

## Quarterly Report on Bank Trading and Derivatives Activities

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First Quarter 2023

Office of the Comptroller of the Currency  
Washington, D.C.

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## About This Report

The Office of the Comptroller of the Currency's (OCC) quarterly report on bank trading and derivatives activities is based on call report information provided by all insured U.S. commercial banks and savings associations, reports filed by U.S. financial holding companies, and other published data. A total of 1,176 insured U.S. national and state commercial banks and savings associations reported trading and derivatives activities at the end of the first quarter of 2023.<sup>1</sup> A small group of large financial institutions continues to dominate trading and derivatives activity in the U.S. commercial banking system. During the first quarter of 2023, four large commercial banks represented 89.0 percent of the total banking industry notional amounts and 66.5 percent of industry net current credit exposure (NCCE).

The OCC and other supervisors have dedicated examiners at the largest banks to continuously evaluate the credit, market, operational, reputation, and compliance risks of bank trading and derivatives activities. In addition to the OCC's supervisory activities, the OCC works with other financial supervisors and major market participants to address infrastructure, clearing, and margining issues in over-the-counter (OTC) derivatives. OCC activities include development of objectives and milestones for stronger trade processing and improved market transparency across derivative categories, migration of certain highly liquid products to clearinghouses, and requirements for posting and collecting margin.

This is the 110th edition of the OCC's *Quarterly Report on Bank Trading and Derivatives Activities*. The first report was published in 1995. Please send any comments or feedback on the structure and content of this report to [QuarterlyDerivatives@occ.treas.gov](mailto:QuarterlyDerivatives@occ.treas.gov).

## Executive Summary

- Insured U.S. commercial banks and savings associations (collectively, banks) reported trading revenue of \$17.6 billion in the first quarter of 2023, \$8.0 billion more (83.3 percent) than in the previous quarter and \$7.0 billion more (66.0 percent) than a year earlier (see table 1).
- Credit exposure from derivatives decreased in the first quarter of 2023 compared with the fourth quarter of 2022. NCCE decreased \$33.0 billion, or 11.9 percent, to \$246.0 billion (see table 5).
- Derivative notional amounts increased in the first quarter of 2023 by \$26.6 trillion, or 13.9 percent, to \$217.6 trillion (see table 10).
- Derivative contracts remained concentrated in interest rate products, which totaled \$160.3 trillion or 73.6 percent of total derivative notional amounts (see table 10).

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<sup>1</sup> Institutions with total assets of less than \$5 billion have the option to file the Federal Financial Institutions Examination Council (FFIEC) 051 call report. Due to the limited amount of derivatives data provided by FFIEC 051 call report filers, this report provides this information separately and distinctly in table 25 in the appendix.

## Revenue

### Insured U.S. Commercial Banks and Savings Associations' Trading Revenue

Insured U.S. commercial banks and savings associations reported \$17.6 billion in trading revenue in the first quarter of 2023, \$8.0 billion more (83.3 percent) than in the previous quarter and \$7.0 billion more (66.0 percent) than a year earlier (see table 1). The quarter-over-quarter increase in trading revenue was due to increases in revenue from all trading instruments. For a historical view of quarterly bank trading revenue by instrument, see figure 15a in the appendix.

**Table 1: Quarterly Bank Trading Revenue, in Millions of Dollars**

Trading instruments	1Q 2023	4Q 2022	Q/Q change	Q/Q % change	1Q 2022	Y/Y change	Y/Y % change
Interest rate	\$5,731	\$4,576	\$1,155	25.2%	\$403	\$5,328	1322.9%
Foreign exchange	\$4,439	\$1,134	\$3,305	291.6%	\$6,341	-\$1,902	-30.0%
Equity	\$5,334	\$3,100	\$2,234	72.1%	\$1,458	\$3,876	265.9%
Commodity and other	\$1,570	\$1,153	\$417	36.2%	\$1,161	\$409	35.2%
Credit	\$516	-\$368	\$884	240.1%	\$1,235	-\$720	-58.3%
<b>Total trading revenue</b>	<b>\$17,589</b>	<b>\$9,595</b>	<b>\$7,995</b>	<b>83.3%</b>	<b>\$10,598</b>	<b>\$6,992</b>	<b>66.0%</b>

Source: Call reports, Schedule RI

### Holding Company Trading Revenue

Consolidated bank holding company (BHC) trading performance provides a more complete picture of trading revenue in the banking system. As shown in table 2, consolidated holding company trading revenue of \$37.7 billion in the first quarter of 2023 was \$14.6 billion more (63.5 percent) than in the previous quarter. The quarter-over-quarter increase in trading revenue was due to increases in all trading instruments. Year-over-year holding company trading revenue increased by \$22.6 billion (150.5 percent). For a historical view of quarterly holding company trading revenue by instrument, see figure 15b in the appendix.

**Table 2: Quarterly Holding Company Trading Revenue, in Millions of Dollars**

Trading instruments	1Q 2023	4Q 2022	Q/Q change	Q/Q % change	1Q 2022	Y/Y change	Y/Y % change
Interest rate	\$11,382	\$6,573	\$4,809	73.2%	-\$3,137	\$14,519	462.8%
Foreign exchange	\$5,795	\$1,810	\$3,984	220.1%	\$10,267	-\$4,473	-43.6%
Equity	\$14,264	\$11,535	\$2,730	23.7%	\$4,546	\$9,718	213.8%
Commodity and other	\$3,471	\$3,378	\$93	2.8%	\$3,498	-\$27	-0.8%
Credit	\$2,771	-\$249	\$3,020	1213.1%	-\$129	\$2,900	2244.8%
<b>Total BHC trading revenue</b>	<b>\$37,683</b>	<b>\$23,047</b>	<b>\$14,637</b>	<b>63.5%</b>	<b>\$15,045</b>	<b>\$22,638</b>	<b>150.5%</b>

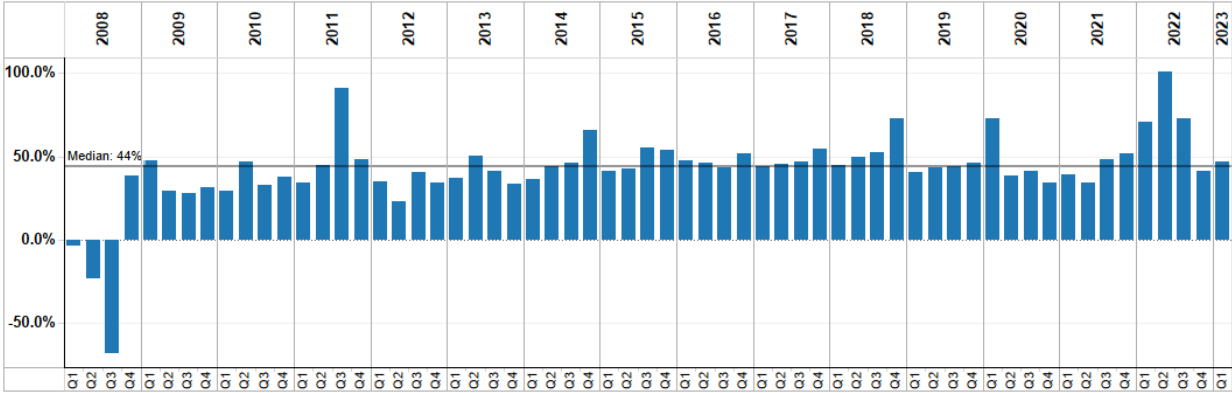
Source: Consolidated Financial Statements for Holding Companies—FR Y-9C, Schedule HI

# Bank Trading Revenue as a Percentage of Consolidated Holding Company Trading Revenue

Before the 2008 financial crisis, trading revenue at banks typically ranged from 60 percent to 80 percent of consolidated BHC trading revenue. Since the 2008 financial crisis and the adoption of bank charters by the former investment banks, the percentage of bank trading revenue to consolidated BHC trading revenue has decreased and is typically between 30 percent and 50 percent. This decline reflects the significant amount of trading activity by the former investment banks that, while included in BHC results, remains outside insured commercial banks. More generally, insured U.S. commercial banks and savings associations have more limited legal authorities than their holding companies, particularly in the trading of commodity and equity products.

In the first quarter of 2023 banks generated 46.7 percent of consolidated holding company trading revenue, an increase from 41.6 percent in the previous quarter (see figure 1).

**Figure 1: Bank Trading Revenue as a Percentage of Consolidated Holding Company Trading Revenue**



Source: Consolidated Financial Statements for Holding Companies—FR Y-9C (Schedule HI) and call report (Schedule RI)

## Counterparty Credit Risk

Counterparty credit risk is a significant risk in bank derivative trading activities. The notional amount of a derivative contract is a reference amount that determines contractual payments, but it is generally not an amount at risk. The credit risk in a derivative contract is a function of a number of variables, such as whether counterparties exchange notional principal, the volatility of the underlying market factors (interest rate, currency, commodity, equity, or corporate reference entity), the maturity and liquidity of the contract, and the creditworthiness of the counterparty.

Credit risk in derivatives differs from credit risk in loans because of the more uncertain nature of the potential credit exposure. Because the credit exposure is a function of movements in market factors, banks do not know, and can only estimate, how much the value of the derivative contract might be at various points in the future.

The credit exposure is bilateral in most derivative transactions, such as swaps (which make up the bulk of bank derivative contracts). Each party to the contract may (and, if the contract has a long enough tenor, probably will) have a credit exposure to the other party at various times during the contract's life. With a funded traditional loan, the amount at risk is the amount advanced to the borrower. The credit risk is unilateral as the bank faces the credit exposure of the borrower.

Measuring credit exposure in derivative contracts involves identifying those contracts on which a bank would lose value if the counterparty to a contract defaulted. The total of all contracts with positive value (i.e., derivative receivables) to the bank is the gross positive fair value (GPFV) and represents an initial measurement of credit exposure. The total of all contracts with negative value (i.e., derivative payables) to the bank is the gross negative fair value (GNFV) and represents a measurement of the exposure the bank poses to its counterparties.

GPFV decreased by \$334.0 billion (13.3 percent) in the first quarter of 2023 to \$2.2 trillion, primarily driven by a \$140.0 billion (9.1 percent) decrease in receivables from interest rate contracts and a \$188.0 billion (26.0 percent) decrease in receivables from foreign exchange contracts (see table 3a). GNFV decreased \$324.0 billion (13.3 percent) to \$2.1 trillion during the quarter, driven by a \$206.0 billion (27.9 percent) decrease in payables on foreign exchange contracts and a \$132.0 billion (8.9 percent) decrease in payables from interest rate contracts (see table 3b).

**Table 3a: Gross Positive Fair Values, in Billions of Dollars**

Trading instruments	1Q 2023	4Q 2022	Q/Q change	Q/Q % change	1Q 2022	Y/Y change	Y/Y % change
Interest rate	\$1,405	\$1,545	-\$140	-9.1%	\$1,240	\$165	13.3%
FX	\$534	\$721	-\$188	-26.0%	\$607	-\$73	-12.1%
Equity	\$132	\$129	\$3	2.4%	\$154	-\$21	-13.9%
Commodity & other	\$57	\$70	-\$13	-19.1%	\$158	-\$101	-64.0%
Credit	\$40	\$35	\$5	12.9%	\$44	-\$4	-9.7%
<b>GPFV</b>	<b>\$2,168</b>	<b>\$2,501</b>	<b>-\$334</b>	<b>-13.3%</b>	<b>\$2,202</b>	<b>-\$35</b>	<b>-1.6%</b>

Source: Call reports, Schedule RC-L

**Table 3b: Gross Negative Fair Values, in Billions of Dollars**

Trading instruments	1Q 2023	4Q 2022	Q/Q change	Q/Q % change	1Q 2022	Y/Y change	Y/Y % change
Interest rate	\$1,341	\$1,472	-\$132	-8.9%	\$1,168	\$172	14.8%
FX	\$531	\$736	-\$206	-27.9%	\$595	-\$64	-10.8%
Equity	\$138	\$125	\$13	10.8%	\$157	-\$19	-11.9%
Commodity & other	\$54	\$61	-\$7	-11.9%	\$137	-\$83	-60.5%
Credit	\$41	\$34	\$7	21.8%	\$45	-\$4	-8.1%
<b>GNFV</b>	<b>\$2,105</b>	<b>\$2,429</b>	<b>-\$324</b>	<b>-13.3%</b>	<b>\$2,102</b>	<b>\$3</b>	<b>0.1%</b>

Source: Call reports, Schedule RC-L

A legally enforceable netting agreement between a bank and a counterparty creates a single legal obligation for all transactions (called a “netting set”) under the agreement. Therefore, when banks have such agreements with their counterparties, contracts with negative values (an amount a bank would pay to its counterparty) can offset contracts with positive values (an amount owed by the counterparty to the bank), leaving an NCCE as shown in table 4.

**Table 4: Netting Contract Examples**

Bank A portfolio with Counterparty B	Number of contracts	Value of contracts	Credit measure/metric
Contracts with positive value to Bank A	6	\$500	GPFV
Contracts with negative value to Bank A	4	-\$350	GNFV
<b>Total contracts</b>	<b>10</b>	<b>\$150</b>	<b>NCCE to Bank A from Counterparty B</b>

Most derivative transactions that a bank has with an individual counterparty are subject to a legally enforceable netting agreement. Some transactions may be subject to the laws of a jurisdiction that does not provide legal certainty of netting agreements, in which case banks must regard such transactions as separate from the netting set. Other transactions may involve nonstandard contractual documentation. Transactions that are not subject to the same legally enforceable netting agreement have distinct values that cannot be netted and for which the appropriate current credit measure is the gross exposure to the bank if that amount is positive. While banks can net exposures within a netting set under the same netting agreement, they cannot net exposures across netting sets without a separate legally enforceable netting agreement. As a result, a bank’s NCCE to a particular counterparty equals the sum of the GPFV of contracts less the dollar amount of netting benefits with that counterparty. A bank’s NCCE across all counterparties equals the sum of its NCCE to each of its counterparties.

NCCE is the primary metric the OCC uses to evaluate credit risk in bank derivative activities. NCCE for insured U.S. commercial banks and savings associations decreased by \$33.0 billion (11.9 percent) to \$246.0 billion in the first quarter of 2023 (see table 5).<sup>2</sup> Legally enforceable netting agreements allowed banks to reduce GPFV exposures by 88.6 percent (\$1.9 trillion) in the first quarter of 2023.

**Table 5: Net Current Credit Exposure, in Billions of Dollars**

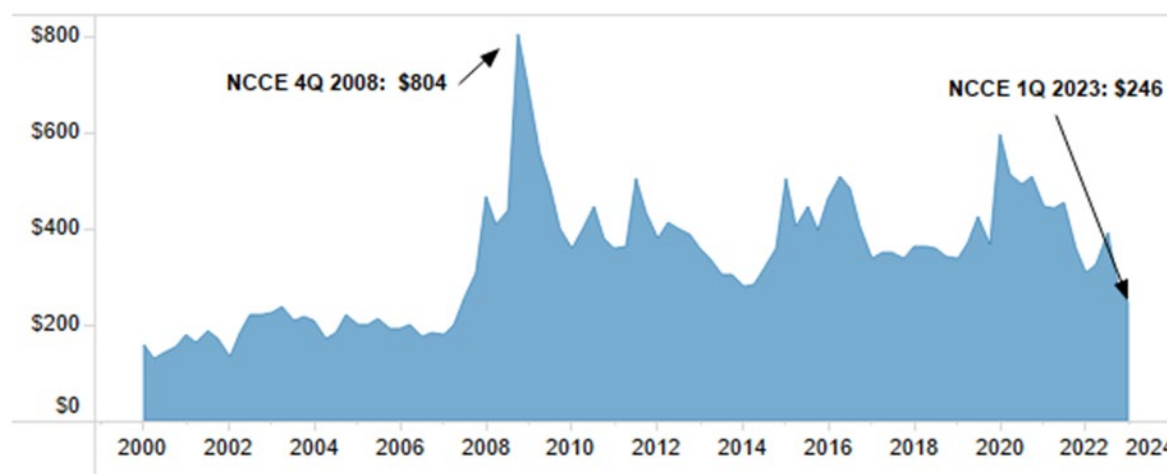
Netting benefit ratio	1Q 2023	4Q 2022	Q/Q change	Q/Q % change
GPFV	\$2,168	\$2,501	-\$334	-13.3%
NCCE RC-R	\$246	\$279	-\$33	-11.9%
Netting benefit RC-R	\$1,921	\$2,222	-\$301	-13.5%
Netting benefit % RC-R	88.6%	88.8%		-0.2%

Source: Call reports, Schedules RC-L and RC-R

<sup>2</sup> Banks report NCCE on two different schedules (RC-R and RC-L) of the call report, and the amounts reported are not the same because of differences in the scope of coverage. Neither measure comprehensively captures NCCE. RC-L includes exposure only from OTC derivative transactions; it excludes exchange-traded transactions. RC-R excludes transactions not subject to capital requirements. This report uses RC-R to measure NCCE.

NCCE peaked at \$804.0 billion at the end of 2008 during the financial crisis when interest rates had plunged and credit spreads were very high (see figure 2). The decline in NCCE since 2008 has largely resulted from declines in the GPFV of interest rate and credit contracts. After a large increase in NCCE during the first quarter of 2020 as markets responded to the financial impact of the COVID-19 global pandemic, NCCE ended the first quarter of 2023 lower at \$246.0 billion as more normal market activity resumed.

**Figure 2: Net Current Credit Exposure (NCCE), in Billions of Dollars**



Source: Call reports, Schedule RC-R

The bulk of NCCE in the financial system is concentrated in banks and securities firms (36.3 percent) and in corporations and other counterparties (57.7 percent) (see table 6). The combined exposure to hedge funds and sovereign governments was small (6.1 percent in total).

**Table 6: Net Current Credit Exposure by Counterparty Type as a Percentage of Total Net Current Credit Exposure**

Quarter	Banks and securities firms	Hedge funds	Sovereign governments	Corporate and all other counterparties
1Q 2023	36.3%	2.0%	4.1%	57.7%
4Q 2022	34.5%	2.3%	3.9%	59.2%
4Q 2021	37.9%	2.0%	7.4%	52.6%
4Q 2020	39.1%	2.2%	8.3%	50.4%
4Q 2019	44.2%	2.5%	9.2%	44.1%
4Q 2018	41.7%	5.0%	10.0%	43.2%
4Q 2017	41.7%	3.1%	7.9%	47.3%

Source: Call reports, Schedule RC-L

A more risk-sensitive measure of credit exposure would consider the value of collateral held against counterparty exposures. Reporting banks held collateral valued at 108.9 percent of their total NCCE at the end of the first quarter of 2023, up from 96.5 percent in the fourth quarter of 2022 (see table 7). Collateral held against hedge fund exposures increased in the first quarter to



609.6 percent. Bank exposures to hedge funds are secured because banks take initial margin on transactions with hedge funds, in addition to fully securing any current credit exposure. Collateral coverage of corporate and sovereign exposures is much less than coverage of financial institutions and hedge funds.

**Table 7: Ratio of Fair Value (FV) Collateral to Net Current Credit Exposure**

Quarter	FV banks and securities firms	FV hedge funds	FV sovereign governments	FV corporate and all other counterparties	FV/NCCE %
1Q 2023	119.4%	609.6%	73.7%	87.9%	108.9%
4Q 2022	111.4%	474.5%	61.5%	75.4%	96.5%
4Q 2021	128.6%	687.6%	69.3%	76.0%	108.0%
4Q 2020	110.6%	467.6%	52.1%	59.5%	87.8%
4Q 2019	130.0%	485.9%	48.3%	91.8%	114.5%
4Q 2018	128.9%	308.0%	47.1%	91.8%	113.7%
4Q 2017	124.4%	495.5%	25.1%	89.8%	111.5%

Source: Call reports, Schedule RC-L

The majority of collateral held by banks against NCCE is very liquid with 65.3 percent held in cash (both U.S. dollar and other currencies) and an additional 9.1 percent held in U.S. Treasuries and U.S. government agency securities (see table 8). Supervisors assess changes in the quality and liquidity of collateral held as a key early indicator of potential easing in credit terms. Examiners review the collateral management practices of derivative dealers as a regular part of their supervision activities.

**Table 8: Composition of Collateral**

Quarter	Cash U.S. \$	Cash other currencies	U.S. Treasury securities	U.S. government agency	Corp bonds	Equity securities	All other collateral
1Q 2023	49.2%	16.1%	8.5%	0.6%	4.2%	6.4%	15.0%
4Q 2022	53.1%	14.9%	8.7%	0.4%	3.8%	5.5%	13.7%
4Q 2021	39.3%	24.5%	8.1%	0.9%	1.6%	8.2%	17.3%
4Q 2020	39.5%	28.6%	7.8%	1.7%	1.1%	7.2%	14.1%
4Q 2019	34.4%	24.5%	11.6%	1.7%	2.3%	7.6%	17.7%
4Q 2018	37.2%	23.3%	10.8%	2.2%	2.1%	7.1%	17.2%
4Q 2017	37.6%	25.5%	10.3%	1.9%	2.5%	5.7%	16.5%

Source: Call reports, Schedule RC-L

## Market Risk

### Value-at-Risk

Banks primarily control market risk in trading operations by establishing limits against potential losses. Banks use value-at-risk (VaR) to quantify the maximum expected loss over a specified time period and at a certain confidence level under relevant market conditions. Banks subject to the market risk capital rule, 12 CFR 3, subpart F, are required to report their VaR-based measures quarterly on Federal Financial Institutions Examination Council (FFIEC) Form 102. The VaR measurement is calculated daily using a one-tail, 99 percent confidence level, and a holding period equivalent to a 10-business-day movement in underlying risk factors, such as rates, spreads, and prices. Tables 9a and 9b show the quarter-over-quarter change in VaR, as well as the VaR-based capital charge, for banks most active in trading and derivatives activity. As shown in table 9a, market risk in trading operations, as measured by VaR, is a small proportion of their risk-based capital. Figure 22 in the appendix illustrates the historical trend in VaR measurements for these institutions.

