	Overnight and continuous	Up to 30 days	30 – 90 days	Greater than 90 days	Total
Total securities sold under repurchase agreements	\$ 85,789	\$ 91,983	\$ 7,810	\$ 15,394	\$ 200,976
Total securities loaned and other	12,507	1,397	—	296	14,200

Transfers not qualifying for sale accounting

At December 31, 2024 and 2023, the Bank held \$805 million and \$505 million, respectively, of financial assets for which the rights have been transferred to third parties; however, the transfers did not qualify as a sale in accordance with U.S. GAAP. These transfers have been recognized as collateralized financing transactions. The transferred assets are recorded in trading assets and loans, and the corresponding liabilities are recorded primarily in short-term borrowings and long-term debt on the Consolidated balance sheets.

Note 13 – Loans

Loan accounting framework

The accounting for a loan depends on management's strategy for the loan. The Bank accounts for loans based on the following categories:

- Originated or purchased loans held-for-investment (i.e., "retained")
- Loans held-for-sale
- Loans at fair value

The following provides a detailed accounting discussion of the Bank's loans by category:

Loans held-for-investment

Originated or purchased loans held-for-investment, including purchased credit deteriorated ("PCD"), are recorded at amortized cost, reflecting the principal amount outstanding, net of the following: unamortized deferred loan fees, costs, premiums or discounts; charge-offs; collection of cash; and foreign exchange. Credit card loans also include billed finance charges and fees.

Interest income

Interest income on performing loans held-for-investment is accrued and recognized as interest income at the contractual rate of interest. Purchase price discounts or premiums, as well as net deferred loan fees or costs, are recognized in interest income over the contractual life of the loan as an adjustment of yield.

The Bank classifies accrued interest on loans, including accrued but unbilled interest on credit card loans, in accrued interest and accounts receivables on the Consolidated balance sheets. For credit card loans, accrued interest once billed is then recognized in the loan balances, with the related allowance recorded in the allowance for credit losses. Changes in the allowance for credit losses on accrued interest on credit card loans are recognized in the provision for credit losses and charge-offs are recognized by reversing interest income. For other loans, the Bank generally does not recognize an allowance for credit losses on accrued interest receivables, consistent with its policy to write them off no later than 90 days past due by reversing interest income.

Nonaccrual loans

Nonaccrual loans are those on which the accrual of interest has been suspended. Loans (other than credit card loans and certain consumer loans insured by U.S. government agencies) are placed on nonaccrual status and considered nonperforming when full payment of principal and interest is not expected, regardless of delinquency status, or when principal and interest has been in default for a period of 90 days

or more, unless the loan is both well-secured and in the process of collection. A loan is determined to be past due when the minimum payment is not received from the borrower by the contractually specified due date or for certain loans (e.g., residential real estate loans), when a monthly payment is due and unpaid for 30 days or more. Finally, collateral-dependent loans are typically maintained on nonaccrual status.

On the date a loan is placed on nonaccrual status, all interest accrued but not collected is reversed against interest income. In addition, the amortization of deferred amounts is suspended. Interest income on nonaccrual loans may be recognized as cash interest payments are received (i.e., on a cash basis) if the recorded loan balance is deemed fully collectible; however, if there is doubt regarding the ultimate collectibility of the recorded loan balance, all interest cash receipts are applied to reduce the carrying value of the loan (the cost recovery method). For consumer loans, application of this policy typically results in the Bank recognizing interest income on nonaccrual consumer loans on a cash basis.

A loan may be returned to accrual status when repayment is reasonably assured and there has been demonstrated performance under the terms of the loan or, if applicable, the terms of the restructured loan.

As permitted by regulatory guidance, credit card loans are generally exempt from being placed on nonaccrual status; accordingly, interest and fees related to credit card loans continue to accrue until the loan is charged off or paid in full.

Allowance for loan losses

The allowance for loan losses represents the estimated expected credit losses in the held-for-investment loan portfolio at the balance sheet date and is recognized on the balance sheet as a contra asset, which brings the amortized cost to the net carrying value. Changes in the allowance for loan losses resulting from lending-related activity, macroeconomic variables, changes in credit and other inputs are recorded in the provision for credit losses on the Bank's Consolidated statements of income. Refer to Note 14 for further information on the Bank's accounting policies for the allowance for loan losses.

Charge-offs

Consumer loans are generally charged off or charged down to the lower of the amortized cost or the net realizable value of the underlying collateral (i.e., fair value less estimated costs to sell), with an offset to the allowance for loan losses, upon reaching specified stages of delinquency in accordance with standards established by the Federal Financial Institutions

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Examination Council (“FFIEC”). Residential real estate loans, unmodified credit card loans and scored business banking loans are generally charged off no later than 180 days past due. Scored auto and closed-end consumer loans, including modified credit card accounts placed on a fixed payment plan, are charged off no later than 120 days past due.

Certain consumer loans are charged off or charged down to their net realizable value earlier than the FFIEC charge-off standards in the following circumstances:

- Loans modified to borrowers experiencing financial difficulty that are determined to be collateral-dependent.
- Loans to borrowers who have experienced an event that suggests a loss is either known or highly certain are subject to accelerated charge-off standards (e.g., residential real estate and auto loans are charged off or charged down within 60 days of receiving notification of a bankruptcy filing).
- Auto loans upon repossession of the automobile.

Other than in certain limited circumstances, the Bank typically does not recognize charge-offs on the government-guaranteed portion of loans.

Wholesale loans are charged off when it is highly certain that a loss has been realized. The determination of whether to recognize a charge-off includes many factors, including the prioritization of the Bank’s claim in bankruptcy, expectations of the workout/restructuring of the loan and valuation of the borrower’s equity or the loan collateral.

When a loan is charged down to the lower of its amortized cost or the estimated net realizable value of the underlying collateral, the determination of the fair value of the collateral depends on the type of collateral (e.g., securities, real estate). In cases where the collateral is in the form of liquid securities, the fair value is based on quoted market prices or broker quotes. For illiquid securities or other financial assets, the fair value of the collateral is generally estimated using a discounted cash flow model.

For residential real estate loans, collateral values are based upon external valuation sources. When it becomes likely that a borrower is either unable or unwilling to pay, the Bank utilizes a broker’s price opinion, appraisal and/or an automated valuation model of the home based on an exterior-only valuation (“exterior opinions”), which is then updated at least every 12 months, or more frequently depending on various market factors. As soon as practicable after the Bank receives the property in satisfaction of a debt (e.g., by taking legal title or physical possession), the Bank generally obtains an appraisal based on an

inspection that includes the interior of the home (“interior appraisals”). Exterior opinions and interior appraisals are discounted based upon the Bank’s experience with actual liquidation values as compared with the estimated values provided by exterior opinions and interior appraisals, considering state-specific factors.

For commercial real estate loans, collateral values are generally based on appraisals from internal and external valuation sources. Collateral values are typically updated every six to twelve months, either by obtaining a new appraisal or by performing an internal analysis, in accordance with the Bank’s policies. The Bank also considers both borrower- and market-specific factors, which may result in obtaining appraisal updates or broker price opinions at more frequent intervals.

Loans held-for-sale

Loans held-for-sale are measured at the lower of cost or fair value, with valuation changes recorded in noninterest revenue. For consumer loans, the valuation is performed on a portfolio basis. For wholesale loans, the valuation is performed on an individual loan basis.

Interest income on loans held-for-sale is accrued and recognized based on the contractual rate of interest.

Loan origination fees or costs and purchase price discounts or premiums are deferred in a contra loan account until the related loan is sold. The deferred fees or costs and discounts or premiums are an adjustment to the basis of the loan and therefore are included in the periodic determination of the lower of cost or fair value adjustments and/or the gain or loss recognized at the time of sale.

Because these loans are recognized at the lower of cost or fair value, the Bank’s allowance for loan losses and charge-off policies do not apply to these loans. However, loans held-for-sale are subject to the Bank’s nonaccrual policies.

Loans at fair value

Loans for which the fair value option has been elected are measured at fair value, with changes in fair value recorded in noninterest revenue.

Interest income on these loans is accrued and recognized based on the contractual rate of interest. Changes in fair value are recognized in noninterest revenue. Loan origination fees are recognized upfront in noninterest revenue. Loan origination costs are recognized in the associated expense category as incurred.

Because these loans are recognized at fair value, the Bank's allowance for loan losses and charge-off policies do not apply to these loans. However, loans at fair value are subject to the Bank's nonaccrual policies.

Refer to Note 4 for further information on the Bank's elections of fair value accounting under the fair value option. Refer to Note 3 and Note 4 for further information on loans carried at fair value and classified as trading assets.

Loan classification changes

Loans in the held-for-investment portfolio that management decides to sell are transferred to the held-for-sale portfolio at the lower of cost or fair value on the date of transfer. Credit-related losses are charged against the allowance for loan losses; non-credit related losses such as those due to changes in interest rates or foreign currency exchange rates are recognized in noninterest revenue.

In the event that management decides to retain a loan in the held-for-sale portfolio, the loan is transferred to the held-for-investment portfolio at amortized cost on the date of transfer. These loans are subsequently assessed for impairment based on the Bank's allowance methodology. Refer to Note 14 for a further discussion of the methodologies used in establishing the Bank's allowance for loan losses.

Loan modifications

The Bank seeks to modify certain loans in conjunction with its loss mitigation activities. Through the modification, the Bank grants one or more concessions to a borrower who is experiencing financial difficulty in order to minimize the Bank's economic loss and avoid foreclosure or repossession of the collateral, and to ultimately maximize payments received by the Bank from the borrower. The concessions granted vary by program and by borrower-specific characteristics, and may include interest rate reductions, term extensions, other-than-insignificant payment delays or principal forgiveness.

Loans, except for credit card loans, reported as FDMs are generally placed on nonaccrual status, although in many cases such loans were already on nonaccrual status prior to modification. These loans may be returned to performing status (the accrual of interest is resumed) if the following criteria are met: (i) the borrower has performed under the modified terms for a minimum of six months and/or six payments, and (ii) the Bank has an expectation that repayment of the modified loan is reasonably assured based on, for example, the borrower's debt capacity and level of future earnings, collateral values, LTV ratios, and other current market considerations. In certain limited and well-defined circumstances in which the loan is current

at the modification date, such loans are not placed on nonaccrual status at the time of modification.

The allowance for credit losses associated with FDMs is measured using the Bank's established allowance methodology, which considers the expected default rates for the modified loans. Refer to Note 14 for further discussion.

Foreclosed property

The Bank acquires property from borrowers through loan restructurings, workouts, and foreclosures. Property acquired may include real property (e.g., residential real estate, land, and buildings) and other commercial and personal property (e.g., automobiles, aircraft, railcars, and ships).

The Bank recognizes foreclosed property upon receiving assets in satisfaction of a loan (e.g., by taking legal title or physical possession). For loans collateralized by real property, the Bank generally recognizes the asset received at foreclosure sale or upon the execution of a deed in lieu of foreclosure transaction with the borrower. Foreclosed assets are reported in other assets on the Consolidated balance sheets and initially recognized at fair value less estimated costs to sell. Each quarter the fair value of the acquired property is reviewed and adjusted, if necessary, to the lower of cost or fair value. Subsequent adjustments to fair value are charged/credited to noninterest revenue. Operating expense, such as real estate taxes and maintenance, are charged to other expense.

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Loan portfolio

The Bank's loan portfolio is divided into three portfolio segments, which are the same segments used by the Bank to determine the allowance for loan losses: Consumer, excluding credit card; Credit card; and Wholesale. Within each portfolio segment the Bank monitors and assesses the credit risk in the following classes of loans, based on the risk characteristics of each loan class.

Consumer, excluding credit card	Credit card	Wholesale ^{(c)(d)}
<ul style="list-style-type: none"> • Residential real estate^(a) • Auto and other^(b) 	<ul style="list-style-type: none"> • Credit card loans 	<ul style="list-style-type: none"> • Secured by real estate • Commercial and industrial • Other^(e)

(a) Includes scored mortgage and home equity loans.

(b) Includes scored auto, business banking and consumer unsecured loans as well as overdrafts.

(c) Includes loans for which the wholesale methodology is applied when determining the allowance for loan losses.

(d) The wholesale portfolio segment's classes align with loan classifications as defined by the bank regulatory agencies, based on the loan's collateral, purpose, and type of borrower.

(e) Includes loans to financial institutions, SPEs, personal investment companies and trusts, individuals and individual entities (predominantly global private bank clients), states and political subdivisions, as well as loans to nonprofits. Refer to Note 15 for more information on SPEs.

The following tables summarize the Bank's loan balances by portfolio segment.

December 31, 2024 (in millions)	Consumer, excluding credit card	Credit card	Wholesale	Total ^{(a)(b)}
Retained	\$ 376,328	\$ 232,860	\$ 688,358	\$ 1,297,546
Held-for-sale	944	—	6,066	7,010
At fair value	15,519	—	25,566	41,085
Total	\$ 392,791	\$ 232,860	\$ 719,990	\$ 1,345,641

December 31, 2023 (in millions)	Consumer, excluding credit card	Credit card	Wholesale	Total ^{(a)(b)}
Retained	\$ 397,268	\$ 211,123	\$ 669,753	\$ 1,278,144
Held-for-sale	487	—	2,898	3,385
At fair value	12,317	—	26,274	38,591
Total	\$ 410,072	\$ 211,123	\$ 698,925	\$ 1,320,120

(a) Excludes \$6.6 billion and \$6.8 billion of accrued interest receivable at December 31, 2024 and 2023, respectively. The Bank wrote off accrued interest receivable of \$84 million and \$49 million for the years ended December 31, 2024 and 2023, respectively.

(b) Loans (other than those for which the fair value option has been elected) are presented net of unamortized discounts and premiums and net deferred loan fees or costs. These amounts were not material as of December 31, 2024 and 2023. For the discount associated with First Republic loans, refer to Note 29 on pages 139–141.

The following tables provide information about the carrying value of retained loans purchased, sold and reclassified to held-for-sale during the periods indicated. Loans that were reclassified to held-for-sale and sold in a subsequent period are excluded from the sales line of these tables.

2024				
Year ended December 31, (in millions)	Consumer, excluding credit card	Credit card	Wholesale	Total
Purchases	\$ 647 ^{(b)(c)}	\$ —	\$ 1,432	\$ 2,079
Sales	10,440	—	45,164	55,604
Retained loans reclassified to held-for-sale ^(a)	1,656	—	749	2,405

2023				
Year ended December 31, (in millions)	Consumer, excluding credit card	Credit card	Wholesale	Total
Purchases	\$ 92,205 ^{(b)(c)(d)}	\$ —	\$ 60,300 ^(d)	\$ 152,505
Sales	2,202	—	44,916	47,118
Retained loans reclassified to held-for-sale ^(a)	274	—	1,486	1,760

2022				
Year ended December 31, (in millions)	Consumer, excluding credit card	Credit card	Wholesale	Total
Purchases	\$ 1,625 ^{(b)(c)}	\$ —	\$ 1,088	\$ 2,713
Sales	2,884	—	41,934	44,818
Retained loans reclassified to held-for-sale ^(a)	229	—	1,055	1,284

- (a) Reclassifications of loans to held-for-sale are non-cash transactions.
- (b) Includes purchases of residential real estate loans, including the Bank's voluntary repurchases of certain delinquent loans from loan pools as permitted by Government National Mortgage Association ("Ginnie Mae") guidelines for the years ended December 31, 2024, 2023 and 2022. The Bank typically elects to repurchase these delinquent loans as it continues to service them and/or manage the foreclosure process in accordance with applicable requirements of Ginnie Mae, the Federal Housing Administration ("FHA"), Rural Housing Services ("RHS"), and/or the U.S. Department of Veterans Affairs ("VA").
- (c) Excludes purchases of retained loans of \$902 million, \$5.1 billion and \$12.4 billion for the years ended December 31, 2024, 2023 and 2022, respectively, which are predominantly sourced through the correspondent origination channel and underwritten in accordance with the Bank's standards.
- (d) Includes loans acquired in the First Republic acquisition consisting of \$91.9 billion in consumer, excluding credit card and \$59.2 billion in wholesale. Refer to Note 29 for additional information.

Gains and losses on sales of loans

Net gains/(losses) on sales of loans and lending-related commitments (including adjustments to record loans and lending-related commitments held-for-sale at the lower of cost or fair value) recognized in noninterest revenue were \$167 million for the year ended December 31, 2024 of which \$126 million were related to loans. Net gains/(losses) on sales of loans and lending-related commitments were \$57 million for the year ended December 31, 2023 of which \$63 million was related to loans. Net gains/(losses) on sales of loans and lending-related commitments were \$(232) million for the year ended December 31, 2022 of which \$(100) million were related to loans. In addition, the sale of loans may also result in write downs, recoveries or changes in the allowance recognized in the provision for credit losses.

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Consumer, excluding credit card loan portfolio

Consumer loans, excluding credit card loans, consist primarily of scored residential mortgages, home equity loans and lines of credit, auto and business banking loans, with a focus on serving the prime consumer credit market. These loans include home equity loans secured by junior liens, prime mortgage loans with an interest-only payment period, and certain payment-option loans that may result in negative amortization.

The following table provides information about retained consumer loans, excluding credit card, by class.

December 31, (in millions)	2024	2023
Residential real estate	\$ 309,507	\$ 326,402
Auto and other	66,821	70,866
Total retained loans	\$ 376,328	\$ 397,268

Delinquency rates are the primary credit quality indicator for consumer loans. Loans that are more than 30 days past due provide an early warning of borrowers who may be experiencing financial difficulties and/or who may be unable or unwilling to repay the loan. As the loan continues to age, it becomes more clear whether the borrower is likely to be unable or unwilling to pay. In the case of residential real estate loans, late-stage delinquencies (greater than 150 days past due) are a strong indicator of loans that will ultimately result in a foreclosure or similar liquidation transaction. In addition to delinquency rates, other credit quality indicators for consumer loans vary based on the class of loan, as follows:

- For residential real estate loans, the current estimated LTV ratio, or the combined LTV ratio in the case of junior lien loans, is an indicator of the potential loss severity in the event of default. Additionally, LTV or combined LTV ratios can provide insight into a borrower's continued willingness to pay, as the delinquency rate of high-LTV loans tends to be greater than that for loans where the borrower has equity in the collateral. The geographic distribution of the loan collateral also provides insight as to the credit quality of the portfolio, as factors such as the regional economy, home price changes and specific events such as natural disasters, will affect credit quality. The borrower's current or "refreshed" FICO score is a secondary credit quality indicator for certain loans, as FICO scores are an indication of the borrower's credit payment history. Thus, a loan to a borrower with a low FICO score (less than 660) is considered to be of higher risk than a loan to a borrower with a higher FICO score. Further, a loan to a borrower with a high LTV ratio and a low FICO score is at greater risk of default than a loan to a borrower that has both a high LTV ratio and a high FICO score.
- For scored auto and business banking loans, geographic distribution is an indicator of the credit performance of the portfolio. Similar to residential real estate loans, geographic distribution provides insights into the portfolio performance based on regional economic activity and events.

Residential real estate

Delinquency is the primary credit quality indicator for retained residential real estate loans. The following tables provide information on delinquency and gross charge-offs.

December 31, 2024									
(in millions, except ratios)	Term loans by origination year ^(c)						Revolving loans		Total
	2024	2023	2022	2021	2020	Prior to 2020	Within the revolving period	Converted to term loans	
Loan delinquency^(a)									
Current	\$12,301	\$17,280	\$61,338	\$79,760	\$52,289	\$70,265	\$ 6,974	\$ 7,088	\$307,295
30–149 days past due	13	54	139	110	59	746	53	204	1,378
150 or more days past due	—	11	71	68	49	500	8	127	834
Total retained loans	\$12,314	\$17,345	\$61,548	\$79,938	\$52,397	\$ 71,511	\$ 7,035	\$ 7,419	\$309,507
% of 30+ days past due to total retained loans ^(b)	0.11 %	0.37 %	0.34 %	0.22 %	0.21 %	1.72 %	0.87 %	4.46 %	0.71 %
Gross charge-offs	\$ —	\$ —	\$ 1	\$ 1	\$ —	\$ 176	\$ 21	\$ 7	\$ 206

December 31, 2023									
(in millions, except ratios)	Term loans by origination year ^(c)						Revolving loans		Total
	2023	2022	2021	2020	2019	Prior to 2019	Within the revolving period	Converted to term loans	
Loan delinquency^(a)									
Current	\$23,216	\$64,366	\$84,496	\$55,546	\$21,530	\$59,558	\$ 7,479	\$ 8,151	\$324,342
30–149 days past due	33	74	89	70	41	800	49	223	1,379
150 or more days past due	1	10	17	7	21	456	5	164	681
Total retained loans	\$23,250	\$64,450	\$84,602	\$55,623	\$21,592	\$60,814	\$ 7,533	\$ 8,538	\$326,402
% of 30+ days past due to total retained loans ^(b)	0.15 %	0.13 %	0.13 %	0.14 %	0.29 %	2.04 %	0.72 %	4.53 %	0.63 %
Gross charge-offs	\$ —	\$ —	\$ —	\$ —	\$ 4	\$ 167	\$ 26	\$ 7	\$ 204

(a) Individual delinquency classifications include mortgage loans insured by U.S. government agencies which were not material at December 31, 2024 and 2023.

(b) Excludes mortgage loans that are 30 or more days past due insured by U.S. government agencies which were not material at December 31, 2024 and 2023. These amounts have been excluded based upon the government guarantee.

(c) Purchased loans are included in the year in which they were originated.

Approximately 38% of the total revolving loans are senior lien loans; the remaining balance are junior lien loans. The lien position the Bank holds is considered in the Bank's allowance for credit losses. Revolving loans that have been converted to term loans have higher delinquency rates than those that are still within the revolving period. That is primarily because the fully-amortizing payment that is generally required for those products is higher than the minimum payment options available for revolving loans within the revolving period.

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Nonaccrual loans and other credit quality indicators

The following table provides information on nonaccrual and other credit quality indicators for retained residential real estate loans.

(in millions, except weighted-average data)	December 31, 2024		December 31, 2023	
Nonaccrual loans ^{(a)(b)(c)(d)}	\$	2,981	\$	3,463
Current estimated LTV ratios^{(e)(f)(g)}				
Greater than 125% and refreshed FICO scores:				
Equal to or greater than 660	\$	72	\$	72
Less than 660		3		—
101% to 125% and refreshed FICO scores:				
Equal to or greater than 660		161		223
Less than 660		5		4
80% to 100% and refreshed FICO scores:				
Equal to or greater than 660		4,962		6,491
Less than 660		73		102
Less than 80% and refreshed FICO scores:				
Equal to or greater than 660		294,795		309,246
Less than 660		8,532		9,275
No FICO/LTV available ^(h)		904		989
Total retained loans	\$	309,507	\$	326,402
Weighted average LTV ratio ^{(e)(i)}		47 %		49 %
Weighted average FICO ^{(f)(i)}		775		770
Geographic region^{(h)(i)}				
California	\$	120,942	\$	127,071
New York		46,854		48,814
Florida		21,820		22,777
Texas		14,530		15,504
Massachusetts		13,511		14,213
Colorado		10,465		10,800
Illinois		9,836		10,856
Washington		9,372		9,923
New Jersey		7,554		8,050
Connecticut		6,854		7,163
All other		47,769		51,231
Total retained loans	\$	309,507	\$	326,402

- (a) Includes collateral-dependent residential real estate loans that are charged down to the fair value of the underlying collateral less costs to sell. The Bank reports, in accordance with regulatory guidance, residential real estate loans that have been discharged under Chapter 7 bankruptcy and not reaffirmed by the borrower ("Chapter 7 loans") as collateral-dependent nonaccrual loans, regardless of their delinquency status. At December 31, 2024, approximately 8% of Chapter 7 residential real estate loans were 30 days or more past due.
- (b) Mortgage loans insured by U.S. government agencies excluded from nonaccrual loans were not material at December 31, 2024 and 2023.
- (c) Generally, all consumer nonaccrual loans have an allowance. In accordance with regulatory guidance, certain nonaccrual loans that are considered collateral-dependent have been charged down to the lower of amortized cost or the fair value of their underlying collateral less costs to sell. If the value of the underlying collateral improves subsequent to charge down, the related allowance may be negative.
- (d) Interest income on nonaccrual loans recognized on a cash basis was \$160 million and \$180 million for the years ended December 31, 2024 and 2023, respectively.
- (e) Represents the aggregate unpaid principal balance of loans divided by the estimated current property value. Current property values are estimated, at a minimum, quarterly, based on home valuation models using nationally recognized home price index valuation estimates incorporating actual data to the extent available and forecasted data where actual data is not available. Current estimated combined LTV for junior lien home equity loans considers all available lien positions, as well as unused lines, related to the property.
- (f) Refreshed FICO scores represent each borrower's most recent credit score, which is obtained by the Bank on at least a quarterly basis.
- (g) Includes residential real estate loans, primarily held in LLCs that did not have a refreshed FICO score. These loans have been included in a FICO band based on management's estimation of the borrower's credit quality.
- (h) Included U.S. government-guaranteed loans as of December 31, 2024 and 2023.
- (i) Excludes loans with no FICO and/or LTV data available.
- (j) The geographic regions presented in the table are ordered based on the magnitude of the corresponding loan balances at December 31, 2024.

Loan modifications

The Bank grants certain modifications of residential real estate loans to borrowers experiencing financial difficulty. The Bank's proprietary modification programs as well as government programs, including U.S. GSE programs, that generally provide various modifications to borrowers experiencing financial difficulty including, but not limited to, interest rate reductions, term extensions, other-than-insignificant payment deferral and principal forgiveness that would otherwise have been required under the terms of the original agreement, are considered FDMs.

In addition, the Bank offers trial modifications of residential real estate loans, which generally include a three-month trial payment period during which the borrower makes monthly payments under the proposed modified loan terms. Loans in a trial payment period continue to age and accrue interest in accordance with the original contractual terms. At the completion of a trial period, the loan modification is considered permanent.

Financial effects of FDMs

For the year ended December 31, 2024, retained residential real estate FDMs were \$206 million. The financial effects of the FDMs, which were predominantly in the form of term extensions and interest rate reductions, included extending the weighted-average life of the loans by 15 years, and reducing the weighted-average contractual interest rate from 7.53% to 5.44% for the year ended December 31, 2024.

For the year ended December 31, 2023, retained residential real estate FDMs were \$136 million. The financial effects of the FDMs, which were predominantly in the form of term extensions and interest rate reductions, included extending the weighted-average life of the loans by 20 years, and reducing the weighted-average contractual interest rate from 7.21% to 4.44% for the year ended December 31, 2023.

As of December 31, 2024 and 2023, there were no additional commitments to lend to borrowers experiencing financial difficulty whose loans have been modified as FDMs.

For the years ended December 31, 2024 and 2023, loans subject to a trial modification, where the terms of the loans have not been permanently modified, and Chapter 7 loans were not material.

Payment status of FDMs

The following table provides information on the payment status of retained residential real estate FDMs during the years ended December 31, 2024 and 2023.

Year ended December 31, (in millions)	Amortized cost basis	
	2024	2023
Current	\$ 139	\$ 107
30-149 days past due	47	13
150 or more days past due	20	16
Total	\$ 206	\$ 136

Defaults of FDMs

Retained residential real estate FDMs that defaulted during the year ended December 31, 2024 and that were reported as FDMs in the twelve months prior to the default were \$93 million. Retained residential real estate FDMs that defaulted during the year ended December 31, 2023 and that were reported as FDMs on or after January 1, 2023, the date that the Bank adopted the changes to the TDR accounting guidance were not material. Refer to Note 1 for further information.

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Nature and extent of TDRs

For periods ending prior to January 1, 2023, modifications of residential real estate loans where the Bank granted concessions to borrowers who were experiencing financial difficulty were generally accounted for and reported as TDRs. Loans with short-term or other insignificant modifications that were not considered concessions were not TDRs. For the year ended December 31, 2022, new TDRs were \$362 million, and there were no additional commitments to lend to borrowers whose residential real estate loans were modified in TDRs.

The Bank's proprietary modification programs as well as government programs, including U.S. GSE programs, generally provide various concessions to financially troubled borrowers including, but not limited to, interest rate reductions, term or payment extensions and delays of principal and/or interest payments that would otherwise have been required under the terms of the original agreement.

The following table provides information about how residential real estate loans were modified in TDRs during the period presented. This table excludes loans with short-term or other insignificant modifications that are not considered concessions.

Year ended December 31,	2022
Number of loans approved for a trial modification	3,898
Number of loans permanently modified	4,182
Concession granted:^(a)	
Interest rate reduction	54 %
Term or payment extension	67
Principal and/or interest deferred	10
Principal forgiveness	1
Other ^(b)	37

(a) Represents concessions granted in permanent modifications as a percentage of the number of loans permanently modified. The sum of the percentages exceeds 100% because predominantly all of the modifications include more than one type of concession. Concessions offered on trial modifications are generally consistent with those granted on permanent modifications.

(b) Includes variable interest rate to fixed interest rate modifications and payment delays that meet the definition of a TDR.

Financial effects of TDRs and defaults

The following table provides information about the financial effects of the various concessions granted in modifications of residential real estate loans and about defaults of certain loans modified in TDRs for the period presented. The following table presents only the financial effects of permanent modifications and does not include temporary concessions offered through trial modifications. This table also excludes loans with short-term or other insignificant modifications that were not considered concessions.

Year ended December 31, (in millions, except weighted-average data)	2022
Weighted-average interest rate of loans with interest rate reductions – before TDR	4.75 %
Weighted-average interest rate of loans with interest rate reductions – after TDR	3.35
Weighted-average remaining contractual term (in years) of loans with term or payment extensions – before TDR	22
Weighted-average remaining contractual term (in years) of loans with term or payment extensions – after TDR	38
Charge-offs recognized upon permanent modification	\$ 1
Principal deferred	16
Principal forgiven	2
Balance of loans that defaulted within one year of permanent modification ^(a)	\$ 147

(a) Represents loans permanently modified in TDRs that experienced a payment default in the periods presented, and for which the payment default occurred within one year of the modification. The dollar amounts presented represent the balance of such loans at the end of the reporting period in which such loans defaulted.

Active and suspended foreclosure

At December 31, 2024 and 2023, the Bank had retained residential real estate loans, excluding those insured by U.S. government agencies, with a carrying value of \$576 million and \$565 million, respectively, that were not included in REO, but were in the process of active or suspended foreclosure.

Auto and other

Delinquency is the primary credit quality indicator for retained auto and other loans. The following tables provide information on delinquency and gross charge-offs.

December 31, 2024									
(in millions, except ratios)	Term loans by origination year						Revolving loans		Total
	2024	2023	2022	2021	2020	Prior to 2020	Within the revolving period	Converted to term loans	
Loan delinquency									
Current	\$26,165	\$15,953	\$ 9,201	\$ 7,014	\$ 2,895	\$ 624	\$ 3,714	\$ 148	\$65,714
30–119 days past due	190	283	259	179	53	23	40	34	1,061
120 or more days past due	1	1	—	5	6	—	3	30	46
Total retained loans	\$26,356	\$16,237	\$ 9,460	\$ 7,198	\$ 2,954	\$ 647	\$ 3,757	\$ 212	\$66,821
% of 30+ days past due to total retained loans	0.72 %	1.75 %	2.74 %	2.50 %	1.76 %	3.55 %	1.14 %	30.19 %	1.64 %
Gross charge-offs	\$ 269	\$ 348	\$ 224	\$ 126	\$ 37	\$ 82	\$ 1	\$ 6	\$ 1,093

December 31, 2023									
(in millions, except ratios)	Term loans by origination year						Revolving loans		Total
	2023	2022	2021	2020	2019	Prior to 2019	Within the revolving period	Converted to term loans	
Loan delinquency									
Current	\$30,328	\$14,797	\$12,825	\$ 6,538	\$ 1,777	\$ 511	\$ 2,984	\$ 102	\$69,862
30–119 days past due	276	279	231	78	43	17	19	24	967
120 or more days past due	1	1	7	8	—	—	3	17	37
Total retained loans	\$30,605	\$15,077	\$13,063	\$ 6,624	\$ 1,820	\$ 528	\$ 3,006	\$ 143	\$70,866
% of 30+ days past due to total retained loans	0.91 %	1.86 %	1.75 %	1.15 %	2.36 %	3.22 %	0.73 %	28.67 %	1.39 %
Gross charge-offs	\$ 333	\$ 297	\$ 161	\$ 53	\$ 35	\$ 64	\$ —	\$ 4	\$ 947

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Nonaccrual loans and other credit quality indicators

The following table provides information on nonaccrual and geographic region as a credit quality indicator for retained auto and other consumer loans.

(in millions)	Total Auto and other	
	December 31, 2024	December 31, 2023
Nonaccrual loans^{(a)(b)}	\$ 249	\$ 177
Geographic region ^(c)		
California	\$ 10,321	\$ 10,959
Texas	7,772	8,502
Florida	5,428	5,684
New York	4,905	4,938
Illinois	2,890	3,147
New Jersey	2,468	2,609
Pennsylvania	2,012	1,900
Georgia	1,716	1,912
Arizona	1,643	1,779
North Carolina	1,597	1,714
All other	26,069	27,722
Total retained loans	\$ 66,821	\$ 70,866

- (a) Generally, all consumer nonaccrual loans have an allowance. In accordance with regulatory guidance, certain nonaccrual loans that are considered collateral-dependent have been charged down to the lower of amortized cost or the fair value of their underlying collateral less costs to sell. If the value of the underlying collateral improves subsequent to charge down, the related allowance may be negative.
- (b) Interest income on nonaccrual loans recognized on a cash basis was not material for the years ended December 31, 2024 and 2023.
- (c) The geographic regions presented in this table are ordered based on the magnitude of the corresponding loan balances at December 31, 2024.

Loan modifications

The Bank grants certain modifications of auto and other loans to borrowers experiencing financial difficulty.

For the years ended December 31, 2024 and 2023, retained auto and other FDMs were not material.

As of December 31, 2024 and 2023, there were no additional commitments to lend to borrowers modified as FDMs.

For periods ending prior to January 1, 2023, modifications of auto and other loans where the Bank granted concessions to borrowers who were experiencing financial difficulty were generally accounted for and reported as TDRs. Loans with short-term or other insignificant modifications that were not considered concessions were not TDRs. For the year ended December 31, 2022, auto and other TDRs were not material.

Credit card loan portfolio

The credit card portfolio segment includes credit card loans originated and purchased by the Bank. Delinquency rates are the primary credit quality indicator for credit card loans as they provide an early warning that borrowers may be experiencing difficulties (30 days past due); information on those borrowers that have been delinquent for a longer period of time (90 days past due) is also considered. In addition to delinquency rates, the geographic distribution of the loans provides insight as to the credit quality of the portfolio based on the regional economy.

While the borrower's credit score is another general indicator of credit quality, the Bank does not view credit scores as a primary indicator of credit quality because the

borrower's credit score tends to be a lagging indicator. The distribution of such scores provides a general indicator of credit quality trends within the portfolio; however, the score does not capture all factors that would be predictive of future credit performance. Refreshed FICO score information, which is obtained at least quarterly, for a statistically significant random sample of the credit card portfolio is indicated in other credit quality indicators. FICO is considered to be the industry benchmark for credit scores.

The Bank generally originates new credit card accounts to prime consumer borrowers. However, certain cardholders' FICO scores may decrease over time, depending on the performance of the cardholder and changes in the credit score calculation.

The following tables provide information on delinquency and gross charge-offs.

(in millions, except ratios)	December 31, 2024		
	Within the revolving period	Converted to term loans	Total
Loan delinquency			
Current and less than 30 days past due and still accruing	\$ 226,532	\$ 1,284	\$ 227,816
30–89 days past due and still accruing	2,291	109	2,400
90 or more days past due and still accruing	2,591	53	2,644
Total retained loans	\$ 231,414	\$ 1,446	\$ 232,860
Loan delinquency ratios			
% of 30+ days past due to total retained loans	2.11 %	11.20 %	2.17 %
% of 90+ days past due to total retained loans	1.12	3.67	1.14
Gross charge-offs	\$ 7,951	\$ 247	\$ 8,198
(in millions, except ratios)	December 31, 2023		
	Within the revolving period	Converted to term loans	Total
Loan delinquency			
Current and less than 30 days past due and still accruing	\$ 205,731	\$ 882	\$ 206,613
30–89 days past due and still accruing	2,217	84	2,301
90 or more days past due and still accruing	2,169	40	2,209
Total retained loans	\$ 210,117	\$ 1,006	\$ 211,123
Loan delinquency ratios			
% of 30+ days past due to total retained loans	2.09 %	12.33 %	2.14 %
% of 90+ days past due to total retained loans	1.03	3.98	1.05
Gross charge-offs	\$ 5,325	\$ 166	\$ 5,491

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Other credit quality indicators

The following table provides information on other credit quality indicators for retained credit card loans.

(in millions, except ratios)	December 31, 2024		December 31, 2023	
Geographic region^(a)				
California	\$	36,385	\$	32,652
Texas		24,423		22,086
New York		18,525		16,915
Florida		17,236		15,103
Illinois		12,442		11,364
New Jersey		9,644		8,688
Ohio		6,976		6,424
Colorado		6,962		6,307
Pennsylvania		6,558		6,088
Arizona		5,796		5,209
All other		87,913		80,287
Total retained loans	\$	232,860	\$	211,123
Percentage of portfolio based on carrying value with estimated refreshed FICO scores				
Equal to or greater than 660		85.5 %		85.8 %
Less than 660		14.3		14.0
No FICO available		0.2		0.2

(a) The geographic regions presented in the table are ordered based on the magnitude of the corresponding loan balances at December 31, 2024.

Loan modifications

The Bank grants certain modifications of credit card loans to borrowers experiencing financial difficulty. These modifications may involve placing the customer's credit card account on a fixed payment plan, generally for 60 months, which typically includes reducing the interest rate on the credit card account. If the borrower does not make the contractual payments when due under the modified payment terms, the credit card loan continues to age and will be charged-off in accordance with the Bank's standard charge-off policy. In most cases, the Bank does not reinstate the borrower's line of credit.

Financial effects of FDMs

The following table provides information on retained credit card FDMs.

Year ended December 31, (in millions)	Loan modifications	
	2024	2023
Term extension and interest rate reduction^{(a)(b)}		
Amortized cost basis	\$ 926	\$ 648
% of total modifications to total retained credit card loans	0.40 %	0.31 %
Financial effect of loan modifications	Term extension with a reduction in the weighted average contractual interest rate from 23.64% to 3.20%	Term extension with a reduction in the weighted average contractual interest rate from 23.19% to 3.64%

(a) Term extension includes credit card loans whose terms have been modified under long-term programs by placing the customer's credit card account on a fixed payment plan.

(b) The interest rates represent weighted average at the time of modification.

Payment status of FDMs

The following table provides information on the payment status of retained credit card FDMs during the years ended December 31, 2024 and 2023.

Year ended December 31, (in millions)	Amortized cost basis	
	2024	2023
Current and less than 30 days past due and still accruing	\$ 811	\$ 558
30-89 days past due and still accruing	74	59
90 or more days past due and still accruing	41	31
Total	\$ 926	\$ 648

Defaults of FDMs

Retained credit card FDMs that defaulted during the year ended December 31, 2024 and that were reported as FDMs in the twelve months prior to the default were not material. Retained credit card FDMs that defaulted during the year ended December 31, 2023 and that were reported as FDMs on or after January 1, 2023, the date that the Bank adopted the changes to the TDR accounting guidance were not material. Refer to Note 1 for further information.

For credit card loans modified as FDMs, payment default is deemed to have occurred when the borrower misses two consecutive contractual payments. Defaulted modified credit card loans remain in the modification program and continue to be charged off in accordance with the Bank's standard charge-off policy.

Financial effects of TDRs and defaults

For periods ending prior to January 1, 2023, modifications of credit card loans where the Bank granted concessions to borrowers who were experiencing financial difficulty were generally accounted for and reported as TDRs. The Bank granted concessions for most of the credit card loans under long-term programs. These concessions involved placing the customer's credit card account on a fixed payment plan, generally for 60 months, and typically included reducing the interest rate on the credit card account. Substantially all modifications under the Bank's long-term programs were considered to be TDRs. Loans with short-term or other insignificant modifications that were not considered concessions were not reported as TDRs.

The following table provides information about the financial effects of the concessions granted on credit card loans modified in TDRs and defaults for the period presented. For period disclosed, new enrollments were less than 1% of total retained credit card loans.

Year ended December 31, (in millions, except weighted-average data)	2022
Balance of new TDRs ^(a)	\$ 418
Weighted-average interest rate of loans – before TDR	19.86 %
Weighted-average interest rate of loans – after TDR	4.13
Balance of loans that defaulted within one year of modification ^(b)	\$ 34

(a) Represents the outstanding balance prior to modification.

(b) Represents loans modified in TDRs that experienced a payment default in the periods presented, and for which the payment default occurred within one year of the modification. The amounts presented represent the balance of such loans as of the end of the quarter in which they defaulted.

For credit card loans modified in TDRs, payment default was deemed to have occurred when the borrower missed two consecutive contractual payments. Defaulted modified credit card loans remained in the modification program and continued to be charged off in accordance with the Bank's standard charge-off policy.

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Wholesale loan portfolio

Wholesale loans include loans made to a variety of clients, ranging from large corporate and institutional clients to small businesses and high-net-worth individuals.

The primary credit quality indicator for wholesale loans is the internal risk rating assigned to each loan. Risk ratings are used to identify the credit quality of loans and differentiate risk within the portfolio. Risk ratings on loans consider the PD and the LGD. The PD is the likelihood that a loan will default. The LGD is the estimated loss on the loan that would be realized upon the default of the borrower and takes into consideration collateral and structural support for each credit facility.

Management considers several factors to determine an appropriate internal risk rating, including the obligor's debt capacity and financial flexibility, the level of the obligor's earnings, the amount and sources for repayment, the level and nature of contingencies, management strength, and the industry and geography in which the obligor operates. The Bank's internal risk ratings generally align with the qualitative characteristics (e.g., borrower capacity to meet financial commitments and vulnerability to changes in the economic environment) defined by S&P and Moody's, however the quantitative characteristics (e.g., PD and LGD) may differ as they reflect internal historical experiences and assumptions. The Bank generally considers internal ratings with qualitative characteristics equivalent to BBB-/Baa3 or higher as investment grade, and these ratings have a lower PD and/or lower LGD than non-investment grade ratings.

Noninvestment-grade ratings are further classified as noncriticized and criticized, and the criticized portion is further subdivided into performing and nonaccrual loans, representing management's assessment of the collectibility of principal and interest. Criticized loans have a higher PD than noncriticized loans. The Bank's definition of criticized aligns with the U.S. banking regulatory definition of criticized exposures, which consist of special mention, substandard and doubtful categories. Refer to Note 1 for additional information.

Risk ratings are reviewed on a regular and ongoing basis by Credit Risk Management and are adjusted as necessary for updated information affecting the obligor's ability to fulfill its obligations.

As noted above, the risk rating of a loan considers the industry in which the obligor conducts its operations. As part of the overall credit risk management framework, the Bank focuses on the management and diversification of its industry and client exposures, with particular attention paid to industries with an actual or potential credit concern. Refer to Note 5 for further detail on industry concentrations.

Internal risk rating is the primary credit quality indicator for retained wholesale loans. The following tables provide information on internal risk rating and gross charge-offs for the year ended December 31, 2024.

December 31, (in millions, except ratios)	Secured by real estate		Commercial and industrial		Other ^(a)		Total retained loans	
	2024	2023	2024	2023	2024	2023	2024	2023
Loans by risk ratings								
Investment-grade	\$ 114,280	\$ 120,402	\$ 70,878	\$ 72,618	\$ 285,888	\$ 265,086	\$ 471,046	\$ 458,106
Noninvestment-grade:								
Noncriticized	37,363	34,186	83,064	80,516	71,648	73,784	192,075	188,486
Criticized performing	9,291	7,291	10,871	12,402	1,160	1,257	21,322	20,950
Criticized nonaccrual	1,439	401	1,755	1,221	721	589	3,915	2,211
Total noninvestment-grade	48,093	41,878	95,690	94,139	73,529	75,630	217,312	211,647
Total retained loans	\$ 162,373	\$ 162,280	\$ 166,568	\$ 166,757	\$ 359,417	\$ 340,716	\$ 688,358	\$ 669,753
% of investment-grade to total retained loans	70.38 %	74.19 %	42.55 %	43.55 %	79.54 %	77.80 %	68.43 %	68.40 %
% of total criticized to total retained loans	6.61	4.74	7.58	8.17	0.52	0.54	3.67	3.46
% of criticized nonaccrual to total retained loans	0.89	0.25	1.05	0.73	0.20	0.17	0.57	0.33

(a) Includes loans to financial institutions, SPEs, personal investment companies and trusts, individuals and individual entities (predominantly global private bank clients), states and political subdivisions, as well as loans to nonprofits. As of December 31, 2024, predominantly consisted of \$114.1 billion to individuals and individual entities, \$94.0 billion to financial institutions and \$92.1 billion to SPEs. Refer to Note 15 for more information on SPEs.

Secured by real estate									
December 31, 2024									
(in millions)	Term loans by origination year						Revolving loans		Total
	2024	2023	2022	2021	2020	Prior to 2020	Within the revolving period	Converted to term loans	
Loans by risk ratings									
Investment-grade	\$ 10,002	\$ 9,834	\$ 25,284	\$ 22,796	\$ 15,548	\$ 29,488	\$ 1,328	\$ —	\$ 114,280
Noninvestment-grade	4,237	5,323	14,702	8,567	3,462	10,392	1,317	93	48,093
Total retained loans	\$ 14,239	\$ 15,157	\$ 39,986	\$ 31,363	\$ 19,010	\$ 39,880	\$ 2,645	\$ 93	\$ 162,373
Gross charge-offs	\$ 72	\$ 18	\$ 42	\$ 3	\$ 109	\$ 80	\$ —	\$ —	\$ 324

Secured by real estate									
December 31, 2023									
(in millions)	Term loans by origination year						Revolving loans		Total
	2023	2022	2021	2020	2019	Prior to 2019	Within the revolving period	Converted to term loans	
Loans by risk ratings									
Investment-grade	\$ 10,684	\$ 28,874	\$ 25,784	\$ 16,820	\$ 15,677	\$ 21,108	\$ 1,455	\$ —	\$ 120,402
Noninvestment-grade	4,438	12,563	7,839	3,840	3,987	7,918	1,291	2	41,878
Total retained loans	\$ 15,122	\$ 41,437	\$ 33,623	\$ 20,660	\$ 19,664	\$ 29,026	\$ 2,746	\$ 2	\$ 162,280
Gross charge-offs	\$ 20	\$ 48	\$ 22	\$ —	\$ 23	\$ 78	\$ —	\$ —	\$ 191

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Commercial and industrial									
December 31, 2024									
(in millions)	Term loans by origination year						Revolving loans		Total
	2024	2023	2022	2021	2020	Prior to 2020	Within the revolving period	Converted to term loans	
Loans by risk ratings									
Investment-grade	\$ 11,579	\$ 6,286	\$ 6,588	\$ 3,119	\$ 1,067	\$ 1,139	\$ 41,099	\$ 1	\$ 70,878
Noninvestment-grade	21,159	11,298	10,942	5,322	783	975	45,087	124	95,690
Total retained loans	\$ 32,738	\$ 17,584	\$ 17,530	\$ 8,441	\$ 1,850	\$ 2,114	\$ 86,186	\$ 125	\$ 166,568
Gross charge-offs	\$ 25	\$ 22	\$ 128	\$ 24	\$ 1	\$ 48	\$ 270	\$ 5	\$ 523

Commercial and industrial									
December 31, 2023									
(in millions)	Term loans by origination year						Revolving loans		Total
	2023	2022	2021	2020	2019	Prior to 2019	Within the revolving period	Converted to term loans	
Loans by risk ratings									
Investment-grade	\$ 14,869	\$ 10,642	\$ 4,276	\$ 2,291	\$ 1,030	\$ 1,115	\$ 38,394	\$ 1	\$ 72,618
Noninvestment-grade	18,763	16,444	9,299	1,813	1,144	1,006	45,596	74	94,139
Total retained loans	\$ 33,632	\$ 27,086	\$ 13,575	\$ 4,104	\$ 2,174	\$ 2,121	\$ 83,990	\$ 75	\$ 166,757
Gross charge-offs	\$ 25	\$ 8	\$ 110	\$ 55	\$ 2	\$ 12	\$ 224	\$ 9	\$ 445

Other ^(a)									
December 31, 2024									
(in millions)	Term loans by origination year						Revolving loans		Total
	2024	2023	2022	2021	2020	Prior to 2020	Within the revolving period	Converted to term loans	
Loans by risk ratings									
Investment-grade	\$ 30,464	\$ 17,033	\$ 13,222	\$ 5,935	\$ 8,632	\$ 7,297	\$ 201,823	\$ 1,482	\$ 285,888
Noninvestment-grade	11,610	7,050	5,783	3,254	1,264	1,840	42,534	194	73,529
Total retained loans	\$ 42,074	\$ 24,083	\$ 19,005	\$ 9,189	\$ 9,896	\$ 9,137	\$ 244,357	\$ 1,676	\$ 359,417
Gross charge-offs	\$ —	\$ 11	\$ 1	\$ 33	\$ 7	\$ 14	\$ 6	\$ —	\$ 72

Other ^(a)									
December 31, 2023									
(in millions)	Term loans by origination year						Revolving loans		Total
	2023	2022	2021	2020	2019	Prior to 2019	Within the revolving period	Converted to term loans	
Loans by risk ratings									
Investment-grade	\$ 38,301	\$ 17,983	\$ 9,679	\$ 10,099	\$ 3,721	\$ 6,528	\$ 176,581	\$ 2,194	\$ 265,086
Noninvestment-grade	13,664	7,874	6,041	2,051	745	1,915	43,281	59	75,630
Total retained loans	\$ 51,965	\$ 25,857	\$ 15,720	\$ 12,150	\$ 4,466	\$ 8,443	\$ 219,862	\$ 2,253	\$ 340,716
Gross charge-offs	\$ 5	\$ 296	\$ 8	\$ 8	\$ —	\$ 8	\$ 13	\$ —	\$ 338

(a) Includes loans to financial institutions, SPEs, personal investment companies and trusts, individuals and individual entities (predominantly global private bank clients), states and political subdivisions, as well as loans to nonprofits. Refer to Note 15 for more information on SPEs.

The following table presents additional information on retained loans secured by real estate, which consists of loans secured wholly or substantially by a lien or liens on real property at origination. Multifamily lending includes financing for acquisition, leasing and construction of apartment buildings. Other commercial lending largely includes financing for acquisition, leasing and construction, largely for office, retail and industrial real estate. Included in secured by real estate loans were \$12.2 billion and \$10.2 billion as of December 31, 2024 and 2023, respectively, of construction and development loans made to finance land development and on-site construction of commercial, industrial, residential, or farm buildings.

December 31, (in millions, except ratios)	Multifamily		Other Commercial		Total retained loans secured by real estate	
	2024	2023	2024	2023	2024	2023
Retained loans secured by real estate	\$ 101,114	\$ 100,725	\$ 61,259	\$ 61,555	\$ 162,373	\$ 162,280
Criticized	4,700	3,596	6,030	4,096	10,730	7,692
% of criticized to total retained loans secured by real estate	4.65 %	3.57 %	9.84 %	6.65 %	6.61 %	4.74 %
Criticized nonaccrual	\$ 337	\$ 76	\$ 1,102	\$ 325	\$ 1,439	\$ 401
% of criticized nonaccrual loans to total retained loans secured by real estate	0.33 %	0.08 %	1.80 %	0.53 %	0.89 %	0.25 %

Geographic distribution and delinquency

The following table provides information on the geographic distribution and delinquency for retained wholesale loans.

December 31, (in millions)	Secured by real estate		Commercial and industrial		Other		Total retained loans	
	2024	2023	2024	2023	2024	2023	2024	2023
Loans by geographic distribution^(a)								
Total U.S.	\$ 159,150	\$ 159,459	\$ 127,404	\$ 127,245	\$ 276,796	\$ 260,769	\$ 563,350	\$ 547,473
Total non-U.S.	3,223	2,821	39,164	39,512	82,621	79,947	125,008	122,280
Total retained loans	\$ 162,373	\$ 162,280	\$ 166,568	\$ 166,757	\$ 359,417	\$ 340,716	\$ 688,358	\$ 669,753
Loan delinquency								
Current and less than 30 days past due and still accruing	\$ 159,890	\$ 161,256	\$ 163,887	\$ 164,490	\$ 357,457	\$ 339,013	\$ 681,234	\$ 664,759
30–89 days past due and still accruing	918	473	868	884	1,152	1,090	2,938	2,447
90 or more days past due and still accruing ^(b)	126	150	58	162	87	24	271	336
Criticized nonaccrual	1,439	401	1,755	1,221	721	589	3,915	2,211
Total retained loans	\$ 162,373	\$ 162,280	\$ 166,568	\$ 166,757	\$ 359,417	\$ 340,716	\$ 688,358	\$ 669,753
Net charge-offs/(recoveries)	\$ 313	\$ 178	\$ 380	\$ 335	\$ 26	\$ 329	\$ 719	\$ 842
% of net charge-offs/(recoveries) to end-of-period retained loans	0.19 %	0.11 %	0.23 %	0.20 %	0.01 %	0.10 %	0.10 %	0.13 %

(a) The U.S. and non-U.S. distribution is determined based predominantly on the domicile of the borrower.

(b) Represents loans that are considered well-collateralized and therefore still accruing interest.

Nonaccrual loans

The following table provides information on retained wholesale nonaccrual loans.

December 31, (in millions)	Secured by real estate		Commercial and industrial		Other		Total retained loans	
	2024	2023	2024	2023	2024	2023	2024	2023
Nonaccrual loans								
With an allowance	\$ 366	\$ 129	\$ 1,357	\$ 776	\$ 541	\$ 386	\$ 2,264	\$ 1,291
Without an allowance ^(a)	1,073	272	398	445	180	203	1,651	920
Total nonaccrual loans^(b)	\$ 1,439	\$ 401	\$ 1,755	\$ 1,221	\$ 721	\$ 589	\$ 3,915	\$ 2,211

(a) When the discounted cash flows or collateral value equals or exceeds the amortized cost of the loan, the loan does not require an allowance. This typically occurs when the loans have been partially charged off and/or there have been interest payments received and applied to the loan balance.

(b) Interest income on nonaccrual loans recognized on a cash basis was \$51 million and \$19 million for the years ended December 31, 2024 and 2023, respectively.

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Loan modifications

The Bank grants certain modifications of wholesale loans to borrowers experiencing financial difficulty.

Financial effects of FDMs

The following tables provide information on retained wholesale loan modifications considered FDMs.