**Table 9a: Value-at-Risk, in Millions of Dollars**

Value-at-risk	JPMorgan Chase Bank NA	Citibank NA	Bank of America NA	Goldman Sachs Bank USA
1Q 2023 average 60-day VaR	\$238	\$153	\$102	\$446
4Q 2022 average 60-day VaR	\$242	\$137	\$126	\$423
Q/Q change	-\$4	\$16	-\$24	\$23
1Q 2023 total risk-based capital	\$292,244	\$167,065	\$199,325	\$54,716

Source: Market Risk Regulatory Report for Institutions Subject to the Market Risk Capital Rule—FFIEC 102

**Table 9b: Value-at-Risk Capital Requirement, in Millions of Dollars**

Value-at-risk capital requirement	JPMorgan Chase Bank NA	Citibank NA	Bank of America NA	Goldman Sachs Bank USA
1Q 2023 VaR capital requirement	\$714	\$458	\$307	\$1,338
4Q 2022 VaR capital requirement	\$824	\$411	\$378	\$1,268
Q/Q change	-\$110	\$47	-\$71	\$70
1Q 2023 total risk-based capital	\$292,244	\$167,065	\$199,325	\$54,716

Source: Market Risk Regulatory Report for Institutions Subject to the Market Risk Capital Rule—FFIEC 102

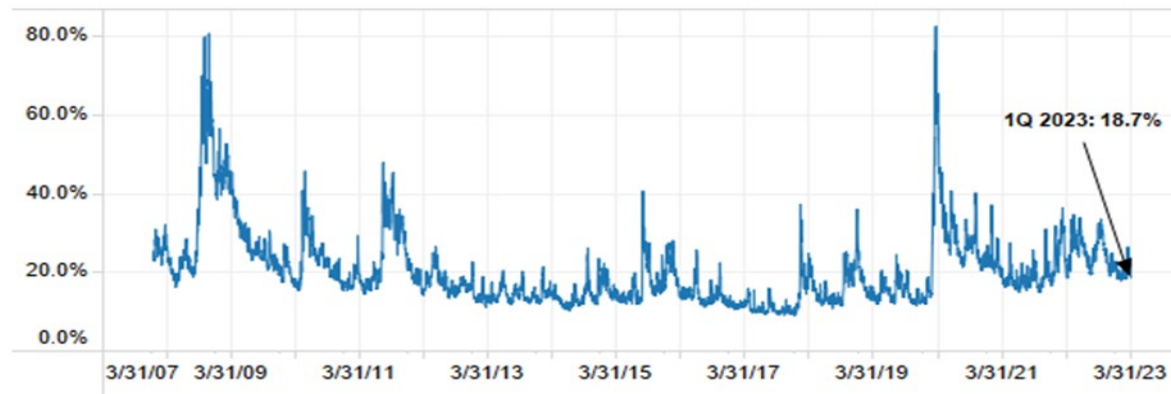
### Volatility Index

Figure 3 shows the VIX, a volatility index,<sup>3</sup> which measures the market's expectation of stock market volatility in the S&P 500 index over the next 30-day period. Higher volatility as represented by the VIX is associated with increased equity trading volume, which drives increased bank and holding company equity trading revenue. The figure illustrates that there was

<sup>3</sup> VIX is the trademarked ticker symbol for the Chicago Board Options Exchange SPX Volatility Index.

an extended period of low volatility following the end of the 2008 financial crisis that continued until late in the first quarter of 2020. In mid-March 2020 volatility spiked as financial markets reacted to fears over the potential impact of the COVID-19 global pandemic. The VIX exceeded its previous high from the 2008 financial crisis before settling back to a more normal level of 18.7 percent at the end of the first quarter of 2023.

**Figure 3: Volatility Index (VIX)**

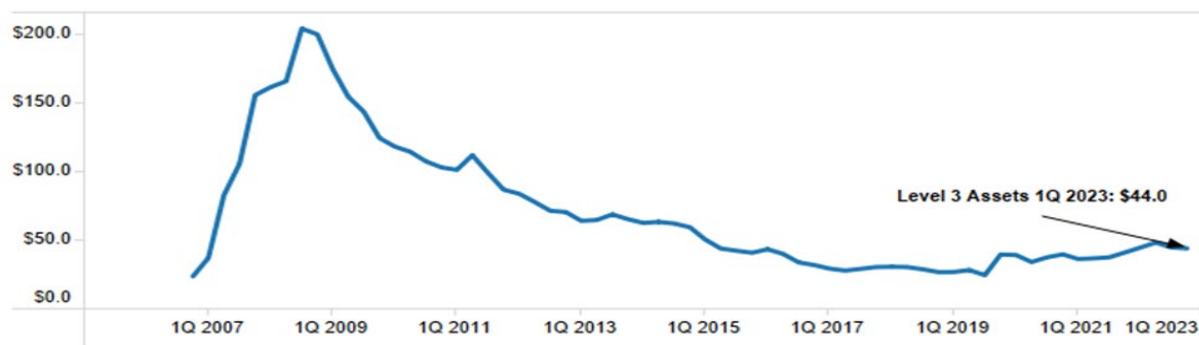


Source: Bloomberg

## Level 3 Trading Assets

Another measure used to assess market risk is the volume of and changes in level 3 trading assets. Level 3 trading assets are assets whose fair value cannot be determined by using observable inputs, such as market prices. Since the peak of the financial crisis at the end of 2008, major dealers have reduced the volume of level 3 trading assets. Because the model inputs that determine the fair value of these exposures are not derived from observable market transactions, banks use their own model assumptions in determining their fair values. Level 3 trading assets peaked at \$204.1 billion at the end of 2008 (see figure 4). At the end of the first quarter of 2023, banks held \$44.0 billion of level 3 trading assets, down 1.7 percent from the previous quarter and 7.2 percent higher than a year ago. Level 3 trading assets are \$160.1 billion (78.4 percent) lower than the peak level from 2008.

**Figure 4: Level 3 Trading Assets, in Billions of Dollars**



Source: Call reports, Schedule RC-Q

## Notional Amounts of All Derivative Contracts

Changes in notional amounts are generally reasonable reflections of business activity and can provide insight into potential revenue and operational issues. The notional amount of derivative contracts, however, does not provide a useful measure of market or credit risk.

The total notional amount of derivative contracts held by banks in the first quarter increased by \$26.6 trillion (13.9 percent) to \$217.6 trillion from the previous quarter (see table 10). The increase in the notional amount of derivative contracts by underlying risk exposure was primarily driven by interest rate and FX contracts. Interest rate notional amounts continued to represent the majority of banks' derivative holdings at \$160.2 trillion, or 73.6 percent of total derivatives (see table 10).

**Table 10: Derivative Notional Amounts by Underlying Risk Exposure Quarter-Over-Quarter, in Billions of Dollars**

Trading instrument	1Q 2023	4Q 2022	Q/Q change	Q/Q % change	1Q 2022	Y/Y change	Y/Y % change
Interest rate	\$160,260	\$139,755	\$20,505	14.7%	\$145,875	\$14,386	9.9%
FX	\$45,686	\$41,124	\$4,563	11.1%	\$43,580	\$2,106	4.8%
Equity	\$5,001	\$4,424	\$577	13.0%	\$4,489	\$512	11.4%
Commodity and other	\$1,575	\$1,433	\$142	9.9%	\$1,906	-\$331	-17.4%
Credit derivatives	\$5,079	\$4,241	\$838	19.8%	\$4,504	\$575	12.8%
<b>Total notional</b>	<b>\$217,602</b>	<b>\$190,977</b>	<b>\$26,625</b>	<b>13.9%</b>	<b>\$200,354</b>	<b>\$17,248</b>	<b>8.6%</b>

Source: Call reports, Schedule RC-L

The increase in the total notional amount of derivative contracts by contract type was primarily driven by decreases in futures and forwards and swaps derivatives contracts (see table 11). Swaps contracts remained the leading derivatives contract type at 63.3 percent of all notional amounts.

The four banks with the most derivative activity hold 89.0 percent of all bank derivatives, while the largest 25 banks account for nearly 100 percent of all contracts (see tables 15 and 17 and figure 10 in the appendix for more information).

**Table 11: Derivative Notional Amounts by Contract Type Quarter-Over-Quarter, in Billions of Dollars**

Trading instrument	1Q 2023	4Q 2022	Q/Q change	Q/Q % change	1Q 2022	Y/Y change	Y/Y % change
Futures and forwards	\$34,502	\$28,749	\$5,754	20.0%	\$33,523	\$979	2.9%
Swaps	\$137,730	\$118,598	\$19,132	16.1%	\$124,397	\$13,333	10.7%
Options	\$40,290	\$39,389	\$901	2.3%	\$37,930	\$2,360	6.2%
Credit derivatives	\$5,079	\$4,241	\$838	19.8%	\$4,504	\$575	12.8%
<b>Total notional</b>	<b>\$217,602</b>	<b>\$190,977</b>	<b>\$26,625</b>	<b>13.9%</b>	<b>\$200,354</b>	<b>\$17,248</b>	<b>8.6%</b>

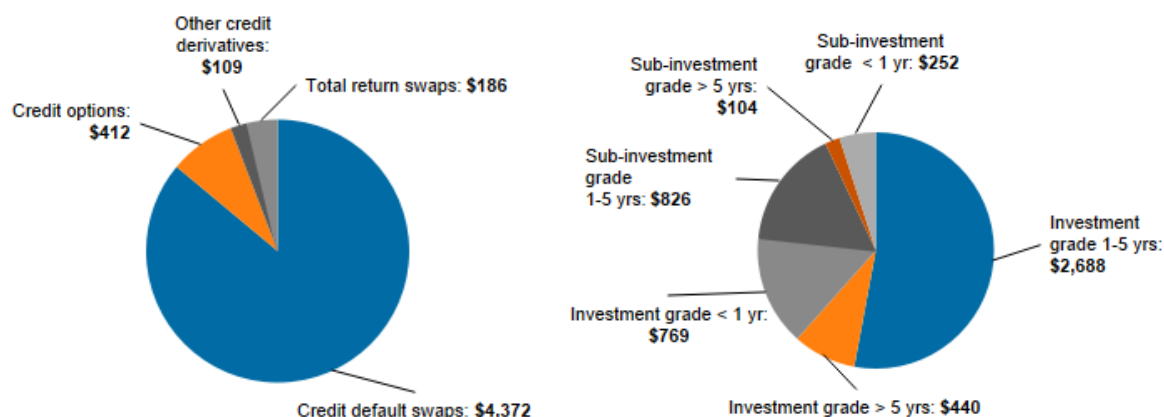
Source: Call reports, Schedule RC-L

## Credit Derivatives

The notional amounts of credit derivatives increased \$838.0 billion (19.8 percent) to \$5.0 trillion in the first quarter of 2023 (see table 11). As shown in the chart on the left of figure 5, credit default swaps are the dominant product, at \$4.3 trillion (86.1 percent) of all credit derivative notional amounts.

Credit derivative contracts referencing investment-grade entities with maturities from one to five years represented the largest segment of the market at \$2.7 trillion or 52.9 percent of all credit derivative notional amounts. Contracts of all tenors that reference investment-grade entities are \$3.8 trillion or 76.7 percent of the market (see the chart on the right in figure 5).

**Figure 5: Credit Derivative Composition, in Billions of Dollars**



Source: Call reports, Schedule RC-L

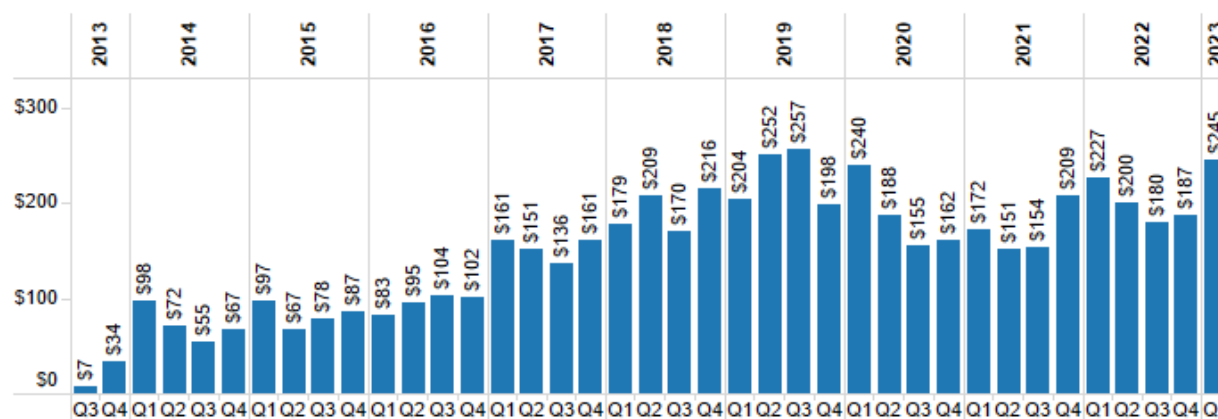
The notional amount for the 101 banks that net sold credit protection (i.e., assumed credit risk) was \$2.4 trillion, up \$405.0 billion (19.9 percent) from the fourth quarter of 2022 (see table 24 in the appendix). The notional amount for the 77 banks that net purchased credit protection (i.e., hedged credit risk) was \$2.6 trillion, \$432.7 billion higher (19.7 percent) than in the fourth quarter of 2022 (see table 24 in the appendix).

## Compression Activity

Notional amounts of banks' derivative contracts have generally declined since 2013 because of trade compression efforts, leading to less need for risk management products. Trade compression continues to be a significant factor in reducing the amount of notional derivatives outstanding.

Trade compression aggregates a large number of swap contracts with similar factors, such as risk or cash flows, into fewer trades. Compression removes economic redundancy in a derivative book and reduces operational risk and capital costs for large banks. Trade compression activities increased in the first quarter of 2023, as shown in figure 6.

**Figure 6: Quarterly Compression Activity, in Trillions of Dollars**



Source: LCH Group

## Centrally Cleared Derivative Contracts

In the first quarter of 2015 banks began reporting their volumes of cleared and uncleared derivative transactions, as well as risk weights for counterparties in each of these categories. In the first quarter of 2023, 40.5 percent of banks' derivative holdings were centrally cleared (see table 12). From a market factor perspective, 52.2 percent of interest rate derivative contracts' notional amounts outstanding were centrally cleared, while very little of the FX derivative market was centrally cleared. The bank-held credit derivative market remained largely uncleared, as 30.9 percent of credit derivative transactions were centrally cleared during the first quarter of 2023.

Centrally cleared derivative transactions were heavily concentrated at qualifying central counterparties, with 89.0 percent of notional amounts reflecting the 2 percent risk weight applicable to such counterparties.

**Table 12: Centrally Cleared Derivative Contracts as a Percentage of Total Derivative Contracts**

Quarter	Interest rate	FX	Equity	Precious metals	Credit	Other	Total
1Q 2023	52.2%	3.0%	24.7%	7.3%	30.9%	12.6%	40.5%
4Q 2022	49.1%	2.7%	23.8%	8.8%	28.9%	12.2%	37.9%
3Q 2022	54.3%	3.0%	23.9%	6.6%	30.6%	12.9%	41.7%
2Q 2022	55.9%	3.2%	24.8%	5.9%	25.4%	12.3%	43.1%
1Q 2022	56.1%	2.9%	24.3%	6.4%	33.8%	12.4%	43.4%
4Q 2021	51.8%	2.0%	20.6%	3.1%	29.2%	12.3%	39.4%
3Q 2021	50.5%	2.1%	21.4%	2.6%	35.3%	13.2%	39.0%
2Q 2021	50.7%	2.0%	22.1%	3.3%	35.3%	14.1%	39.5%
1Q 2021	48.6%	2.0%	24.3%	2.9%	39.3%	12.3%	38.2%
4Q 2020	45.3%	1.9%	24.3%	2.1%	36.8%	12.4%	35.0%

Source: Call reports, Schedule RC-R

## Glossary of Terms

**Bilateral netting:** A legally enforceable arrangement between a bank and a counterparty that creates a single legal obligation covering all included individual contracts. This arrangement means that a bank's receivables or payables, in the event of the default or insolvency of one of the parties, would be the net sum of all positive and negative fair values of contracts included in the bilateral netting arrangement.

**Centrally cleared derivative contract:** A standardized derivative contract that is transacted bilaterally but submitted for clearing to a central counterparty, with the central counterparty becoming the ultimate counterparty to both the buyer and the seller.

**Credit derivative:** A financial contract that allows a party to take on or reduce credit exposure (generally on a bond, loan, or index). The OCC's derivatives survey includes OTC credit derivatives, such as credit default swaps, total return swaps, and credit spread options.

**Derivative:** A financial contract in which the value is derived from the performance of underlying market factors, such as interest rates, currency exchange rates, and commodity, credit, and equity prices. Derivative transactions include a wide assortment of financial contracts, such as structured debt obligations and deposits, swaps, futures, options, caps, floors, collars, forwards, and various combinations thereof.

**Gross negative fair value (GNFV):** The sum total of the fair values of contracts when the bank owes money to its counterparties, without taking netting into account. This amount represents the maximum losses the bank's counterparties would incur if the bank defaulted and there was no netting of contracts, and the counterparties held no bank collateral. GNFVs associated with credit derivatives are included.

**Gross positive fair value (GPFV):** The sum total of the fair values of contracts when the bank is owed money by its counterparties, without taking netting into account. This amount represents the maximum losses a bank would incur if all its counterparties defaulted and there was no netting of contracts, and the bank held no counterparty collateral. GPFVs associated with credit derivatives are included.

**Net current credit exposure (NCCE):** For a portfolio of derivative contracts, NCCE is the GPFV of contracts less the dollar amount of netting benefits. On any individual contract, current credit exposure (CCE) is the fair value of the contract if positive and zero when the fair value is negative or zero. NCCE is also the net amount owed to banks if all contracts were immediately liquidated.

**Notional amount:** The nominal or face amount that is used to calculate payments made on swaps and other risk management products. This amount generally does not change hands and is thus referred to as notional.

**OTC derivative contracts:** Privately negotiated derivative contracts that are transacted off organized exchanges.

**Potential future exposure (PFE):** An estimate of what the CCE could be over time, based on a supervisory formula in the agencies' risk-based capital rules. PFE is generally determined by multiplying the notional amount of the contract by a credit conversion factor that is based on the underlying market factor (e.g., interest rates, commodity prices, or equity prices) and the contract's remaining maturity. The risk-based capital rules, however, permit banks to adjust the formulaic PFE measure by the net-to-gross ratio, which proxies the risk-reduction benefits attributable to a valid bilateral netting contract. PFE data in this report use the amounts on which banks hold risk-based capital.

**Qualifying central counterparties (QCCP):** QCCPs are defined in 12 CFR 3.2 as a CCP either that the Financial Stability Oversight Council has designated systemically important under title VIII of the Dodd–Frank Wall Street Reform and Consumer Protection Act or that meets a series of standards. See 12 CFR 3.2 for a full definition.

**Total credit exposure (TCE):** The sum total of NCCE and PFE.

**Total risk-based capital:** The sum of tier 1 plus tier 2 capital. Tier 1 capital generally consists of common shareholders' equity, perpetual preferred shareholders' equity with noncumulative dividends, retained earnings, and tier 1 capital of consolidated subsidiaries that is not owned by the bank (minority interest), less regulatory adjustments and deductions. Tier 2 capital generally consists of subordinated debt, intermediate-term preferred stock, cumulative and long-term preferred stock, tier 2 capital of consolidated subsidiaries that is not owned by the bank (minority interest), and a portion of a bank's allowance for loan and lease losses less regulatory adjustments and deductions.

**Trade compression:** A significant factor in reducing the amount of notional derivatives outstanding. Trade compression aggregates a large number of swap contracts with similar factors, such as risk or cash flows, into fewer trades. Compression removes economic redundancy in a derivative book and reduces operational risks and capital costs for large banks.

**Volatility index (VIX):** A measure of the market's expectation of stock market volatility of S&P 500 index options over the next 30-day period.