Secured by real estate			
Year ended December 31, 2024			
(in millions, except ratios)	Amortized cost basis	% of loan modifications to total retained Secured by real estate loans	Financial effect of loan modifications
Single modifications			
Term extension	\$ 271	0.17 %	Extended loans by a weighted-average of 21 months
Other-than-insignificant payment deferral	37	0.02	Provided payment deferrals with delayed amounts re-amortized over the remaining tenor
Multiple modifications			
Other-than-insignificant payment deferral and interest rate reduction	46	0.03	Provided payment deferrals with delayed amounts recaptured at maturity and reduced weighted-average contractual interest by 162 bps
Total	\$ 354		

Secured by real estate			
Year ended December 31, 2023			
(in millions, except ratios)	Amortized cost basis	% of loan modifications to total retained Secured by real estate loans	Financial effect of loan modifications
Single modifications			
Term extension	\$ 149	0.09 %	Extended loans by a weighted-average of 14 months
Other-than-insignificant payment deferral	3	—	Provided payment deferrals with delayed amounts primarily re-amortized over the remaining life of the loan
Multiple modifications			
Other-than-insignificant payment deferral and interest rate reduction	5	—	Provided payment deferrals with delayed amounts primarily recaptured at maturity and reduced weighted-average contractual interest by 184 bps
Other ^(a)	3	—	NM
Total	\$ 160		

(a) Includes a loan with multiple modifications.

Commercial and industrial			
Year ended December 31, 2024			
(in millions, except ratios)	Amortized cost basis	% of loan modifications to total retained Commercial and industrial loans	Financial effect of loan modifications
Single modifications			
Term extension	\$ 1,180	0.71 %	Extended loans by a weighted-average of 20 months
Other-than-insignificant payment deferral	464	0.28	Provided payment deferrals with delayed amounts primarily re-amortized over the remaining tenor
Multiple modifications			
Other-than-insignificant payment deferral and term extension	170	0.10	Provided payment deferrals with delayed amounts recaptured at maturity and extended loans by a weighted-average of 17 months
Interest rate reduction and term extension	51	0.03	Reduced weighted-average contractual interest by 434 bps and extended loans by a weighted-average of 36 months
Other ^(a)	30	0.02	NM
Total	\$ 1,895		

(a) Includes loans with single and multiple modifications.

Commercial and industrial			
Year ended December 31, 2023			
(in millions, except ratios)	Amortized cost basis	% of loan modifications to total retained Commercial and industrial loans	Financial effect of loan modifications
Single modifications			
Term extension	\$ 890	0.53 %	Extended loans by a weighted average of 16 months
Other-than-insignificant payment deferral	402	0.24	Provided payment deferrals with delayed amounts primarily recaptured at the end of the deferral period
Multiple modifications			
Other-than-insignificant payment deferral and term extension	35	0.02	Provided payment deferrals with delayed amounts primarily re-amortized over the remaining life of the loan and extended loans by a weighted average of 7 months
Interest rate reduction and term extension	1	—	Reduced weighted average contractual interest rate over the life of the loan as a result of converting from variable to fixed rate and extended loans by a weighted average of 16 months
Other ^(a)	9	—	NM
Total	\$ 1,337		

(a) Include loans with multiple modifications.

Other			
Year ended December 31, 2024			
(in millions, except ratios)	Amortized cost basis	% of loan modifications to total retained Other loans	Financial effect of loan modifications
Single modifications			
Term extension	\$ 268	0.07 %	Extended loans by a weighted-average of 28 months
Multiple modifications			
Other-than-insignificant payment deferral and term extension	2	—	Provided payment deferrals with delayed amounts recaptured at maturity and extended loans by a weighted-average of 6 months
Total	\$ 270		

Other			
Year ended December 31, 2023			
(in millions, except ratios)	Amortized cost basis	% of loan modifications to total retained Other loans	Financial effect of loan modifications
Single modifications			
Term extension	\$ 355	0.10 %	Extended loans by a weighted average of 23 months
Multiple modifications			
Other-than-insignificant payment deferral and term extension	245	0.07	Provided payment deferrals with delayed amounts primarily recaptured at the end of the deferral period and extended loans by a weighted-average of 137 months
Other ^(a)	9	—	NM
Total	\$ 609		

(a) Includes a loan with a single modification.

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Payment status of FDMs

The following table provides information on the payment status of retained wholesale FDMs during the year ended December 31, 2024 and 2023.

(in millions)	Amortized cost basis					
	Secured by real estate	Commercial and industrial	Other	Secured by real estate	Commercial and industrial	Other
	Year ended December 31, 2024			Year ended December 31, 2023		
Current and less than 30 days past due and still accruing	\$ 264	\$ 1,214	\$ 240	\$ 118	\$ 921	\$ 400
30-89 days past due and still accruing	3	14	9	2	42	—
Criticized nonaccrual	87	667	21	40	374	209
Total	\$ 354	\$ 1,895	\$ 270	\$ 160	\$ 1,337	\$ 609

Defaults of FDMs

The following table provides information on retained wholesale FDMs that defaulted during the year ended December 31, 2024 that were reported as FDMs in the twelve months prior to the default, and FDMs that defaulted during the year ended December 31, 2023 that were reported as FDMs on or after January 1, 2023, the date that the Bank adopted the changes to the TDR accounting guidance.

(in millions)	Amortized cost basis					
	Secured by real estate	Commercial and industrial	Other	Secured by real estate	Commercial and industrial	Other
	Year ended December 31, 2024			Year ended December 31, 2023		
Term extension	\$ 3	\$ 92	\$ 22	\$ 1	\$ 49	\$ 31
Other-than-insignificant payment deferral	—	118	—	2	—	—
Interest rate reduction and term extension	—	—	—	3	1	—
Total^(a)	\$ 3	\$ 210	\$ 22	\$ 6	\$ 50	\$ 31

(a) Represents FDMs that were 30 days or more past due.

As of December 31, 2024 and 2023, additional unfunded commitments on modified loans to borrowers experiencing financial difficulty were \$1.7 billion and \$1.8 billion, respectively, in Commercial and industrial, and \$69 million and \$4 million, respectively, in Other loan class. Additional commitments on modified loans to borrowers experiencing financial difficulty whose loans have been modified as FDMs in Secured by real estate were not material at each period.

Nature and extent of TDRs

Prior to January 1, 2023, certain loan modifications were considered TDRs. These loan modifications provided various concessions to borrower who were experiencing financial difficulty. Loans with short-term or other insignificant modifications that were not considered concessions were not TDRs nor were loans for which the Bank elected to suspend TDR accounting guidance under the option provided by the CARES Act.

For the year ended December 31, 2022, new TDRs were \$801 million. New TDRs for the year ended December 31, 2022 reflected extended maturity dates and covenant waivers primarily in the Commercial and Industrial loan class. For the year ended December 31, 2022, the impact of these modifications resulting in new TDRs was not material to the Bank.

As a result of the elimination of the requirement to assess whether a modification is reasonably expected or involves a concession, the population of loans considered FDMs is greater than the population previously considered TDRs.

Note 14 – Allowance for credit losses

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

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

The income statement effect of all changes in the allowance for credit losses is recognized in the provision for credit losses.

Determining the appropriateness of the allowance for credit losses is complex and requires significant judgment by management about the effect of matters that are inherently uncertain. At least quarterly, the allowance for credit losses is reviewed by the CRO, the CFO and the Controller of JPMorganChase. Subsequent evaluations of credit exposures, considering the macroeconomic conditions, forecasts and other factors then prevailing, may result in significant changes in the allowance for credit losses in future periods.

The Bank's policies used to determine its allowance for loan losses and its allowance for lending-related commitments are described in the following paragraphs. Refer to Note 11 for a description of the policies used to determine the allowance for credit losses on investment securities.

Methodology for allowances for loan losses and lending-related commitments

The allowance for loan losses and allowance for lending-related commitments represents expected credit losses over the remaining expected life of retained loans and lending-related commitments that are not unconditionally cancellable. The Bank does not record an allowance for future draws on unconditionally cancellable lending-related commitments (e.g., credit cards). Expected losses related to accrued interest on credit card loans are considered in the Bank's allowance for loan losses. However, the Bank does not record an allowance on other accrued interest receivables, due to its policy to write these receivables off no later than 90 days past due by reversing interest income.

The expected life of each instrument is determined by considering its contractual term, expected prepayments, cancellation features, and certain extension and call options. The expected life of funded credit card loans is generally estimated by considering

expected future payments on the credit card account, and determining how much of those amounts should be allocated to repayments of the funded loan balance (as of the balance sheet date) versus other account activity. This allocation is made using an approach that incorporates the payment application requirements of the Credit Card Accountability Responsibility and Disclosure Act of 2009, generally paying down the highest interest rate balances first.

The estimate of expected credit losses includes expected recoveries of amounts previously charged off or expected to be charged off, even if such recoveries result in a negative allowance.

Collective and Individual Assessments

When calculating the allowance for loan losses and the allowance for lending-related commitments, the Bank assesses whether exposures share similar risk characteristics. If similar risk characteristics exist, the Bank estimates expected credit losses collectively, considering the risk associated with a particular pool and the probability that the exposures within the pool will deteriorate or default. The assessment of risk characteristics is subject to significant management judgment. Emphasizing one characteristic over another or considering additional characteristics could affect the allowance.

- Relevant risk characteristics for the consumer portfolio include product type, delinquency status, current FICO scores, geographic distribution, and, for collateralized loans, current LTV ratios.
- Relevant risk characteristics for the wholesale portfolio include, risk rating, delinquency status, tenor, level and type of collateral, geography, industry, credit enhancement, product type, facility purpose, and payment terms.

The majority of the Bank's credit exposures share risk characteristics with other similar exposures, and as a result are collectively assessed for impairment ("portfolio-based component"). The portfolio-based component covers consumer loans, performing risk-rated loans and certain lending-related commitments.

If an exposure does not share risk characteristics with other exposures, the Bank generally estimates expected credit losses on an individual basis, considering expected repayment and conditions impacting that individual exposure ("asset-specific component"). The asset-specific component covers collateral-dependent loans and risk-rated loans that have been placed on nonaccrual status.

Portfolio-based component

The portfolio-based component begins with a quantitative calculation that considers the likelihood of the borrower changing delinquency status or moving

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from one risk rating to another. The quantitative calculation covers expected credit losses over an instrument's expected life and is estimated by applying credit loss factors to the Bank's estimated exposure at default. The credit loss factors incorporate the probability of borrower default as well as loss severity in the event of default. They are derived using a weighted average of five internally developed macroeconomic scenarios over an eight-quarter forecast period, followed by a single year straight-line interpolation to revert to long run historical information for periods beyond the eight-quarter forecast period. The five macroeconomic scenarios consist of a central, relative adverse, extreme adverse, relative upside and extreme upside scenario, and are updated by the Bank's central forecasting team. The scenarios take into consideration the Bank's macroeconomic outlook, internal perspectives from subject matter experts across the Bank, and market consensus and involve a governed process that incorporates feedback from senior management.

The eight-quarter forecast incorporates hundreds of macroeconomic variables ("MEVs") that are relevant for exposures across the Bank, with modeled credit losses being driven primarily by a subset of less than twenty variables, including U.S. unemployment, U.S. real GDP, U.S. equity prices, U.S. interest rates, U.S. corporate credit spreads, oil prices, U.S. commercial real estate prices and U.S. HPI. The specific variables that have the greatest effect on the modeled losses vary by portfolio and geography.

The quantitative calculation is adjusted to take into consideration model imprecision, emerging risk assessments, trends and other subjective factors that are not yet reflected in the calculation. These adjustments are accomplished in part by analyzing the historical loss experience, including during stressed periods, for each major product or model. Management applies judgment in making this adjustment, including taking into account uncertainties associated with the economic and political conditions, quality of underwriting standards, borrower behavior, credit concentrations or deterioration within an industry, product or portfolio, as well as other relevant internal and external factors affecting the credit quality of the portfolio. In certain instances, the interrelationships between these factors create further uncertainties.

The application of different inputs into the quantitative calculation, and the assumptions used by management to adjust the quantitative calculation, are subject to significant management judgment, and emphasizing one input or assumption over another, or considering other inputs or assumptions, could affect the estimate of the allowance for loan losses and the allowance for lending-related commitments.

Asset-specific component

To determine the asset-specific component of the allowance, collateral-dependent loans (including those loans for which foreclosure is probable) and nonaccrual risk-rated loans in the wholesale portfolio segment are generally evaluated individually.

For collateral-dependent loans, the fair value of collateral less estimated costs to sell, as applicable, is used to determine the charge-off amount for declines in value (to reduce the amortized cost of the loan to the fair value of collateral) or the amount of negative allowance that should be recognized (for recoveries of prior charge-offs associated with improvements in the fair value of the collateral).

For non-collateral dependent loans, the Bank generally measures the asset-specific allowance as the difference between the amortized cost of the loan and the present value of the cash flows expected to be collected, discounted at the loan's effective interest rate. Subsequent changes in impairment are generally recognized as an adjustment to the allowance for loan losses. The asset-specific component of the allowance for non-collateral dependent loans incorporates the effect of the modification on the loan's expected cash flows including changes in interest rates, principal forgiveness, and other concessions, as well as management's expectation of the borrower's ability to repay under the modified terms.

Estimating the timing and amounts of future cash flows is highly judgmental as these cash flow projections rely upon estimates such as loss severities, asset valuations, the amounts and timing of interest or principal payments (including any expected prepayments) or other factors that are reflective of current and expected market conditions. These estimates are, in turn, dependent on factors such as the duration of current overall economic conditions, industry, portfolio, or borrower-specific factors, the expected outcome of insolvency proceedings as well as, in certain circumstances, other economic factors. All of these estimates and assumptions require significant management judgment and certain assumptions are highly subjective.

Other financial assets

In addition to loans and investment securities, the Bank holds other financial assets that are measured at amortized cost on the Consolidated balance sheets, including credit exposures arising from lending activities subject to collateral maintenance requirements. Management estimates the allowance for other financial assets using various techniques considering historical losses and current economic conditions.

Credit risk arising from lending activities subject to collateral maintenance requirements is generally mitigated by factors such as the short-term nature of the activity, the fair value of collateral held and the Bank's right to call for, and the borrower's obligation to provide additional margin when the fair value of the collateral declines. Because of these mitigating factors, these exposures generally do not require an allowance for credit losses. However, management may also consider other factors such as the borrower's ongoing ability to provide collateral to satisfy margin requirements, or whether collateral is significantly concentrated in an individual issuer or in securities with similar risk characteristics. If in management's judgment, an allowance for credit losses for these exposures is required, the Bank estimates expected credit losses based on the value of the collateral and probability of borrower default.

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Allowance for credit losses and related information

The table below summarizes information about the allowances for credit losses and includes a breakdown of loans and lending-related commitments by impairment methodology. Refer to Note 11 for further information on the allowance for credit losses on investment securities.

(Table continued on next page)

Year ended December 31, (in millions)	2024			
	Consumer, excluding credit card	Credit card	Wholesale	Total
Allowance for loan losses				
Beginning balance at January 1,	\$ 1,857	\$ 12,450	\$ 8,004	\$ 22,311
Cumulative effect of a change in accounting principle ^(a)	NA	NA	NA	NA
Gross charge-offs	1,299	8,198	918	10,415
Gross recoveries collected	(625)	(1,056)	(199)	(1,880)
Net charge-offs	674	7,142	719	8,535
Provision for loan losses	624	9,292	532	10,448
Other	1	—	68	69
Ending balance at December 31,	\$ 1,808	\$ 14,600	\$ 7,885	\$ 24,293
Allowance for lending-related commitments				
Beginning balance at January 1,	\$ 75	\$ —	\$ 1,885	\$ 1,960
Provision for lending-related commitments	7	—	123	130
Other	—	—	—	—
Ending balance at December 31,	\$ 82	\$ —	\$ 2,008	\$ 2,090
Total allowance for investment securities	NA	NA	NA	\$ 105
Total allowance for credit losses^(b)	\$ 1,890	\$ 14,600	\$ 9,893	\$ 26,488
Allowance for loan losses by impairment methodology				
Asset-specific ^(c)	\$ (728)	\$ —	\$ 519	\$ (209)
Portfolio-based	2,536	14,600	7,366	24,502
Total allowance for loan losses	\$ 1,808	\$ 14,600	\$ 7,885	\$ 24,293
Loans by impairment methodology				
Asset-specific ^(c)	\$ 2,803	\$ —	\$ 3,885	\$ 6,688
Portfolio-based	373,525	232,860	684,473	1,290,858
Total retained loans	\$ 376,328	\$ 232,860	\$ 688,358	\$ 1,297,546
Collateral-dependent loans				
Net charge-offs	\$ 1	\$ —	\$ 322	\$ 323
Loans measured at fair value of collateral less cost to sell	2,693	—	1,834	4,527
Allowance for lending-related commitments by impairment methodology				
Asset-specific	\$ —	\$ —	\$ 109	\$ 109
Portfolio-based	82	—	1,899	1,981
Total allowance for lending-related commitments^(d)	\$ 82	\$ —	\$ 2,008	\$ 2,090
Lending-related commitments by impairment methodology				
Asset-specific	\$ —	\$ —	\$ 737	\$ 737
Portfolio-based ^(e)	25,608	19	507,596	533,223
Total lending-related commitments	\$ 25,608	\$ 19	\$ 508,333	\$ 533,960

- (a) Represents the impact to the allowance for loan losses upon the adoption of the Financial Instruments - Credit Losses: Troubled Debt Restructurings accounting guidance. Refer to Note 1 for further information.
- (b) At December 31, 2024, 2023 and 2022, in addition to the allowance for credit losses in the table above, the Bank also had an allowance for credit losses of \$67 million, \$42 million and \$21 million, respectively, associated with certain accounts receivable in the wholesale portfolio segment.
- (c) Includes collateral-dependent loans, including those for which foreclosure is deemed probable, and nonaccrual risk-rated loans.
- (d) The allowance for lending-related commitments is reported in accounts payable and other liabilities on the Consolidated balance sheets.
- (e) At December 31, 2024, 2023 and 2022, lending-related commitments excluded \$19.2 billion, \$17.2 billion and \$13.1 billion, respectively, for the consumer, excluding credit card portfolio segment; \$1.0 trillion, \$915.7 billion and \$821.3 billion, respectively, for the credit card portfolio segment; and \$20.5 billion, \$19.7 billion and \$9.8 billion, respectively, for the wholesale portfolio segment, which were not subject to the allowance for lending-related commitments.

(table continued from previous page)

2023				2022			
Consumer, excluding credit card	Credit card	Wholesale	Total	Consumer, excluding credit card	Credit card	Wholesale	Total
\$ 2,040	\$ 11,200	\$ 6,474	\$ 19,714	\$ 1,765	\$ 10,250	\$ 4,363	\$ 16,378
(489)	(100)	2	(587)	NA	NA	NA	NA
1,151	5,491	974	7,616	812	3,192	288	4,292
(519)	(793)	(132)	(1,444)	(543)	(789)	(134)	(1,466)
632	4,698	842	6,172	269	2,403	154	2,826
937	6,048	2,349	9,334	543	3,353	2,263	6,159
1	—	21	22	1	—	2	3
\$ 1,857	\$ 12,450	\$ 8,004	\$ 22,311	\$ 2,040	\$ 11,200	\$ 6,474	\$ 19,714
\$ 76	\$ —	\$ 2,276	\$ 2,352	\$ 113	\$ —	\$ 2,102	\$ 2,215
(1)	—	(392)	(393)	(37)	—	174	137
—	—	1	1	—	—	—	—
\$ 75	\$ —	\$ 1,885	\$ 1,960	\$ 76	\$ —	\$ 2,276	\$ 2,352
NA	NA	NA	94	NA	NA	NA	67
\$ 1,932	\$ 12,450	\$ 9,889	\$ 24,365	\$ 2,116	\$ 11,200	\$ 8,750	\$ 22,133
\$ (876)	\$ —	\$ 379	\$ (497)	\$ (624)	\$ 223	\$ 466	\$ 65
2,733	12,450	7,625	22,808	2,664	10,977	6,008	19,649
\$ 1,857	\$ 12,450	\$ 8,004	\$ 22,311	\$ 2,040	\$ 11,200	\$ 6,474	\$ 19,714
\$ 3,284	\$ —	\$ 2,207	\$ 5,491	\$ 11,973	\$ 796	\$ 2,185	\$ 14,954
393,984	211,123	667,546	1,272,653	288,773	184,379	599,208	1,072,360
\$ 397,268	\$ 211,123	\$ 669,753	\$ 1,278,144	\$ 300,746	\$ 185,175	\$ 601,393	\$ 1,087,314
\$ 6	\$ —	\$ 180	\$ 186	\$ (33)	\$ —	\$ 16	\$ (17)
3,213	—	1,008	4,221	3,582	—	460	4,042
\$ —	\$ —	\$ 89	\$ 89	\$ —	\$ —	\$ 70	\$ 70
75	—	1,796	1,871	76	—	2,206	2,282
\$ 75	\$ —	\$ 1,885	\$ 1,960	\$ 76	\$ —	\$ 2,276	\$ 2,352
\$ —	\$ —	\$ 464	\$ 464	\$ —	\$ —	\$ 419	\$ 419
28,248	—	513,215	541,463	20,423	—	458,569	478,992
\$ 28,248	\$ —	\$ 513,679	\$ 541,927	\$ 20,423	\$ —	\$ 458,988	\$ 479,411

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Discussion of changes in the allowance

The allowance for credit losses as of December 31, 2024 was \$26.6 billion, reflecting a net addition of \$2.1 billion from December 31, 2023.

The net addition to the allowance for credit losses included:

- \$2.1 billion in **consumer**, reflecting:
 - a \$2.2 billion net addition in credit card, predominantly driven by loan growth, reflecting higher revolving balances, including the seasoning of vintages originated in recent years, partially offset by
 - a \$125 million net reduction in residential real estate in the first quarter of 2024, and
- a \$29 million net addition in **wholesale**, reflecting:
 - net downgrade activity, primarily in real estate, and the impact of incorporating the First Republic portfolio into the Bank's modeled credit loss estimates in the second quarter of 2024, predominantly offset by
 - changes in certain macroeconomic variables, an update to loss assumptions on certain commercial and industrial loans, and a reduction due to charge-offs largely from collateral-dependent loans.

The Bank's qualitative adjustments continued to include additional weight placed on the adverse scenarios to reflect ongoing uncertainties and downside risks related to the geopolitical and macroeconomic environment.

The Bank'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 5.5% in the fourth quarter of 2025, and
- a weighted average U.S. real GDP level that is 1.9% lower than the central case at the end of the second quarter of 2026.

The following table presents the Bank's central case assumptions for the periods presented:

	Central case assumptions at December 31, 2024		
	2Q25	4Q25	2Q26
U.S. unemployment rate ^(a)	4.5 %	4.3 %	4.3 %
YoY growth in U.S. real GDP ^(b)	2.0 %	1.9 %	1.8 %
	Central case assumptions at December 31, 2023		
	2Q24	4Q24	2Q25
U.S. unemployment rate ^(a)	4.1 %	4.4 %	4.1 %
YoY growth in U.S. real GDP ^(b)	1.8 %	0.7 %	1.0 %

(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.

Note 15 – Variable interest entities

Refer to Note 1 for a further description of the the Bank’s accounting policies regarding consolidation of and involvement with VIEs.

The following table summarizes the most significant types of Bank-sponsored VIEs. The Bank considers a “Bank-sponsored” VIE to include any entity where: (1) The Bank is the primary beneficiary of the structure; (2) the VIE is used by the Bank to securitize Bank assets; (3) the VIE issues financial instruments with the JPMorgan Chase Bank, N.A. name; or (4) the entity is a JPMorgan Chase Bank, N.A.–administered asset-backed commercial paper conduit.

<i>Transaction Type</i>	<i>Activity</i>	<i>Consolidated Financial Statements page reference</i>
Credit card securitization trusts	Securitization of originated credit card receivables	101
Mortgage securitization trusts	Servicing and securitization of both originated and purchased residential mortgages	102-103
Mortgage and other securitization trusts	Securitization of both originated and purchased residential and commercial mortgages, and other consumer loans	102-103
Multi-seller conduits	Assisting clients in accessing the financial markets in a cost-efficient manner and structuring transactions to meet investor needs	103-104
Municipal bond vehicles	Financing of municipal bond investments	104

The Bank is also involved with VIEs (both third-party and Bank-sponsored), but to a lesser extent, as follows:

- The Bank is involved with entities that may meet the definition of VIEs; however these entities are generally subject to specialized investment company accounting, which does not require the consolidation of investments, including VIEs.
- The Bank invests in securities generally issued by third parties which may meet the definition of VIEs (e.g., issuers of asset-backed securities). In general, the Bank does not have the power to direct the significant activities of these entities and therefore does not consolidate these entities. Refer to Note 11 for further information on the Bank’s investment securities portfolio.
- The Bank also invests in and provides financing, lending-related services and other services to VIEs sponsored by third parties. Refer to page 102 of this Note for more information on the VIEs sponsored by third parties.

Significant Bank-sponsored VIEs

Credit card securitizations

The Bank may securitize originated credit card loans, primarily through the Chase Issuance Trust (the “Trust”). The Bank’s continuing involvement in credit card securitizations includes servicing the receivables, retaining an undivided seller’s interest in the receivables, retaining certain senior and subordinated securities and maintaining escrow accounts.

The Bank consolidates the assets and liabilities of its sponsored credit card trusts as it is considered to be the primary beneficiary of these securitization trusts based on the Bank’s ability to direct the activities of these VIEs through its servicing responsibilities and other duties, including making decisions as to the receivables that are transferred into those trusts and as to any related modifications and workouts. Additionally, the nature and extent of the Bank’s other continuing involvement with the trusts, as indicated above, obligates the Bank to absorb losses and gives the Bank the right to receive certain benefits from these VIEs that could potentially be significant.

The underlying securitized credit card receivables and other assets of the securitization trusts are available only for payment of the beneficial interests issued by the securitization trusts; they are not available to pay the Bank’s other obligations or the claims of the Bank’s creditors.

The agreements with the credit card securitization trusts require the Bank to maintain a minimum undivided interest in the credit card trusts (generally 5%). As of December 31, 2024 and 2023, the Bank held undivided interests in Bank-sponsored credit card securitization trusts of \$6.6 billion and \$4.9 billion, respectively. The Bank maintained an average undivided interest in principal receivables owned by those trusts of approximately 45% and 65% for the years ended December 31, 2024 and 2023, respectively. The Bank did not retain any senior securities and retained \$1.5 billion of subordinated securities in certain of its credit card securitization trusts at both December 31, 2024 and 2023.

The Bank’s undivided interests in the credit card trusts and securities retained are eliminated in consolidation.

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Bank-sponsored mortgage and other securitization trusts

The Bank securitizes (or has securitized) originated and purchased residential mortgages, commercial mortgages and other consumer loans. Depending on

the particular transaction, as well as the respective business involved, the Bank may act as the servicer of the loans and/or retain certain beneficial interests in the securitization trusts.

The following tables present the total unpaid principal amount of assets held in Bank-sponsored private-label securitization entities, including those in which the Bank has continuing involvement, and those that are consolidated by the Bank. Continuing involvement includes servicing the loans, holding senior interests or subordinated interests (including amounts required to be held pursuant to credit risk retention rules), recourse or guarantee arrangements, and derivative contracts. In certain instances, the Bank's only continuing involvement is servicing the loans. The Bank's maximum loss exposure from retained and purchased interests is the carrying value of these interests. Refer to page 109 of this Note for information on the securitization-related loan delinquencies and liquidation losses.

December 31, 2024 (in millions)	Principal amount outstanding			The Bank interest in securitized assets in nonconsolidated VIEs ^{(c)(d)}			
	Total assets held by securitization VIEs	Assets held in consolidated securitization VIEs	Assets held in nonconsolidated securitization VIEs with continuing involvement	Trading assets	Investment securities	Other financial assets	Total interests held by the Bank
Securitization-related^(a)							
Residential mortgage:							
Prime/Alt-A and option ARMs	\$ 64,941	\$ 615	\$ 40,357	\$ 423	\$ 1,850	\$ 614	\$ 2,887
Subprime	6,388	—	1,284	37	19	—	56
Commercial and other ^(b)	186,126	243	99,355	223	5,768	1,074	7,065
Total	\$ 257,455	\$ 858	\$ 140,996	\$ 683	\$ 7,637	\$ 1,688	\$ 10,008

December 31, 2023 (in millions)	Principal amount outstanding			The Bank interest in securitized assets in nonconsolidated VIEs ^{(c)(d)}			
	Total assets held by securitization VIEs	Assets held in consolidated securitization VIEs	Assets held in nonconsolidated securitization VIEs with continuing involvement	Trading assets	Investment securities	Other financial assets	Total interests held by the Bank
Securitization-related^(a)							
Residential mortgage:							
Prime/Alt-A and option ARMs	\$ 51,659	\$ 675	\$ 30,152	\$ 421	\$ 1,981	\$ 61	\$ 2,463
Subprime	6,203	—	659	—	—	—	—
Commercial and other ^(b)	167,852	—	85,466	239	5,638	1,353	7,230
Total	\$ 225,714	\$ 675	\$ 116,277	\$ 660	\$ 7,619	\$ 1,414	\$ 9,693

(a) Excludes U.S. GSEs and government agency securitizations, which are not Bank-sponsored.

(b) Consists of securities backed by commercial real estate loans and non-mortgage-related consumer receivables.

(c) Excludes the following: retained servicing; securities retained from loan sales and securitization activity related to U.S. GSEs and government agencies; interest rate and foreign exchange derivatives primarily used to manage interest rate and foreign exchange risks of securitization entities. There were no senior and subordinated securities purchased in connection with the Bank's secondary market-making activities at December 31, 2024 and 2023, respectively.

(d) At both December 31, 2024 and 2023, 77% of the Bank's retained securitization interests, which are predominantly carried at fair value and include amounts required to be held pursuant to credit risk retention rules, were risk-rated "A" or better, on an S&P-equivalent basis. The retained interests in prime residential mortgages consisted of \$2.7 billion and \$2.4 billion of investment-grade retained interests at December 31, 2024 and 2023, respectively, and \$212 million and \$80 million of noninvestment-grade retained interests at December 31, 2024 and 2023, respectively. The retained interests in commercial and other securitization trusts consisted of \$5.8 billion and \$5.7 billion of investment-grade retained interests and \$1.3 billion and \$1.6 billion of noninvestment-grade retained interests at December 31, 2024 and 2023, respectively.

Residential mortgage

The Bank securitizes originated residential mortgage loans, as well as residential mortgage loans purchased from third parties. The Bank generally retains servicing for all residential mortgage loans originated and may retain servicing for certain mortgage loans purchased. For securitizations of loans serviced by the Bank, it has the power to direct the significant activities of the VIE because it is responsible for decisions related to loan modifications and workouts. The Bank may also retain an interest upon securitization.

In addition, the Bank may engage in trading activities involving securities issued by Bank-sponsored securitization trusts. As a result, the Bank at times retains senior and/or subordinated interests (including residual interests and amounts required to be held pursuant to credit risk retention rules) in residential mortgage securitizations at the time of securitization, and/or reacquires positions in the secondary market in the normal course of business. In certain instances, as a result of the positions retained or reacquired by the Bank, when considered together with the servicing arrangements entered into, the Bank, is deemed to be the primary beneficiary of certain securitization trusts.

The Bank does not consolidate residential mortgage securitizations (Bank-sponsored or third-party-sponsored) when it is not the servicer (and therefore does not have the power to direct the most significant activities of the trust) or does not hold a beneficial interest in the trust that could potentially be significant to the trust.

Commercial mortgages and other consumer securitizations

The Bank originates and securitizes commercial mortgage loans, and engages in underwriting and trading activities involving the securities issued by securitization trusts. The Bank may retain unsold senior and/or subordinated interests (including amounts required to be held pursuant to credit risk retention rules) in commercial mortgage securitizations at the time of securitization but, generally, the Bank does not service commercial loan securitizations. The Bank may choose to invest in these securitizations as well. For commercial mortgage securitizations the power to direct the significant activities of the VIE generally is held by the servicer or investors in a specified class of securities ("controlling class"). The Bank generally does not retain an interest in the controlling class in its sponsored commercial mortgage securitization transactions.

Multi-seller conduits

Multi-seller conduit entities are separate bankruptcy remote entities that provide secured financing, collateralized by pools of receivables and other financial assets, to customers of the Bank. The conduits fund their financing facilities through the issuance of highly rated commercial paper. The primary source of repayment of the commercial paper is the cash flows from the pools of assets. In most instances, the assets are structured with deal-specific credit enhancements provided to the conduits by the customers (i.e., sellers) or other third parties. Deal-specific credit enhancements are generally structured to cover a multiple of historical losses expected on the pool of assets, and are typically in the form of overcollateralization provided by the seller. The deal-specific credit enhancements mitigate the Bank's potential losses on its agreements with the conduits.

To ensure timely repayment of the commercial paper, and to provide the conduits with funding to provide financing to customers in the event that the conduits do not obtain funding in the commercial paper market, each asset pool financed by the conduits has a minimum 100% deal-specific liquidity facility associated with it provided by the Bank. The Bank also provides the multi-seller conduit vehicles with uncommitted program-wide liquidity facilities and program-wide credit enhancement in the form of standby letters of credit. The amount of program-wide credit enhancement required is based upon commercial paper issuance and approximates 10% of the outstanding balance of commercial paper.

The Bank consolidates its Bank-administered multi-seller conduits, as the Bank has both the power to direct the significant activities of the conduits and a potentially significant economic interest in the conduits. As administrative agent and in its role in structuring transactions, the Bank makes decisions regarding asset types and credit quality, and manages the commercial paper funding needs of the conduits. The Bank's interests that could potentially be significant to the VIEs include the fees received as administrative agent and liquidity and program-wide credit enhancement provider, as well as the potential exposure created by the liquidity and credit enhancement facilities provided to the conduits. In the normal course of business, the Bank makes markets in and invests in commercial paper issued by the Bank-administered multi-seller conduits. The Bank held \$2.9 billion and \$9.8 billion of the commercial paper issued by the Bank-administered multi-seller conduits at December 31, 2024 and 2023, respectively, which have been eliminated in consolidation. The Bank's investments reflect its funding needs and capacity and were not driven by market illiquidity. Other than the amounts required to be held pursuant

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to credit risk retention rules, the Bank is not obligated under any agreement to purchase the commercial paper issued by the Bank-administered multi-seller conduits.

The Bank provides deal-specific liquidity as well as program-wide liquidity and credit enhancement to its administered multi-seller conduits, which have been eliminated in consolidation. The administered multi-seller conduits then provide certain of their clients with lending-related commitments. The unfunded commitments were \$10.3 billion and \$10.8 billion at December 31, 2024 and 2023, respectively, and are reported as off-balance sheet lending-related commitments in other unfunded commitments to extend credit. Refer to Note 26 for more information on off-balance sheet lending-related commitments.

Municipal bond vehicles

Municipal bond vehicles or tender option bond (“TOB”) trusts allow institutions to finance their municipal bond investments at short-term rates. In a typical TOB transaction, the trust purchases highly rated municipal bond(s) of a single issuer and funds the purchase by issuing two types of securities: (1) puttable floating-rate certificates (“floaters”) and (2) inverse floating-rate residual interests (“residuals”). The floaters are typically purchased by money market funds or other short-term investors and may be tendered, with requisite notice, to the TOB trust. The residuals are retained by the investor seeking to finance its municipal bond investment. TOB transactions where the residual is held by a third-party investor are typically known as customer TOB trusts, and non-customer TOB trusts are transactions where the Residual is retained by the Bank. Customer TOB trusts are sponsored by a third party. The Bank serves as

sponsor for all non-customer TOB transactions. The Bank may provide various services to a TOB trust, including liquidity or tender option provider, and/or sponsor.

The Bank often serves as the sole liquidity or tender option provider for the TOB trusts. The liquidity provider’s obligation to perform is conditional and is limited by certain events (“Termination Events”), which include bankruptcy or failure to pay by the municipal bond issuer or credit enhancement provider, an event of taxability on the municipal bonds or the immediate downgrade of the municipal bond to below investment grade. In addition, the liquidity provider’s exposure is typically further limited by the high credit quality of the underlying municipal bonds, the excess collateralization in the vehicle, or, in certain transactions, the reimbursement agreements with the Residual holders.

Holders of the floaters may “put,” or tender, their floaters to the TOB trust. If the remarketing agent cannot successfully remarket the floaters to another investor, the liquidity provider either provides a loan to the TOB trust for the TOB trust’s purchase of the floaters, or it directly purchases the tendered floaters.

TOB trusts are considered to be variable interest entities. The Bank consolidates non-customer TOB trusts because as the Residual holder, the Bank has the right to make decisions that significantly impact the economic performance of the municipal bond vehicle, and it has the right to receive benefits and bear losses that could potentially be significant to the municipal bond vehicle.

Consolidated VIE assets and liabilities

The following table presents information on assets and liabilities related to VIEs consolidated by the Bank as of December 31, 2024 and 2023.

December 31, 2024 (in millions)	Assets				Liabilities		
	Trading assets	Loans	Other ^(c)	Total assets ^(d)	Beneficial interests in VIE assets ^(e)	Other ^(f)	Total liabilities
VIE program type							
Bank-sponsored credit card trusts	\$ —	\$ 13,531	\$ 168	\$ 13,699	\$ 5,312	\$ 10	\$ 5,322
Bank-administered multi-seller conduits	1	20,383	133	20,517	18,228	39	18,267
Municipal bond vehicles	2,655	—	17	2,672	2,921	10	2,931
Mortgage securitization entities ^(a)	—	622	8	630	114	47	161
Other	—	1,966 ^(b)	7	1,973	51	1	52
Total	\$ 2,656	\$ 36,502	\$ 333	\$ 39,491	\$ 26,626	\$ 107	\$ 26,733

December 31, 2023 (in millions)	Assets				Liabilities		
	Trading assets	Loans	Other ^(c)	Total assets ^(d)	Beneficial interests in VIE assets ^(e)	Other ^(f)	Total liabilities
VIE program type							
Bank-sponsored credit card trusts	\$ —	\$ 9,460	\$ 117	\$ 9,577	\$ 2,998	\$ 6	\$ 3,004
Bank-administered multi-seller conduits	1	27,372	194	27,567	17,781	47	17,828
Municipal bond vehicles	2,056	—	22	2,078	2,259	9	2,268
Mortgage securitization entities ^(a)	—	685	7	692	124	57	181
Other	—	85	—	85	—	—	—
Total	\$ 2,057	\$ 37,602	\$ 340	\$ 39,999	\$ 23,162	\$ 119	\$ 23,281

(a) Includes residential mortgage securitizations.

(b) Primarily includes consumer loans.

(c) Includes assets classified as cash and other assets on the Consolidated balance sheets.

(d) The assets of the consolidated VIEs included in the program types above are used to settle the liabilities of those entities. The assets and liabilities include third-party assets and liabilities of consolidated VIEs (including balances with related parties) and exclude intercompany balances that eliminate in consolidation.

(e) The interest-bearing beneficial interest liabilities issued by consolidated VIEs are classified on the Consolidated balance sheets as "Beneficial interests issued by consolidated VIEs". The holders of these beneficial interests generally do not have recourse to the general credit of the Bank. Included in beneficial interests in VIE assets are long-term beneficial interests of \$5.5 billion and \$3.1 billion at December 31, 2024 and 2023, respectively.

(f) Includes liabilities classified as accounts payable and other liabilities on the Consolidated balance sheets.

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VIEs sponsored by third parties

The Bank enters into transactions with VIEs structured by other parties. These include, for example, acting as a derivative counterparty, liquidity provider, investor, underwriter, placement agent, remarketing agent, trustee or custodian. These transactions are conducted at arm's-length, and individual credit decisions are based on the analysis of the specific VIE, taking into consideration the quality of the underlying assets. Where the Bank does not have the power to direct the activities of the VIE that most significantly impact the VIE's economic performance, or a variable interest that could potentially be significant, the Bank generally does not consolidate the VIE, but it records and reports these positions on its Consolidated balance sheets in the same manner it would record and report positions in respect of any other third-party transaction.

Tax credit vehicles

The Bank holds investments in unconsolidated tax credit vehicles, which are limited partnerships and similar entities that own and operate affordable housing, alternative energy, and other projects. These entities are primarily considered VIEs. A third party is typically the general partner or managing member and has control over the significant activities of the tax credit vehicles, and accordingly the Bank does not consolidate tax credit vehicles. The Bank generally invests in these partnerships as a limited partner and earns a return primarily through the receipt of tax credits allocated to the projects. The maximum loss exposure, represented by equity investments and funding commitments, was \$29.1 billion and \$30.9 billion, of which \$12.1 billion and \$13.5 billion was unfunded at December 31, 2024 and 2023, respectively. The Bank assesses each project and to reduce the risk of loss, may withhold varying amounts of its capital investment until the project qualifies for tax credits. Refer to Note 26 for more information on off-balance sheet lending-related commitments.

Effective January 1, 2024, the Bank adopted updates to the Accounting for Investments in Tax Credit Structures Using the Proportional Amortization Method guidance which expanded the types of tax-oriented investments, beyond affordable housing tax credit investments, that the Bank can elect on a program by program basis, to be accounted for using the proportional amortization method. Refer to Notes 1 and 23 for further information.

The proportional amortization method requires the cost of eligible investments, within an elected program, be amortized in proportion to the tax benefits received with the resulting amortization reported directly in income tax expense, which aligns with the associated tax credits and other tax benefits.

Investments must meet certain criteria to be eligible, including that substantially all of the return is from income tax credits and other income tax benefits.

In addition, under this method deferred taxes are generally not recorded as the investment is now amortized in proportion to the income tax credits and other income tax benefits received. Delayed equity contributions that are unconditional and legally binding or conditional and probable of occurring are recorded in other liabilities with a corresponding increase in the carrying value of the investment. The guidance also requires a reevaluation of eligible investments when significant modifications or events occur that result in a change in the nature of the investment or a change in the Bank's relationship with the underlying project. During the period, there were no significant modifications or events that resulted in a change in the nature of an eligible investment or a change in the Bank's relationship with the underlying project.

The following table provides information on tax-oriented investments for which the Bank elected to apply the proportional amortization method.

Year ended December 31, (in millions)	Alternative energy and affordable housing programs ^(d)		
	2024	2023	2022
Programs for which the Bank elected proportional amortization:			
Carrying value ^(a)	\$ 27,484	\$ 14,637	\$ 12,039
Tax credits and other tax benefits ^(b)	5,440	2,044	1,786
Investments that qualify to be accounted for using proportional amortization:			
Amortization losses recognized as a component of income tax expense	(4,057)	(1,556)	(1,350)
Non-income-tax-related gains/ (losses) and other returns received that are recognized outside of income tax expense ^(c)	89	(1)	(1)

- (a) Recorded in Other assets on the Consolidated balance sheets. Excludes programs to which the Bank does not apply the proportional amortization method, such as historic tax credit and new market tax credit programs.
- (b) Reflected in Income tax expense on the Consolidated statements of income and Operating activities on the Consolidated statements of cash flows.
- (c) Recorded in Other income on the Consolidated statements of income and Operating activities on the Consolidated statements of cash flows.
- (d) As of December 31, 2023 and 2022 represents eligible affordable housing investments.

Customer municipal bond vehicles (TOB trusts)

The Bank may provide various services to customer TOB trusts, including liquidity or tender option provider. In certain customer TOB transactions, the Bank as liquidity provider, has entered into a reimbursement agreement with the Residual holder. In those transactions, upon the termination of the vehicle, the Bank has recourse to the third-party Residual holders for any shortfall. The Bank does not have any intent to protect Residual holders from potential losses on any of the underlying municipal bonds. The Bank does not consolidate customer TOB trusts, since the Bank does not have the power to make decisions that significantly impact the economic performance of the municipal bond vehicle.

The Bank's maximum exposure as a liquidity provider to customer TOB trusts at December 31, 2024 and 2023, was \$5.8 billion and \$5.1 billion, respectively. The fair value of assets held by such VIEs at December 31, 2024 and 2023 was \$8.1 billion and \$7.3 billion, respectively.

Loan securitizations

The Bank has securitized and sold a variety of loans, including residential mortgages, credit card receivables, commercial mortgages and other consumer loans. The purposes of these securitization transactions were to satisfy investor demand and to generate liquidity for the Bank.

For loan securitizations in which the Bank is not required to consolidate the trust, the Bank records the transfer of the loan receivable to the trust as a sale when all of the following accounting criteria for a sale are met: (1) the transferred financial assets are legally isolated from the Bank's creditors; (2) the transferee or beneficial interest holder can pledge or exchange the transferred financial assets; and (3) The Bank does not maintain effective control over the transferred financial assets (e.g., the Bank cannot repurchase the transferred assets before their maturity and it does not have the ability to unilaterally cause the holder to return the transferred assets).

For loan securitizations accounted for as a sale, the Bank recognizes a gain or loss based on the difference between the value of proceeds received (including cash, beneficial interests, or servicing assets received) and the carrying value of the assets sold. Gains and losses on securitizations are reported in noninterest revenue.

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Securitization activity

The following table provides information related to the Bank's securitization activities for the years ended December 31, 2024, 2023 and 2022, related to assets held in Bank-sponsored securitization entities that were not consolidated by the Bank, and where sale accounting was achieved at the time of the securitization.

Year ended December 31, (in millions)	2024		2023		2022	
	Residential mortgage ^(b)	Commercial and other ^(c)	Residential mortgage ^(b)	Commercial and other ^(c)	Residential mortgage ^(b)	Commercial and other ^(c)
Principal securitized	\$ 19,988	\$ 17,683	\$ 7,678	\$ 3,901	\$ 10,218	\$ 9,036
All cash flows during the period:						
Proceeds received from loan sales as cash or financial instruments ^(a)	\$ 19,870	\$ 17,346	\$ 7,251	\$ 3,896	\$ 9,783	\$ 8,921
Servicing fees collected	35	35	24	5	62	2
Cash flows received on interests	361	1,273	296	367	432	225

(a) The carrying value of the loans accounted for at fair value approximated the proceeds received upon loan sale. The proceeds received were primarily cash.

(b) Represents prime mortgages. Excludes loan securitization activity related to U.S. GSEs and government agencies.

(c) Includes commercial mortgages and auto loans.

Key assumptions used to value retained interests originated during the year are shown in the table below.

Year ended December 31,	2024	2023	2022
Residential mortgage retained interest:			
Weighted-average life (in years)	4.3	14.3	10.8
Weighted-average discount rate	6.1 %	5.3 %	3.7 %
Commercial and other retained interest:			
Weighted-average life (in years)	4.5	3.0	5.7
Weighted-average discount rate	6.1 %	4.5 %	2.9 %

Loans and excess MSR sold to U.S. government-sponsored enterprises and loans in securitization transactions pursuant to Ginnie Mae guidelines

In addition to the amounts reported in the securitization activity tables above, the Bank, in the normal course of business, sells originated and purchased mortgage loans and certain originated excess MSR on a nonrecourse basis, predominantly to U.S. GSEs. These loans and excess MSR are sold primarily for the purpose of securitization by the U.S. GSEs, who provide certain guarantee provisions (e.g., credit enhancement of the loans). The Bank also sells loans into securitization transactions pursuant to Ginnie Mae guidelines; these loans are typically insured or guaranteed by another U.S. government agency. The Bank does not consolidate the securitization vehicles underlying these transactions as it is not the primary beneficiary. For a limited number of loan sales, the Bank is obligated to share a portion of the credit risk associated with the sold loans with the purchaser. Refer to Note 26 for additional information about the Bank's loan sales- and securitization-related indemnifications and Note 16 for additional information about the impact of the Bank's sale of certain excess MSR.

The following table summarizes the activities related to loans sold to the U.S. GSEs, and loans in securitization transactions pursuant to Ginnie Mae guidelines.

Year ended December 31, (in millions)	2024	2023	2022
Carrying value of loans sold	\$ 25,765	\$ 19,906	\$ 48,891
Proceeds received from loan sales as cash	\$ 2,380	\$ 300	\$ 22
Proceeds from loan sales as securities ^{(a)(b)}	23,178	19,389	48,096
Total proceeds received from loan sales^(c)	\$ 25,558	\$ 19,689	\$ 48,118
Gains/(losses) on loan sales ^{(d)(e)}	\$ —	\$ —	\$ (25)

(a) Includes securities from U.S. GSEs and Ginnie Mae that are generally sold shortly after receipt or retained as part of the Bank's investment securities portfolio.

(b) Included in level 2 assets.

(c) Excludes the value of MSRMs retained upon the sale of loans.

(d) Gains/(losses) on loan sales include the value of MSRMs.

(e) The carrying value of the loans accounted for at fair value approximated the proceeds received upon loan sale.

Options to repurchase delinquent loans

In addition to the Bank's obligation to repurchase certain loans due to material breaches of representations and warranties as discussed in Note 26. The Bank also has the option to repurchase delinquent loans that it services for Ginnie Mae loan pools, as well as for other U.S. government agencies under certain arrangements. The Bank typically elects to repurchase delinquent loans from Ginnie Mae loan pools as it continues to service them and/or manage the foreclosure process in accordance with the applicable requirements, and such loans continue to be insured or guaranteed. When the Bank's repurchase option becomes exercisable, such loans must be reported on the Consolidated balance sheets as a loan with a corresponding liability. Refer to Note 13 for additional information.

The following table presents loans the Bank repurchased or had an option to repurchase, real estate owned, and foreclosed government-guaranteed residential mortgage loans recognized on the Bank's Consolidated balance sheets as of December 31, 2024 and 2023. Substantially all of these loans and real estate are insured or guaranteed by U.S. government agencies.

December 31, (in millions)	2024	2023
Loans repurchased or option to repurchase ^(a)	\$ 576	\$ 596
Real estate owned	6	8
Foreclosed government-guaranteed residential mortgage loans ^(b)	10	22

(a) Primarily all of these amounts relate to loans that have been repurchased from Ginnie Mae loan pools.

(b) Relates to voluntary repurchases of loans, which are included in accrued interest and accounts receivable.

Loan delinquencies and liquidation losses

The table below includes information about components of and delinquencies related to nonconsolidated securitized financial assets held in Bank-sponsored private-label securitization entities, in which the Bank has continuing involvement as of December 31, 2024 and 2023. For loans sold or securitized where servicing is the Bank's only form of continuing involvement, the Bank generally experiences a loss only if the Bank was required to repurchase a delinquent loan or foreclosed asset due to a breach in representations and warranties associated with its loan sale or servicing contracts.

As of or for the year ended December 31, (in millions)	Securitized assets		90 days past due		Net liquidation losses/ (recoveries)	
	2024	2023	2024	2023	2024	2023
Securitized loans						
Residential mortgage:						
Prime/ Alt-A & option ARMs	\$ 40,357	\$ 30,152	\$ 351	\$ 266	\$ 2	\$ 10
Subprime	1,284	659	52	62	—	1
Commercial and other	99,355	85,466	1,047	1,410	46	40
Total loans securitized	\$ 140,996	\$ 116,277	\$ 1,450	\$ 1,738	\$ 48	\$ 51

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Note 16 – Goodwill, mortgage servicing rights, and other intangible assets

Goodwill

Goodwill is recorded upon completion of a business combination as the difference between the purchase price and the fair value of the net assets acquired, and can be adjusted up to one year from the acquisition date as additional information pertaining to facts and circumstances that existed as of the acquisition date is obtained about the fair value of assets acquired and liabilities assumed. Subsequent to initial recognition, goodwill is not amortized but is tested for impairment during the fourth quarter of each fiscal year, or more often if events or circumstances, such as adverse changes in the business climate, indicate that there may be an impairment.

The following table presents changes in the carrying amount of goodwill.

Year ended December 31, (in millions)	2024	2023	2022
Balance at beginning of period	\$40,537	\$40,520	\$40,202
Changes during the period from:			
Business combinations ^(a)	—	9	337
Other ^(b)	(27)	8	(19)
Balance at December 31,	\$40,510	\$40,537	\$40,520

(a) For 2022, represents estimated goodwill associated with the acquisitions of Figg, Inc., Renovite Technologies, Inc. and Volkswagen Payments S.A.

(b) Predominantly foreign currency adjustments.

Goodwill impairment testing

The Bank's goodwill was not impaired at December 31, 2024, 2023 and 2022.

The goodwill impairment test is generally performed by comparing the current fair value of the Bank with its carrying value. If the fair value is in excess of the carrying value, then the Bank's goodwill is considered not to be impaired. If the fair value is less than the carrying value, then an impairment is recognized for the amount by which the Bank's carrying value exceeds its fair value, up to the amount of the Bank's goodwill.

The primary method the Bank uses to estimate its fair value is the income approach. This approach projects cash flows for the forecast period and uses the perpetuity growth method to calculate terminal values. These cash flows and terminal values are then discounted using an appropriate discount rate.

Unanticipated declines in business performance, increases in credit losses, increases in capital requirements, as well as deterioration in economic or market conditions, adverse regulatory or legislative changes or increases in the estimated market cost of equity, could cause the estimated fair value of the Bank to decline in the future, which could result in a material impairment loss to earnings in a future period related to some portion of the associated goodwill.

Mortgage servicing rights

MSRs represent the fair value of expected future cash flows for performing servicing activities for others. The fair value considers estimated future servicing fees and ancillary revenue, offset by estimated costs to service the loans, and generally declines over time as net servicing cash flows are received, effectively amortizing the MSR asset against contractual servicing and ancillary fee income. MSRs are either purchased from third parties or recognized upon sale or securitization of mortgage loans if servicing is retained.

As permitted by U.S. GAAP, the Bank has elected to account for its MSRs at fair value. The Bank treats its MSRs as a single class of servicing assets based on the availability of market inputs used to measure the fair value of its MSR asset and its treatment of MSRs as one aggregate pool for risk management purposes. The Bank estimates the fair value of MSRs using an option-adjusted spread ("OAS") model, which projects MSR cash flows over multiple interest rate scenarios in conjunction with the Bank's prepayment model, and then discounts these cash flows at risk-adjusted rates. The model considers portfolio characteristics, contractually specified servicing fees, prepayment assumptions, delinquency rates, costs to service, late charges and other ancillary revenue, and other economic factors. The Bank compares fair value estimates and assumptions to observable market data where available, and also considers recent market activity and actual portfolio experience.

The fair value of MSR is sensitive to changes in interest rates, including their effect on prepayment speeds. MSRs typically decrease in value when interest rates decline because declining interest rates tend to increase prepayments and therefore reduce the expected life of the net servicing cash flows that comprise the MSR asset. Conversely, securities (e.g., mortgage-backed securities), and certain derivatives (e.g., those for which the Bank receives fixed-rate

interest payments) increase in value when interest rates decline. The Bank uses combinations of derivatives and securities to manage the risk of changes in the fair value of MSRs. The intent is to offset any interest-rate related changes in the fair value of MSRs with changes in the fair value of the related risk management instruments.

The following table summarizes MSR activity for the years ended December 31, 2024, 2023 and 2022.