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**Table 13: Notional Amounts of Derivative Contracts**

Top 25 Commercial Banks, Savings Associations and Trust Companies in Derivatives, in Millions of Dollars, March 31, 2023

Rank	Bank name	Legal entity identifier	Total assets	Total derivatives	Total futures (EXCH TR)	Total options (EXCH TR)	Total forwards (OTC)	Total swaps (OTC)	Total options (OTC)	Total credit derivatives (OTC)	Spot FX
1	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	\$3,267,963	\$59,801,436	\$1,027,256	\$1,149,894	\$10,200,174	\$36,978,688	\$8,934,477	\$1,510,947	\$853,502
2	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	490,799	56,457,937	1,280,881	3,237,668	4,945,960	34,975,222	11,312,899	705,307	800,890
3	CITIBANK NATIONAL ASSN	E57ODZWZ7F32TWEFA76	1,721,547	55,151,109	623,004	451,420	5,857,304	38,924,089	7,265,664	2,029,628	379,875
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,518,290	22,310,805	255,610	259,035	4,237,851	13,374,185	3,587,577	596,547	549,964
5	WELLS FARGO BANK NA	KB1H1DSPRFMYMCFXT09	1,687,507	13,205,271	811,337	414,681	1,043,604	7,964,007	2,846,045	125,597	20,902
6	STATE STREET BANK&TRUST CO	571474TGEMMWANRLN572	287,069	2,436,202	7,905	0	2,368,215	27,986	32,096	0	53,985
7	HSBC NA	1IE8VN30JCEQV1H4R804	164,492	1,456,665	98,664	3,250	486,956	779,067	70,428	18,299	40,937
8	BANK OF NEW YORK MELLON	HPFHU0OQ28E4N0NFVK49	341,455	1,023,610	16,112	53	261,097	720,196	25,932	220	110,109
9	U S BANK NATIONAL ASSN	6BYL5QZYBDK8S7L73M02	590,460	1,007,047	1,252	500	94,463	652,319	247,072	11,440	4,315
10	PNC BANK NATIONAL ASSN	AD6GFRVSDT01YPT1CS68	556,314	628,135	6,682	12,425	24,843	527,097	43,342	13,745	1,398
11	TD BANK NATIONAL ASSN	03D0JEWFDUFUS0SEEK89	401,245	380,976	0	0	2,548	378,381	47	0	0
12	TRUIST BANK	JJKC32MCHWDI71265Z06	564,837	349,586	4,785	32,465	23,134	211,004	68,469	9,729	393
13	NORTHERN TRUST CO	6PTKHDJ8HDF78PFWH30	150,573	309,708	0	0	289,819	19,463	426	0	21,579
14	WESTERN ALLIANCE BANK		70,986	308,314	286,554	0	17,699	2,272	1,737	51	0
15	CITIZENS BANK NATIONAL ASSN	DRMSV1Q0EKMEXLAU1P80	221,955	292,108	5,380	0	10,484	247,477	26,301	2,466	151
16	CAPITAL ONE NATIONAL ASSN	207ALC1P1YM00VDV0K75	469,432	214,422	23,485	0	12,268	171,906	668	6,095	251
17	FIFTH THIRD BANK NA	QFROUN1UWUYU0DVIWD51	207,586	184,984	1,675	535	5,711	117,244	54,892	4,927	422
18	REGIONS BANK	EQTWLK1G7ODGC2MGLV11	153,125	174,371	137	0	2,386	134,513	31,793	5,542	15
19	KEYBANK NATIONAL ASSN	HUX2X73FUCYHUHVH1BK78	195,191	155,603	932	0	9,568	125,546	19,412	146	1,470
20	MUFG UNION BANK NA	OX3PU53ZLPQKJ4700D47	99,964	147,321	0	0	14,473	128,491	4,358	0	124
21	MORGAN STANLEY BANK NA	G1MLHIS0N32I3QPILB75	205,845	144,466	1,196	0	19,403	101,099	6,682	16,086	689
22	BMO HARRIS BANK NA		265,446	118,611	0	0	3,905	112,646	2,061	0	215
23	HUNTINGTON NATIONAL BANK	2WHM8VNVJH63UN14OL754	188,441	101,705	538	0	6,555	77,243	13,423	3,947	36
24	COMERICA BANK		91,259	75,744	0	0	3,095	60,395	10,844	1,410	263
25	MANUFACTURERS&TRADERS TR CO	VWB2V0FCW3A0EE3ZJN75	202,363	63,944	0	0	3,399	57,972	2,573	0	132
	<b>Top 25 commercial banks, SAs &amp; TCs with derivatives</b>		\$15,114,144	\$216,500,081	\$4,453,385	\$5,561,926	\$29,944,914	\$136,868,509	\$34,609,217	\$5,062,130	\$2,841,616
	<b>Other commercial banks, SAs &amp; TCs with derivatives</b>		6,110,326	1,101,785	6,285	4,960	97,809	861,234	114,354	17,143	1,561
	<b>Total all commercial banks, SAs &amp; TCs with derivatives</b>		21,224,470	217,601,866	4,459,670	5,566,887	30,042,723	137,729,743	34,723,571	5,079,273	2,843,176

Note: Credit derivatives have been included in the sum of total derivatives. Credit derivatives have been included as an "over the counter" category, although the call report does not differentiate by market currently. Before the first quarter of 1995 total derivatives included spot FX. Beginning in that quarter, spot FX has been reported separately.

Source: Call reports, Schedule RC-L

**Table 14: Notional Amounts of Derivative Contracts (Holding Companies)**

Top 25 Holding Companies in Derivatives, in Millions of Dollars, March 31, 2023

Rank	Holding company	Legal entity identifier	Total assets	Total derivatives	Total futures (EXCH TR)	Total options (EXCH TR)	Total forwards (OTC)	Total swaps (OTC)	Total options (OTC)	Total credit derivatives (OTC)	Spot FX
1	JPMORGAN CHASE & CO.	8I5DZWZKVSZ11NUHU748	\$3,744,305	\$59,191,045	\$1,055,892	\$1,660,440	\$10,691,333	\$35,708,096	\$8,568,809	\$1,506,475	\$831,438
2	CITIGROUP INC.	6SHG4ZSSLCXXQSBB395	2,455,113	53,256,581	820,949	2,855,353	6,911,562	34,495,665	6,660,033	1,513,019	412,246
3	GOLDMAN SACHS GROUP, INC., THE	784F5XWPLTWKTBV3E584	1,538,349	45,948,829	1,716,295	4,658,795	5,034,552	22,302,160	10,963,004	1,274,023	322,928
4	BANK OF AMERICA CORPORATION	9DJT3UXIJZJ4WXO774	3,194,657	41,317,725	733,685	1,542,513	8,359,309	24,951,514	4,727,320	1,003,384	435,109
5	MORGAN STANLEY	IGJSJL3JD5P30I6NJZ34	1,199,904	38,652,706	1,104,207	1,199,439	4,003,105	23,801,120	7,796,337	748,498	108,865
6	WELLS FARGO & COMPANY	PBLD0EJDB5FWOLXP3B76	1,886,400	13,428,352	823,088	466,969	1,391,699	7,795,365	2,843,894	107,337	20,899
7	MIZUHO AMERICAS LLC		68,212	9,756,978	39,369	20,206	489,320	8,890,693	303,641	13,749	2,892
8	SMBC AMERICAS HOLDINGS, INC.		35,449	9,215,918	1,233,066	1,693,514	223,745	4,419,306	1,641,957	4,330	183
9	HSBC NORTH AMERICA HOLDINGS INC.	213800JCL1FHBQK3M654	217,027	4,698,997	591,289	1,054,297	487,600	2,469,723	77,788	18,299	40,937
10	STATE STREET CORPORATION	549300ZFEEJ2IP5VME73	290,816	2,427,602	7,905	0	2,368,215	19,386	32,096	0	53,985
11	U.S. BANCORP	N1GZ7BBF3NP8GI976H15	682,377	1,168,707	1,252	500	107,920	796,205	251,389	11,441	4,439
12	BANK OF NEW YORK MELLON CORPORATION, THE	WFLLPEPC7FZXENRZV188	425,112	1,004,295	16,888	53	269,278	691,924	25,932	220	110,109
13	BARCLAYS US LLC	213800H14XVWV07OI72	182,263	716,549	16,647	323,368	335,204	40,431	99	800	45
14	PNC FINANCIAL SERVICES GROUP, INC., THE	CFGNEKW0P8842LEUIA51	561,825	615,963	6,725	12,425	28,570	510,824	43,608	13,810	1,398
15	RBC US GROUP HOLDINGS LLC		165,401	570,652	134,339	168,869	19,882	246,322	487	753	315
16	TD GROUP US HOLDINGS LLC	549300ARWZ5E3L64UH29	514,340	446,755	38,668	1,145	11,359	395,298	286	0	0
17	TRUIST FINANCIAL CORPORATION	549300DRQQI75D2JP341	574,354	362,610	4,785	32,465	23,925	223,077	68,469	9,889	393
18	WESTERN ALLIANCE BANCORPORATION	5493003VJXZ5JXT9S762	71,047	308,314	286,554	0	17,699	2,272	1,737	51	0
19	NORTHERN TRUST CORPORATION	549300GLF98S992BC502	151,108	306,958	0	0	289,819	16,713	426	0	21,579
20	CITIZENS FINANCIAL GROUP, INC.	2138004JDDA4ZQUPFW65	222,656	292,108	5,380	0	10,484	247,477	26,301	2,466	151
21	CAPITAL ONE FINANCIAL CORPORATION	ZUE8T73ROZOF6FLBAR73	471,660	245,102	23,485	0	12,380	202,474	668	6,095	251
22	BMO FINANCIAL CORP.		295,194	199,602	19,509	5,013	58,958	113,158	2,126	838	240
23	FIFTH THIRD BANCORP	THRNG6BD57P9QWTQLG42	208,657	189,189	1,675	535	5,711	121,449	54,892	4,927	422
24	REGIONS FINANCIAL CORPORATION		154,296	173,025	137	0	2,440	133,113	31,793	5,542	15
25	AMERIPRISE FINANCIAL, INC.		166,648	172,145	26,910	4,627	453	69,842	67,444	2,868	0
	<b>Top 25 holding companies with derivatives</b>		<b>\$19,477,171</b>	<b>\$284,666,708</b>	<b>\$8,708,698</b>	<b>\$15,700,526</b>	<b>\$41,154,523</b>	<b>\$168,663,608</b>	<b>\$44,190,537</b>	<b>\$6,248,816</b>	<b>\$2,368,838</b>

Note: Currently, the Y-9 report does not differentiate credit derivatives by contract type. Credit derivatives have been included in the sum of total derivatives. Before to the first quarter of 2005, total derivatives included spot FX. Beginning in that quarter, spot FX has been reported separately.

Source: Consolidated Financial Statements for Bank Holding Companies, FR Y- 9, Schedule HC-L

**Table 15: Distribution of Derivative Contracts**

Top 25 Commercial Banks, Savings Associations and Trust Companies in Derivatives, in Millions of Dollars, March 31, 2023

Rank	Bank Name	Legal entity identifier	Total assets	Total derivatives	Percent exchange traded contracts	Percent OTC contracts	Percent interest rate contracts	Percent foreign exchange contracts	Percent equity contracts	Percent other contracts	Percent credit derivatives
1	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	\$3,267,963	\$59,801,436	3.6	96.4	69.6	23.0	3.6	1.2	2.5
2	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	490,799	56,457,937	8.0	92.0	85.9	12.1	0.6	0.1	1.2
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,721,547	55,151,109	1.9	98.1	69.8	23.7	2.2	0.7	3.7
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,518,290	22,310,805	2.3	97.7	68.4	24.4	4.0	0.6	2.7
5	WELLS FARGO BANK NA	KB1H1DSPRFMYMCUFXT09	1,687,507	13,205,271	9.3	90.7	83.8	12.1	2.4	0.7	1.0
6	STATE STREET BANK&TRUST CO	571474TGEMMWANRLN572	287,069	2,436,202	0.3	99.7	1.4	97.3	0.0	1.3	0.0
7	HSBC NA	11E8VN30JCEQV1H4R804	164,492	1,456,665	7.0	93.0	15.5	78.1	0.9	4.3	1.3
8	BANK OF NEW YORK MELLON	HPFHU0OQ28E4N0NFVK49	341,455	1,023,610	1.6	98.4	24.2	75.5	0.3	0.0	0.0
9	U S BANK NATIONAL ASSN	6BYL5QZYBDK8S7L73M02	590,460	1,007,047	0.2	99.8	87.3	11.4	0.0	0.2	1.1
10	PNC BANK NATIONAL ASSN	AD6GFRVSDT01YPT1CS68	556,314	628,135	3.0	97.0	91.2	4.0	1.2	1.5	2.2
11	TD BANK NATIONAL ASSN	03D0JEWDFUS0SEEKG89	401,245	380,976	0.0	100.0	99.4	0.6	0.0	0.0	0.0
12	TRUIST BANK	JJKC32MCHWDI71265Z06	584,837	349,586	10.7	89.3	79.0	6.0	10.0	2.2	2.8
13	NORTHERN TRUST CO	6PTKHDJ8HDUF78PFWH30	150,573	309,708	0.0	100.0	6.2	93.6	0.3	0.0	0.0
14	WESTERN ALLIANCE BANK		70,986	308,314	92.9	7.1	99.9	0.1	0.0	0.0	0.0
15	CITIZENS BANK NATIONAL ASSN	DRMSV1Q0EKMEXLAU1P80	221,955	292,108	1.8	98.2	88.5	10.3	0.0	0.3	0.8
16	CAPITAL ONE NATIONAL ASSN	207ALC1P1YM00VDV0K75	469,432	214,422	11.0	89.0	84.7	6.4	0.0	6.1	2.8
17	FIFTH THIRD BANK NA	QFROUN1UWUYU0DVIWD51	207,586	184,984	1.2	98.8	73.2	13.0	2.0	9.2	2.7
18	REGIONS BANK	EQTWLK1G7ODGC2MGLV11	153,125	174,371	0.1	99.9	93.2	1.0	0.0	2.5	3.2
19	KEYBANK NATIONAL ASSN	HUX2X73FUCYHUVH1BK78	195,191	155,603	0.6	99.4	84.0	6.6	0.0	9.2	0.1
20	MUFG UNION BANK NA	OX3PU53ZLPQKJ4700D47	99,964	147,321	0.0	100.0	89.1	10.8	0.1	0.0	0.0
21	MORGAN STANLEY BANK NA	G1MLHIS0N32I3QPILB75	205,845	144,466	0.8	99.2	42.0	24.4	22.5	0.0	11.1
22	BMO HARRIS BANK NA		265,446	118,611	0.0	100.0	95.1	3.2	1.6	0.0	0.0
23	HUNTINGTON NATIONAL BANK	2WHM8VNJH63UN14OL754	188,441	101,705	0.5	99.5	89.0	5.7	0.6	0.8	3.9
24	COMERICA BANK		91,259	75,744	0.0	100.0	73.4	4.1	0.0	20.7	1.9
25	MANUFACTURERS&TRADERS TR CO	WWB2V0FCW3A0EE3ZJN75	202,363	63,944	0.0	100.0	97.8	2.2	0.0	0.0	0.0
	<b>Top 25 commercial banks, SAs &amp; TCs with derivatives</b>		\$15,114,144	\$216,500,081	\$10,015,311	\$206,484,769	\$159,257,238	\$45,625,511	\$5,000,516	\$1,554,686	\$5,062,130
	<b>Other commercial banks, SAs &amp; TCs with derivatives</b>		6,110,326	1,101,785	11,245	1,090,540	1,003,038	60,987	615	20,003	17,143
	<b>Total all commercial banks, SAs &amp; TCs with derivatives</b>		21,224,470	217,601,866	10,026,557	207,575,309	160,260,276	45,686,497	5,001,131	1,574,689	5,079,273
	<b>Top 25 Commercial Banks, SAs &amp; TCs with derivatives: percentage of total</b>			99.5	4.6	94.9	73.2	21.0	2.3	0.7	2.3
	<b>Other commercial banks, SAs &amp; TCs with derivatives: percentage of total</b>			0.5	0.0	0.5	0.5	0.0	0.0	0.0	0.0
	<b>Total all commercial banks, SAs &amp; TCs with derivatives: percentage of total</b>			100.0	4.6	95.4	73.6	21.0	2.3	0.7	2.3

Note: Currently, the call report does not differentiate credit derivatives by over the counter or exchange traded. Credit derivatives have been included in the "over the counter" category as well as in the sum of total derivatives here. "FX" does not include spot FX. "Other" is defined as the sum of commodity and equity contracts.

Source: Call reports, Schedule RC-L

**Table 16: Credit Equivalent Exposures**

Top 25 Commercial Banks, Savings Associations and Trust Companies in Derivatives, in Millions of Dollars, March 31, 2023

Rank	Bank Name	Legal entity identifier	Total assets	Total derivatives	Total risk-based capital	Bilaterally netted current credit exposure	Potential future exposure	Total credit exposure from all contracts	Percent of total credit exposure to capital
1	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	\$3,267,963	\$59,801,436	\$292,244	\$70,037	\$247,410	\$317,447	109
2	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	490,799	56,457,937	54,716	18,752	57,595	76,347	140
3	CITIBANK NATIONAL ASSN	E57ODZ7F32TWEFA76	1,721,547	55,151,109	167,065	40,304	140,773	181,077	108
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,518,290	22,310,805	199,325	34,636	65,504	100,140	50
5	WELLS FARGO BANK NA	KB1H1DSPRFMYMCUFXT09	1,687,507	13,205,271	165,030	35,002	21,444	56,446	34
6	STATE STREET BANK&TRUST CO	571474TGEMMWANRLN572	287,069	2,436,202	18,699	4,391	17,630	22,021	118
7	HSBC NA	1IE8VN30JCEQV1H4R804	164,492	1,456,665	20,419	3,777	4,551	8,328	41
8	BANK OF NEW YORK MELLON	HPFHU00Q28E4N0NFVK49	341,455	1,023,610	20,358	5,058	7,962	13,020	64
9	U S BANK NATIONAL ASSN	6BYL5QZYBDK8S7L73M02	590,460	1,007,047	57,274	6,226	4,452	10,678	19
10	PNC BANK NATIONAL ASSN	AD6GFRVSDT01YPT1CS68	556,314	628,135	51,416	3,243	-222	3,020	6
11	TD BANK NATIONAL ASSN	03D0JEWFDUS0SEEKG89	401,245	380,976	40,279	53	1,679	1,732	4
12	TRUIST BANK	JJKC32MCHWDI71265Z06	564,837	349,586	52,648	509	2,157	2,666	5
13	NORTHERN TRUST CO	6PTKHDJ8HDFU78PFWH30	150,573	309,708	12,271	1,182	4,533	5,716	47
14	WESTERN ALLIANCE BANK		70,986	308,314	6,361	23	18	41	1
15	CITIZENS BANK NATIONAL ASSN	DRMSV1Q0EKMEXLAU1P80	221,955	292,108	23,265	473	1,647	2,120	9
16	CAPITAL ONE NATIONAL ASSN	207ALC1P1YM0OVDV0K75	469,432	214,422	50,351	3,179	6,223	9,402	19
17	FIFTH THIRD BANK NA	QFROUN1UWUYU0DVIWD51	207,586	184,984	21,965	1,758	2,932	4,690	21
18	REGIONS BANK	EQTWLG1G7ODGC2MGLV11	153,125	174,371	15,206	425	701	1,126	7
19	KEYBANK NATIONAL ASSN	HUX2X73FUCYHUVH1BK78	195,191	155,603	20,238	668	911	1,579	8
20	MUFG UNION BANK NA	OX3PU53ZLPQKJ4700D47	99,964	147,321	11,889	43	548	592	5
21	MORGAN STANLEY BANK NA	G1MLHISON32I3QPILB75	205,845	144,466	22,221	280	4,151	4,431	20
22	BMO HARRIS BANK NA		265,446	118,611	25,351	228	317	545	2
23	HUNTINGTON NATIONAL BANK	2WHM8VNJH63UN14OL754	188,441	101,705	18,134	2,071	949	3,020	17
24	COMERICA BANK		91,259	75,744	9,458	403	1,385	1,788	19
25	MANUFACTURERS&TRADERS TR CO	VWB2V0FCW3A0EE3ZJN75	202,363	63,944	19,735	275	256	530	3
	<b>Top 25 commercial banks, SAs &amp; TCs with derivatives</b>		\$15,114,144	\$216,500,081	\$1,395,919	\$232,995	\$595,507	\$828,502	59
	<b>Other commercial banks, SAs &amp; TCs with derivatives</b>		6,110,326	1,101,785	600,200	13,245	10,096	23,341	4
	<b>Total all commercial banks, SAs &amp; TCs with derivatives</b>		21,224,470	217,601,866	1,996,120	246,241	605,603	851,843	43

Note: Total credit exposure is defined as the credit equivalent amount from derivative contracts (RC-R column B lines 20 and 21), which is the sum of netted current credit exposure and PFE. The total credit exposure to capital ratio is calculated using risk-based capital (tier 1 plus tier 2 capital). Currently, the call report does not differentiate credit derivatives by contract type. Credit derivatives have been included in the sum of total derivatives here.

Source: Call reports, Schedule RC-L and RC-R

**Table 17: Notional Amounts of Derivative Contracts Held for Trading**

Top Four Commercial Banks, Savings Associations and Trust Companies in Derivatives, in Millions of Dollars, March 31, 2023

Rank	Bank name	Legal entity identifier	Total assets	Total derivatives	Total held for trading & MTM	Percent held for trading & MTM	Total not held for trading & MTM	Percent not held for trading & MTM
1	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	\$3,267,963	\$59,801,436	\$57,749,240	99.1	\$541,249	0.9
2	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	490,799	56,457,937	55,714,575	99.9	38,055	0.1
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,721,547	55,151,109	53,026,392	99.8	95,089	0.2
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,518,290	22,310,805	20,047,567	92.3	1,666,691	7.7
	<b>Top four commercial banks, SAs &amp; TCs with derivatives</b>		\$7,998,599	\$193,721,287	\$186,537,774	98.8	\$2,341,084	1.2
	<b>Other commercial banks, SAs &amp; TCs with derivatives</b>		13,225,871	23,880,579	20,683,930	87.5	2,959,805	12.5
	<b>Total all commercial banks, SAs &amp; TCs with derivatives</b>		21,224,470	217,601,866	207,221,704	97.5	5,300,889	2.5

Note: Currently, the call report does not differentiate between traded and not-traded credit derivatives. Credit derivatives have been excluded from the sum of total derivatives here.