As of or for the year ended December 31, (in millions, except where otherwise noted)	2024	2023	2022
Fair value at beginning of period	\$ 8,522	\$ 7,973	\$ 5,494
MSR activity:			
Originations of MSRs	325	253	798
Purchase of MSRs ^(a)	601	1,028	1,400
Disposition of MSRs ^(b)	(21)	(188)	(822)
Net additions/(dispositions)	905	1,093	1,376
Changes due to collection/realization of expected cash flows	(1,068)	(1,011)	(936)
Changes in valuation due to inputs and assumptions:			
Changes due to market interest rates and other ^(c)	670	424	2,022
Changes in valuation due to other inputs and assumptions:			
Projected cash flows (e.g., cost to service)	102	(22)	14
Discount rates	14	14	—
Prepayment model changes and other ^(d)	(24)	51	3
Total changes in valuation due to other inputs and assumptions	92	43	17
Total changes in valuation due to inputs and assumptions	762	467	2,039
Fair value at December 31,	\$ 9,121	\$ 8,522	\$ 7,973
Change in unrealized gains/(losses) included in income related to MSRs held at December 31,	\$ 762	\$ 467	\$ 2,039
Contractual service fees, late fees and other ancillary fees included in income	1,606	1,590	1,535
Third-party mortgage loans serviced at December 31, (in billions)	652	632	584
Servicer advances, net of an allowance for uncollectible amounts, at December 31 ^(e)	577	659	758

- (a) Includes purchase price adjustments associated with MSRs purchased, primarily as a result of loans that prepaid within 90 days of settlement, allowing the Bank to recover the purchase price.
- (b) Includes excess MSRs transferred to agency-sponsored trusts in exchange for stripped mortgage backed securities ("SMBS"). In each transaction, a portion of the SMBS was acquired by third parties at the transaction date; the Bank acquired the remaining balance of those SMBS as trading securities.
- (c) Represents both the impact of changes in estimated future prepayments due to changes in market interest rates, and the difference between actual and expected prepayments.
- (d) Represents changes in prepayments other than those attributable to changes in market interest rates.
- (e) Represents amounts the Bank pays as the servicer (e.g., scheduled principal and interest, taxes and insurance), which will generally be reimbursed within a short period of time after the advance from future cash flows from the trust or the underlying loans. The Bank's credit risk associated with these servicer advances is minimal because reimbursement of the advances is typically senior to all cash payments to investors. In addition, the Bank maintains the right to stop payment to investors if the collateral is insufficient to cover the advance. However, certain of these servicer advances may not be recoverable if they were not made in accordance with applicable rules and agreements.

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The following table presents the components of mortgage fees and related income (including the impact of MSR risk management activities) for the years ended December 31, 2024, 2023 and 2022.

Year ended December 31, (in millions)	2024	2023	2022
Mortgage fees and related income			
Production revenue	\$ 627	\$ 421	\$ 497
Net mortgage servicing revenue:			
Operating revenue:			
Loan servicing revenue	1,659	1,634	1,582
Changes in MSR asset fair value due to collection/realization of expected cash flows	(1,068)	(1,011)	(936)
Total operating revenue	591	623	646
Risk management:			
Changes in MSR asset fair value due to market interest rates and other ^(a)	670	424	2,022
Other changes in MSR asset fair value due to other inputs and assumptions in model ^(b)	92	43	17
Change in derivative fair value and other	(603)	(336)	(1,946)
Total risk management	159	131	93
Total net mortgage servicing revenue	750	754	739
All other	24	1	14
Mortgage fees and related income	\$ 1,401	\$ 1,176	\$ 1,250

- (a) Represents both the impact of changes in estimated future prepayments due to changes in market interest rates, and the difference between actual and expected prepayments.
- (b) Represents the aggregate impact of changes in model inputs and assumptions such as projected cash flows (e.g., cost to service), discount rates and changes in prepayments other than those attributable to changes in market interest rates (e.g., changes in prepayments due to changes in home prices).

Changes in fair value based on variations in assumptions generally cannot be easily extrapolated, because the relationship of the change in the assumptions to the change in fair value are often highly interrelated and may not be linear. In the following table, the effect that a change in a particular assumption may have on the fair value is calculated without changing any other assumption. In reality, changes in one factor may result in changes in another, which would either magnify or counteract the impact of the initial change.

The table below outlines the key economic assumptions used to determine the fair value of the Bank's MSRs at December 31, 2024 and 2023, and outlines the sensitivities of those fair values to immediate adverse changes in those assumptions, as defined below.

December 31, (in millions, except rates)	2024	2023
Weighted-average prepayment speed assumption (constant prepayment rate)	6.19 %	6.29 %
Impact on fair value of 10% adverse change	\$ (209)	\$ (206)
Impact on fair value of 20% adverse change	(406)	(401)
Weighted-average option adjusted spread ^(a)	5.97 %	6.10 %
Impact on fair value of 100 basis points adverse change	\$ (391)	\$ (369)
Impact on fair value of 200 basis points adverse change	(751)	(709)

- (a) Includes the impact of operational risk and regulatory capital.

Other intangible assets

The Bank's finite-lived and indefinite-lived other intangible assets are initially recorded at their fair value primarily upon completion of a business combination. Subsequently, the Bank's finite lived intangible assets, including core deposit intangibles, customer relationship intangibles, and certain other intangible assets, are amortized over their useful lives, estimated based on the expected future economic benefits to the Bank of the intangible asset. The Bank's intangible assets with indefinite lives are not subject to amortization and are assessed periodically for impairment.

As of December 31, 2024 and 2023, the gross carrying values of other intangible assets were \$1.5 billion and \$1.6 billion, respectively, and the accumulated amortization was \$524 million and \$406 million, respectively.

As of December 31, 2024 and 2023, the net carrying values consist primarily of finite-lived intangible assets of \$1.0 billion and \$1.2 billion. Indefinite-lived intangible assets, which are not subject to amortization, were not material at both periods.

As of December 31, 2024, other intangible assets reflected core deposit and certain wealth management customer relationship intangibles related to the First Republic acquisition. Refer to Note 29 for additional information on the First Republic acquisition.

For the years ended December 31, 2024 and 2023, amortization expense was \$220 million and \$177 million, respectively.

The following table presents estimated future amortization expense.

December 31, (in millions)	Finite-lived intangible assets
2025	\$ 179
2026	179
2027	179
2028	179
2029	179

Impairment testing

The Bank's finite-lived and indefinite-lived other intangible assets are assessed for impairment annually or more often if events or changes in circumstances indicate that the asset might be impaired. Once the Bank determines that an impairment exists for an intangible asset, the impairment is recognized in other expense.

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JPMorgan Chase Bank, National Association
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Note 17 – Premises and equipment

Premises and equipment includes land carried at cost, as well as buildings, leasehold improvements, internal-use software and furniture and equipment carried at cost less accumulated depreciation and amortization. The Bank's operating lease right-of-use assets are also included in Premises and equipment. Refer to Note 19 for a further discussion of the Bank's right-of-use assets.

The following table presents certain components of Premises and equipment.

December 31, (in millions)	2024	2023
Land, buildings and leasehold improvements	\$ 16,655	\$ 14,643
Right-of-use assets ^(a)	7,312	7,340
Other premises and equipment ^(b)	6,927	6,845
Total premises and equipment	\$ 30,894	\$ 28,828

(a) Excluded \$416 million and \$366 million of right-of-use assets that were recorded in Other assets at December 31, 2024 and 2023, respectively.

(b) Other premises and equipment is comprised of internal-use software and furniture and equipment.

The Bank computes depreciation using the straight-line method over the estimated useful life for buildings and furniture and equipment. The Bank depreciates leasehold improvements over the lesser of the remainder of the lease term or the estimated useful life. The Bank also capitalizes certain costs associated with the acquisition or development of internal-use software. Once the software is ready for its intended use, these costs are amortized on a straight-line basis over the software's expected useful life. The estimated useful lives range from 10 to 50 years for buildings and leasehold improvements, and 3 to 10 years for internal-use software and furniture and equipment.

Impairment is assessed when events or changes in circumstances indicate that the carrying value of an asset may not be fully recoverable.

Note 18 – Deposits

As of December 31, 2024 and 2023, noninterest-bearing and interest-bearing deposits were as follows:

December 31, (in millions)	2024	2023
U.S. offices		
Noninterest-bearing (included \$29,021 and \$75,533 at fair value) ^(a)	\$ 594,716	\$ 645,872
Interest-bearing (included \$1,101 and \$573 at fair value) ^(a)	1,447,930	1,392,043
Total deposits in U.S. offices	2,042,646	2,037,915
Non-U.S. offices		
Noninterest-bearing (included \$2,255 and \$1,737 at fair value) ^(a)	28,522	24,492
Interest-bearing (included \$1,508 and \$681 at fair value) ^(a)	445,830	435,824
Total deposits in non-U.S. offices	474,352	460,316
Total deposits	\$ 2,516,998	\$ 2,498,231

(a) Includes structured notes classified as deposits for which the fair value option has been elected. Refer to Note 4 for further discussion.

As of December 31, 2024 and 2023, time deposits in denominations that met or exceeded the insured limit were as follows:

December 31, (in millions)	2024	2023
U.S. offices	\$ 167,883	\$ 152,894
Non-U.S. offices ^(a)	93,188	90,744
Total	\$ 261,071	\$ 243,638

(a) Represents all time deposits in non-U.S. offices as these deposits typically exceed the insured limit.

As of December 31, 2024, the remaining maturities of interest-bearing time deposits were as follows:

December 31, (in millions)	U.S.	Non-U.S.	Total
2025	\$225,259	\$ 89,964	\$ 315,223
2026	16,810	92	16,902
2027	482	10	492
2028	149	18	167
2029	314	721	1,035
After 5 years	163	128	291
Total	\$243,177	\$ 90,933	\$ 334,110

Note 19 – Leases

The Bank as lessee

At December 31, 2024, the Bank and its subsidiaries were obligated under a number of noncancellable leases, predominantly operating leases for premises and equipment used primarily for business purposes. These leases generally have terms of 20 years or less, determined based on the contractual maturity of the lease, and include periods covered by options to extend or terminate the lease when the Bank is reasonably certain that it will exercise those options. All leases with lease terms greater than twelve months are reported as a lease liability with a corresponding right-of-use (“ROU”) asset. None of these lease agreements impose restrictions on the Bank’s ability to pay dividends, engage in debt or equity financing transactions or enter into further lease agreements. Certain of these leases contain escalation clauses that will increase rental payments based on maintenance, utility and tax increases, which are non-lease components. The Bank elected not to separate lease and non-lease components of a contract for its real estate leases. As such, real estate lease payments represent payments on both lease and non-lease components.

Operating lease liabilities and ROU assets are recognized at the lease commencement date based on the present value of the future minimum lease payments over the lease term. The future lease payments are discounted at a rate that estimates the Bank’s collateralized borrowing rate for financing instruments of a similar term and are included in accounts payable and other liabilities. The operating lease ROU assets, predominantly included in premises and equipment, also include any lease prepayments made, plus initial direct costs incurred, less any lease incentives received. Rental expense associated with operating leases is recognized on a straight-line basis over the lease term, and generally included in occupancy expense in the Consolidated statements of income.

The carrying values of the Bank’s operating leases were as follows:

December 31, (in millions, except where otherwise noted)	2024	2023
Right-of-use assets	\$ 7,728	\$ 7,706
Lease liabilities	8,217	8,191
Weighted average remaining lease term (in years)	8.5	8.5
Weighted average discount rate	4.12 %	3.88 %
Supplemental cash flow information		
Cash paid for amounts included in the measurement of lease liabilities - operating cash flows	\$ 1,591	\$ 1,511
Supplemental non-cash information		
Right-of-use assets obtained in exchange for operating lease obligations	\$ 1,406	\$ 2,025

Year ended December 31, (in millions)	2024	2023
Rental expense		
Gross rental expense	\$ 2,035	\$ 1,882
Sublease rental income	(17)	(49)
Net rental expense	\$ 2,018	\$ 1,833

The following table presents future payments under operating leases as of December 31, 2024.

Year ended December 31, (in millions)	
2025	\$ 1,565
2026	1,421
2027	1,285
2028	1,123
2029	939
After 2029	3,541
Total future minimum lease payments	9,874
Less: Imputed interest	(1,657)
Total	\$ 8,217

In addition to the table above, as of December 31, 2024, the Bank had additional future operating lease commitments of \$881 million that were signed but had not yet commenced. These operating leases will commence between 2025 and 2027 with lease terms up to 21 years.

The Bank as lessor

The Bank provides auto and equipment lease financing to its customers through lease arrangements with lease terms that may contain renewal, termination and/or purchase options. The Bank's lease financings are predominantly auto operating leases. These assets subject to operating leases are recognized in other assets on the Bank's Consolidated balance sheets and are depreciated on a straight-line basis over the lease term to reduce the asset to its estimated residual value. Depreciation expense is included in technology, communications and equipment expense in the Consolidated statements of income. The Bank's lease income is generally recognized on a straight-line basis over the lease term and is included in other income in the Consolidated statements of income.

On a periodic basis, the Bank assesses leased assets for impairment, and if the carrying amount of the leased asset exceeds the undiscounted cash flows from the lease payments and the estimated residual value upon disposition of the leased asset, an impairment is recognized.

The risk of loss on auto and equipment leased assets relating to the residual value of the leased assets is monitored through projections of the asset residual values at lease origination and periodic review of residual values, and is mitigated through arrangements with certain manufacturers or lessees.

The following table presents the carrying value of assets subject to leases reported on the Consolidated balance sheets.

December 31, (in millions)	2024	2023
Carrying value of assets subject to operating leases, net of accumulated depreciation	\$ 12,988	\$ 10,663
Accumulated depreciation	2,509	3,288

The following table presents the Bank's operating lease income and the related depreciation expense on the Consolidated statements of income.

Year ended December 31, (in millions)	2024	2023	2022
Operating lease income	\$ 2,795	\$ 2,841	\$ 3,651
Depreciation expense	1,685	1,777	2,472

The following table presents future receipts under operating leases as of December 31, 2024.

Year ended December 31, (in millions)	
2025	\$ 2,381
2026	1,707
2027	704
2028	47
2029	5
After 2029	4
Total future minimum lease receipts	\$ 4,848

Note 20 – Long-term debt

The Bank issues long-term debt denominated in various currencies, predominantly U.S. dollars, with both fixed and variable interest rates. Included in senior and subordinated debt below are various equity-linked or other indexed instruments, which the Bank has elected to measure at fair value. Changes in fair value are recorded in principal transactions revenue in the Consolidated statements of income, except for unrealized gains/(losses) due to DVA which are recorded in OCI. The following table is a summary of long-term debt carrying values (including unamortized premiums and discounts, issuance costs, valuation adjustments and fair value adjustments, where applicable) by remaining contractual maturity as of December 31, 2024.

By remaining maturity at December 31, (in millions, except rates)		2024				2023
		Under 1 year	1-5 years	After 5 years	Total	Total
Long-term debt payable to JPMorgan Chase & Co. and affiliates						
Senior debt:	Fixed rate	\$ —	\$ 23	\$ 27	\$ 50	\$ 68
	Variable rate	4,781	71,181	177	76,139	84,761
	Interest rates ^(f)	— %	5.18 %	— %	5.18 %	6.07 %
	Subtotal	\$ 4,781	\$ 71,204	\$ 204	\$ 76,189	\$ 84,829
Long-term debt issued to unrelated parties						
Federal Home Loan Banks ("FHLB") advances:	Fixed rate	\$ 7,582	\$ 1,651	\$ 24	\$ 9,257	\$ 23,247 ^(g)
	Variable rate	4,000	16,000	—	20,000	18,000
	Interest rates ^(f)	4.42 %	4.84 %	5.91 %	4.67 %	4.89 %
Purchase Money Note ^(a) :	Fixed rate	\$ —	\$ 49,208	\$ —	\$ 49,208	\$ 48,988
	Interest rates ^(f)	— %	3.40 %	— %	3.40 %	3.40 %
Senior debt:	Fixed rate	\$ 1,654	\$ 14,356	\$ 5,479	\$ 21,489	\$ 14,389
	Variable rate	6,790	10,220	3,603	20,613	17,237
	Interest rates ^(f)	5.39 %	5.18 %	1.46 %	3.83 %	3.92 %
Subordinated debt:	Fixed rate	\$ —	\$ —	\$ —	\$ —	\$ 255
	Interest rates ^(f)	— %	— %	— %	— %	8.25 %
	Subtotal	\$ 20,026	\$ 91,435	\$ 9,106	\$ 120,567	\$ 122,116
Total long-term debt^{(b)(c)(d)}		\$ 24,807	\$ 162,639	\$ 9,310	\$ 196,756	\$ 206,945^{(g)(h)}
Long-term beneficial interests:						
	Fixed rate	\$ 999	\$ 4,313	\$ —	\$ 5,312	\$ 2,998
	Variable rate	—	27	138	165	124
	Interest rates ^(f)	3.97 %	4.82 %	2.89 %	4.62 %	4.69 %
Total long-term beneficial interests^(e)		\$ 999	\$ 4,340	\$ 138	\$ 5,477	\$ 3,122

(a) Reflects the Purchase Money Note associated with First Republic. Refer to Note 29 for additional information.

(b) Included long-term debt of \$80.9 billion and \$93.0 billion secured by assets totaling \$185.6 billion and \$218.5 billion at December 31, 2024 and 2023, respectively. The amount of long-term debt secured by assets does not include amounts related to hybrid instruments.

(c) Included \$41.2 billion and \$29.0 billion of long-term debt accounted for at fair value at December 31, 2024 and 2023, respectively.

(d) Included \$4.3 billion and \$2.9 billion of outstanding zero-coupon notes at December 31, 2024 and 2023, respectively. The aggregate principal amount of these notes at their respective maturities is \$7.4 billion and \$5.4 billion, respectively. The aggregate principal amount reflects the contractual principal payment at maturity, which may exceed the contractual principal payment at the Bank's next call date, if applicable.

(e) Included on the Consolidated balance sheets in beneficial interests issued by consolidated VIEs. Excluded short-term commercial paper and other short-term beneficial interests of \$21.4 billion and \$20.0 billion at December 31, 2024 and 2023, respectively.

(f) The interest rates shown are the weighted average of contractual rates in effect at December 31, 2024 and 2023, respectively, including non-U.S. dollar fixed- and variable-rate issuances, which excludes the effects of the associated derivative instruments used in hedge accounting relationships, if applicable. The interest rates shown exclude structured notes accounted for at fair value.

(g) As of December 31, 2024, long-term debt in the aggregate of \$79.5 billion was redeemable at the option of the Bank in whole or in part, prior to maturity, based on the terms specified in the respective instruments.

(h) The aggregate carrying values of debt that matures in each of the five years subsequent to 2024 is \$24.8 billion in 2025, \$97.1 billion in 2026, \$5.4 billion in 2027, \$55.6 billion in 2028 and \$4.5 billion in 2029.

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The weighted-average contractual interest rates for total long-term debt excluding structured notes accounted for at fair value were 4.46% and 4.98% as of December 31, 2024 and 2023, respectively. In order to modify exposure to interest rate movements, the Bank utilizes derivative instruments, primarily interest rate swaps, in conjunction with some of its debt issuances. The use of these instruments modifies the Bank's interest expense on the associated debt. The modified weighted-average interest rates for total long-term debt, including the effects of related derivative instruments, were 4.47% and 4.99% as of December 31, 2024 and 2023, respectively.

Note 21 – Related party transactions

JPMorgan Chase Bank, N.A. regularly enters into transactions with JPMorganChase and its various subsidiaries collectively, JPMorganChase affiliates. The following discussion summarizes the more significant types of transactions.

Securities financing activities

Securities financing activities include resale, repurchase, securities borrowed and securities loaned agreements entered into with JPMorganChase affiliates. Interest accrued in connection with securities financing agreements is recorded in interest income and interest expense. Refer to Note 12 for further discussion of securities financing activities.

Deposits

JPMorganChase affiliates may deposit excess funds into noninterest-bearing, interest-bearing demand or time deposit accounts with the Bank. Interest accrued on interest bearing deposits is recorded in interest expense by the Bank. Refer to Note 18 for further discussion of deposits.

Long-term debt

The Bank issues long-term debt to JPMorganChase affiliates as part of JPMorganChase's liquidity management strategy. Interest accrued on long-term debt is recorded in interest expense. Refer to Note 20 for further discussion of long-term debt.

The Bank'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 Bank's credit ratings, financial ratios or earnings.

Derivative transactions

The Bank executes derivative transactions with JPMorganChase affiliates as part of its client driven market-making activities and to facilitate hedging certain risks for its affiliates. To accomplish this, the Bank predominantly enters into offsetting derivative transactions with third-parties and records both the third-party and related party gains and losses in principal transactions revenue. Refer to Note 6 for further discussion of derivatives activities.

Servicing agreements and fee arrangements

Through servicing agreements, the Bank provides and receives operational support and services to and from JPMorganChase affiliates. These servicing agreements cover certain occupancy, marketing, communication and technology services, other shared corporate service costs, and employee related costs associated with risk management expertise and trading services. The Bank is allocated or allocates a share of the cost of the services over the relevant service period based on the agreed methodology. Fees earned by the Bank for services provided to affiliates are recorded in all other income, and fees incurred by the Bank for services from affiliates are recorded in noninterest expense.

Revenue and expense-related transactions with related parties are listed below.

Year ended December 31, (in millions)	2024	2023	2022
Interest income and Interest expense			
Interest income	\$ 6,697	\$ 6,367	\$ 1,952
Interest expense	11,931	8,013	2,606
Net interest income	(5,234)	(1,646)	(654)
Noninterest revenue			
Principal transactions	1,214	(3,444)	20,105
All other income ^(a)	9,734	8,684	7,637
Total noninterest revenue	10,948	5,240	27,742
Noninterest expense^(a)	7,528	6,818	6,046

Balances with related parties are listed below.

December 31, (in millions)	2024	2023
Assets		
Federal funds sold and securities purchased under resale agreements	\$ 128,510	\$ 99,714
Accrued interest and accounts receivable	13,895	9,309
All other assets	25,481	24,021
Liabilities		
Deposits ^(b)	110,966	97,543
Federal funds purchased and securities loaned or sold under repurchase agreements	59,412	44,268
Accounts payable and all other liabilities	15,520	13,168
Long-term debt	76,189	84,829

(a) All other income includes fees earned by the Bank for services provided to JPMorganChase affiliates. Noninterest expense includes fees incurred by the Bank for services provided from JPMorganChase affiliates.

(b) At both December 31, 2024 and 2023, includes \$25.0 billion that was pledged to support extensions of credit and other transactions requiring collateral with JPMorganChase as defined by Section 23A under the Federal Reserve Act, which defines the constraints that apply to U.S. banks in certain of their interactions with affiliates.

The following table summarizes information on derivative receivables and payables with JPMorganChase affiliates before and after netting adjustments for legally enforceable master netting agreements as of December 31, 2024 and 2023.

December 31, (in millions)	2024		2023	
	Gross derivative receivable/payable	Net derivative receivable/payable	Gross derivative receivable/payable	Net derivative receivable/payable
Derivative receivables from affiliates	\$ 110,841	\$ 4,308	\$ 88,355	\$ 354
Derivative payables to affiliates	95,421	105	82,810	102

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Note 22 – Accumulated other comprehensive income/(loss)

AOCI includes the after-tax change in unrealized gains and losses on investment securities, foreign currency translation adjustments (including the impact of related derivatives), fair value changes of excluded components on fair value hedges, cash flow hedging activities, net gain/(loss) related to the Bank's defined benefit pension and OPEB plans, and fair value option-elected liabilities arising from changes in the Bank's own credit risk (DVA).

Year ended December 31, (in millions)	Unrealized gains/(losses) on investment securities	Translation adjustments, net of hedges	Cash flow hedges	Defined benefit pension and OPEB plans	DVA on fair value option elected liabilities	Accumulated other comprehensive income/(loss)
Balance at December 31, 2021	\$ 2,646	\$ (685)	\$ (296)	\$ (1,037)	\$ (450)	\$ 178
Net change	(11,751)	(555)	(5,359)	(742)	265	(18,142)
Balance at December 31, 2022	\$ (9,105) ^(a)	\$ (1,240)	\$(5,655)	\$ (1,779)	\$ (185)	\$ (17,964)
Net change	5,387	339	1,723	188	133	7,770
Balance at December 31, 2023	\$ (3,718) ^(a)	\$ (901)	\$(3,932)	\$ (1,591)	\$ (52)	\$ (10,194)
Net change	(113)	(820)	(880)	(205)	64	(1,954)
Balance at December 31, 2024	\$ (3,831) ^(a)	\$ (1,721)	\$(4,812)	\$ (1,796)	\$ 12	\$ (12,148)

(a) Included after-tax net unamortized unrealized gains/(losses) of \$(651) million, \$(895) million and \$(1.3) billion for the years ended 2024, 2023 and 2022, respectively, related to AFS securities that have been transferred to HTM. As of December 31, 2023 included after-tax net unamortized unrealized gains/(losses) of \$(29) million related to HTM securities that have been transferred to AFS as permitted by the new hedge accounting guidance adopted on January 1, 2023. Refer to Note 11 for further information.

The following table presents the pre-tax and after-tax changes in the components of OCI.

Year ended December 31, (in millions)	2024			2023			2022		
	Pre-tax	Tax effect	After-tax	Pre-tax	Tax effect	After- tax	Pre-tax	Tax effect	After-tax
Unrealized gains/(losses) on investment securities:									
Net unrealized gains/(losses) arising during the period	\$ (1,168)	\$ 281	\$ (887)	\$ 3,900	\$ (925)	\$ 2,975	\$(17,844)	\$ 4,285	\$(13,559)
Reclassification adjustment for realized (gains)/ losses included in net income ^(a)	1,021	(247)	774	3,180	(768)	2,412	2,380	(572)	1,808
Net change	(147)	34	(113)	7,080	(1,693)	5,387	(15,464)	3,713	(11,751)
Translation adjustments ^(b):									
Translation	(4,136)	230	(3,906)	1,539	(29)	1,510	(2,859)	142	(2,717)
Hedges	4,068	(982)	3,086	(1,543)	372	(1,171)	2,842	(680)	2,162
Net change	(68)	(752)	(820)	(4)	343	339	(17)	(538)	(555)
Cash flow hedges:									
Net unrealized gains/(losses) arising during the period	(3,742)	904	(2,838)	483	(114)	369	(7,471)	1,794	(5,677)
Reclassification adjustment for realized (gains)/ losses included in net income ^(c)	2,581	(623)	1,958	1,774	(420)	1,354	419	(101)	318
Net change	(1,161)	281	(880)	2,257	(534)	1,723	(7,052)	1,693	(5,359)
Defined benefit pension and OPEB plans, net change ^(d):									
	(265)	60	(205)	248	(60)	188	(973)	231	(742)
DVA on fair value option elected liabilities, net change:									
	\$ 87	\$ (23)	\$ 64	\$ 173	\$ (40)	\$ 133	\$ 355	\$ (90)	\$ 265
Total other comprehensive income/(loss)	\$ (1,554)	\$ (400)	\$ (1,954)	\$ 9,754	\$(1,984)	\$ 7,770	\$ (23,151)	\$ 5,009	\$ (18,142)

- (a) The pre-tax amount is reported in Investment securities gains/(losses) in the Consolidated statements of income.
- (b) Reclassifications of pre-tax realized gains/(losses) on translation adjustments and related hedges are reported in other income/expense in the Consolidated statements of income. During the year ended December 31, 2024, the Bank reclassified a net pre-tax gain of \$9 million to other income/expense, of which \$38 million gain related to net investment hedges and \$(29) million loss related to cumulative translation adjustments. There were no sales or liquidations of legal entities that resulted in reclassification for the year ended December 31, 2023. The amount reclassified for the year ended December 31, 2022 was not material.
- (c) The pre-tax amounts are primarily recorded in noninterest revenue, net interest income and compensation expense in the Consolidated statements of income.
- (d) During the year ended December 31, 2022, a remeasurement of the Bank's U.S. principal defined benefit plan during the second half of 2022 was required as a result of a pension settlement. The remeasurement resulted in a net decrease of \$1.4 billion in pre-tax AOCI.