Source: Call reports, Schedule RC-L

**Table 18: Gross Fair Values of Derivative Contracts**

Top Four Commercial Banks, Savings Associations and Trust Companies in Derivatives, in Millions of Dollars, March 31, 2023

Rank	Bank name	Legal entity identifier	Total assets	Total derivatives	Trading gross positive fair value*	Trading gross negative fair value**	Not for trading gross positive fair value*	Not for trading gross negative fair value**	Credit derivatives gross positive fair value	Credit derivatives gross negative fair value**
1	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	\$3,267,963	\$59,801,436	\$608,687	\$593,161	\$2,361	\$2,659	\$11,665	\$12,045
2	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	490,799	56,457,937	721,387	706,262	41	68	7,809	8,632
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,721,547	55,151,109	415,852	399,740	1,787	1,405	14,996	15,007
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,518,290	22,310,805	151,045	133,405	46,696	48,403	3,632	3,619
	<b>Top four commercial banks, SAs &amp; TCs with derivatives</b>		\$7,998,599	\$193,721,287	\$1,896,971	\$1,832,568	\$50,885	\$52,535	\$38,102	\$39,303
	<b>Other commercial banks, SAs &amp; TCs with derivatives</b>		13,225,871	23,880,579	142,959	145,333	36,832	33,362	1,868	2,186
	<b>Total all commercial banks, SAs &amp; TCs with derivatives</b>		21,224,470	217,601,866	2,039,930	1,977,901	87,717	85,897	39,970	41,489

Note: Currently, the call report does not differentiate between traded and non-traded credit derivatives. Credit derivatives have been included in the sum of total derivatives here.

\*Market value of contracts that have a positive fair value as of the end of the quarter.

\*\*Market value of contracts that have a negative fair value as of the end of the quarter.

Source: Call reports, Schedule RC-L



**Table 19: Trading Revenues From Cash Instruments and Derivatives**

Top Four Commercial Banks, Savings Associations and Trust Companies in Derivatives, in Millions of Dollars: Revenue Figures are for the Quarter (Not Year-to-Date), March 31, 2023

Rank	Bank name	Legal entity identifier	Total assets	Total derivatives	Total trading revenues from cash & off-balance sheet positions	Trading revenue from interest rate positions	Trading revenue from foreign exchange positions	Trading revenue from equity positions	Trading revenue from commodity & other positions	Trading revenue from credit positions
1	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	\$3,267,963	\$59,801,436	8,321	1,840	1,638	3,663	819	361
2	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	490,799	56,457,937	1,165	1,258	-375	56	18	208
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,721,547	55,151,109	3,267	1,220	1,471	276	290	10
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,518,290	22,310,805	2,438	606	716	928	156	32
	<b>Top four commercial banks, SAs &amp; TCs with derivatives</b>		\$7,998,599	\$193,721,287	15,191	4,924	3,450	4,923	1,283	611
	<b>Other commercial banks, SAs &amp; TCs with derivatives</b>		13,225,871	23,880,579	2,398	807	989	411	287	-95
	<b>Total all commercial banks, SAs &amp; TCs with derivatives</b>		21,224,470	217,601,866	17,589	5,731	4,439	5,334	1,570	516

Note: Effective in the first quarter of 2007, trading revenues from credit exposures are reported separately, along with the four other types of exposures. The total derivatives column includes credit exposures. Trading revenue is defined here as "trading revenue from cash instruments and off-balance-sheet derivative instruments."

Source: Call reports, Schedule RC-L and Schedule RI

**Table 20: Notional Amounts of Derivative Contracts by Contract Type and Maturity (Interest Rate and Foreign Exchange Rate)**

Top Four Commercial Banks, Savings Associations and Trust Companies in Derivatives, in Millions of Dollars, March 31, 2023

Rank	Bank name	Legal entity identifier	Total assets	Total derivatives	Interest rate maturity < 1 year	Interest rate maturity 1-5 years	Interest rate maturity > 5 years	Interest rate: all maturities	Foreign exchange rate maturity < 1 year	Foreign exchange rate maturity 1-5 years	Foreign exchange rate maturity > 5 years	Foreign exchange rate: all maturities
1	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	\$3,267,963	\$59,801,436	\$38,547,515	\$7,084,540	\$5,553,866	\$51,185,921	\$10,167,326	\$2,517,364	\$1,203,780	\$13,888,470
2	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	490,799	56,457,937	24,300,268	9,745,059	8,090,944	42,136,271	4,611,275	1,062,213	739,951	6,413,439
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,721,547	55,151,109	27,868,257	5,025,269	3,025,089	35,918,615	11,371,935	637,860	222,530	12,232,325
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,518,290	22,310,805	6,802,728	5,273,045	3,532,658	15,608,431	4,531,732	462,057	290,034	5,283,823
	<b>Top four commercial banks, SAs &amp; TCs with derivatives</b>		\$7,998,599	\$193,721,287	\$97,518,768	\$27,127,913	\$20,202,557	\$144,849,238	\$30,682,268	\$4,679,494	\$2,456,295	\$37,818,057
	<b>Other commercial banks, SAs &amp; TCs with derivatives</b>		13,225,871	23,880,579	11,742,762	3,080,350	1,056,643	15,879,756	6,214,588	300,094	71,891	6,586,573
	<b>Total all commercial banks, SAs &amp; TCs with derivatives</b>		21,224,470	217,601,866	109,261,530	30,208,263	21,259,200	160,728,994	36,896,856	4,979,588	2,528,186	44,404,630

Note: Beginning January 1, 2022, the largest banks are required to calculate their derivative exposure amount for regulatory capital purposes using the Standardized Approach for Counterparty Credit Risk (SA-CCR). Refer to the call report instructions and OCC Bulletin 2020-7, "Standardized Approach for Counterparty Credit Risk: Final Rule," for additional information on the SA-CCR exposure calculation.

Source: Call reports, Schedule RC-L and RC-R

**Table 21: Notional Amounts of Derivative Contracts by Contract Type and Maturity (Precious Metals)**

Top Four Commercial Banks, Savings Associations and Trust Companies in Derivatives, in Millions of Dollars, March 31, 2023

Rank	Bank name	Legal entity identifier	Total assets	Total derivatives	Precious metals maturity < 1 year	Precious metals maturity 1-5 years	Precious metals maturity > 5 years	Precious metals: all maturities
1	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	\$3,267,963	\$59,801,436	\$226,857	\$26,214	\$0	\$253,071
2	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	490,799	56,457,937	169	53	0	222
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,721,547	55,151,109	107,401	5,931	0	113,332
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,518,290	22,310,805	94,529	6,687	0	101,216
	<b>Top four commercial banks, SAs &amp; TCs with derivatives</b>		\$7,998,599	\$193,721,287	\$428,956	\$38,885	\$0	\$467,841
	<b>Other commercial banks, SAs &amp; TCs with derivatives</b>		13,225,871	23,880,579	11,747	791	0	12,538
	<b>Total all commercial banks, SAs &amp; TCs with derivatives</b>		21,224,470	217,601,866	440,703	39,676	0	480,379

Note: Beginning January 1, 2022, the largest banks are required to calculate their derivative exposure amount for regulatory capital purposes using the Standardized Approach for Counterparty Credit Risk (SA-CCR). Under SA-CCR gold derivatives are considered precious metals derivative contracts rather than an exchange rate derivative contract resulting in an increase in reported precious metals derivative contracts compared to prior quarters. Refer to the call report instructions and OCC Bulletin 2020-7, "Standardized Approach for Counterparty Credit Risk: Final Rule," for additional information on the SA-CCR exposure calculation.

Source: Call reports, Schedule RC-L and RC-R

**Table 22: Notional Amounts of Derivative Contracts by Contract Type and Maturity (Other Commodity and Equity)**

Top Four Commercial Banks, Savings Associations and Trust Companies in Derivatives, in Millions of Dollars, March 31, 2023

Rank	Bank name	Legal entity identifier	Total assets	Total derivatives	Other commodity maturity < 1 year	Other commodity maturity 1-5 years	Other commodity maturity > 5 years	Other commodity: all maturities	Equity maturity < 1 year	Equity maturity 1-5 years	Equity maturity > 5 years	Equity: all maturities
1	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	\$3,267,963	\$59,801,436	\$789,485	\$111,793	\$3,808	\$905,086	\$3,122,599	\$619,927	\$57,002	\$3,799,528
2	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	490,799	56,457,937	40,200	15,653	336	56,189	310,830	58,120	16,636	385,586
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,721,547	55,151,109	127,140	52,087	533	179,760	562,131	131,842	6,818	700,791
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,518,290	22,310,805	30,508	7,837	393	38,738	660,240	239,495	17,842	917,577
	<b>Top four commercial banks, SAs &amp; TCs with derivatives</b>		\$7,998,599	\$193,721,287	\$987,333	\$187,370	\$5,070	\$1,179,773	\$4,655,800	\$1,049,384	\$98,298	\$5,803,482
	<b>Other commercial banks, SAs &amp; TCs with derivatives</b>		13,225,871	23,880,579	112,333	88,116	124	200,573	334,434	101,562	8,209	444,204
	<b>Total all commercial banks, SAs &amp; TCs with derivatives</b>		21,224,470	217,601,866	1,099,666	275,486	5,194	1,380,346	4,990,234	1,150,946	106,507	6,247,686

Note: Beginning January 1, 2022, the largest banks are required to calculate their derivative exposure amount for regulatory capital purposes using the Standardized Approach for Counterparty Credit Risk (SA-CCR). Refer to the call report instructions and OCC Bulletin 2020-7, "Standardized Approach for Counterparty Credit Risk: Final Rule," for additional information on the SA-CCR exposure calculation.

Source: Call reports, Schedule RC-L and RC-R

**Table 23: Notional Amounts of Credit Derivative Contracts by Contract Type and Maturity (Investment Grade and Sub-Investment Grade)**

Top Four Commercial Banks, Savings Associations and Trust Companies in Derivatives, in Millions of Dollars, March 31, 2023

Rank	Bank name	Legal entity identifier	Total assets	Total derivatives	Total credit derivatives	Investment grade maturity <1 year	Investment grade maturity 1-5 years	Investment grade maturity >5 years	Investment grade all maturities	Sub-investment grade maturity <1 year	Sub-investment grade maturity 1-5 years	Sub-investment grade maturity >5 years	Sub-investment grade all maturities
1	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	\$3,267,963	\$59,801,436	\$1,510,947	\$263,389	\$756,484	\$167,545	\$1,187,418	\$82,526	\$210,092	\$30,911	\$323,529
2	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	490,799	56,457,937	705,307	43,380	350,210	67,910	461,500	34,238	180,816	28,753	243,807
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,721,547	55,151,109	2,029,628	242,311	1,252,879	138,370	1,633,560	70,752	307,780	17,536	396,068
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,518,290	22,310,805	596,547	167,939	236,504	46,966	451,409	53,984	78,424	12,730	145,138
	<b>Top four commercial banks, SAs &amp; TCs with derivatives</b>		\$7,998,599	\$193,721,287	\$4,842,429	\$717,019	\$2,596,077	\$420,791	\$3,733,887	\$241,500	\$777,112	\$89,930	\$1,108,542
	<b>Other commercial banks, SAs &amp; TCs with derivatives</b>		13,225,871	23,880,579	236,844	51,656	92,258	19,247	163,161	10,381	49,166	14,135	73,682
	<b>Total all commercial banks, SAs &amp; TCs with derivatives</b>		21,224,470	217,601,866	5,079,273	768,675	2,688,335	440,038	3,897,048	251,881	826,278	104,065	1,182,224

Source: Call reports, Schedule RC-L

**Table 24: Distribution of Credit Derivative Contracts Held for Trading**

Top 25 Commercial Banks, Savings Associations and Trust Companies in Derivatives, in Millions of Dollars, March 31, 2023

Rank	Bank name	Legal entity identifier	Total assets	Total derivatives	Total credit derivatives	Total credit derivatives purchased	Total credit derivatives sold	Purchased credit default swaps	Purchased total return swaps	Purchased credit options	Purchased other credit derivatives	Sold credit default swaps	Sold total return swaps	Sold credit options	Sold other credit derivatives
1	JPMORGAN CHASE BANK NA	7H6GLXDRUQGFU57RNE97	\$3,267,963	\$59,801,436	\$1,510,947	\$780,109	\$730,838	\$666,574	\$34,053	\$73,421	\$6,061	\$639,666	\$14,797	\$76,372	\$3
2	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	490,799	56,457,937	705,307	380,436	324,871	367,235	2,055	10,743	403	312,140	2,984	9,680	67
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,721,547	55,151,109	2,029,628	1,035,616	994,012	975,335	17,443	42,838	0	931,241	7,701	55,070	0
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,518,290	22,310,805	596,547	309,884	286,663	217,148	17,313	75,423	0	199,384	18,898	68,381	0
5	WELLS FARGO BANK NA	KB1H1DSPRFMYMCFXT09	1,687,507	13,205,271	125,597	72,597	53,000	11,764	40,313	225	20,295	11,610	26,655	0	14,735
6	STATE STREET BANK&TRUST CO	571474TGEMMWANRLN572	287,069	2,436,202	0	0	0	0	0	0	0	0	0	0	0
7	HSBC NA	1E8VN30JCEQV1H4R804	164,492	1,456,665	18,299	12,070	6,229	9,767	2,302	0	0	6,229	0	0	0
8	BANK OF NEW YORK MELLON	HPFHU0OQ28E4N0NFVK49	341,455	1,023,610	220	220	0	220	0	0	0	0	0	0	0
9	U S BANK NATIONAL ASSN	6BYL5QZYBDK8S7L73M02	590,460	1,007,047	11,440	2,877	8,564	663	0	0	2,214	235	0	0	8,329
10	PNC BANK NATIONAL ASSN	AD6GFRVSDT01YPT1CS68	556,314	628,135	13,745	5,274	8,471	300	0	0	4,974	0	0	0	8,471
11	TD BANK NATIONAL ASSN	03D0JEWFDUS0SEKGG89	401,245	380,976	0	0	0	0	0	0	0	0	0	0	0
12	TRUIST BANK	JJKC32MCHWDI71265Z06	564,837	349,586	9,729	3,437	6,292	630	1,793	0	1,014	150	0	0	6,142
13	NORTHERN TRUST CO	6PTKHDJ8HDUF78PFWH30	150,573	309,708	0	0	0	0	0	0	0	0	0	0	0
14	WESTERN ALLIANCE BANK		70,986	308,314	51	0	51	0	0	0	0	0	0	0	51
15	CITIZENS BANK NATIONAL ASSN	DRMSV1Q0EKMEXLAU1P80	221,955	292,108	2,466	0	2,466	0	0	0	0	0	0	0	2,466
16	CAPITAL ONE NATIONAL ASSN	207ALC1P1YM0QVDV0K75	469,432	214,422	6,095	3,573	2,522	0	0	0	3,573	0	0	0	2,522
17	FIFTH THIRD BANK NA	QFROUN1UWUYU0DVIWD51	207,586	184,984	4,927	1,056	3,871	0	0	0	1,056	0	0	0	3,871
18	REGIONS BANK	EQTWLKG7ODGC2MGLV11	153,125	174,371	5,542	1,825	3,717	0	0	0	1,825	0	0	0	3,717
19	KEYBANK NATIONAL ASSN	HUX2X73FUCYHUVH1BK78	195,191	155,603	146	52	94	52	0	0	0	1	93	0	0
20	MUFG UNION BANK NA	OX3PU53ZLPQKJ4700D47	99,964	147,321	0	0	0	0	0	0	0	0	0	0	0
21	MORGAN STANLEY BANK NA	G1MLHIS0N32I3QPILB75	205,845	144,466	16,086	15,061	1,025	14,986	0	75	0	1,025	0	0	0
22	BMO HARRIS BANK NA		265,446	118,611	0	0	0	0	0	0	0	0	0	0	0
23	HUNTINGTON NATIONAL BANK	2WHM8VNHJ63UN14OL754	188,441	101,705	3,947	2,285	1,662	0	0	0	2,285	0	0	0	1,662
24	COMERICA BANK		91,259	75,744	1,410	546	864	546	0	0	0	864	0	0	0
25	MANUFACTURERS&TRADERS TR CO	VVWB2V0FCW3A0EE3ZJN75	202,363	63,944	0	0	0	0	0	0	0	0	0	0	0
	<b>Top 25 commercial banks, SAs &amp; TCs with derivatives</b>		<b>\$15,114,144</b>	<b>\$216,500,081</b>	<b>\$5,062,130</b>	<b>\$2,626,919</b>	<b>\$2,435,211</b>	<b>\$2,265,220</b>	<b>\$115,272</b>	<b>\$202,725</b>	<b>\$43,701</b>	<b>\$2,102,545</b>	<b>\$71,128</b>	<b>\$209,503</b>	<b>\$52,036</b>
	<b>Other commercial banks, SAs &amp; TCs with derivatives</b>		<b>6,110,326</b>	<b>1,101,785</b>	<b>17,143</b>	<b>5,862</b>	<b>11,281</b>	<b>1,497</b>	<b>0</b>	<b>0</b>	<b>4,365</b>	<b>2,406</b>	<b>21</b>	<b>0</b>	<b>8,854</b>
	<b>Total all commercial banks, SAs &amp; TCs with derivatives</b>		<b>21,224,470</b>	<b>217,601,866</b>	<b>5,079,273</b>	<b>2,632,781</b>	<b>2,446,492</b>	<b>2,266,717</b>	<b>115,272</b>	<b>202,725</b>	<b>48,066</b>	<b>2,104,951</b>	<b>71,149</b>	<b>209,503</b>	<b>60,890</b>
	<b>Top 25 commercial banks, SAs &amp; TCs with derivatives: percentage of total</b>				<b>99.7</b>	<b>51.7</b>	<b>47.9</b>	<b>44.6</b>	<b>2.3</b>	<b>4.0</b>	<b>0.9</b>	<b>41.4</b>	<b>1.4</b>	<b>4.1</b>	<b>1.0</b>
	<b>Other commercial banks, SAs &amp; TCs with derivatives: percentage of total</b>				<b>0.3</b>	<b>0.1</b>	<b>0.2</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.1</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.2</b>
	<b>Total all commercial banks, SAs &amp; TCs with derivatives: percentage of total</b>				<b>100.0</b>	<b>51.8</b>	<b>48.2</b>	<b>44.6</b>	<b>2.3</b>	<b>4.0</b>	<b>0.9</b>	<b>41.4</b>	<b>1.4</b>	<b>4.1</b>	<b>1.2</b>

Note: Credit derivatives have been excluded from the sum of total derivatives here.