Note 23 – Income taxes

The results of operations of the Bank are included in the consolidated federal, New York State, New York City and other state income tax returns filed by JPMorganChase. Pursuant to a tax sharing agreement, JPMorganChase allocates to the Bank its share of the consolidated income tax expense or benefit based upon statutory rates applied to the Bank's earnings as if it were filing separate income tax returns.

Furthermore, JPMorganChase will reimburse the Bank for losses irrespective of whether the Bank would utilize losses on a separate return basis. The Bank uses the separate return adjusted for benefits-for-loss allocation methodology to provide income taxes on all transactions recorded in the Consolidated Financial Statements. The Bank's expense for income taxes includes the current and deferred portions of that expense. Valuation allowances are established when necessary to reduce deferred tax assets to an amount that in the opinion of management, is more likely than not to be realized. State and local income taxes are provided on the Bank's taxable income at the effective income tax rate applicable to the consolidated JPMorganChase entity. The tax sharing arrangement between JPMorganChase and the Bank allows for intercompany payments to or from JPMorganChase for outstanding current tax assets or liabilities.

Due to the inherent complexities arising from the nature of the Bank's businesses, and from conducting business and being taxed in a substantial number of jurisdictions, significant judgments and estimates are required to be made. Agreement of tax liabilities between the Bank and the many tax jurisdictions in which the Bank files tax returns may not be finalized for several years. Thus, the Bank's final tax-related assets and liabilities may ultimately be different from those currently reported.

Effective January 1, 2024, the Bank adopted updates to the Accounting for Investments in Tax Credit Structures Using the Proportional Amortization Method guidance, under the modified retrospective method. Refer to Notes 1 and 15 for additional information.

Effective tax rate and expense

The following table presents a reconciliation of the applicable statutory U.S. federal income tax rate to the effective tax rate.

Effective tax rate

Year ended December 31,	2024	2023	2022
Statutory U.S. federal tax rate	21.0 %	21.0 %	21.0 %
Increase/(decrease) in tax rate resulting from:			
U.S. state and local income taxes, net of U.S. federal income tax benefit	2.9	2.2	2.9
Tax-exempt income	(0.5)	(0.7)	(0.8)
Non-U.S. earnings	1.5	1.6	0.5
Business tax credits	(2.2)	(3.6)	(2.2)
Other, net	—	(0.2)	0.4
Effective tax rate	22.6 %	20.3 % ^(a)	21.8 %

(a) Income tax expense associated with the First Republic acquisition was reflected in the estimated bargain purchase gain, which resulted in a reduction in the Bank's effective tax rate.

The following table reflects the components of income tax expense/(benefit) included in the Consolidated statements of income.

Income tax expense/(benefit)

Year ended December 31, (in millions)	2024	2023	2022
Current income tax expense/(benefit)			
U.S. federal	\$ 6,935	\$ 9,653	\$ 8,222
Non-U.S.	4,266	3,865	2,716
U.S. state and local	2,177	2,745	2,156
Total current income tax expense/(benefit)	13,378	16,263	13,094
Deferred income tax expense/(benefit)			
U.S. federal	1,592	(3,339)	(2,849)
Non-U.S.	87	95	(161)
U.S. state and local	256	(950)	(532)
Total deferred income tax expense/(benefit)	1,935	(4,194)	(3,542)
Total income tax expense	\$ 15,313	\$ 12,069	\$ 9,552

Total income tax expense includes \$125 million, \$47 million and \$213 million of tax benefits in 2024, 2023 and 2022, respectively, resulting from the resolution of tax audits.

Tax effect of items recorded in stockholder's equity

The preceding table does not reflect the tax effect of certain items that are recorded each period directly in stockholder's equity, which are predominantly reflected in OCI as disclosed in Note 22. For the year ended December 31, 2024, stockholder's equity reflected the tax effect associated with the Bank's adoption of the Accounting for Investments in Tax Credit Structures Using the Proportional Amortization Method guidance. For the year ended December 31, 2023, stockholder's equity reflected the tax effect associated with the Bank's adoption of the TDR accounting guidance. Both of the respective adoptions were recognized in retained earnings. Refer to Note 1 and 15 for further information.

Results from U.S. and non-U.S. earnings

The following table presents the U.S. and non-U.S. components of income before income tax expense.

Year ended December 31, (in millions)	2024	2023	2022
U.S.	\$53,709	\$ 46,511	\$33,376
Non-U.S. ^(a)	14,106	13,054	10,518
Income before income tax expense	\$67,815	\$59,565	\$43,894

(a) For purposes of this table, non-U.S. income is defined as income generated from operations located outside the U.S.

The Bank will recognize any U.S. income tax expense it may incur on global intangible low tax income as income tax expense in the period in which the tax is incurred.

Deferred taxes

Deferred income tax expense/(benefit) reflects the differences between assets and liabilities measured for financial reporting purposes 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. If a deferred tax asset is determined to be unrealizable, a valuation allowance is established. The significant components of deferred tax assets and liabilities are reflected in the following table, the net deferred tax assets are reflected in other assets on the Bank's Consolidated balance sheets.

December 31, (in millions)	2024	2023
Deferred tax assets		
Allowance for loan losses	\$ 6,099	\$ 5,776
Accrued expenses and other	7,620	8,691 ^(a)
Depreciation and amortization	917	—
Non-U.S. operations	1,107	979
Tax attribute carryforwards	67	53
Gross deferred tax assets	15,810	15,499
Valuation allowance	(64)	(68)
Deferred tax assets, net of valuation allowance	\$ 15,746	\$ 15,431
Deferred tax liabilities		
Depreciation and amortization	\$ —	\$ 64
Mortgage servicing rights, net of hedges	1,912	1,794
Leasing transactions	2,259	2,266
Other, net	933	1,716
Gross deferred tax liabilities	5,104	5,840
Net deferred tax assets	\$ 10,642	\$ 9,591

(a) Includes the estimated net deferred tax asset associated with the First Republic acquisition.

The Bank has recorded deferred tax assets of \$67 million at December 31, 2024 in connection with tax attribute carryforwards. Non-U.S. NOL carryforwards were \$195 million. Certain non-U.S. NOL carryforwards will expire between 2026 and 2041 whereas others have an unlimited carryforward period.

The valuation allowance at December 31, 2024, was due to certain non-U.S. deferred tax assets, including NOL carryforwards.

Unrecognized tax benefits

At December 31, 2024, 2023 and 2022, the Bank's unrecognized tax benefits, excluding related interest expense and penalties, were \$4.0 billion, \$3.5 billion and \$3.4 billion, respectively, of which \$2.9 billion, \$2.5 billion and \$2.6 billion, respectively, if recognized, would reduce the annual effective tax rate. Included in the amount of unrecognized tax benefits are certain items that would not affect the effective tax rate if they were recognized in the Consolidated statements of income. These unrecognized items include the tax effect of certain temporary differences, the portion of gross state and local unrecognized tax benefits that would be offset by the benefit from associated U.S. federal income tax deductions, and the portion of gross non-U.S. unrecognized tax benefits that would have offsets in other jurisdictions. JPMorganChase evaluates the need for changes in unrecognized tax benefits based on its anticipated tax return filing positions as part of its U.S. federal and state and local tax returns. In addition, JPMorganChase is presently under audit by a number of taxing authorities, most notably by the Internal Revenue Service, as summarized in the Tax examination status table below. The evaluation of unrecognized tax benefits as well as the potential for audit settlements make it reasonably possible that over the next 12 months the gross balance of unrecognized tax benefits may increase or decrease by as much as approximately \$1.9 billion. The change in the unrecognized tax benefit would result in a payment or income statement recognition.

The following table presents a reconciliation of the beginning and ending amount of unrecognized tax benefits.

(in millions)	2024	2023	2022
Balance at January 1,	\$ 3,492	\$ 3,427	\$ 3,235
Increases based on tax positions related to the current period	1,191	938	822
Increases based on tax positions related to prior periods	76	30	36
Decreases based on tax positions related to prior periods	(591)	(899)	(543)
Decreases related to cash settlements with taxing authorities	(135)	(4)	(123)
Balance at December 31,	\$ 4,033	\$ 3,492	\$ 3,427

After-tax interest expense/(benefit) and penalties related to income tax liabilities recognized in income tax expense were \$155 million, \$115 million and \$99 million in 2024, 2023 and 2022, respectively.

At both December 31, 2024 and 2023, in addition to the liability for unrecognized tax benefits, the Bank had accrued \$1.0 billion for income tax-related interest and penalties.

Tax examination status

JPMorganChase is continually under examination by the Internal Revenue Service, by taxing authorities throughout the world, and by many state and local jurisdictions throughout the U.S. The following table summarizes the status of tax years that remain subject to income tax examination of JPMorganChase and its consolidated subsidiaries by significant jurisdictions as of December 31, 2024.

	Periods under examination	Status
JPMorganChase – U.S.	2011 – 2013	Field examination of amended returns; certain matters at Appellate level
JPMorganChase – U.S.	2014 - 2020	Field examination of original and amended returns; certain matters at Appellate level
JPMorganChase – New York City	2015 - 2018	Field Examination
JPMorganChase – U.K.	2017 - 2022	Field examination of certain select entities

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Note 24 – Restricted cash, other restricted assets and intercompany funds transfers

Restricted cash and other restricted assets

Certain of the Bank's cash and other assets are restricted as to withdrawal or usage. These restrictions are imposed by various regulatory authorities based on the particular activities of the Bank.

The business of the Bank is subject to examination and regulation by the OCC. The Bank is a member of the U.S. Federal Reserve System, and its deposits in the U.S. are insured by the FDIC, subject to applicable limits.

The Bank is required to maintain cash reserves at certain non-US central banks.

The Bank is also subject to rules and regulations established by other U.S. and non U.S. regulators. As part of its compliance with the respective regulatory requirements, the Bank's broker-dealer activities are subject to certain restrictions on cash and other assets.

The following table presents the components of the Bank's restricted cash:

December 31, (in billions)	2024	2023
Segregated for the benefit of securities and cleared derivative customers	\$ 9.3	\$ 8.7
Cash reserves at non-U.S. central banks and held for other general purposes	8.5	9.1
Total restricted cash^(a)	\$ 17.8	\$ 17.8

(a) Comprises \$16.4 billion in deposits with banks and \$1.4 billion in cash and due from banks on the Consolidated balance sheets at both December 31, 2024 and 2023.

Also, as of December 31, 2024 and 2023, the Bank had cash pledged with clearing organizations for the benefit of customers of \$5.8 billion and \$6.2 billion, respectively.

Intercompany funds transfers

Restrictions imposed by U.S. federal law prohibit the Bank from lending to JPMorgan Chase & Co. and certain of its affiliates unless the loans are secured in specified amounts. Such secured loans provided by the Bank to any particular affiliate, together with certain other transactions with such affiliate (collectively referred to as "covered transactions"), must be made on terms and conditions that are consistent with safe and sound banking practices. In addition, unless collateralized with cash or US Government debt obligations, covered transactions are generally limited to 10% of the Bank's total capital, as determined by the risk-based capital guidelines; the aggregate amount of covered transactions between the Bank and all affiliates is limited to 20% of the Bank's total capital.

In addition to dividend restrictions set forth in statutes and regulations, the OCC, and under certain circumstances the FDIC, have authority under the Financial Institutions Supervisory Act to prohibit or to limit the payment of dividends by the banking organizations they supervise, including the Bank if, in the banking regulator's opinion, payment of a dividend would constitute an unsafe or unsound practice in light of the financial condition of the banking organization.

Dividend capacity

At January 1, 2025, the Bank could pay, in the aggregate, approximately \$15.5 billion in dividends to JPMorganChase without the prior approval of its relevant banking regulators. The capacity to pay dividends in 2025 will be supplemented by the Bank's earnings during the year.

Dividend payment

On January 13, 2025, the Bank paid a \$12.0 billion dividend to JPMorganChase.

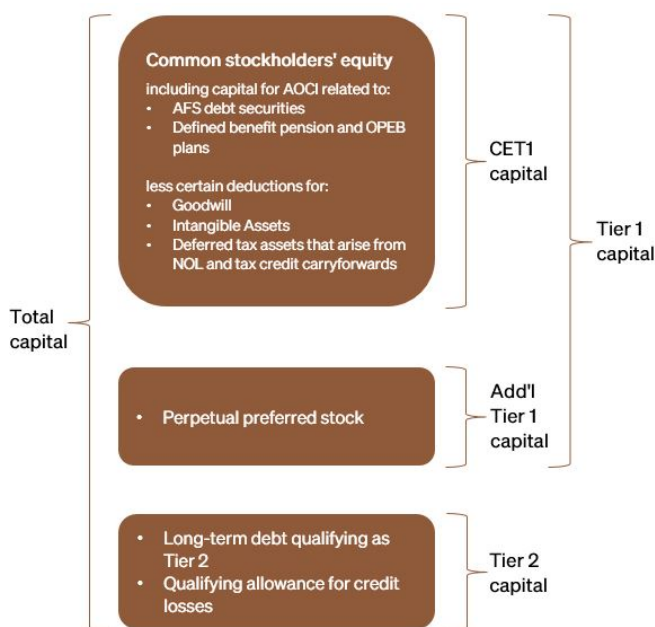
Note 25 – Regulatory capital

The Bank’s banking regulator, the OCC, establishes capital requirements, including well-capitalized standards, for national banks.

Basel III overview

The capital rules under Basel III establish minimum capital ratios and overall capital adequacy standards for banks, including JPMorgan Chase Bank, N.A. The minimum amount of regulatory capital that must be held by banks is determined by calculating RWA, which are on-balance sheet assets and off-balance sheet exposures, weighted according to risk. Under the rules currently in effect, two comprehensive approaches are prescribed for calculating RWA: a standardized approach (“Basel III Standardized”), and an advanced approach (“Basel III Advanced”). For each of these risk-based capital ratios, the capital adequacy of the Bank is evaluated against the lower of the Standardized or Advanced approaches compared to their respective regulatory capital ratio requirements.

The three components of regulatory capital under the Basel III rules and their primary drivers are as illustrated below:



Risk-weighted assets

Basel III rules establish 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 generally calculated consistently between Basel III Standardized and Basel III Advanced. In addition to the RWA calculated under these approaches, the Bank may supplement such amounts to incorporate management judgment and feedback from its regulators.

Supplementary leverage ratio (“SLR”)

Basel III also includes a requirement for Advanced Approach banking organizations to calculate the SLR. The SLR is defined as Tier 1 capital under Basel III divided by the Bank’s total leverage exposure. Total leverage exposure is calculated by taking the Bank’s total average on-balance sheet assets, less amounts permitted to be deducted for Tier 1 capital, and adding certain off-balance sheet exposures, as defined in regulatory capital rules.

Risk-based capital regulatory requirements

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

Certain banking organizations, including JPMorgan Chase Bank, N.A. are required to hold additional levels of capital to serve as a “capital conservation buffer”. The capital conservation buffer is intended to be used to absorb losses in times of financial or economic stress. The capital conservation buffer incorporates a fixed capital conservation buffer of 2.5% and a discretionary countercyclical capital buffer.

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, 2024, 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, the FDIC and the 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 and any countercyclical buffer will result in limitations to the amount of capital that the Bank may distribute, as well as on discretionary bonus payments for certain executive officers.

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Under the risk-based capital and leverage-based guidelines of the OCC, the Bank is required to maintain minimum ratios for CET1 capital, Tier 1 capital, Total capital, Tier 1 leverage and the SLR. Failure to meet these minimum requirements could cause the OCC to take action.

The following table presents the risk-based and leverage-based regulatory capital ratio requirements and well-capitalized ratios to which the Bank was subject as of December 31, 2024 and 2023.

	Capital ratio requirements ^{(a)(b)}	Well-capitalized ratios ^(c)
Risk-based capital ratios		
CET1 capital	7.0 %	6.5 %
Tier 1 capital	8.5	8.0
Total capital	10.5	10.0
Tier 1 leverage	4.0	5.0
SLR	6.0	6.0

Note: The table above is as defined by the regulations issued by the OCC and FDIC and to which the Bank is subject.

- (a) Represents the regulatory capital ratio requirements applicable to the Bank under Basel III. The CET1, Tier 1 and Total capital ratio requirements include a fixed capital conservation buffer requirement of 2.5%.
- (b) Represents minimum SLR requirement of 3.0%, as well as supplementary leverage buffer requirement of 3.0% for the Bank.
- (c) Represents requirements for the Bank pursuant to regulations issued under the FDIC Improvement Act.

Current Expected Credit Losses ("CECL") Regulatory Capital Transition

Beginning January 1, 2022, the \$2.9 billion CECL capital benefit, provided by the Federal Reserve in response to the COVID-19 pandemic, is being phased out at 25% per year over a three-year period. As of December 31, 2024 and 2023, the Bank's CET1 capital reflected the remaining benefit of \$ 728 million and \$1.5 billion, respectively, associated with the CECL capital transition provisions.

Similarly, as of January 1, 2024, the Bank has phased out 75% of the other CECL capital transition provisions which impacted Tier 2 capital, adjusted average assets, total leverage exposure and RWA, as applicable.

The following tables present risk-based capital metrics under both the Basel III Standardized and Basel III Advanced approaches and leverage-based capital metrics for the Bank. As of December 31, 2024 and 2023, the Bank was well-capitalized and met all capital requirements to which it was subject.

	Basel III Standardized		Basel III Advanced	
(in millions, except ratios)	Dec 31, 2024	Dec 31, 2023	Dec 31, 2024	Dec 31, 2023
Risk-based capital metrics:^(a)				
CET1 capital	\$275,732	\$262,030	\$275,732	\$262,030
Tier 1 capital	275,737	262,032	275,737	262,032
Total capital	296,041	281,308	282,328	268,392 ^(b)
Risk-weighted assets	1,718,777	1,621,789	1,594,072	1,526,952 ^(b)
CET1 capital ratio	16.0 %	16.2 %	17.3 %	17.2 %
Tier 1 capital ratio	16.0	16.2	17.3	17.2
Total capital ratio	17.2	17.3	17.7	17.6

- (a) The capital metrics reflect the CECL capital transition provisions.
- (b) Includes the impacts of certain assets associated with First Republic to which the Standardized approach has been applied as permitted by the transition provisions in the U.S. capital rules.

Three months ended (in millions, except ratios)	Dec 31, 2024	Dec 31, 2023
Leverage-based capital metrics:^(a)		
Adjusted average assets ^(b)	\$ 3,491,283	\$ 3,337,842
Tier 1 leverage ratio	7.9 %	7.9 %
Total leverage exposure	\$ 4,246,516	\$ 4,038,739
SLR	6.5 %	6.5 %

- (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.

Note 26 – Off-balance sheet lending-related financial instruments, guarantees, and other commitments

The Bank provides lending-related financial instruments (e.g., commitments and guarantees) to address the financing needs of its customers and clients. The contractual amount of these financial instruments represents the maximum possible credit risk to the Bank should the customer or client draw upon the commitment or the Bank be required to fulfill its obligation under the guarantee, and should the customer or client subsequently fail to perform according to the terms of the contract. Most of these commitments and guarantees have historically been refinanced, extended, cancelled, or expired without being drawn or a default occurring. As a result, the total contractual amount of these instruments is not, in the Bank's view, representative of its expected future credit exposure or funding requirements.

To provide for expected credit losses in wholesale and certain consumer lending-related commitments, an allowance for credit losses on lending-related commitments is maintained. Refer to Note 14 for further information regarding the allowance for credit losses on lending-related commitments.

The following table summarizes the contractual amounts and carrying values of off-balance sheet lending-related financial instruments, guarantees and other commitments at December 31, 2024 and 2023. The amounts in the table below for credit card, home equity and certain scored business banking lending-related commitments represent the total available credit for these products. The Bank has not experienced, and does not anticipate, that all available lines of credit for these commitments will be utilized at the same time. The Bank can reduce or cancel these commitments, in accordance with the contract, or to the extent otherwise permitted by law, including when there has been a demonstrable decline in the creditworthiness of the borrower or significant decrease in the value of underlying property

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Off-balance sheet lending-related financial instruments, guarantees and other commitments

	Contractual amount						Carrying value ^{(k)(l)}	
	2024					2023	2024	2023
	Expires in 1 year or less	Expires after 1 year through 3 years	Expires after 3 years through 5 years	Expires after 5 years	Total	Total		
By remaining maturity as of December 31, (in millions)								
Lending-related								
Consumer, excluding credit card:								
Residential real estate ^(a)	\$ 10,838	\$ 7,240	\$ 4,601	\$ 7,670	\$ 30,349	\$ 30,125	\$ 534 ^(m)	\$ 678 ^(m)
Auto and other	10,832	14	5	3,644	14,495	15,278	37 ^(m)	148 ^(m)
Total consumer, excluding credit card	21,670	7,254	4,606	11,314	44,844	45,403	571	826
Credit card ^(b)	1,001,311	—	—	—	1,001,311	915,670	—	—
Total consumer^(c)	1,022,981	7,254	4,606	11,314	1,046,155	961,073	571	826
Wholesale:								
Other unfunded commitments to extend credit ^(d)	99,323	199,574	171,857	24,993	495,747	500,133	2,597 ^(m)	2,783 ^(m)
Standby letters of credit and other financial guarantees ^{(d)(e)}	15,844	8,504	3,772	565	28,685	28,886	473	479
Other letters of credit ^(d)	3,958	276	21	97	4,352	4,385	37	37
Total wholesale^(c)	119,125	208,354	175,650	25,655	528,784	533,404	3,107	3,299
Total lending-related	\$1,142,106	\$215,608	\$180,256	\$36,969	\$1,574,939	\$1,494,477	\$3,678	\$4,125
Other guarantees and commitments								
Securities lending indemnification agreements and guarantees ^(f)	\$ 333,998	\$ —	\$ —	\$ —	\$ 333,998	\$ 306,769	\$ —	\$ —
Derivatives qualifying as guarantees	1,105	343	9,890	38,493	49,831	54,657	96	92
Unsettled resale and securities borrowed agreements ^(g)	62,291	—	—	—	62,291	61,747	1	—
Unsettled repurchase and securities loaned agreements ^(h)	50,346	—	—	—	50,346	47,860	(2)	—
Loan sale and securitization-related indemnifications:								
Mortgage repurchase liability	NA	NA	NA	NA	NA	NA	46	76
Loans sold with recourse	NA	NA	NA	NA	1,044	637	9	8
Exchange & clearing house guarantees and commitments ⁽ⁱ⁾	25,506	—	—	—	25,506	19,897	—	—
Other guarantees and commitments ^(j)	8,917	336	386	661	10,300	13,264	—	38

(a) Includes certain commitments to purchase loans from correspondents.

(b) Also includes commercial card lending-related commitments.

(c) Predominantly all consumer and wholesale lending-related commitments are in the U.S.

(d) As of December 31, 2024 and 2023, reflected the contractual amount net of risk participations totaling \$85 million and \$88 million, respectively, for other unfunded commitments to extend credit; \$9.5 billion and \$8.2 billion, respectively, for standby letters of credit and other financial guarantees; and \$556 million and \$589 million, respectively, for other letters of credit. In regulatory filings with the Federal Reserve these commitments are shown gross of risk participations.

(e) As of both December 31, 2024 and 2023, includes commitments to JPMorganChase affiliates of \$19 million.

(f) As of December 31, 2024 and 2023, collateral held by the Bank in support of securities lending indemnification agreements was \$353.3 billion and \$324.1 billion, respectively. Total securities lending indemnification agreements and guarantees included balances with JPMorganChase affiliates of \$24.0 billion and \$23.1 billion at December 31, 2024 and 2023, respectively. Collateral held by the Bank in support of securities lending indemnification agreements with JPMorganChase affiliates was \$24.6 billion and \$29.0 billion at December 31, 2024 and 2023, respectively. Securities lending collateral primarily consists of cash, G7 government securities, and securities issued by U.S. GSEs and government agencies.

(g) As of December 31, 2024 and 2023, includes \$792 million and \$4.2 billion of unsettled resale and securities borrowed agreements with JPMorganChase affiliates.

(h) As of December 31, 2024 and 2023, includes \$3.3 billion and \$471 million of unsettled repurchase and securities loaned agreements with JPMorganChase affiliates.

(i) As of December 31, 2024 and 2023, includes guarantees to the Fixed Income Clearing Corporation under the sponsored member repo program and commitments and guarantees associated with the Bank's membership in certain clearing houses.

(j) As of December 31, 2024 and 2023, primarily includes unfunded commitments to purchase secondary market loans, other equity investment commitments, and unfunded commitments related to certain tax-oriented equity investments, and reflects the impact of adopting updates to the Accounting for Investments in Tax Credit Structures guidance effective January 1, 2024.

(k) For lending-related products, the carrying value includes the allowance for lending-related commitments and the guarantee liability; for derivative-related products and lending-related commitments for which the fair value option was elected, the carrying value represents the fair value.

- (l) For lending-related commitments, the carrying value also includes fees and any purchase discounts or premiums that are deferred and recognized in accounts payable and other liabilities on the Consolidated balance sheets. Deferred amounts for revolving commitments and commitments not expected to fund, are amortized to lending- and deposit-related fees on a straight line basis over the commitment period. For all other commitments the deferred amounts remain deferred until the commitment funds or is sold.
- (m) As of December 31, 2024 and 2023, includes fair value adjustments associated with First Republic for residential real estate lending-related commitments totaling \$459 million and \$630 million, respectively, for auto and other lending-related commitments totaling \$37 million and \$148 million, respectively, and for other unfunded commitments to extend credit totaling \$699 million and \$1.1 billion, respectively. Refer to Note 29 for additional information.

Other unfunded commitments to extend credit

Other unfunded commitments to extend credit generally consist of commitments for working capital and general corporate purposes, extensions of credit to support commercial paper facilities and bond financings in the event that those obligations cannot be remarketed to new investors, as well as committed liquidity facilities to clearing organizations. The Bank also issues commitments under multipurpose facilities which could be drawn upon in several forms, including the issuance of a standby letter of credit.

Guarantees

U.S. GAAP requires that a guarantor recognize, at the inception of a guarantee, a liability in an amount equal to the fair value of the obligation undertaken in issuing the guarantee. U.S. GAAP defines a guarantee as a contract that contingently requires the guarantor to pay the guaranteed party based upon: (a) changes in an underlying asset, liability or equity security of the guaranteed party; or (b) a third party's failure to perform under a specified agreement. The Bank considers the following off-balance sheet arrangements to be guarantees under U.S. GAAP: standby letters of credit and other financial guarantees, securities lending indemnifications, certain indemnification agreements included within third-party contractual arrangements, certain derivative contracts and the guarantees under the sponsored member repo program.

As required by U.S. GAAP, the Bank initially records guarantees at the inception date fair value of the non-contingent obligation assumed (e.g., the amount of consideration received or the net present value of the premium receivable). For these obligations,

the Bank records this fair value amount in other liabilities with an offsetting entry recorded in cash (for premiums received), or other assets (for premiums receivable). Any premium receivable recorded in other assets is reduced as cash is received under the contract, and the fair value of the liability recorded at inception is amortized into income as lending and deposit-related fees over the life of the guarantee contract. The lending-related contingent obligation is recognized based on expected credit losses in addition to, and separate from, any non-contingent obligation.

Non-lending-related contingent obligations are recognized when the liability becomes probable and reasonably estimable. These obligations are not recognized if the estimated amount is less than the carrying amount of any non-contingent liability recognized at inception (adjusted for any amortization). Examples of non-lending-related contingent obligations include indemnifications provided in sales agreements, where a portion of the sale proceeds is allocated to the guarantee, which adjusts the gain or loss that would otherwise result from the transaction. For these indemnifications, the initial liability is amortized to income as the Bank's risk is reduced (i.e., over time or when the indemnification expires).

The contractual amount and carrying value of guarantees and indemnifications are included in the table on page 128.

For additional information on the guarantees, see below.

Standby letters of credit and other financial guarantees

Standby letters of credit and other financial guarantees are conditional lending commitments issued by the Bank to guarantee the performance of a client or customer to a third party under certain arrangements, such as commercial paper facilities, bond financings, acquisition financings, trade financings and similar transactions.

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The following table summarizes the contractual amount and carrying value of standby letters of credit and other financial guarantees and other letters of credit arrangements as of December 31, 2024 and 2023.

Standby letters of credit, other financial guarantees and other letters of credit

December 31, (in millions)	2024		2023	
	Standby letters of credit and other financial guarantees	Other letters of credit	Standby letters of credit and other financial guarantees	Other letters of credit
Investment-grade ^(a)	\$ 20,461	\$ 3,380	\$ 19,712	\$ 3,552
Noninvestment-grade ^(a)	8,224	972	9,174	833
Total contractual amount	\$ 28,685	\$ 4,352	\$ 28,886	\$ 4,385
Allowance for lending-related commitments	\$ 94	\$ 37	\$ 110	\$ 37
Guarantee liability	379	—	369	—
Total carrying value	\$ 473	\$ 37	\$ 479	\$ 37
Commitments with collateral	\$ 16,798	\$ 357	\$ 16,857	\$ 539

(a) The ratings scale is based on the Bank's internal risk ratings. Refer to Note 13 for further information on internal risk ratings.

Securities lending indemnifications

Through the Bank's securities lending program, counterparties' securities, via custodial and non-custodial arrangements, may be lent to third parties. As part of this program, the Bank provides an indemnification in the lending agreements which protects the lender against the failure of the borrower to return the lent securities. To minimize its liability under these indemnification agreements, the Bank obtains cash or other highly liquid collateral with a market value exceeding 100% of the value of the securities on loan from the borrower. Collateral is marked to market daily to help assure that collateralization is adequate. Additional collateral is called from the borrower if a shortfall exists, or collateral may be released to the borrower in the event of overcollateralization. If a borrower defaults, the Bank would use the collateral held to purchase replacement securities in the market or to credit the lending client or counterparty with the cash equivalent thereof.

The cash collateral held by the Bank may be invested on behalf of the client in indemnified resale agreements, whereby the Bank indemnifies the client against the loss of principal invested. To minimize its liability under these agreements, the Bank obtains collateral with a market value exceeding 100% of the principal invested.

Derivatives qualifying as guarantees

The Bank transacts in certain derivative contracts that have the characteristics of a guarantee under U.S. GAAP. These contracts include written put options that require the Bank to purchase assets upon exercise by the option holder at a specified price by a specified date in the future. The Bank may enter into written put option contracts in order to meet client needs, or for other trading purposes. The terms of written put options are typically five years or less.

Derivatives deemed to be guarantees also includes stable value contracts, commonly referred to as "stable value products", that require the Bank to make a payment of the difference between the market value and the book value of a counterparty's reference portfolio of assets in the event that market value is less than book value and certain other conditions have been met. Stable value products are transacted in order to allow investors to realize investment returns with less volatility than an unprotected portfolio. These contracts are typically longer-term or may have no stated maturity, but allow the Bank to elect to terminate the contract under certain conditions.

The notional value of derivative guarantees generally represents the Bank's maximum exposure. However, exposure to certain stable value products is contractually limited to a substantially lower percentage of the notional amount.

The fair value of derivative guarantees reflects the probability, in the Bank's view, of whether the Bank will be required to perform under the contract. The Bank reduces exposures to these contracts by entering into offsetting transactions, or by entering into contracts that hedge the market risk related to the derivative guarantees.

The following table summarizes the derivatives qualifying as guarantees as of December 31, 2024 and 2023.

(in millions)	December 31, 2024	December 31, 2023
Notional amounts		
Derivative guarantees	\$ 49,831	\$ 54,657
Stable value contracts with contractually limited exposure	32,939	32,488
Maximum exposure of stable value contracts with contractually limited exposure	1,740	1,652
Fair value		
Derivative payables	96	92

In addition to derivative contracts that meet the characteristics of a guarantee, the Bank is both a purchaser and seller of credit protection in the credit derivatives market. Refer to Note 6 for a further discussion of credit derivatives.

Unsettled securities financing agreements

In the normal course of business, the Bank enters into resale and securities borrowed agreements. At settlement, these commitments result in the Bank advancing cash to and receiving securities collateral from the counterparty. The Bank also enters into repurchase and securities loaned agreements. At settlement, these commitments result in the Bank receiving cash from and providing securities collateral to the counterparty. Such agreements settle at a future date. These agreements generally do not meet the definition of a derivative, and therefore, are not recorded on the Consolidated balance sheets until settlement date. These agreements predominantly have regular-way settlement terms. Refer to Note 12 for a further discussion of securities financing agreements.

Loan sales- and securitization-related indemnifications

Mortgage repurchase liability

In connection with the Bank's mortgage loan sale and securitization activities with U.S. GSEs the Bank has made representations and warranties that the loans sold meet certain requirements, and that may require the Bank to repurchase mortgage loans and/or indemnify the loan purchaser if such representations and warranties are breached by the Bank.

Private label securitizations

The liability related to repurchase demands associated with private label securitizations is separately evaluated by the Bank in establishing its litigation reserves.

Refer to Note 28 for additional information regarding litigation.

Loans sold with recourse

The Bank provides servicing for mortgages and certain commercial lending products on both a recourse and nonrecourse basis. In nonrecourse servicing, the principal credit risk to the Bank is the cost of temporary servicing advances of funds (i.e., normal servicing advances). In recourse servicing, the servicer agrees to share credit risk with the owner of the mortgage loans, such as Fannie Mae or Freddie Mac or a private investor, insurer or guarantor. Losses on recourse servicing predominantly occur when foreclosure sales proceeds of the property underlying a defaulted loan are less than the sum of the outstanding principal balance, plus accrued interest on the loan and the cost of holding and disposing of the underlying property. The Bank's securitizations are predominantly nonrecourse, thereby effectively transferring the risk of future credit losses to the purchaser of the mortgage-backed securities issued by the trust. The unpaid principal balance of loans sold with recourse as well as the carrying value of the related liability that the Bank has recorded in accounts payable and other liabilities on the Consolidated balance sheets, which is representative of the Bank's view of the likelihood it will have to perform under its recourse obligations, are disclosed in the table on page 128.

Other off-balance sheet arrangements

Indemnification agreements – general

In connection with issuing securities to investors outside the U.S., the Bank may agree to pay additional amounts to the holders of the securities in the event that, due to a change in tax law, certain types of withholding taxes are imposed on payments on the securities. The terms of the securities may also give the Bank the right to redeem the securities if such additional amounts are payable. The Bank may also enter into indemnification clauses such as in connection with the licensing of software to clients ("software licensees") or when it sells a business or assets to a third party ("third-party purchasers"), pursuant to which it indemnifies software licensees for claims of liability or damages that may occur subsequent to the licensing of the software, or third-party purchasers for losses they may incur due to actions taken by the Bank prior to the sale of the business or assets. It is difficult to estimate the Bank's maximum exposure under these indemnification arrangements, since this would require an assessment of future changes in tax law and future claims that may be made against the Bank that have not yet occurred. However, based on historical experience, management expects the risk of loss to be remote.

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Merchant charge-backs

Under the rules of payment networks, in its role as a merchant acquirer, the Bank's Merchant Services business in Payments retains a contingent liability for disputed processed credit and debit card transactions that result in a charge-back to the merchant. If a dispute is resolved in the cardholder's favor, the Bank will (through the cardholder's issuing bank) credit or refund the amount to the cardholder and will charge back the transaction to the merchant. If the Bank is unable to collect the amount from the merchant, the Bank will bear the loss for the amount credited or refunded to the cardholder. The Bank mitigates this risk by withholding future settlements, retaining cash reserve accounts or obtaining other collateral. In addition, the Bank recognizes a valuation allowance that covers the payment or performance risk the Bank related to charge-backs.

Clearing Services – Client Credit Risk

The Bank provides clearing services for clients by entering into securities purchases and sales and derivative contracts with CCPs, including ETDs such as futures and options, as well as OTC-cleared derivative contracts. As a clearing member, the Bank stands behind the performance of its clients, collects cash and securities collateral (margin) as well as any settlement amounts due from or to clients, and remits them to the relevant CCP or client in whole or part. There are two types of margin: variation margin is posted on a daily basis based on the value of clients' derivative contracts and initial margin is posted at inception of a derivative contract, generally on the basis of the potential changes in the variation margin requirement for the contract.

As a clearing member, the Bank is exposed to the risk of nonperformance by its clients, but is not liable to clients for the performance of the CCPs. Where possible, the Bank seeks to mitigate its risk to the client through the collection of appropriate amounts of margin at inception and throughout the life of the transactions. The Bank can also cease providing clearing services if clients do not adhere to their obligations under the clearing agreement. In the event of nonperformance by a client, the Bank would close out the client's positions and access available margin. The CCP would utilize any margin it holds to make itself whole, with any remaining shortfalls required to be paid by the Bank as a clearing member.

The Bank reflects its exposure to nonperformance risk of the client through the recognition of margin receivables from clients and margin payables to CCPs; the clients' underlying securities or derivative contracts are not reflected in the Bank's Consolidated Financial Statements.

It is difficult to estimate the Bank's maximum possible exposure through its role as a clearing member, as this would require an assessment of transactions that clients may execute in the future. However, based upon historical experience, and the credit risk mitigants available to the Bank, management believes it is unlikely that the Bank will have to make any material payments under these arrangements and the risk of loss is expected to be remote.

Refer to Note 6 for information on the derivatives that the Bank executes for its own account and records in its Consolidated Financial Statements.

Exchange & Clearing House Memberships

The Bank is a member of several securities and derivative exchanges and clearing houses, both in the U.S. and other countries, and it provides clearing services to its clients. Membership in some of these organizations requires the Bank to pay a pro rata share of the losses incurred by the organization as a result of the default of another member. Such obligations vary with different organizations. These obligations may be limited to the amount (or a multiple of the amount) of the Bank's contribution to the guarantee fund maintained by a clearing house or exchange as part of the resources available to cover any losses in the event of a member default. Alternatively, these obligations may also include a pro rata share of the residual losses after applying the guarantee fund. Additionally, certain clearing houses require the Bank as a member to pay a pro rata share of losses that may result from the clearing house's investment of guarantee fund contributions and initial margin, unrelated to and independent of the default of another member. Generally a payment would only be required should such losses exceed the resources of the clearing house or exchange that are contractually required to absorb the losses in the first instance. In certain cases, it is difficult to estimate the Bank's maximum possible exposure under these membership agreements, since this would require an assessment of future claims that may be made against the Bank that have not yet occurred. However, based on historical experience, management expects the risk of loss to the Bank to be remote. Where the Bank's maximum possible exposure can be estimated, the amount is disclosed in the table on page 128, in the Exchange & clearing house guarantees and commitments line.

Sponsored member repo program

The Bank acts as a sponsoring member to clear eligible overnight and term resale and repurchase agreements through the Government Securities Division of the Fixed Income Clearing Corporation (“FICC”) on behalf of clients that become sponsored members under the FICC’s rules. The Bank also guarantees to the FICC the prompt and full payment and performance of its sponsored member clients’ respective obligations under the FICC’s rules. The Bank minimizes its liability under these guarantees by obtaining a security interest in the cash or high-quality securities collateral that the clients place with the clearing house; therefore, the Bank expects the risk of loss to be remote. The Bank’s maximum possible exposure, without taking into consideration the associated collateral, is included in the Exchange & clearing house guarantees and commitments line on page 128. Refer to Note 12 for additional information on credit risk mitigation practices on resale agreements and the types of collateral pledged under repurchase agreements.

Guarantees of subsidiaries and affiliates

In the normal course of business, the Bank may provide counterparties with guarantees of certain of the trading and other obligations of its subsidiaries and affiliates on a contract-by-contract basis, as negotiated with the Bank’s counterparties. The obligations of the subsidiaries are included on the Bank’s Consolidated balance sheets or are reflected as off-balance sheet commitments; therefore, the Bank has not recognized a separate liability for these guarantees. As at December 31, 2024 and 2023, guarantees of obligations of affiliates provided by the Bank were not material. The Bank believes that the occurrence of any event that would trigger payments under these guarantees is remote.

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Note 27 – Pledged assets and collateral

Pledged assets

The Bank pledges financial assets that it owns to maintain potential borrowing capacity at discount windows with Federal Reserve banks, various other central banks and FHLBs. Additionally, the Bank pledges assets for other purposes, including to collateralize repurchase and other securities financing agreements, to cover short sales and to collateralize derivative contracts and deposits and borrowings from affiliates. Certain of these pledged assets may be sold or repledged or otherwise used by the secured parties and are parenthetically identified on the Consolidated balance sheets as assets pledged.

The following table presents the carrying value of the Bank's pledged assets.

December 31, (in billions)	2024	2023
Assets that may be sold or repledged or otherwise used by secured parties	\$ 84.0	\$ 90.5
Assets that may not be sold or repledged or otherwise used by secured parties	147.0	145.0
Assets pledged at Federal Reserve banks and FHLBs	724.0	675.6
Total pledged assets	\$ 955.0	\$ 911.1

Total pledged assets do not include assets of consolidated VIEs; these assets are used to settle the liabilities of those entities. Refer to Note 15 for additional information on assets and liabilities of consolidated VIEs. Refer to Note 12 for additional information on the Bank's securities financing activities. Refer to Note 20 for additional information on the Bank's long-term debt. The significant components of the Bank's pledged assets were as follows.

December 31, (in billions)	2024	2023
Investment securities	\$ 91.9	\$ 111.2
Loans	740.9	681.8
Trading assets and other	122.2	118.1
Total pledged assets	\$ 955.0	\$ 911.1

Collateral

The Bank accepts financial assets as collateral that it is permitted to sell or repledge, deliver or otherwise use. This collateral is generally obtained under resale and other securities financing agreements, prime brokerage-related held-for-investment customer receivables and derivative contracts. Collateral is generally used under repurchase and other securities financing agreements, to cover short sales, and to collateralize derivative contracts and deposits.

The following table presents the fair value of collateral accepted.

December 31, (in billions)	2024	2023
Collateral permitted to be sold or repledged, delivered, or otherwise used	\$ 745.2	\$ 617.3
Collateral sold, repledged, delivered or otherwise used	541.0	447.6

Note 28 - Litigation

Contingencies

As of December 31, 2024, JPMorganChase and its subsidiaries, including but not limited to JPMorgan Chase Bank, N.A., are defendants or respondents in numerous evolving legal proceedings, including private proceedings, public proceedings, government investigations, regulatory enforcement matters, and the matters described below. The litigations range from individual actions involving a single plaintiff to class action lawsuits with potentially millions of class members. Investigations and regulatory enforcement matters involve both formal and informal proceedings, by both governmental agencies and self-regulatory organizations. These legal proceedings are at varying stages of adjudication, arbitration or investigation, and involve each of JPMorganChase's lines of business and several geographies and a wide variety of claims (including common law tort and contract claims and statutory antitrust, securities and consumer protection claims), some of which present novel legal theories.

JPMorganChase believes the estimate of the aggregate range of reasonably possible losses, in excess of reserves established, for its legal proceedings is from \$0 to approximately \$1.4 billion at December 31, 2024. This estimated aggregate range of reasonably possible losses was based upon information available as of that date for those proceedings in which JPMorganChase believes that an estimate of reasonably possible loss can be made. For certain matters, JPMorganChase does not believe that such an estimate can be made, as of that date. JPMorganChase's estimate of the aggregate range of reasonably possible losses involves significant judgment, given:

- the number, variety and varying stages of the proceedings, including the fact that many are in preliminary stages,
- the existence in many such proceedings of multiple defendants, including JPMorganChase and JPMorgan Chase Bank, N.A., whose share of liability (if any) has yet to be determined,
- the numerous yet-unresolved issues in many of the proceedings, including issues regarding class certification and the scope of many of the claims, and
- the uncertainty of the various potential outcomes of such proceedings, including where JPMorganChase has made assumptions concerning future rulings by the court or other adjudicator, or about the behavior or incentives of adverse parties or regulatory authorities, and those assumptions prove to be incorrect.

In addition, the outcome of a particular proceeding may be a result which JPMorganChase did not take into account in its estimate because JPMorganChase had deemed the likelihood of that outcome to be remote. Accordingly, JPMorganChase's estimate of the aggregate range of reasonably possible losses will change from time to time, and actual losses may vary significantly.

Set forth below are descriptions of JPMorganChase's material legal proceedings in which JPMorganChase and its subsidiaries (which in certain instances include JPMorgan Chase Bank, N.A.) are involved or have been named as parties.

1MDB Litigation. J.P. Morgan (Suisse) SA was named as a defendant in a civil litigation filed in May 2021 in Malaysia by 1Malaysia Development Berhad ("1MDB"), a Malaysian state-owned and controlled investment fund. The claim alleges "dishonest assistance" against J.P. Morgan (Suisse) SA in relation to payments of \$300 million and \$500 million, from 2009 and 2010, respectively, received from 1MDB and paid into an account at J.P. Morgan (Suisse) SA held by 1MDB PetroSaudi Limited, a joint venture company between 1MDB and PetroSaudi Holdings (Cayman) Limited. In March 2024, the Court upheld the JPMorganChase's challenge to the validity of service and the Malaysian Court's jurisdiction to hear the claim. That decision has been appealed by 1MDB. In August 2023, the Court denied an application by 1MDB to discontinue its claim with permission to re-file a new claim in the future. That decision was appealed by both 1MDB and JPMorganChase, and an appeals court is scheduled to hear both appeals in November 2025. In its appeal, JPMorganChase seeks to prevent any claim from continuing.

In addition, in November 2023, the Federal Office of the Attorney General (OAG) in Switzerland notified J.P. Morgan (Suisse) SA that it is conducting an investigation into possible criminal liability in connection with transactions arising from J.P. Morgan (Suisse) SA's relationship with the 1MDB PetroSaudi joint venture and its related persons for the period September 2009 through August 2015. The OAG investigation is ongoing.

Amrapali. India's Enforcement Directorate ("ED") is investigating J.P. Morgan India Private Limited in connection with investments made in 2010 and 2012 by two offshore funds formerly managed by JPMorganChase entities into residential housing projects developed by the Amrapali Group ("Amrapali") relating to delays in delivering or failure to deliver residential units. In August 2021, the ED issued an order fining J.P. Morgan India Private Limited approximately

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\$31.5 million, and JPMorganChase is appealing that order. Relatedly, in July 2019, the Supreme Court of India issued an order making preliminary findings that Amrapali and other parties, including unspecified JPMorganChase entities and the offshore funds that had invested in the projects, violated certain criminal currency control and money laundering provisions, and ordered the ED to conduct a further inquiry. JPMorganChase is responding to and cooperating with the inquiry.

Foreign Exchange Investigations and Litigation.

JPMorganChase previously reported settlements with certain government authorities relating to its foreign exchange ("FX") sales and trading activities and controls related to those activities. Among those resolutions, in May 2015, JPMorganChase pleaded guilty to a single violation of federal antitrust law. The Department of Labor ("DOL") granted JPMorganChase exemptions that permit JPMorganChase and its affiliates to continue to rely on the Qualified Professional Asset Manager exemption under the Employee Retirement Income Security Act ("ERISA") through the ten-year disqualification period following the antitrust plea. The only remaining FX-related governmental inquiry is a South Africa Competition Commission matter which is currently pending before the South Africa Competition Tribunal.

With respect to civil litigation matters, some FX-related individual and putative class actions filed outside the U.S., including in the U.K., Israel, the Netherlands, Brazil and Australia, remain. In July 2023, the U.K. Court of Appeal overturned the Competition Appeal Tribunal's earlier denial of a request for class certification on an opt-out basis. The defendants have appealed this decision to the U.K. Supreme Court. In Israel, a settlement in principle has been reached on the putative class action, which remains subject to court approval.

Interchange Litigation. Groups of merchants and retail associations filed a series of class action complaints alleging that Visa and Mastercard, as well as certain banks, conspired to set the price of credit and debit card interchange fees and enacted related rules in violation of antitrust laws.

In September 2018, the parties settled the class action seeking monetary relief, with the defendants collectively contributing approximately \$6.2 billion. The settlement has been approved by the United States District Court for the Eastern District of New York and affirmed on appeal. Based on the percentage of merchants that opted out of the settlement, \$700 million has been returned to the defendants from the settlement escrow. A separate class action seeking injunctive relief continues, and in September 2021, the District Court granted plaintiffs' motion for class certification in part, and denied the motion in part. In June 2024, the District

Court denied preliminary approval of a settlement of the injunctive class action in which Visa and Mastercard agreed to certain changes to their respective network rules and system-wide reductions in interchange rates for U.S.-based merchants. The parties are considering next steps.

Of the merchants who opted out of the damages class settlement, certain merchants filed individual actions raising similar allegations against Visa and Mastercard, as well as against JPMorganChase and other banks. While some of those actions remain pending, the defendants have reached settlements with the merchants who opted out representing over 70% of the combined Mastercard-branded and Visa-branded payment card sales volume.

LIBOR and Other Benchmark Rate Investigations and Litigation. JPMorganChase has responded to inquiries from various governmental agencies and entities around the world relating primarily to the British Bankers Association's ("BBA") London Interbank Offered Rate ("LIBOR") for various currencies and the European Banking Federation's Euro Interbank Offered Rate ("EURIBOR"). The Swiss Competition Commission's investigation relating to EURIBOR, to which JPMorganChase and one other bank remain subject, continues. JPMorganChase appealed a December 2016 decision by the European Commission against JPMorganChase and other banks finding an infringement of European antitrust rules relating to EURIBOR. In December 2023, the European General Court annulled the fine imposed by the European Commission, but exercised its discretion to re-impose a fine in an identical amount. In March 2024, JPMorganChase filed an appeal of this decision with the Court of Justice of the European Union.

In addition, JPMorganChase has been named as a defendant along with other banks in various individual and putative class actions related to benchmark rates, including U.S. dollar LIBOR. In actions related to U.S. dollar LIBOR during the period that it was administered by the BBA, the United States District Court for the Southern District of New York granted class certification of antitrust claims related to bonds and interest rate swaps sold directly by the defendants, including JPMorganChase. JPMorganChase has obtained dismissal of certain actions and resolved certain other actions, and as to all remaining actions has moved for summary judgment. In addition, a lawsuit filed by a group of individual plaintiffs asserting antitrust claims, alleging that JPMorganChase and other defendants were engaged in an unlawful agreement to set U.S. dollar LIBOR and conspired to monopolize the market for LIBOR-based consumer loans and credit cards was dismissed in October 2023 and affirmed on appeal by the United States Court of Appeals for the Ninth Circuit in December 2024. JPMorganChase has resolved all non-U.S. dollar LIBOR actions.

Russian Litigation. JPMorganChase is obligated to comply with international sanctions laws, which mandate the blocking of certain assets. These laws apply when assets associated with individuals, companies, products or services are within the scope of the sanctions. JPMorganChase has faced actual and threatened litigation in Russia seeking payments that JPMorganChase cannot make under, and is contractually excused from paying as a result of, relevant sanctions laws. In claims involving JPMorganChase and claims filed against other financial institutions, Russian courts have disregarded the parties' contractual agreements concerning forum selection and did not recognize foreign sanctions laws as a basis for not making payment. Russian courts have entered judgment against JPMorganChase in a number of claims, including one for \$439 million, and a judgment has been executed against assets held onshore by JPMorganChase in Russia. The total amount of the judgments exceeds the total amount of available assets that JPMorganChase holds in Russia. JPMorganChase continues to appeal the Russian courts' decisions, and judgments may not be executed while on appeal. Russian courts have also ordered interim freezes of JPMorganChase assets in Russia (including, among other things, funds in bank accounts, securities, shares in authorized capital, and certain trademarks, of the named defendants) pending a determination of certain underlying claims against JPMorganChase. JPMorganChase has challenged claims being pursued in the Russian courts and related freeze orders in other jurisdictions provided for by the parties' contractual forum selections. If further claims are enforced despite the actions taken by JPMorganChase to challenge the claims and orders and to seek the proper application of law, JPMorganChase's assets in Russia could be seized in full, and certain client assets could also be seized, or JPMorganChase could be prevented from complying with its obligations.

SEC Inquiries. In October 2024, JPMorganChase entered into settlements with the SEC to resolve inquiries related to, among other things, conflict disclosures concerning the selection of portfolio managers and the timing of JPMorganChase's liquidation of shares distributed in-kind to certain investment vehicles that invest in third-party managed private funds and certain other matters. The resolutions required JPMorganChase to pay a combined \$151 million in civil penalties and voluntary payments to customers. JPMorganChase continues to cooperate in connection with SEC inquiries concerning the aggregation of accounts for fee billing and various other matters.

Shareholder Litigation. Several shareholder putative class actions, as well as shareholder derivative actions purporting to act on behalf of JPMorganChase, have

been filed against JPMorganChase, its Board of Directors and certain of its current and former officers.

Certain of these shareholder suits relate to historical trading practices by former employees in the precious metals and U.S. treasuries markets and related conduct which were the subject of JPMorganChase's resolutions with the DOJ, CFTC and SEC in September 2020, and fiduciary activities that were separately the subject of a resolution between JPMorgan Chase Bank, N.A. and the OCC in November 2020. One of these shareholder derivative suits was filed in the Supreme Court of the State of New York in May 2022, asserting breach of fiduciary duty and unjust enrichment claims relating to the historical trading practices and related conduct and fiduciary activities which were the subject of the resolutions described above. In December 2022, the court granted defendants' motion to dismiss this action in full, and in July 2023, the plaintiff filed an appeal, which remains pending.

A second shareholder derivative action relating to the historical trading practices and related conduct was filed in the United States District Court for the Eastern District of New York in December 2022. Defendants have moved to dismiss the complaint.

Zelle Network Litigation. In December 2024, the Consumer Financial Protection Bureau ("CFPB") filed a complaint against Early Warning Services, LLC ("EWS"), Bank of America, N.A., Wells Fargo Bank, N.A. and JPMorgan Chase Bank, N.A. in the United States District Court for the District of Arizona. The CFPB alleges that EWS and the defendant banks have failed to take sufficient efforts to prevent fraud on the Zelle network. The defendants will file a response to the complaint.

* * *

In addition to the various legal proceedings discussed above, JPMorganChase and its subsidiaries, including in certain cases, JPMorgan Chase Bank, N.A., are named as defendants or are otherwise involved in a substantial number of other legal proceedings. JPMorganChase and JPMorgan Chase Bank, N.A., each believe it has meritorious defenses to the claims asserted against it in its currently outstanding legal proceedings and it intends to defend itself vigorously. Additional legal proceedings may be initiated from time to time in the future.

JPMorgan Chase Bank, N.A., has established reserves for several hundred of its currently outstanding legal proceedings. In accordance with the provisions of U.S. GAAP for contingencies, JPMorgan Chase Bank, N.A., accrues for a litigation-related liability when it is probable that such a liability has been incurred and the amount of the loss can be reasonably estimated. JPMorgan Chase Bank, N.A., evaluates its outstanding legal proceedings each quarter to assess its litigation reserves, and makes adjustments in such reserves,

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upward or downward, as appropriate, based on management's best judgment after consultation with counsel. JPMorgan Chase Bank, N.A.'s legal expense was \$867 million, \$852 million and \$54 million for the years ended December 31, 2024, 2023 and 2022, respectively. Where a particular litigation matter involves one or more subsidiaries or affiliates of JPMorganChase, JPMorganChase determines the appropriate allocation of legal expense among those subsidiaries or affiliates (including, where applicable, JPMorgan Chase Bank, N.A.). There is no assurance that JPMorgan Chase Bank N.A.'s litigation reserves will not need to be adjusted in the future.