Source: Call reports, Schedule RC-L

**Table 25: Derivatives Data Reported by FFIEC 051 Filers\***

Commercial Banks, Savings Associations and Trust Companies in Derivatives, in Millions of Dollars, March 31, 2023

**FFIEC 051 Call Report Schedule SU**

Gross notional amount of derivatives	1Q23	4Q22	3Q22	2Q22	1Q22	4Q21	3Q21	2Q21	1Q21	4Q20	3Q20	2Q20
Total gross notional amount of interest rate derivatives held for trading	\$5,016	\$4,792	\$4,915	\$4,953	\$4,994	\$5,011	\$5,301	\$5,189	\$5,391	\$5,819	\$6,236	\$5,183
Total gross notional amount of all other derivatives held for trading	\$51	\$43	\$42	\$35	\$39	\$44	\$14	\$173	\$20	\$19	\$53	\$34
Total gross notional amount of interest rate derivatives not held for trading	\$17,739	\$14,395	\$16,786	\$19,499	\$21,308	\$22,545	\$29,991	\$31,949	\$38,839	\$52,867	\$57,459	\$52,779
Total gross notional amount of all other derivatives not held for trading	\$676	\$1,103	\$1,037	\$1,142	\$1,007	\$1,314	\$1,461	\$1,350	\$1,269	\$1,137	\$1,202	\$1,302

**FFIEC 051 Call Report Schedule RC-R\*\***

Notional principal amounts of over-the-counter derivative contracts covered by the regulatory capital rules	1Q23	4Q22	3Q22	2Q22	1Q22	4Q21	3Q21	2Q21	1Q21	4Q20	3Q20	2Q20
Interest rate	Data not reported	\$12,839	Data not reported	\$14,092	Data not reported	\$14,005	Data not reported	\$17,688	Data not reported	\$22,947	Data not reported	\$33,122
Foreign exchange rate		\$5		\$4		\$4		\$3		\$84		\$19
Credit (investment grade reference asset)		\$188		\$265		\$230		\$196		\$217		\$199
Credit (non-investment grade reference asset)		\$212		\$176		\$168		\$154		\$143		\$138
Equity		\$0		\$0		\$0		\$0		\$0		\$0
Precious metals		\$0		\$0		\$4		\$1		\$0		\$0
Other		\$0		\$0		\$0		\$1		\$20		\$25

Notional principal amounts of centrally cleared derivative contracts covered by the regulatory capital rules	1Q23	4Q22	3Q22	2Q22	1Q22	4Q21	3Q21	2Q21	1Q21	4Q20	3Q20	2Q20
Interest rate	Data not reported	\$79	Data not reported	\$108	Data not reported	\$21	Data not reported	\$193	Data not reported	\$250	Data not reported	\$299
Foreign exchange rate		\$0		\$0		\$0		\$0		\$0		\$0
Credit (investment grade reference asset)		\$0		\$0		\$0		\$0		\$0		\$0
Credit (non-investment grade reference asset)		\$0		\$0		\$0		\$0		\$0		\$0
Equity		\$0		\$0		\$0		\$0		\$0		\$0
Precious metals		\$0		\$0		\$0		\$0		\$0		\$0
Other		\$0		\$0		\$0		\$0		\$0		\$0

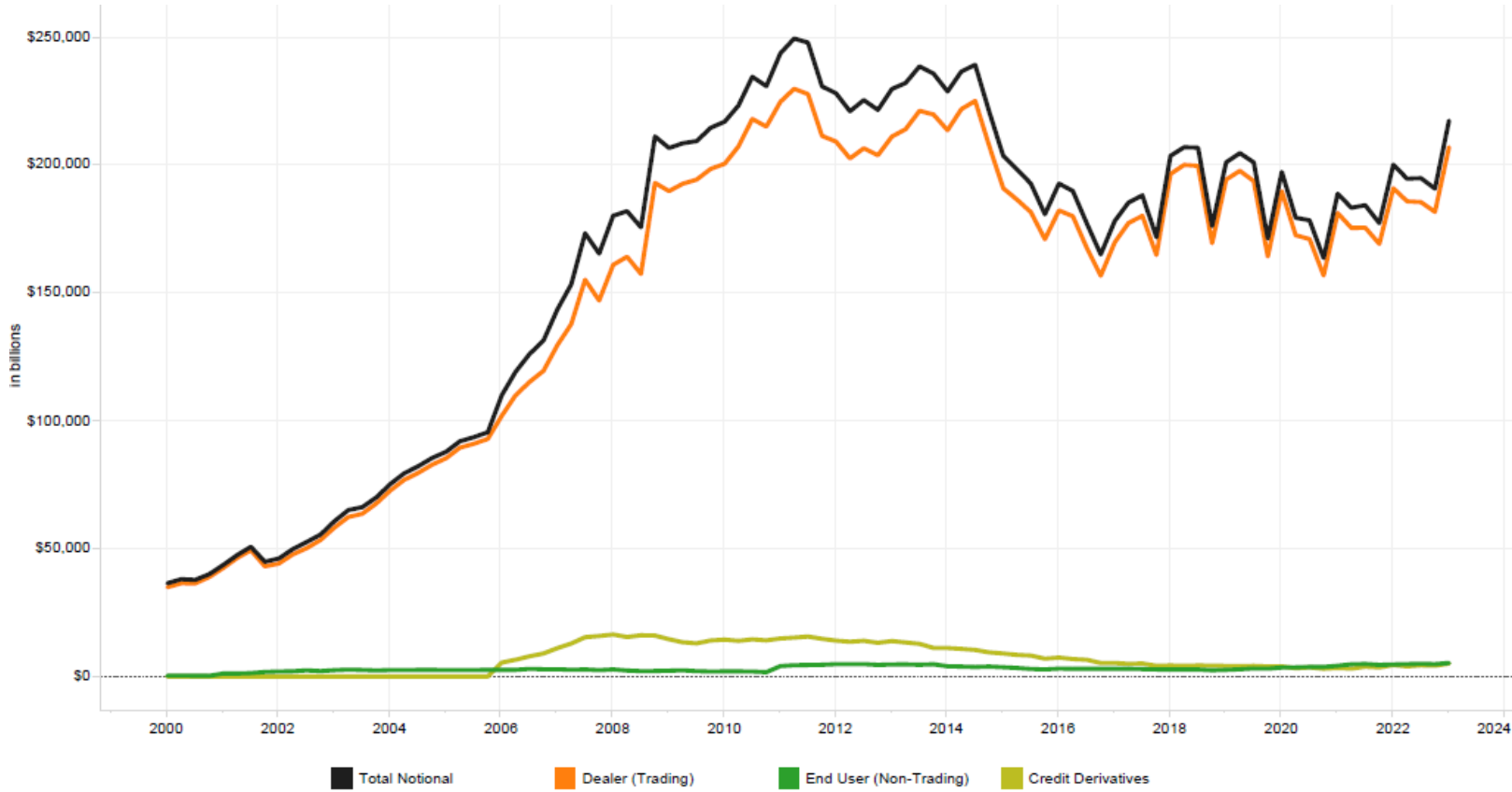
Current Credit Exposure	1Q23	4Q22	3Q22	2Q22	1Q22	4Q21	3Q21	2Q21	1Q21	4Q20	3Q20	2Q20
Current credit exposure across all derivative contracts covered by the regulatory capital rules	Data not reported	\$493	Data not reported	\$363	Data not reported	\$233	Data not reported	\$287	Data not reported	\$449	Data not reported	\$504

\*Beginning September 30, 2019, the eligibility to file the FFIEC 051 Call Report expanded from banks with total assets less than \$1 billion to include banks with less than \$5 billion in total assets.

\*\*Beginning September 30, 2019, banks filing the FFIEC 051 Call Report complete this information from schedule RC-R in the June and December reports only.

Source: Call reports, Schedule SU and Schedule RC-R

**Figure 7: Derivative Notional Amounts by Type**  
Insured U.S. Commercial Banks and Savings Associations



in billions of dollars

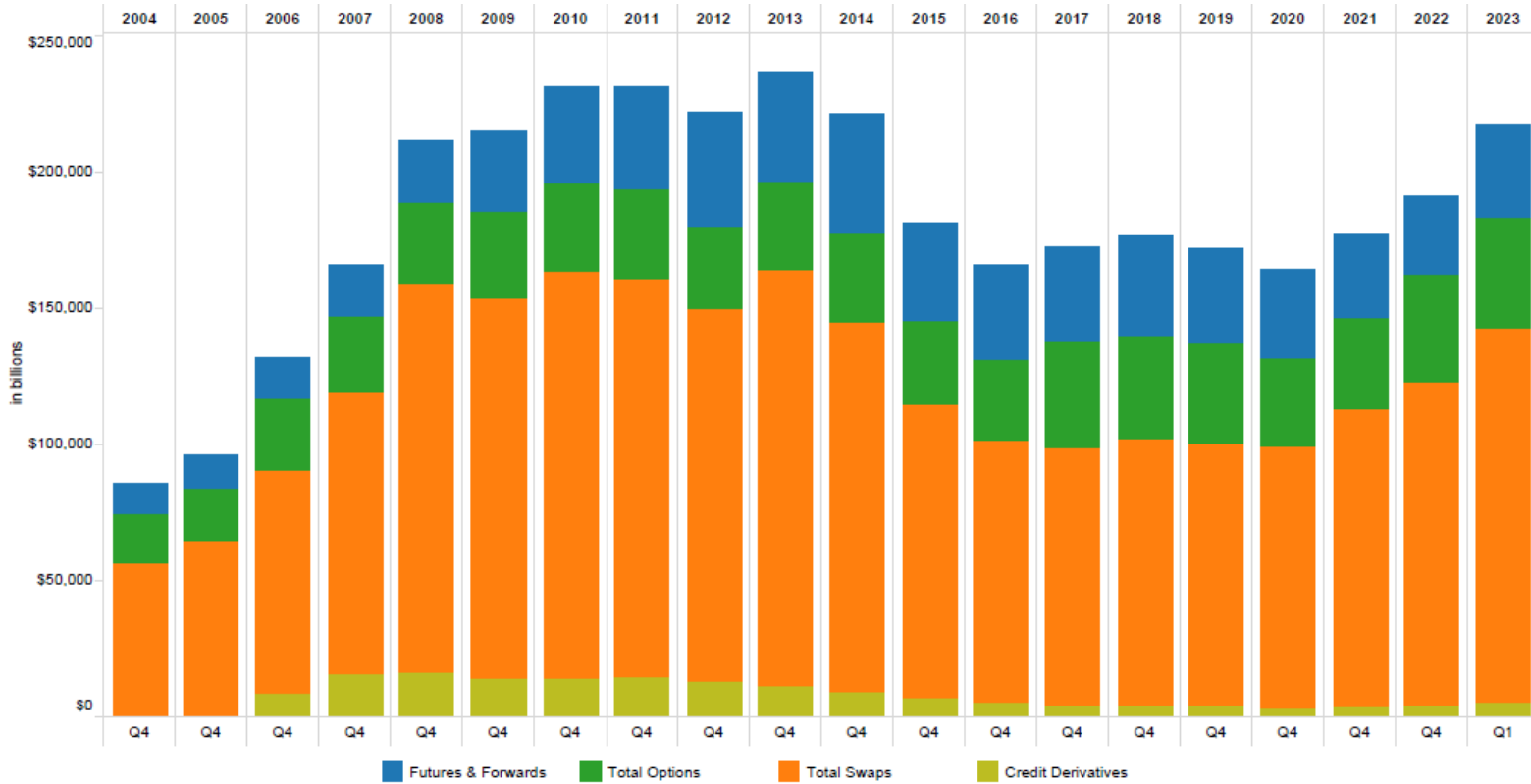
	2019				2020				2021				2022				2023
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
<b>Total Notional</b>	\$201,283	\$204,876	\$201,258	\$171,465	\$197,504	\$179,573	\$178,579	\$163,799	\$188,990	\$183,501	\$184,480	\$177,464	\$200,354	\$194,851	\$195,082	\$190,977	\$217,802
<b>Dealer (Trading)</b>	194,518	197,950	193,912	164,441	189,995	172,723	171,242	156,997	181,421	175,607	175,695	169,361	191,121	186,016	185,701	181,875	207,222
<b>End User (Non-Trading)</b>	2,620	2,852	3,163	3,079	3,522	3,595	3,757	3,768	4,211	4,791	4,933	4,562	4,729	4,870	4,991	4,861	5,301
<b>Credit Derivatives</b>	4,145	4,074	4,183	3,945	3,986	3,255	3,581	3,034	3,359	3,104	3,852	3,540	4,504	3,966	4,390	4,241	5,079

Note: Numbers may not add up to total due to rounding. Total derivative notionals are now reported including credit derivatives, for which regulatory reporting does not differentiate between trading and non-trading.

Source: Call reports, Schedule RC-L



**Figure 8: Derivative Contracts by Product\***  
Insured U.S. Commercial Banks and Savings Associations



In billions of dollars

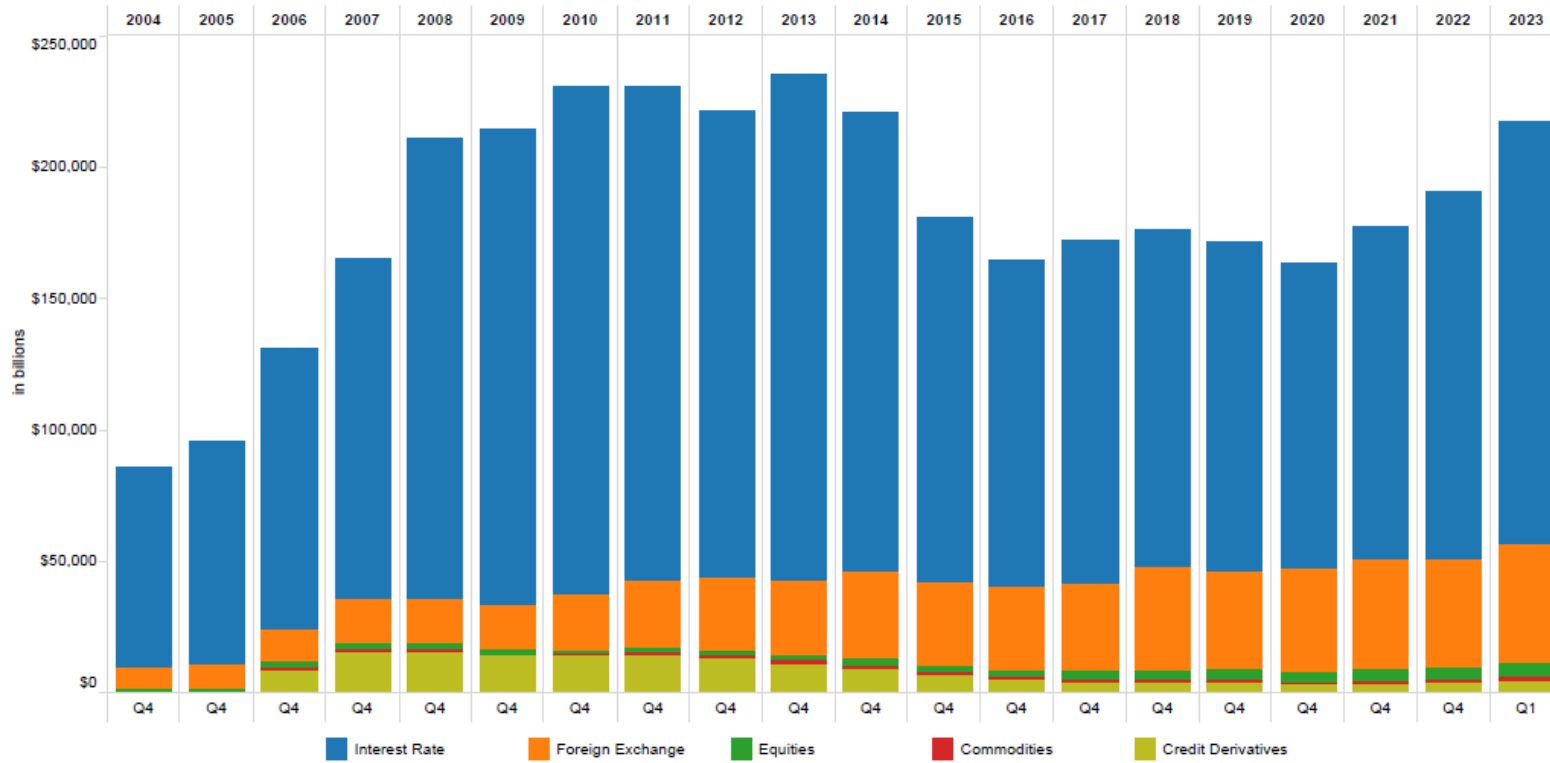
	2007 Q4	2008 Q4	2009 Q4	2010 Q4	2011 Q4	2012 Q4	2013 Q4	2014 Q4	2015 Q4	2016 Q4	2017 Q4	2018 Q4	2019 Q4	2020 Q4	2021 Q4	2022 Q4	2023 Q1
<b>Futures &amp; Forwards</b>	\$18,867	\$22,529	\$29,652	\$35,539	\$37,469	\$41,621	\$40,027	\$43,380	\$35,691	\$34,201	\$34,162	\$36,145	\$34,789	\$32,350	\$31,180	\$28,749	\$34,502
<b>Total Options</b>	27,727	29,747	31,884	32,078	32,505	30,375	32,305	33,081	30,889	29,373	38,841	38,009	36,117	31,991	33,453	39,389	40,290
<b>Total Swaps</b>	103,102	143,111	139,138	149,331	146,266	136,608	152,469	135,169	107,392	96,384	94,784	97,930	96,614	96,423	109,290	118,598	137,730
<b>Credit Derivatives</b>	15,863	16,029	14,112	14,151	14,759	13,190	11,191	9,449	6,988	5,293	4,188	4,270	3,945	3,034	3,540	4,241	5,079
<b>Total Notional</b>	165,559	211,416	214,786	231,099	230,998	221,794	235,992	221,078	180,959	165,252	171,974	176,354	171,465	163,799	177,464	190,977	217,602

\*Notional amount of total: futures, exchange-traded options, over the counter options, forwards and swaps.

Note: Numbers may not add up to total due to rounding.

Source: Call reports, Schedule RC-L

**Figure 9: Derivative Contracts by Type\***  
Insured U.S. Commercial Banks and Savings Associations



In billions of dollars

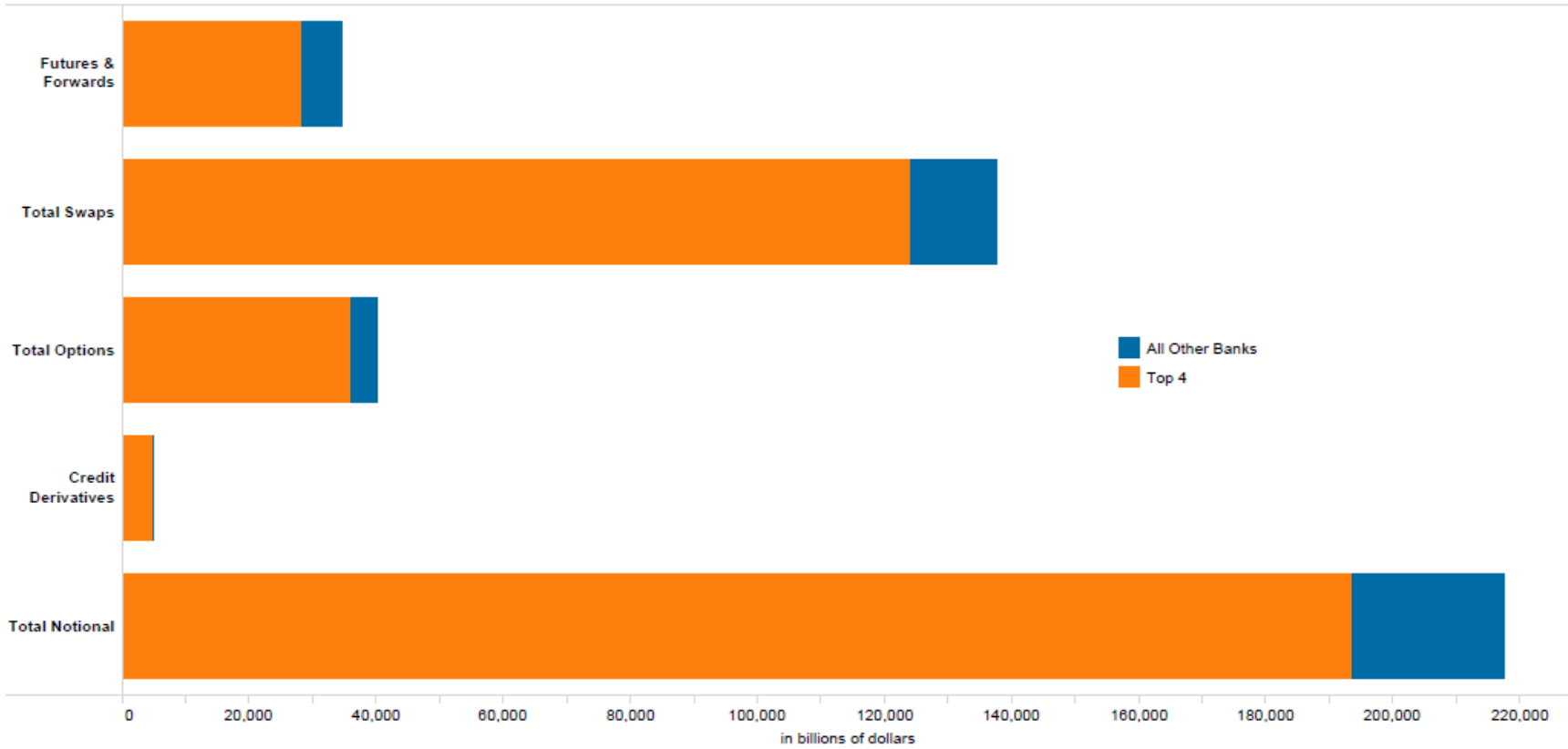
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q1
Interest Rate	\$175,895	\$181,454	\$193,399	\$187,866	\$177,650	\$193,084	\$174,887	\$138,369	\$124,488	\$130,417	\$128,175	\$125,065	\$116,000	\$126,236	\$139,755	\$160,260
Foreign Exchange	16,224	16,555	20,990	25,436	27,587	28,480	33,183	32,100	31,737	32,903	39,220	37,170	39,596	41,847	41,124	45,686
Equities	2,207	1,685	1,364	1,606	1,970	2,028	2,537	2,395	2,475	3,080	3,374	3,796	3,775	4,256	4,424	5,001
Commodities	1,061	979	1,195	1,330	1,397	1,209	1,222	1,108	1,257	1,388	1,315	1,488	1,395	1,584	1,433	1,575
Credit Derivatives	16,029	14,112	14,151	14,759	13,190	11,191	9,449	6,986	5,293	4,186	4,270	3,945	3,034	3,540	4,241	5,079
<b>Total Notional</b>	<b>211,416</b>	<b>214,786</b>	<b>231,099</b>	<b>230,998</b>	<b>221,794</b>	<b>235,992</b>	<b>221,078</b>	<b>180,959</b>	<b>165,252</b>	<b>171,974</b>	<b>176,354</b>	<b>171,465</b>	<b>163,799</b>	<b>177,464</b>	<b>190,977</b>	<b>217,602</b>

\*Notional amount of total: futures, exchange traded options, over the counter options, forwards, and swaps.

Note: As of 2006 Q2 equities and commodities are shown as separate categories. They were previously shown as "Other Derivs." Numbers may not add up to total due to rounding.

Source: Call reports, Schedule RC-L

**Figure 10: Four Banks Dominate in Derivatives\***  
 Insured U.S. Commercial Banks and Savings Associations



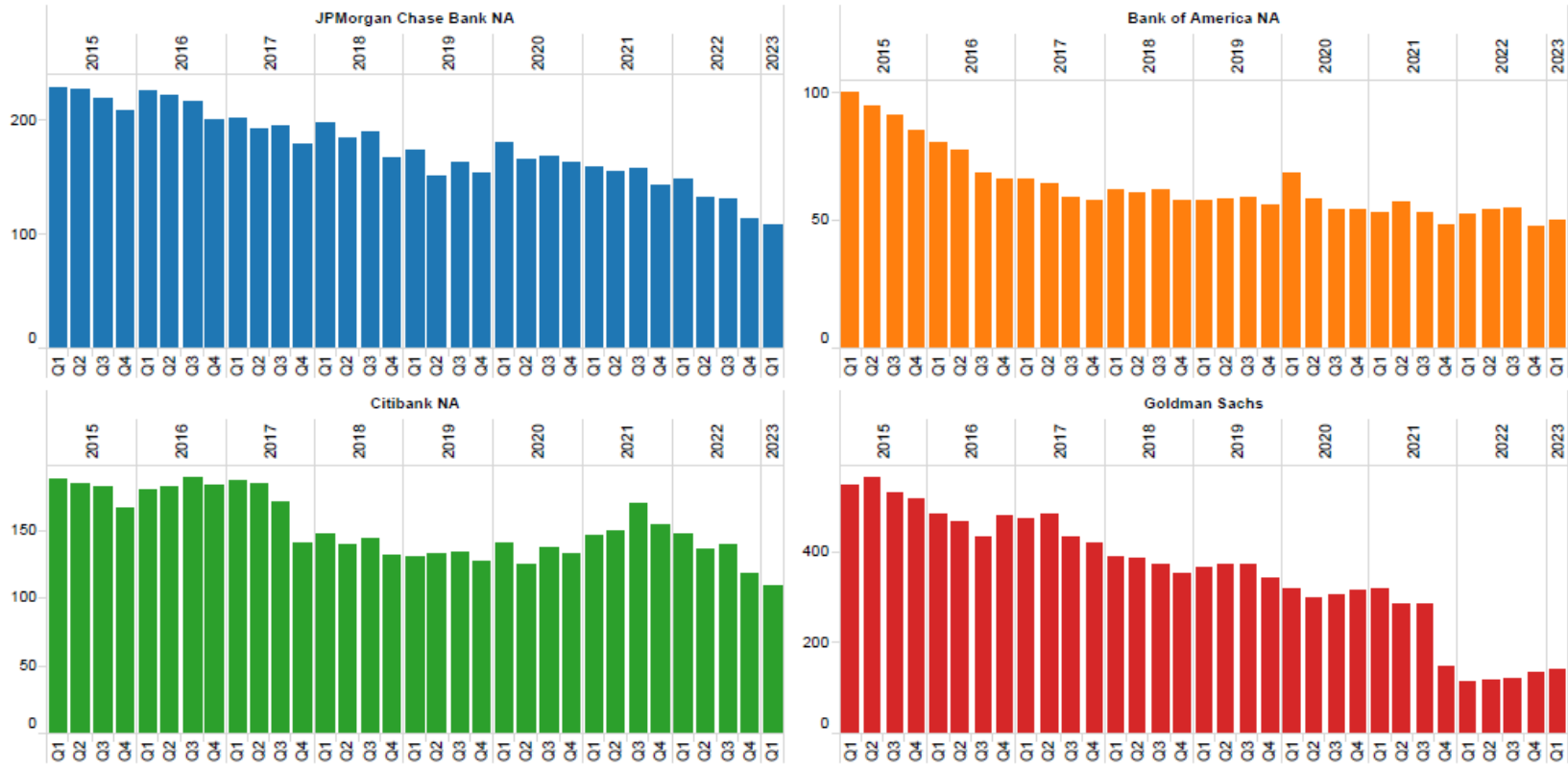
In billions of dollars

	Top 4	All Other Banks	Grand Total
Futures & Forwards	\$28,428	\$6,074	\$34,502
Total Swaps	124,252	13,478	137,730
Total Options	36,199	4,092	40,290
Credit Derivatives	4,842	237	5,079
Total Notional	193,721	23,881	217,602

\*Notional amount of total: futures, exchange-traded options, over-the-counter options, forwards, and swaps.

Source: Call reports, Schedule RC-L

**Figure 11: Credit Exposure to Risk-Based Capital (in Percentage)**  
 Top Four Insured U.S. Commercial Banks and Savings Associations by Derivative Holdings



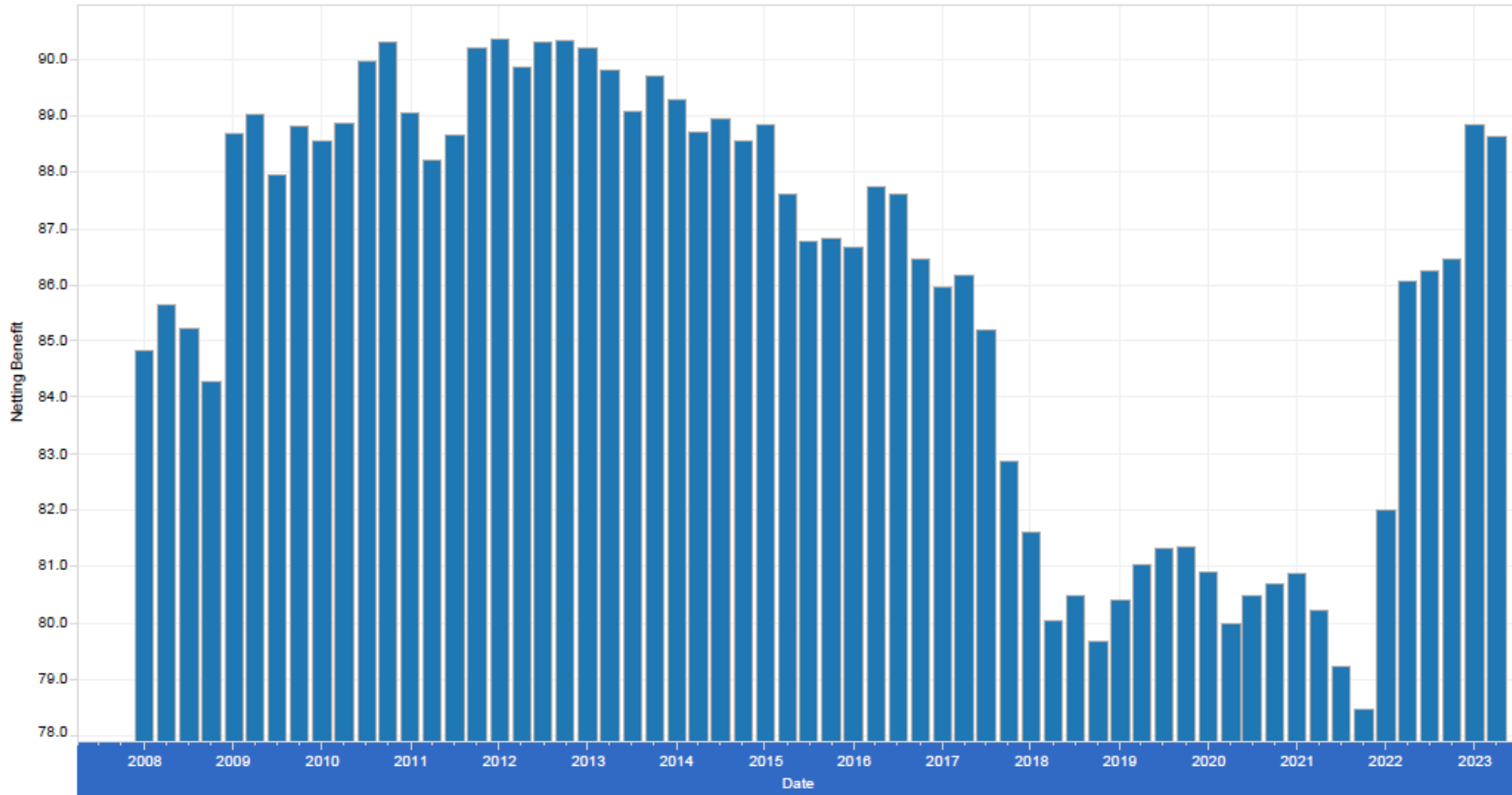
	2017				2018				2019				2020				2021				2022				2023
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
JPMorgan Chase Bank NA	201	193	195	179	197	184	190	167	173	150	163	153	181	165	168	163	159	155	158	143	147	133	130	113	109
Bank of America NA	66	64	59	57	62	61	62	57	58	58	59	56	68	59	54	54	53	57	53	49	52	54	55	48	50
Citibank NA	186	184	171	140	146	139	144	132	130	132	134	126	140	125	137	133	145	150	170	153	147	136	139	118	108
Goldman Sachs	472	484	433	420	389	384	371	354	366	372	372	344	319	299	304	314	316	285	286	149	113	117	122	132	140
<b>TOTAL</b>	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
	220	218	205	191	195	187	188	173	178	169	176	164	174	160	165	164	165	158	168	136	133	121	122	108	103

Note: Beginning January 1, 2022, the largest banks are required to calculate their derivative exposure amount for regulatory capital purposes using the Standardized Approach for Counterparty Credit Risk (SA-CCR). Refer to the call report instructions and OCC Bulletin 2020-7, "Standardized Approach for Counterparty Credit Risk: Final Rule," for additional information on the SA-CCR exposure calculation.

Note: The methodology to calculate the credit risk exposure to capital ratio for the Top 4 category uses a weighted average of total current credit exposure.

Source: Call reports, Schedule RC-R

**Figure 12: Netting Benefit\*: Amount of Gross Credit Exposure Eliminated Through Bilateral Netting (in Percentage)**  
 Insured U.S. Commercial Banks and Savings Associations by Derivative Holdings



**Netting Benefit**

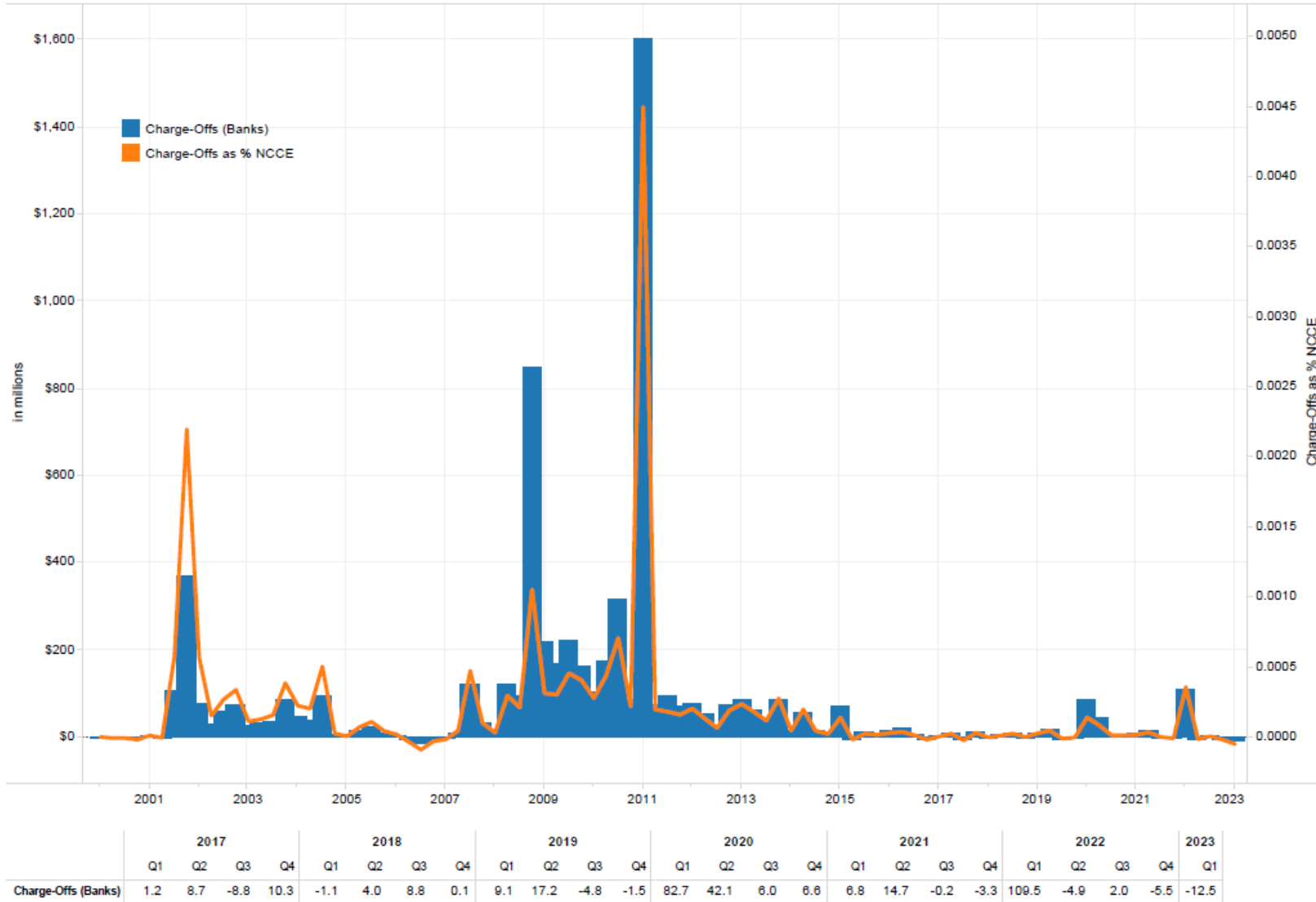
2015				2016				2017				2018				2019				2020				2021				2022				2023
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1				
87.6	86.8	86.8	86.7	87.7	87.6	86.5	86.0	86.2	85.2	82.9	81.6	80.0	80.5	79.7	80.4	81.0	81.3	81.4	80.9	80.0	80.5	80.7	80.9	80.2	79.2	78.5	82.0	86.1	86.3	86.5	88.8	88.6

\*The netting benefit is defined as the Gross Positive Fair Value (GPFV) from call report Schedule RC-L minus the Net Current Credit Exposure from call report Schedule RC-R divided by the GPFV.

Note: Beginning January 1, 2022, the largest banks are required to calculate their derivative exposure amount for regulatory capital purposes using the Standardized Approach for Counterparty Credit Risk (SA-CCR). Refer to the call report instructions and OCC Bulletin 2020-7, "Standardized Approach for Counterparty Credit Risk: Final Rule," for additional information on the SA-CCR exposure calculation.

Source: Call reports, Schedules RC-L and RC-R

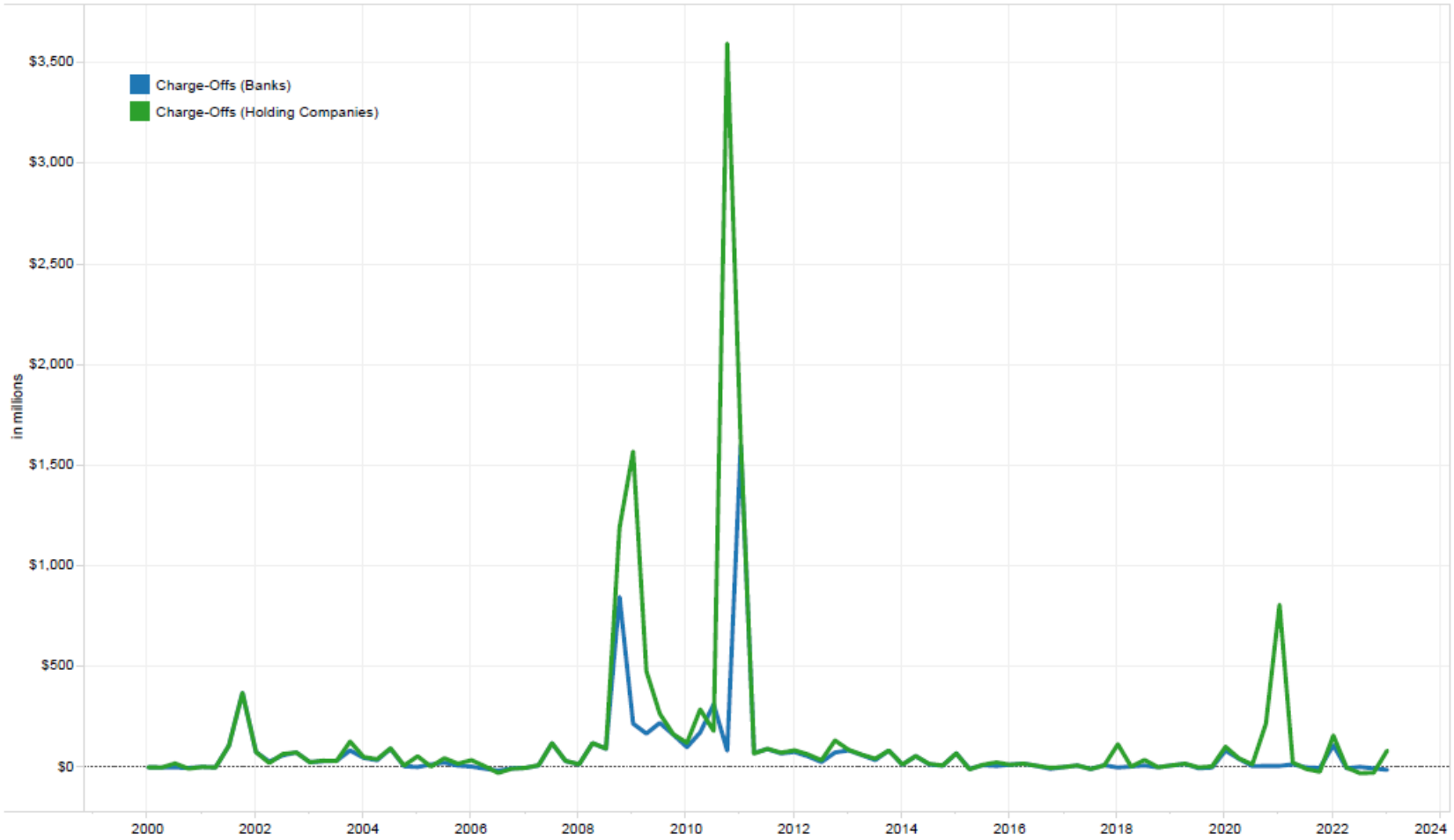
**Figure 13: Quarterly Charge-Offs/(Recoveries) From Derivatives—Bank Insured U.S. Commercial Banks and Savings Associations With Derivatives**



Note: The figures are for each quarter alone, not year-to-date.

Source: Call reports Schedule RI, NCCE: Pre 2009 Q2 (RC-R); 2009 Q2 - 2014 Q4 (RC-L); 2015 Q1 onward (RC-R)

**Figure 14: Quarterly Charge-Offs/(Recoveries) From Derivatives—Holding Company**  
 Insured U.S. Commercial Banks and Savings Associations With Derivatives Compared With Holding Companies

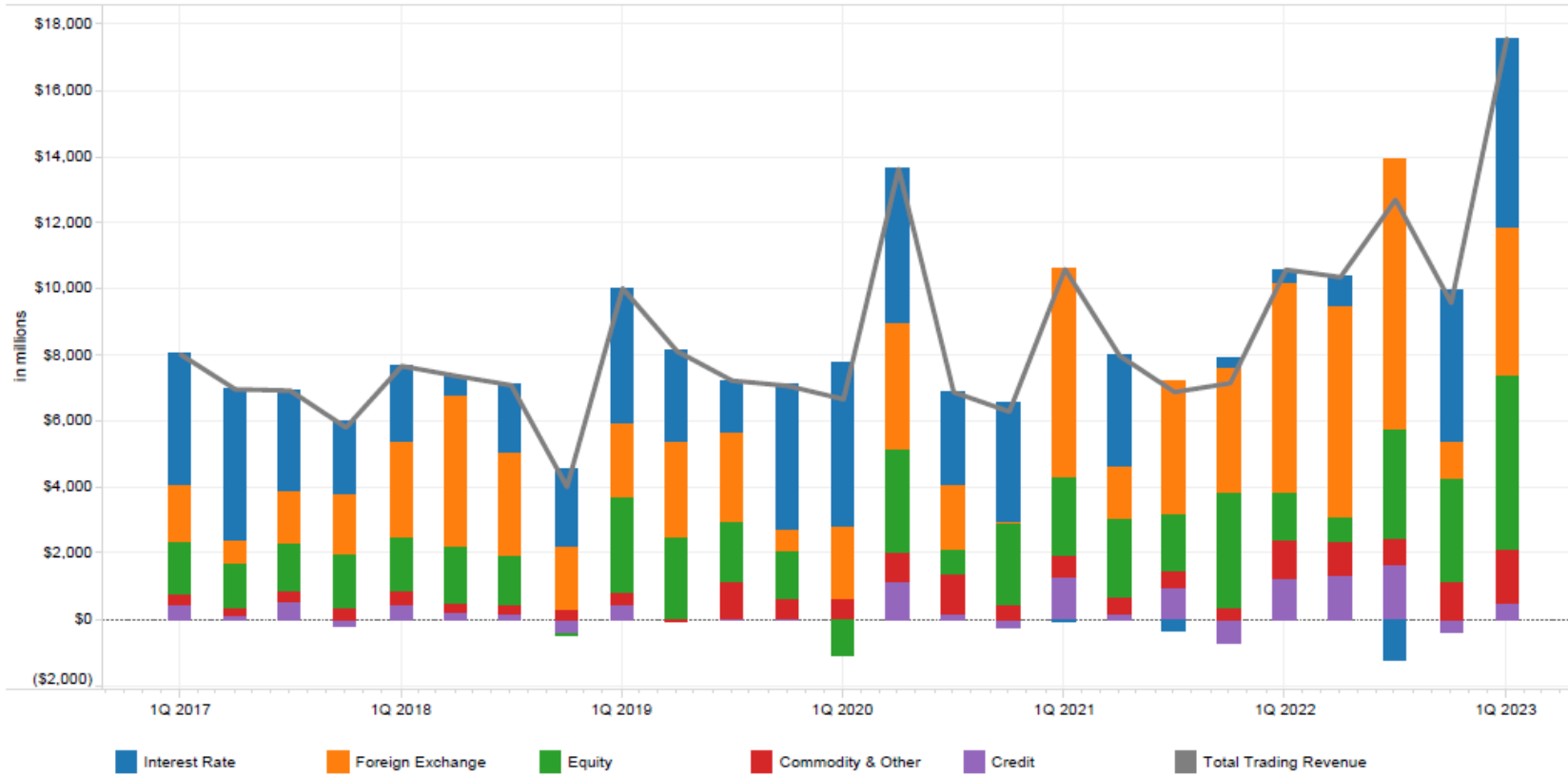


	2017				2018				2019				2020				2021				2022				2023
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Charge-Offs (Banks)	1.2	8.7	-8.8	10.3	-1.1	4.0	8.8	0.1	9.1	17.2	-4.8	-1.5	82.7	42.1	6.0	6.6	6.8	14.7	-0.2	-3.3	109.5	-4.9	2.0	-5.5	-12.5
Charge-Offs (Holding Companies)	1.4	8.9	-8.3	9.6	114.5	3.5	38.6	0.1	9.5	17.9	-0.3	4.1	102.1	44.2	14.6	218.3	807.7	23.7	-8.2	-22.5	158.0	-1.8	-29.4	-27.1	83.1

Note: The figures are for each quarter alone, not year-to-date.