In view of the inherent difficulty of predicting the outcome of legal proceedings, particularly where the claimants seek very large or indeterminate damages, or where the matters present novel legal theories, involve a large number of parties or are in early stages of discovery, JPMorgan Chase Bank, N.A. cannot state with confidence what will be the eventual outcomes of the currently pending matters, the timing of their ultimate resolution or the eventual losses, fines, penalties or consequences related to those matters. JPMorgan Chase Bank, N.A. believes, based upon its current knowledge and after consultation with counsel, consideration of the material legal proceedings described above and after taking into account its current litigation reserves and its estimated aggregate range of possible losses, that the other legal proceedings currently pending against it should not have a material adverse effect on JPMorgan Chase Bank, N.A.'s consolidated financial condition. JPMorgan Chase Bank, N.A. notes, however, that in light of the uncertainties involved in such proceedings, there is no assurance that the ultimate resolution of these matters will not significantly exceed the reserves it has currently accrued or that a matter will not have material reputational consequences. As a result, the outcome of a particular matter may be material to JPMorgan Chase Bank, N.A.'s operating results for a particular period, depending on, among other factors, the size of the loss or liability imposed and the level of JPMorgan Chase Bank, N.A.'s income for that period.

Note 29 – Business combinations

On May 1, 2023, JPMorgan Chase Bank, National Association acquired certain assets and assumed certain liabilities of First Republic Bank (the "First Republic acquisition") from the Federal Deposit Insurance Corporation ("FDIC"), as receiver. The acquisition resulted in a bargain purchase gain, which represents the excess of the estimated fair value of the net assets acquired above the purchase price.

The Bank has determined that this acquisition constitutes a business combination under U.S. GAAP. Accordingly, the initial recognition of the assets acquired and liabilities assumed were generally measured at their estimated fair values as of May 1, 2023. The determination of those fair values required management to make certain market-based assumptions about expected future cash flows, discount rates and other valuation inputs at the time of the acquisition. The Bank believes that the fair value estimates of the assets acquired and liabilities assumed provide a reasonable basis for determining the estimated bargain purchase gain.

The First Republic acquisition resulted in a preliminary estimated bargain purchase gain of \$2.7 billion. The final bargain purchase gain of \$2.9 billion reflects adjustments of \$103 million and \$63 million for the years ended December 31, 2024 and 2023, respectively, made during the one-year measurement period, as permitted by U.S. GAAP, to finalize management's fair value estimates for the assets acquired and liabilities assumed. As of December 31, 2024, certain matters related to the final settlement remained outstanding between the Bank and the FDIC. On January 17, 2025, the Bank reached an agreement with the FDIC with respect to certain outstanding items. As a result of the agreement, the Bank made a payment of \$609 million to the FDIC on January 31, 2025 and reduced its additional payable to the FDIC, which will result in a gain of approximately \$600 million to be recorded in other income in the first quarter of 2025.

In connection with the First Republic acquisition, the Bank and the FDIC entered into two shared-loss agreements with respect to certain loans and lending-related commitments (the "shared-loss assets"): the Commercial Shared-Loss Agreement ("CSLA") and the Single-Family Shared-Loss Agreement ("SFSLA"). The CSLA covers 80% of credit losses, on a pari passu basis, over 5 years with a subsequent 3-year recovery period for certain acquired commercial loans and other real estate exposure. The SFSLA covers 80% of credit losses, on a pari passu basis, for 7 years for certain acquired loans secured by mortgages on real property or shares in cooperative property constituting a primary residence. The indemnification assets, which represent the fair value of the CSLA and SFSLA on the acquisition date, are reflected in the total assets acquired.

As part of the consideration paid, JPMorgan Chase Bank, N.A. issued a five-year, \$50 billion secured note to the FDIC (the "Purchase Money Note"). The Purchase Money Note bears interest at a fixed rate of 3.4% and is secured by certain of the acquired loans. The Purchase Money Note is prepayable upon notice to the holder.

The Bank had placed a \$5 billion deposit with First Republic Bank on March 16, 2023, as part of \$30 billion of deposits provided by a consortium of large U.S. banks. The Bank's \$5 billion deposit was effectively settled as part of the acquisition and the associated allowance for credit losses was released upon closing. The Bank subsequently repaid the remaining \$25 billion of deposits to the consortium of banks, including accrued interest through the payment date on May 9, 2023.

The computation of the purchase price, the fair values of the assets acquired and liabilities assumed as part of the First Republic acquisition and the related bargain purchase gain are presented below, which reflects adjustments made during the measurement period to the acquisition-date fair value of the net assets acquired. The measurement period ended on April 30, 2024.

(in millions)	Fair value purchase price allocation as of May 1, 2023	
Purchase price consideration		
Amounts paid/due to the FDIC, net of cash acquired ^(a)	\$	13,555
Purchase Money Note (at fair value) ^(b)		48,848
Settlement of First Republic deposit and other related party transactions ^(c)		5,447
Contingent consideration - Shared-loss agreements		15
Purchase price consideration	\$	67,865
Assets		
Securities	\$	30,285
Loans		153,242
Core deposit and customer relationship intangibles		1,455
Indemnification assets - Shared-loss agreements		675
Accounts receivable and other assets ^(d)		6,740
Total assets acquired	\$	192,397
Liabilities		
Deposits	\$	87,572
FHLB advances		27,919
Lending-related commitments		2,614
Accounts payable and other liabilities ^(d)		2,792
Deferred tax liabilities		757
Total liabilities assumed	\$	121,654
Fair value of net assets acquired	\$	70,743
Gain on acquisition, after income taxes	\$	2,878

(a) Net of cash acquired of \$680 million, and including disputed amounts with the FDIC as of April 30, 2024.

(b) As part of the consideration paid, JPMorgan Chase Bank, N.A. issued a five-year, \$50 billion secured note to the FDIC (the "Purchase Money Note").

(c) Includes \$447 million of securities financing transactions with First Republic Bank that were effectively settled on the acquisition date.

(d) Other assets include \$1.2 billion in tax-oriented investments and \$683 million of lease right-of-use assets. Other liabilities include the related tax-oriented investment liabilities of \$669 million and lease liabilities of \$748 million.

The following describes the accounting policies and fair value methodologies generally used by the Bank for the following assets acquired and liabilities assumed: core deposit and customer relationship intangibles, shared-loss agreements and the related indemnification assets, Purchase Money Note, and FHLB advances.

For further discussion of the Bank's accounting policies and valuation methodologies, refer to Notes 3 and 4 for fair value measurement, Note 11 for investment securities, Note 13 for loans, Note 18 for deposits, and Note 26 for lending-related commitments.

Core deposit and customer relationship intangibles

Core deposit and certain wealth management customer relationship intangibles were acquired as part of the First Republic acquisition. The core deposit intangible of \$1.3 billion was valued by discounting estimated after-tax cost savings over the remaining useful life of the deposits using the favorable source of funds method. The after-tax cost savings were estimated based on the difference between the cost of maintaining the core deposit base relative to the cost of next best alternative funding sources available to market participants. The customer relationship intangibles of \$180 million were valued by discounting estimated after-tax earnings over their remaining useful lives using the multi-period excess earnings method. Both intangible asset valuations utilized

assumptions that the Bank believes a market participant would use to estimate fair values, such as growth and attrition rates, projected fee income as well as related costs to service the relationships, and discount rates. The core deposit and customer relationship intangibles are amortized over a projected period of future cash flows of approximately 7 years. Refer to Note 16 for further discussion on other intangible assets.

Indemnification assets - Shared-loss agreements

The indemnification assets represent forecasted recoveries from the FDIC associated with the shared-loss assets over the respective shared-loss recovery periods. The indemnification assets were recorded at fair value in other assets on the Consolidated balance

sheets on the acquisition date. The fair values of the indemnification assets were estimated based on the timing of the forecasted losses underlying the related allowance for credit losses. The subsequent quarterly remeasurement of the indemnification assets is based on changes in the amount and timing of forecasted losses in the allowance for credit losses associated with the shared-loss assets and is recorded in other income. Under certain circumstances, the Bank may be required to make a payment to the FDIC upon termination of the shared-loss agreements based on the level of actual losses and recoveries on the shared-loss assets. The estimated potential future payment is reflected as contingent consideration as part of the purchase price consideration.

Loans

The following table presents the unpaid principal balance ("UPB") and fair values of the loans acquired as of May 1, 2023, and reflects adjustments made during the measurement period to the acquisition-date fair value of the loans acquired.

(in millions)	May 1, 2023	
	UPB	Fair value
Residential real estate	\$ 106,240	\$ 92,053
Auto and other	3,093	2,030
Total consumer	109,333	94,083
Secured by real estate	37,117	33,602
Commercial & industrial	4,332	3,932
Other	23,499	21,625
Total wholesale	64,948	59,159
Total loans	\$ 174,281	\$ 153,242

Unaudited pro forma condensed combined financial information

The following table presents certain unaudited pro forma financial information for the year ended December 31, 2023 and 2022 as if the First Republic acquisition had occurred on January 1, 2022, including recognition of the estimated bargain purchase gain of \$2.8 billion and the provision for credit losses of \$1.2 billion. Additional adjustments include the interest on the Purchase Money Note and the impact of amortizing and accreting certain estimated fair value adjustments related to intangible assets, loans and lending-related commitments.

The Bank expects to achieve operating cost savings and other business synergies resulting from the acquisition that are not reflected in the pro forma amounts. The pro forma information is not necessarily indicative of the historical results of operations had the acquisition occurred on January 1, 2022, nor is it indicative of the results of operations in future periods.

(in millions)	Year ended December 31,	
	2023	2022
Noninterest revenue	\$ 51,016	\$ 55,080
Net interest income	94,573	72,717
Net income	46,609	37,755

Note 30 – Business changes and developments

Internal transfers of legal entities under common control

From time to time there may be transfers of legal entities under common control between the Bank and JPMorganChase. Such transfers are accounted for at historical cost in accordance with U.S. GAAP and are reflected in the Consolidated Financial Statements prospectively when the impact of the transfers are not material to the Bank's Consolidated Financial Statements. There were internal transfers of legal entities between the Bank and JPMorganChase for the years ended December 31, 2024, 2023 and 2022, and the impact of these transfers were not material to the Bank's Consolidated Financial Statements.

Subsequent events

The Bank has performed an evaluation of events that have occurred subsequent to December 31, 2024, and through February 14, 2025 (the date the financial statements were available to be issued). Other than the events already disclosed within the relevant footnotes, there have been no material subsequent events that occurred during such period that would require disclosure or recognition in the Bank's Consolidated Financial Statements as of December 31, 2024.

Supplementary information

Glossary of Terms and Acronyms

ABS: Asset-backed securities

Active foreclosures: Loans referred to foreclosure where formal foreclosure proceedings are ongoing. Includes both judicial and non-judicial states.

AFS: Available-for-sale

Amortized cost: Amount at which a financing receivable or investment is originated or acquired, adjusted for accretion or amortization of premium, discount, and net deferred fees or costs, collection of cash, charge-offs, foreign exchange, and fair value hedge accounting adjustments. For AFS securities, amortized cost is also reduced by any impairment losses recognized in earnings. Amortized cost is not reduced by the allowance for credit losses, except where explicitly presented net.

AOCI: Accumulated other comprehensive income/ (loss)

ARM: Adjustable rate mortgage(s)

Bank: JPMorgan Chase Bank N.A.

BBL: Barrel

Beneficial interests issued by consolidated VIEs: Represents the interest of third-party holders of debt, equity securities, or other obligations, issued by VIEs that the Bank consolidates.

Benefit obligation: Refers to the projected benefit obligation for pension plans and the accumulated postretirement benefit obligation for OPEB plans.

Bridge Financing Portfolio: A portfolio of held-for-sale unfunded loan commitments and funded loans. The unfunded commitments include both short-term bridge loan commitments that will ultimately be replaced by longer term financing as well as term loan commitments. The funded loans include term loans and funded revolver facilities.

CCP: "Central counterparty" is a clearing house that interposes itself between counterparties to contracts traded in one or more financial markets, becoming the buyer to every seller and the seller to every buyer and thereby ensuring the future performance of open contracts. A CCP becomes a counterparty to trades with market participants through novation, an open offer system, or another legally binding arrangement.

CDS: Credit default swaps

CECL: Current Expected Credit Losses

CET1 Capital: Common equity Tier 1 capital

CFO: Chief Financial Officer

CLO: Collateralized loan obligations

Collateral-dependent: A loan is considered to be collateral-dependent when repayment of the loan is expected to be provided substantially through the operation or sale of the collateral when the borrower is experiencing financial difficulty, including when foreclosure is deemed probable based on borrower delinquency.

Credit derivatives: Financial instruments whose value is derived from the credit risk associated with the debt of a third-party issuer (the reference entity) which allow one party (the protection purchaser) to transfer that risk to another party (the protection seller). Upon the occurrence of a credit event by the reference entity, which may include, among other events, the bankruptcy or failure to pay its obligations, or certain restructurings of the debt of the reference entity, neither party has recourse to the reference entity. The protection purchaser has recourse to the protection seller for the difference between the face value of the CDS contract and the fair value at the time of settling the credit derivative contract. The determination as to whether a credit event has occurred is generally made by the relevant International Swaps and Derivatives Association ("ISDA") Determinations Committee.

Criticized: Criticized loans, lending-related commitments and derivative receivables that are classified as special mention, substandard and doubtful categories for regulatory purposes and are generally consistent with a rating of CCC+/Caa1 and below, as defined by S&P and Moody's.

CRO: Chief Risk Officer

CVA: Credit valuation adjustment

DVA: Debit valuation adjustment

Embedded derivatives: are implicit or explicit terms or features of a financial instrument that affect some or all of the cash flows or the value of the instrument in a manner similar to a derivative. An instrument containing such terms or features is referred to as a "hybrid." The component of the hybrid that is the non-derivative instrument is referred to as the "host." For example, callable debt is a hybrid instrument that contains a plain vanilla debt instrument (i.e., the host) and an embedded option that allows the issuer to redeem the debt issue at a specified date for a specified amount (i.e., the embedded derivative). However, a floating rate instrument is not a hybrid composed of a fixed-rate instrument and an interest rate swap.

ETD: "Exchange-traded derivatives": Derivative contracts that are executed on an exchange and settled via a central clearing house.

Glossary of Terms and Acronyms

EU: European Union

Fannie Mae: Federal National Mortgage Association

FASB: Financial Accounting Standards Board

FCA: Financial Conduct Authority

FDIC: Federal Deposit Insurance Corporation

FDM: "Financial difficulty modification" applies to loan modifications effective January 1, 2023, and is deemed to occur when the Bank modifies specific terms of the original loan agreement. The following types of modifications are considered FDMs: principal forgiveness, interest rate reduction, other-than-insignificant payment delay, term extension or a combination of these modifications.

Federal Reserve: The Board of the Governors of the Federal Reserve System

FFIEC: Federal Financial Institutions Examination Council

FHA: Federal Housing Administration

FHLB: Federal Home Loan Bank

FICC: The Fixed Income Clearing Corporation

FICO score: A measure of consumer credit risk provided by credit bureaus, typically produced from statistical models by Fair Isaac Corporation utilizing data collected by the credit bureaus.

Freddie Mac: Federal Home Loan Mortgage Corporation

Free standing derivatives: A derivative contract entered into either separate and apart from any of the Bank's other financial instruments or equity transactions. Or, in conjunction with some other transaction and is legally detachable and separately exercisable.

FTC: Foreign tax credit

FVA: Funding valuation adjustment

FX: Foreign exchange

G7: Group of Seven nations: Countries in the G7 are Canada, France, Germany, Italy, Japan, the U.K. and the U.S.

G7 government securities: Securities issued by the government of one of the G7 nations.

Ginnie Mae: Government National Mortgage Association

HELOC: Home equity line of credit

Home equity – senior lien: Represents loans and commitments where the Bank holds the first security interest on the property.

Home equity – junior lien: Represents loans and commitments where the Bank holds a security interest that is subordinate in rank to other liens.

HTM: Held-to-maturity

Investment-grade: An indication of credit quality based on the Bank's internal risk assessment. The Bank considers ratings of BBB-/Baa3 or higher as investment-grade.

JPMorganChase: JPMorgan Chase & Co.

JPMorgan Chase Foundation: A not-for-profit organization that makes contributions for charitable and educational purposes.

LGD: Loss given default

LIBOR: London Interbank Offered Rate

LLC: Limited Liability Company

LTIP: Long-term incentive plan

LTV: "Loan-to-value": For residential real estate loans, the relationship, expressed as a percentage, between the principal amount of a loan and the appraised value of the collateral (i.e., residential real estate) securing the loan.

Origination date LTV ratio

The LTV ratio at the origination date of the loan. Origination date LTV ratios are calculated based on the actual appraised values of collateral (i.e., loan-level data) at the origination date.

Current estimated LTV ratio:

An estimate of the LTV as of a certain date. The current estimated LTV ratios are calculated using estimated collateral values derived from a nationally recognized home price index measured at the metropolitan statistical area ("MSA") level. These MSA-level home price indices consist of actual data to the extent available and forecasted data where actual data is not available. As a result, the estimated collateral values used to calculate these ratios do not represent actual appraised loan-level collateral values; as such, the resulting LTV ratios are necessarily imprecise and should therefore be viewed as estimates.

Combined LTV ratio:

The LTV ratio considering all available lien positions, as well as unused lines, related to the property. Combined Loan-To-Value ratios are used for junior lien home equity products.

Master netting agreement: A single agreement with a counterparty that permits multiple transactions governed by that agreement to be terminated or accelerated and settled through a single payment in a single currency in the event of a default (e.g.,

Glossary of Terms and Acronyms

bankruptcy, failure to make a required payment or securities transfer or deliver collateral or margin when due).

MBS: Mortgage-backed securities

Measurement alternative: Measures equity securities without readily determinable fair values at cost less impairment (if any), plus or minus observable price changes from an identical or similar investment of the same issuer.

Merchant Services: offers merchants payment processing capabilities, fraud and risk management, data and analytics, and other payments services. Through Merchant Services, merchants of all sizes can accept payments via credit and debit cards and payments in multiple currencies.

MEV: Macroeconomic variable

MMBTU: One million British thermal units

Moody's: Moody's Investor Services

Mortgage product types:

Alt-A

Alt-A loans are generally higher in credit quality than subprime loans but have characteristics that would disqualify the borrower from a traditional prime loan. Alt-A lending characteristics may include one or more of the following: (i) limited documentation; (ii) a high CLTV ratio; (iii) loans secured by non-owner occupied properties; or (iv) a debt-to-income ratio above normal limits. A substantial proportion of the Bank's Alt-A loans are those where a borrower does not provide complete documentation of his or her assets or the amount or source of his or her income.

Option ARMs

The option ARM real estate loan product is an adjustable-rate mortgage loan that provides the borrower with the option each month to make a fully amortizing, interest-only or minimum payment. The minimum payment on an option ARM loan is based on the interest rate charged during the introductory period. This introductory rate is usually significantly below the fully indexed rate. The fully indexed rate is calculated using an index rate plus a margin. Once the introductory period ends, the contractual interest rate charged on the loan increases to the fully indexed rate and adjusts monthly to reflect movements in the index. The minimum payment is typically insufficient to cover interest accrued in the prior month, and any unpaid interest is deferred and added to the principal balance of the loan. Option ARM loans are subject to payment recast, which converts the loan to a variable-rate fully amortizing loan upon meeting specified loan balance and anniversary date triggers.

Prime

Prime mortgage loans are made to borrowers with good credit records who meet specific underwriting requirements, including prescriptive requirements related to income and overall debt levels. New prime mortgage borrowers provide full documentation and generally have reliable payment histories.

Subprime

Subprime loans are loans that, prior to mid-2008, were offered to certain customers with one or more high risk characteristics, including but not limited to: (i) unreliable or poor payment histories; (ii) a high LTV ratio of greater than 80% (without borrower-paid mortgage insurance); (iii) a high debt-to-income ratio; (iv) an occupancy type for the loan is other than the borrower's primary residence; or (v) a history of delinquencies or late payments on the loan.

MSA: Metropolitan statistical areas

MSR: Mortgage servicing rights

NA: Data is not applicable or available for the period presented.

NAV: Net Asset Value

Net charge-off/(recovery) rate: Represents net charge-offs/(recoveries) (annualized) divided by average retained loans for the reporting period.

Net interchange income includes the following components:

- **Interchange income:** Fees earned by credit and debit card issuers on sales transactions.
- **Rewards costs:** The cost to the Bank for points earned by cardholders enrolled in credit card rewards programs generally tied to sales transactions.
- **Partner payments:** Payments to co-brand credit card partners based on the cost of loyalty program rewards earned by cardholders on credit card transactions.

Net mortgage servicing revenue: Includes operating revenue earned from servicing third-party mortgage loans, which is recognized over the period in which the service is provided; changes in the fair value of MSRs; the impact of risk management activities associated with MSRs; and gains and losses on securitization of excess mortgage servicing. Net mortgage servicing revenue also includes gains and losses on sales and lower of cost or fair value adjustments of certain repurchased loans insured by U.S. government agencies.

NM: Not meaningful

NOL: Net operating loss

Glossary of Terms and Acronyms

Nonaccrual loans: Loans for which interest income is not recognized on an accrual basis. Loans (other than credit card loans and certain consumer loans insured by U.S. government agencies) are placed on nonaccrual status when full payment of principal and interest is not expected, regardless of delinquency status, or when principal and interest have been in default for a period of 90 days or more unless the loan is both well-secured and in the process of collection. Collateral-dependent loans are typically maintained on nonaccrual status.

OAS: Option-adjusted spread

OCC: Office of the Comptroller of the Currency

OCI: Other comprehensive income/(loss)

OPEB: Other postretirement employee benefit

Operating losses: Primarily refer to fraud losses associated with customer deposit accounts, credit and debit cards; exclude legal expense.

Over-the-counter (“OTC”) derivatives: Derivative contracts that are negotiated, executed and settled bilaterally between two derivative counterparties, where one or both counterparties is a derivatives dealer.

Over-the-counter cleared (“OTC-cleared”) derivatives: Derivative contracts that are negotiated and executed bilaterally, but subsequently settled via a central clearing house, such that each derivative counterparty is only exposed to the default of that clearing house.

PCD: “Purchased credit deteriorated” assets represent acquired financial assets that as of the date of acquisition have experienced a more-than-insignificant deterioration in credit quality since origination, as determined by the Bank.

PD: Probability of default

PPP: Paycheck Protection Program under the Small Business Association (“SBA”)

PRA: Prudential Regulation Authority

Principal transactions revenue: Principal transactions revenue is driven by many factors, including:

- 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 Bank and the price at which another market participant is willing and able to buy it from the Bank, and vice versa; and
- realized and unrealized gains and losses on financial instruments and commodities transactions, including those accounted for under the fair value option, primarily used in client-driven market-making activities.

- Realized gains and losses result from the sale of instruments, closing out or termination of transactions, or interim cash payments.
- Unrealized gains and losses result from changes in valuation.

In connection with its client-driven market-making activities, the Bank transacts in debt and equity instruments, derivatives and commodities, including physical commodities inventories and financial instruments that reference commodities.

Principal transactions revenue also includes realized and unrealized gains and losses related to:

- derivatives designated in qualifying hedge accounting relationships, primarily fair value hedges of commodity and foreign exchange risk;
- derivatives used for specific risk management purposes, primarily to mitigate credit, foreign exchange and interest rate risks.

Production revenue: Includes fees and income recognized as earned on mortgage loans originated with the intent to sell, and the impact of risk management activities associated with the mortgage pipeline and warehouse loans. Production revenue also includes gains and losses on sales and lower of cost or fair value adjustments on mortgage loans held-for-sale (excluding certain repurchased loans insured by U.S. government agencies), and changes in the fair value of financial instruments measured under the fair value option.

PSU(s): Performance share units

REO: Real estate owned

Retained loans: Loans that are held-for-investment (i.e., excludes loans held-for-sale and loans at fair value).

RHS: Rural Housing Service of the U.S. Department of Agriculture

ROU assets: Right-of-use assets

RSU(s): Restricted stock units

RWA “Risk-weighted assets”: Basel III establishes two comprehensive approaches for calculating RWA (a Standardized approach and an Advanced approach) which include capital requirements for credit risk, market risk, and in the case of Basel III Advanced, also operational risk. 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

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generally consistent basis between Basel III Standardized and Basel III Advanced.

Scored portfolios: Consumer loan portfolios that predominantly include residential real estate loans, credit card loans, auto loans to individuals and certain small business loans.

S&P: Standard and Poor's

SAR(s) as it pertains to employee stock awards: Stock appreciation rights

SEC: U.S. Securities and Exchange Commission

Securities financing agreements: Include resale, repurchase, securities borrowed and securities loaned agreements

SLR: Supplementary leverage ratio

SMBS: Stripped mortgage-backed securities

SOFR: Secured Overnight Financing Rate

SPEs: Special purpose entities

Structured notes: Structured notes are financial instruments whose cash flows are linked to the movement in one or more indexes, interest rates, foreign exchange rates, commodities prices, prepayment rates, underlying reference pool of loans or other market variables. The notes typically contain embedded (but not separable or detachable) derivatives. Contractual cash flows for principal, interest, or both can vary in amount and timing throughout the life of the note based on non-traditional indexes or non-traditional uses of traditional interest rates or indexes.

Suspended foreclosures: Loans referred to foreclosure where formal foreclosure proceedings have started but are currently on hold, which could be due to bankruptcy or loss mitigation. Includes both judicial and non-judicial states.

TDR: "Troubled debt restructuring" applies to loan modifications granted prior to January 1, 2023 and is deemed to occur when the Bank modifies the original terms of a loan agreement by granting a concession to a borrower that is experiencing financial difficulty. Loans with short-term and other insignificant modifications that are not considered concessions are not TDRs.

U.K.: United Kingdom

Unaudited: Financial statements and/or information that have not been subject to auditing procedures by an independent registered public accounting firm.

U.S.: United States of America

U.S. GAAP: Accounting principles generally accepted in the U.S.

U.S. government agencies: U.S. government agencies include, but are not limited to, agencies such as Ginnie Mae and FHA, and do not include Fannie Mae and Freddie Mac which are U.S. government-sponsored enterprises ("U.S. GSEs"). In general, obligations of U.S. government agencies are fully and explicitly guaranteed as to the timely payment of principal and interest by the full faith and credit of the U.S. government in the event of a default.

U.S. GSE(s): "U.S. government-sponsored enterprises" are quasi-governmental, privately-held entities established or chartered by the U.S. government to serve public purposes as specified by the U.S. Congress to improve the flow of credit to specific sectors of the economy and provide certain essential services to the public. U.S. GSEs include Fannie Mae and Freddie Mac, but do not include Ginnie Mae or FHA. U.S. GSE obligations are not explicitly guaranteed as to the timely payment of principal and interest by the full faith and credit of the U.S. government.

U.S. Treasury: U.S. Department of the Treasury

VA: U.S. Department of Veterans Affairs

VCG: Valuation Control Group

VGf: Valuation Governance Forum

VIes: Variable interest entities

Warehouse loans: Consist of prime mortgages originated with the intent to sell that are accounted for at fair value and classified as loans.