Source: Call reports, Schedule RI and Y-9, Schedule HI

**Figure 15a: Quarterly Trading Revenue (Cash and Derivative Positions)\*—Bank Insured U.S. Commercial Banks and Savings Associations**



In millions of dollars

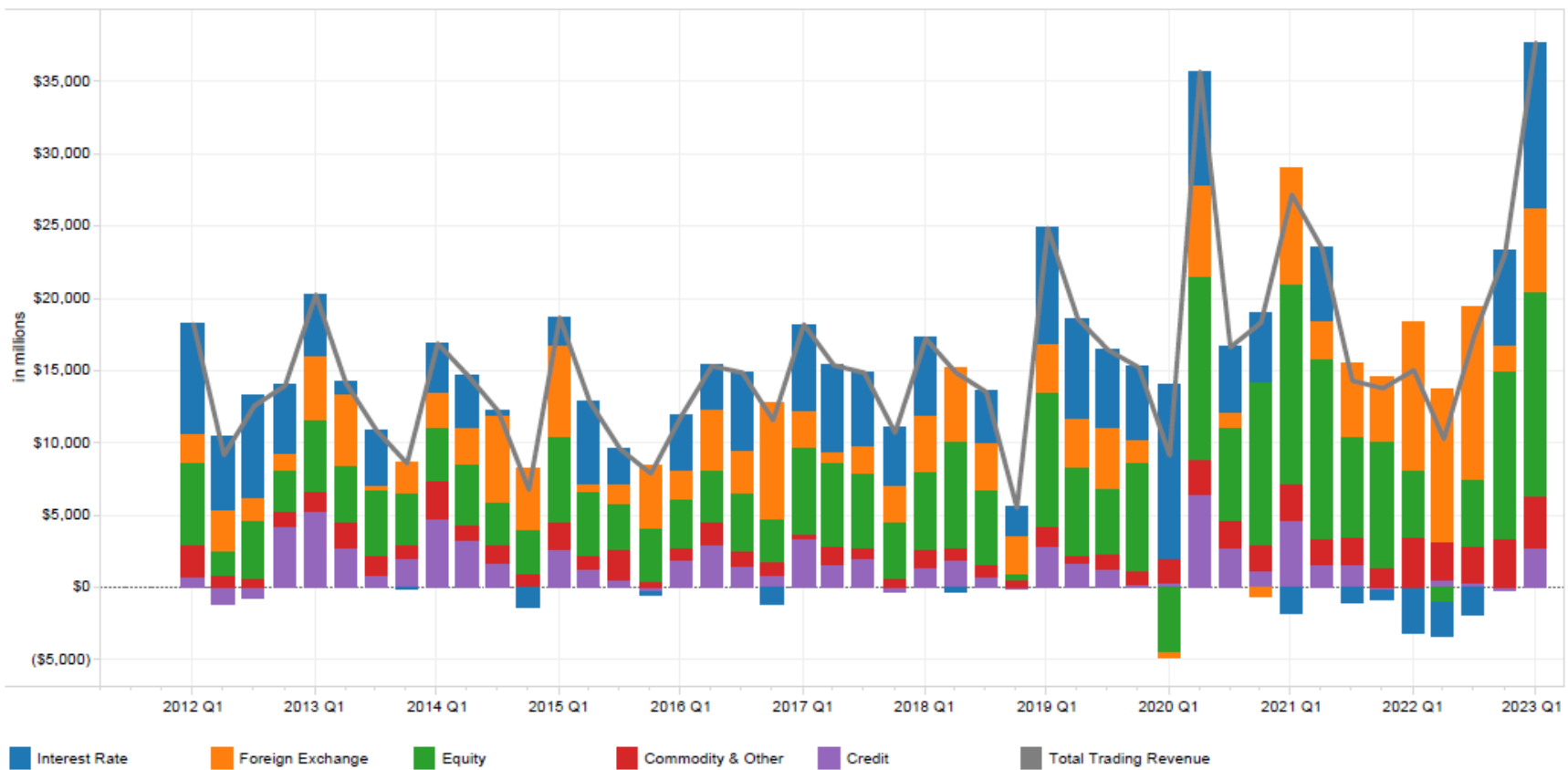
	2018				2019				2020				2021				2022				2023
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Interest Rate	\$2,317	\$587	\$2,020	\$2,305	\$4,078	\$2,780	\$1,567	\$4,361	\$4,942	\$4,634	\$2,821	\$3,616	(\$42)	\$3,369	(\$329)	\$273	\$403	\$874	(\$1,197)	\$4,576	\$5,731
Foreign Exchange	2,861	4,569	3,149	1,971	2,254	2,900	2,718	662	2,167	3,841	1,942	18	6,343	1,546	3,998	3,747	6,341	6,363	8,153	1,134	4,439
Equity	1,624	1,727	1,444	-43	2,895	2,464	1,805	1,427	-1,040	3,139	750	2,480	2,388	2,384	1,729	3,534	1,458	773	3,306	3,100	5,334
Commodity & Other	395	286	349	274	323	-43	1,109	600	646	905	1,226	434	622	549	531	347	1,161	1,029	774	1,153	1,570
Credit	487	215	141	-476	485	30	43	34	-34	1,129	154	-243	1,300	150	967	-737	1,235	1,334	1,678	-368	516
<b>Total Trading Revenue</b>	<b>7,684</b>	<b>7,384</b>	<b>7,103</b>	<b>4,030</b>	<b>10,035</b>	<b>8,131</b>	<b>7,242</b>	<b>7,083</b>	<b>6,681</b>	<b>13,648</b>	<b>6,893</b>	<b>6,305</b>	<b>10,611</b>	<b>7,999</b>	<b>6,896</b>	<b>7,164</b>	<b>10,598</b>	<b>10,373</b>	<b>12,714</b>	<b>9,595</b>	<b>17,589</b>

\*The trading revenue figures are for cash and derivative activities. Revenue figures are for each quarter alone, not year-to-date. Note: Numbers may not add up to total due to rounding.

Source: Call reports, Schedule RI



Figure 15b: Quarterly Trading Revenue (Cash and Derivative Positions)\*—Holding Company



In millions of dollars

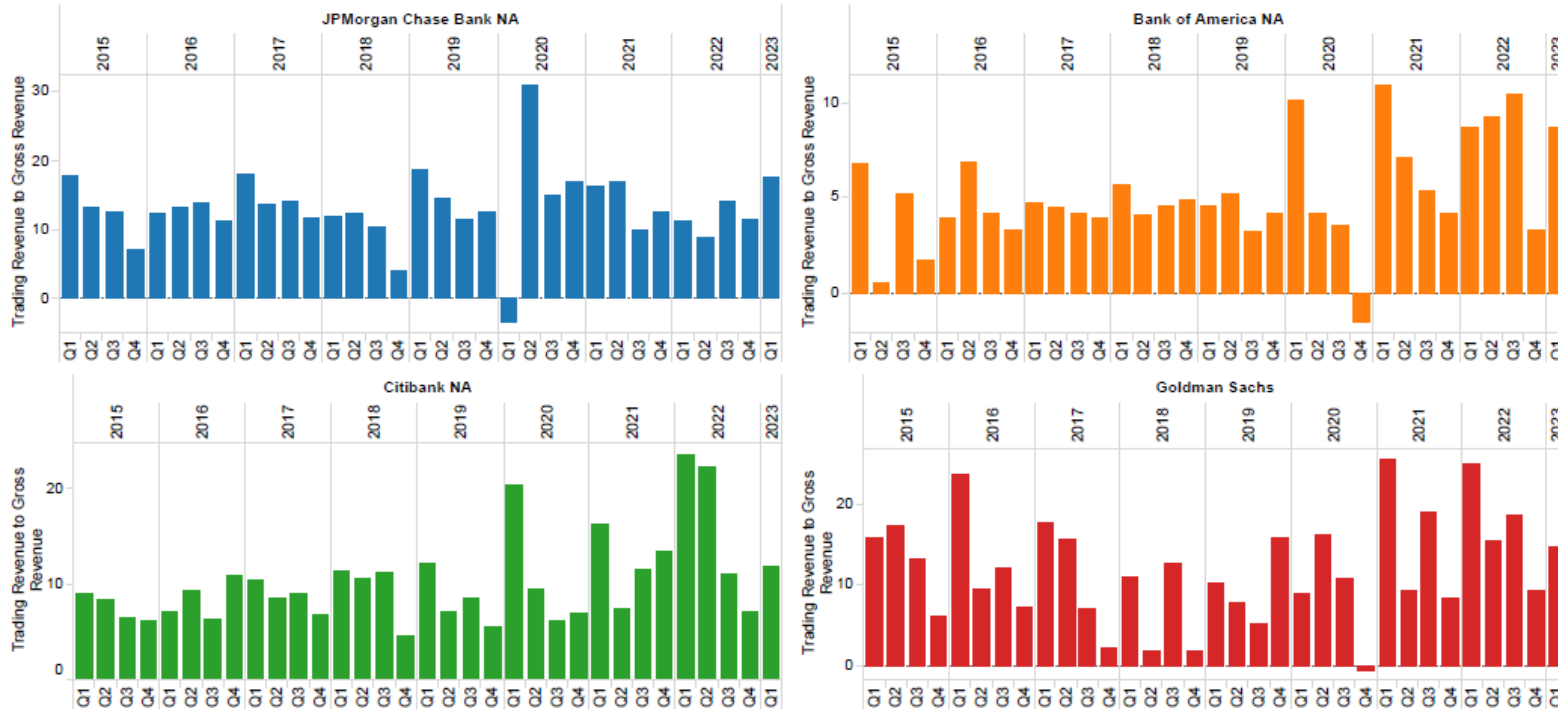
	2019				2020				2021				2022				2023
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Interest Rate	\$8,050	\$6,973	\$5,377	\$5,075	\$12,036	\$7,801	\$4,582	\$4,855	(\$1,828)	\$5,001	(\$1,182)	(\$569)	(\$3,137)	(\$2,365)	(\$1,976)	\$6,573	\$11,382
Foreign Exchange	3,396	3,351	4,241	1,463	-302	6,374	1,037	-628	8,051	2,732	5,144	4,498	10,267	10,574	11,901	1,810	5,795
Equity	9,215	6,083	4,548	7,546	-4,499	12,604	6,424	11,126	13,753	12,353	6,835	8,745	4,546	-1,063	4,672	11,535	14,264
Commodity & Other	1,298	512	1,045	981	1,664	2,486	1,912	1,804	2,665	1,802	1,978	1,340	3,498	2,698	2,533	3,378	3,471
Credit	2,903	1,684	1,226	159	257	6,410	2,675	1,181	4,531	1,595	1,530	-225	-129	437	286	-249	2,771
<b>Total Trading Revenue</b>	<b>24,862</b>	<b>18,604</b>	<b>16,437</b>	<b>15,223</b>	<b>9,157</b>	<b>35,676</b>	<b>16,631</b>	<b>18,337</b>	<b>27,172</b>	<b>23,483</b>	<b>14,305</b>	<b>13,788</b>	<b>15,045</b>	<b>10,281</b>	<b>17,417</b>	<b>23,047</b>	<b>37,683</b>

\*The trading revenue figures are for cash and derivative activities. Revenue figures are for each quarter alone, not year-to-date. Note: Numbers may not add up to total due to rounding.

Source: Y9, Schedule HI

**Figure 16: Quarterly Trading Revenue (Cash and Derivative Positions) as a Percentage of Gross Revenue (in Percentage)\***

Top Four Insured U.S. Commercial Banks and Savings Associations by Derivative Holdings



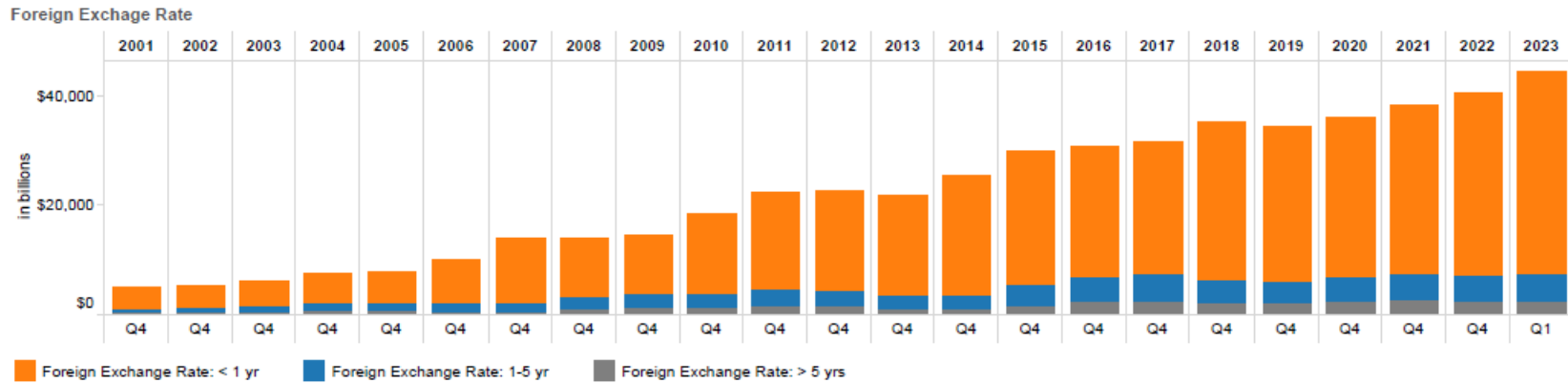
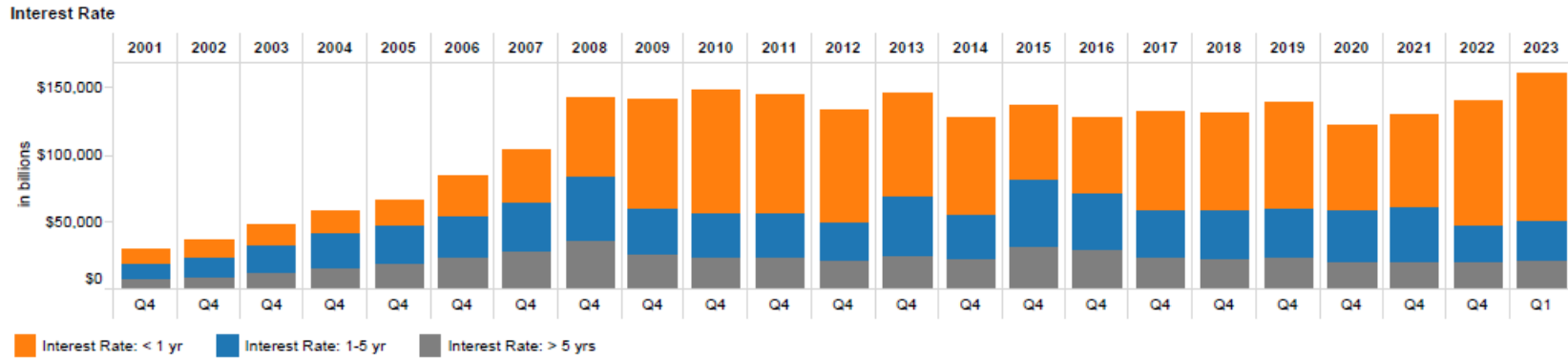
Trading Revenue to Gross Revenue\*

	2017				2018				2019				2020				2021				2022				2023
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
JPMorgan Chase Bank NA	17.98	13.66	14.01	11.52	11.90	12.19	10.26	3.92	18.57	14.57	11.30	12.62	-3.33	30.88	14.83	16.96	16.12	16.90	9.84	12.70	11.13	8.86	14.06	11.38	17.66
Bank of America NA	4.70	4.49	4.09	3.87	5.62	4.04	4.54	4.90	4.60	5.14	3.20	4.09	10.13	4.14	3.55	-1.52	10.89	7.10	5.33	4.08	8.74	9.23	10.45	3.30	8.70
Citibank NA	10.47	8.50	9.12	6.94	11.33	10.69	11.26	4.68	12.32	7.23	8.48	5.56	20.50	9.63	6.27	7.08	16.24	7.42	11.57	13.44	23.64	22.30	11.05	7.15	12.01
Goldman Sachs	17.71	15.66	7.10	2.15	10.85	1.84	12.77	1.86	10.31	7.78	4.98	15.90	8.96	16.21	10.68	-0.56	25.61	9.27	19.13	8.19	24.97	15.46	18.52	9.30	14.72
<b>TOTAL</b>	2017				2018				2019				2020				2021				2022				2023
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
	11.68	9.32	9.39	7.55	9.77	8.95	8.82	4.36	12.43	9.60	8.01	8.61	7.44	18.00	9.49	8.91	15.11	11.75	9.49	10.36	14.32	12.72	12.68	8.11	13.78

\*The trading revenue figures are for cash and derivative activities. Revenue figures are quarterly, not year-to-date numbers. Note: Gross revenue equals interest income plus non-interest income.

Source: Call reports, Schedule RI

**Figure 17: Notional Amounts of Interest Rate and Foreign Exchange Rate Contracts by Maturity**  
Insured U.S. Commercial Banks and Savings Associations



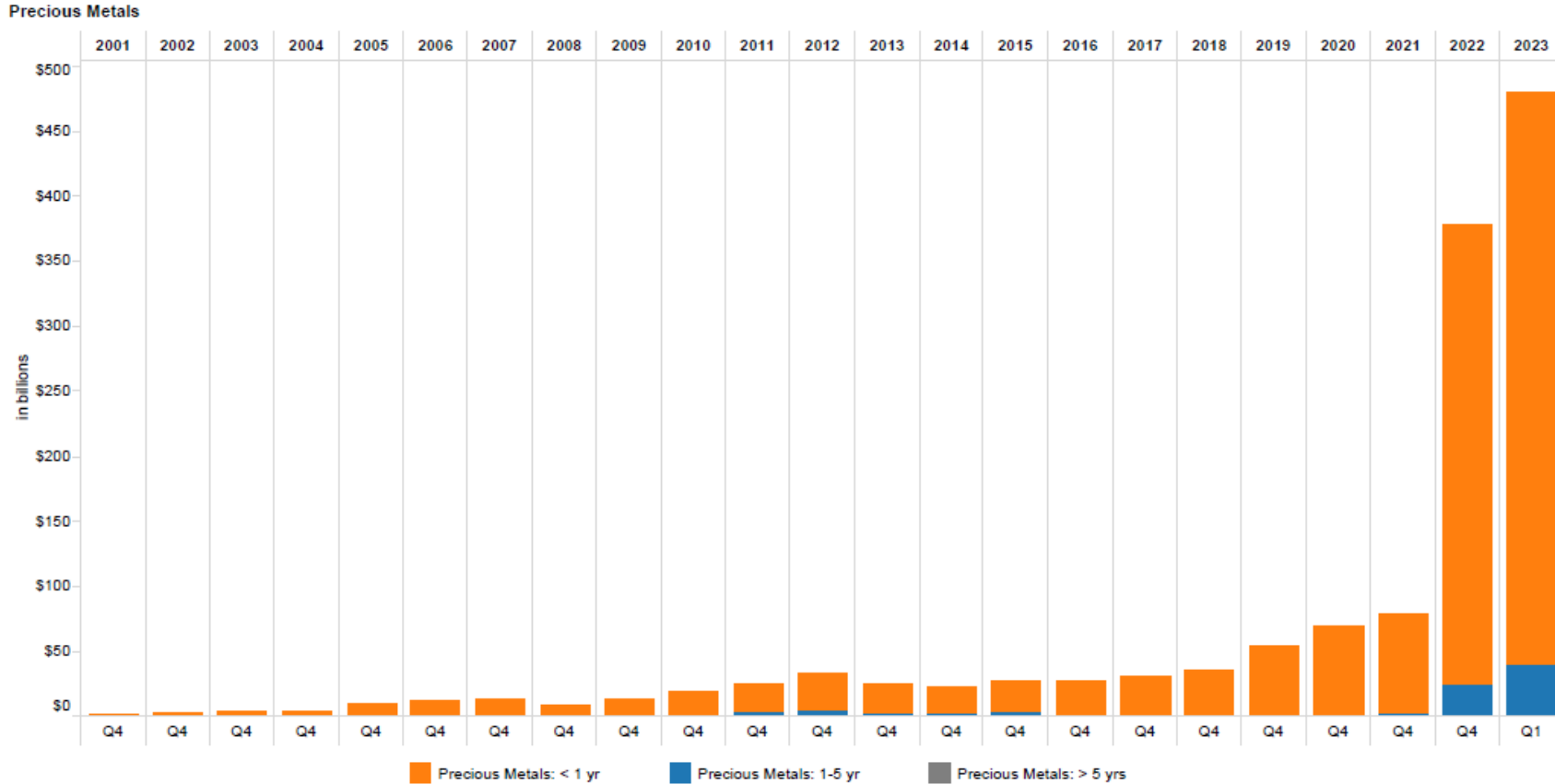
In billions of dollars

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q1
Interest Rate: < 1 yr	\$90,843	\$87,812	\$82,948	\$77,758	\$71,808	\$55,054	\$55,061	\$72,589	\$71,492	\$79,132	\$62,444	\$68,044	\$92,693	\$109,262
Interest Rate: 1-5 yr	33,497	32,750	30,191	44,157	33,727	49,406	43,261	38,154	36,681	35,854	39,198	41,244	27,371	30,208
Interest Rate: > 5 yrs	24,307	24,168	21,175	24,630	22,214	32,981	29,762	23,565	23,244	24,259	20,838	20,464	20,661	21,259
Foreign Exchange Rate: < 1 yr	14,629	17,632	18,386	18,372	22,145	24,130	23,912	24,380	28,891	28,241	29,434	30,954	33,157	36,897
Foreign Exchange Rate: 1-5 yr	2,462	3,117	2,910	2,341	2,587	3,986	4,454	4,805	4,219	4,052	4,404	4,864	4,812	4,980
Foreign Exchange Rate: > 5 yrs	1,290	1,503	1,480	1,029	969	1,648	2,420	2,525	2,096	2,146	2,402	2,552	2,444	2,528

Note: Beginning January 1, 2022, the largest banks are required to calculate their derivative exposure amount for regulatory capital purposes using the Standardized Approach for Counterparty Credit Risk (SA-CCR). Refer to the call report instructions and OCC Bulletin 2020-7, "Standardized Approach for Counterparty Credit Risk: Final Rule," for additional information on the SA-CCR exposure calculation.

Source: Call reports, Schedule RC-R

**Figure 18: Notional Amounts of Precious Metal Contracts by Maturity**  
Insured U.S. Commercial Banks and Savings Associations



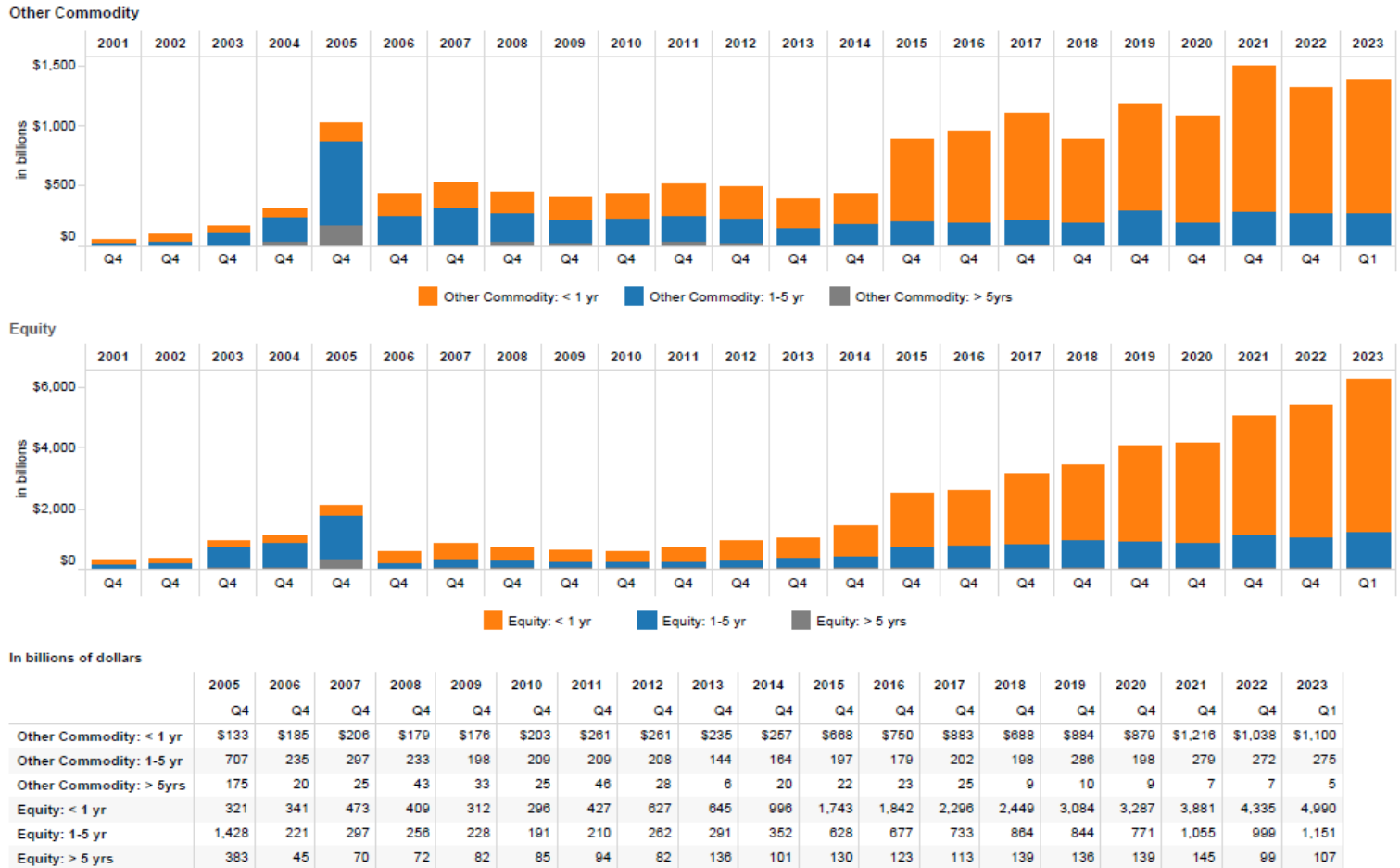
In billions of dollars

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q1
Precious Metals: < 1 yr	\$10.35	\$10.72	\$7.55	\$11.55	\$17.47	\$21.12	\$27.68	\$21.41	\$19.29	\$23.51	\$25.07	\$28.62	\$33.62	\$52.58	\$67.80	\$75.78	\$352.12	\$440.70
Precious Metals: 1-5 yr	1.7	2.1	1.5	1.2	1.9	4.7	5.8	3.8	2.8	3.9	2.5	2.4	2.3	2.1	2.5	3.5	26.0	39.7
Precious Metals: > 5 yrs	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note: Beginning January 1, 2022, the largest banks are required to calculate their derivative exposure amount for regulatory capital purposes using the Standardized Approach for Counterparty Credit Risk (SA-CCR). Under SA-CCR gold derivatives are considered precious metals derivative contracts rather than an exchange rate derivative contract resulting in an increase in reported precious metals derivative contracts compared to prior quarters. Refer to the call report instructions and OCC Bulletin 2020-7, "Standardized Approach for Counterparty Credit Risk: Final Rule," for additional information on the SA-CCR exposure calculation.

Source: Call reports, Schedule RC-R

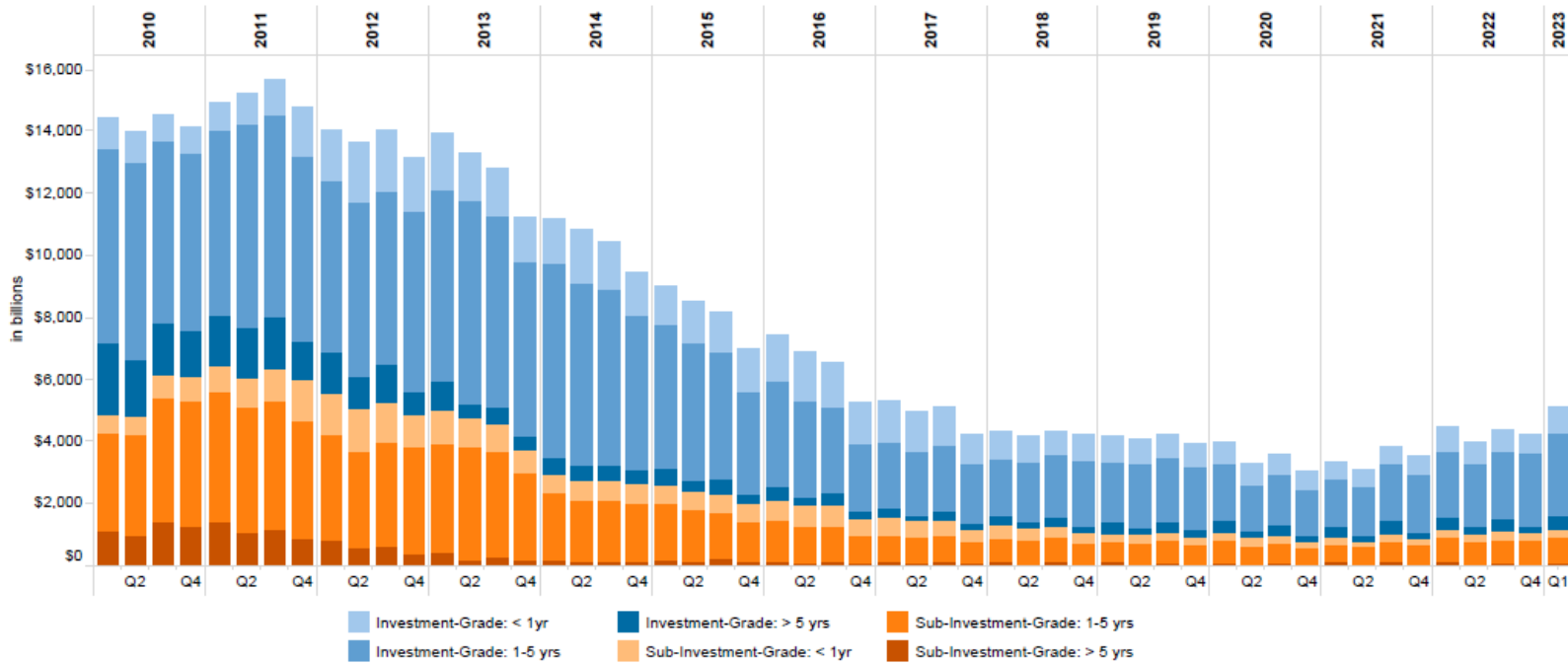
**Figure 19: Notional Amounts of Other Commodity and Equity Contracts by Maturity**  
Insured U.S. Commercial Banks and Savings Associations



Note: Beginning January 1, 2022, the largest banks are required to calculate their derivative exposure amount for regulatory capital purposes using the Standardized Approach for Counterparty Credit Risk (SA-CCR). Refer to the call report instructions and OCC Bulletin 2020-7, "Standardized Approach for Counterparty Credit Risk: Final Rule," for additional information on the SA-CCR exposure calculation.

Source: Call reports, Schedule RC-R

**Figure 20: Notional Amounts of Credit Derivative Contracts by Credit Quality and Maturity**  
Insured U.S. Commercial Banks and Savings Associations

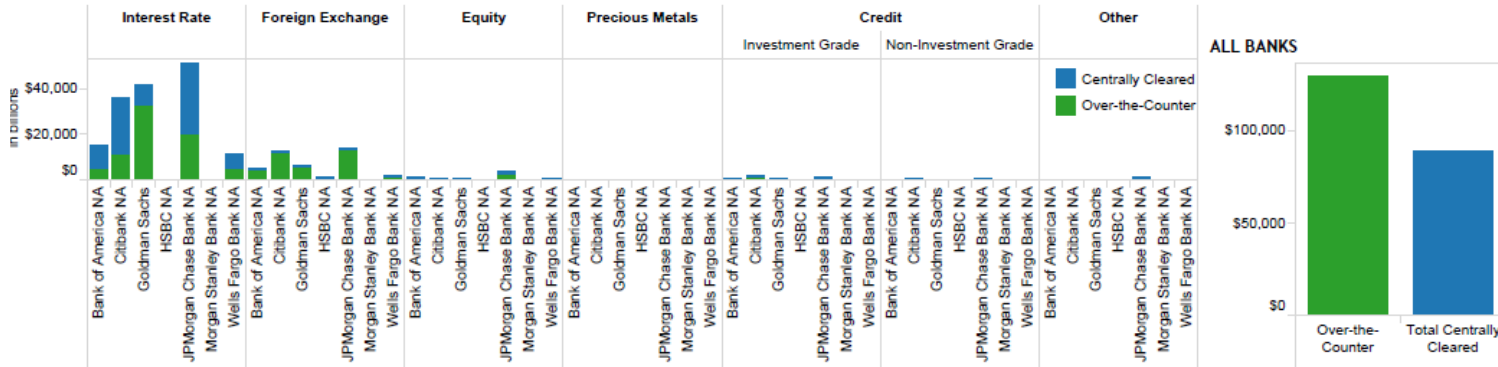


In billions of dollars

	2018				2019				2020				2021				2022				2023
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Investment-Grade: < 1yr	\$880	\$805	\$764	\$837	\$763	\$758	\$675	\$781	\$726	\$619	\$648	\$554	\$546	\$539	\$565	\$601	\$795	\$642	\$692	\$617	\$769
Investment-Grade: 1-5 yrs	1,839	1,995	1,988	2,173	1,976	2,083	2,084	2,018	1,799	1,523	1,637	1,521	1,545	1,589	1,846	1,864	2,109	2,076	2,190	2,362	2,688
Investment-Grade: > 5 yrs	331	184	338	204	367	189	330	198	367	171	336	160	332	160	418	187	449	198	408	210	440
<b>Total Investment Grade</b>	<b>\$3,050</b>	<b>\$2,984</b>	<b>\$3,089</b>	<b>\$3,214</b>	<b>\$3,106</b>	<b>\$3,030</b>	<b>\$3,089</b>	<b>\$2,997</b>	<b>\$2,891</b>	<b>\$2,313</b>	<b>\$2,622</b>	<b>\$2,235</b>	<b>\$2,423</b>	<b>\$2,289</b>	<b>\$2,829</b>	<b>\$2,651</b>	<b>\$3,352</b>	<b>\$2,916</b>	<b>\$3,291</b>	<b>\$3,189</b>	<b>\$3,897</b>
	2018				2019				2020				2021				2022				2023
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Sub-Investment-Grade: < 1yr	\$400	\$335	\$318	\$304	\$259	\$283	\$275	\$268	\$247	\$278	\$233	\$218	\$245	\$215	\$244	\$208	\$225	\$248	\$247	\$221	\$252
Sub-Investment-Grade: 1-5 yrs	783	791	801	691	681	701	708	624	743	608	618	533	570	551	654	632	777	751	747	778	826
Sub-Investment-Grade: > 5 yrs	133	69	133	61	119	60	111	56	105	56	108	48	119	49	125	49	150	51	105	53	104
<b>Total Sub-Investment Grade</b>	<b>\$1,296</b>	<b>\$1,195</b>	<b>\$1,252</b>	<b>\$1,056</b>	<b>\$1,039</b>	<b>\$1,044</b>	<b>\$1,093</b>	<b>\$947</b>	<b>\$1,095</b>	<b>\$942</b>	<b>\$959</b>	<b>\$799</b>	<b>\$935</b>	<b>\$815</b>	<b>\$1,023</b>	<b>\$889</b>	<b>\$1,152</b>	<b>\$1,049</b>	<b>\$1,099</b>	<b>\$1,052</b>	<b>\$1,182</b>

Source: Call reports, Schedule RC-L

**Figure 21: Notional Amounts of Over-the-Counter and Centrally Cleared Derivative Contracts**  
Insured U.S. Commercial Banks and Savings Associations



billions of dollars

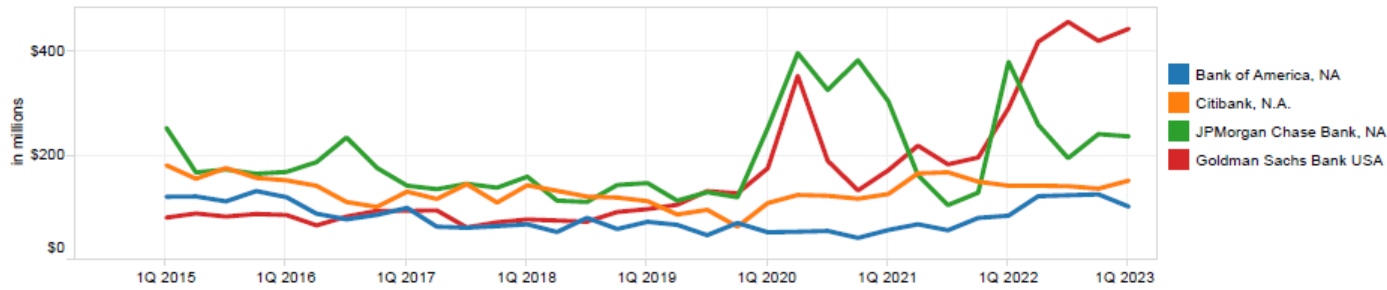
Bank Name	Interest Rate		Foreign Exchange		Equity		Precious Metals		Credit				Other		Total Centrally Cleared	Over-the-Counter	Total Notional
	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter	Investment Grade	Non-Investment Grade	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter			
									Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter			
JPMorgan Chase Bank NA	31,163	20,023	591	13,298	1,188	2,813	0	253	685	458	229	209	74	832	33,926	37,687	71,613
Citibank NA	24,576	11,342	400	11,832	16	685	24	89	296	1,307	78	314	84	96	25,475	25,865	51,140
Bank of America NA	10,472	5,136	139	5,144	152	765	11	91	171	297	43	98	0	39	10,989	11,570	22,558
Goldman Sachs	8,873	33,263	119	6,294	68	317	0	0	32	439	8	217	0	56	9,100	40,587	49,687
HSBC NA	67	60	41	1,140	0	12	0	8	0	3	2	3	0	0	111	1,227	1,337
Wells Fargo Bank NA	5,726	5,239	4	1,596	121	252	0	4	5	29	1	22	0	91	5,856	7,233	13,089
Morgan Stanley Bank NA	1	57	0	32	0	31	0	0	0	13	0	3	0	0	1	136	137
<b>Grand Total</b>	<b>80,879</b>	<b>75,120</b>	<b>1,294</b>	<b>39,337</b>	<b>1,543</b>	<b>4,676</b>	<b>35</b>	<b>445</b>	<b>1,188</b>	<b>2,546</b>	<b>361</b>	<b>866</b>	<b>158</b>	<b>1,113</b>	<b>85,457</b>	<b>124,104</b>	<b>209,561</b>
<b>ALL OTHER</b>	<b>2,952</b>	<b>1,777</b>	<b>20</b>	<b>3,754</b>	<b>0</b>	<b>29</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>30</b>	<b>0</b>	<b>27</b>	<b>16</b>	<b>64</b>	<b>2,989</b>	<b>5,711</b>	<b>8,701</b>
<b>TOTAL</b>	<b>83,831</b>	<b>76,898</b>	<b>1,314</b>	<b>43,091</b>	<b>1,543</b>	<b>4,705</b>	<b>35</b>	<b>445</b>	<b>1,189</b>	<b>2,576</b>	<b>361</b>	<b>893</b>	<b>174</b>	<b>1,207</b>	<b>88,447</b>	<b>129,815</b>	<b>218,261</b>

% of Total

Bank Name	Interest Rate		Foreign Exchange		Equity		Precious Metals		Credit				Other		Total Centrally Cleared as a % of Total Notional	Total Over-the-Counter as a % of Total Notional
	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter	Investment Grade	Non-Investment Grade	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter		
									Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter		
JPMorgan Chase Bank NA	61%	39%	4%	96%	31%	69%	0%	100%	80%	40%	52%	48%	8%	92%	47%	53%
Citibank NA	88%	32%	3%	97%	2%	98%	21%	79%	18%	82%	20%	80%	47%	53%	50%	50%
Bank of America NA	67%	33%	3%	97%	17%	83%	10%	90%	37%	63%	30%	70%	0%	100%	49%	51%
Goldman Sachs	21%	79%	2%	98%	18%	82%	0%	100%	7%	93%	3%	97%	0%	100%	18%	82%
HSBC NA	53%	47%	3%	97%	0%	100%	0%	100%	0%	100%	38%	62%	0%	100%	8%	92%
Wells Fargo Bank NA	52%	48%	0%	100%	32%	68%	0%	100%	13%	87%	5%	95%	0%	100%	45%	55%
Morgan Stanley Bank NA	2%	98%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	1%	99%

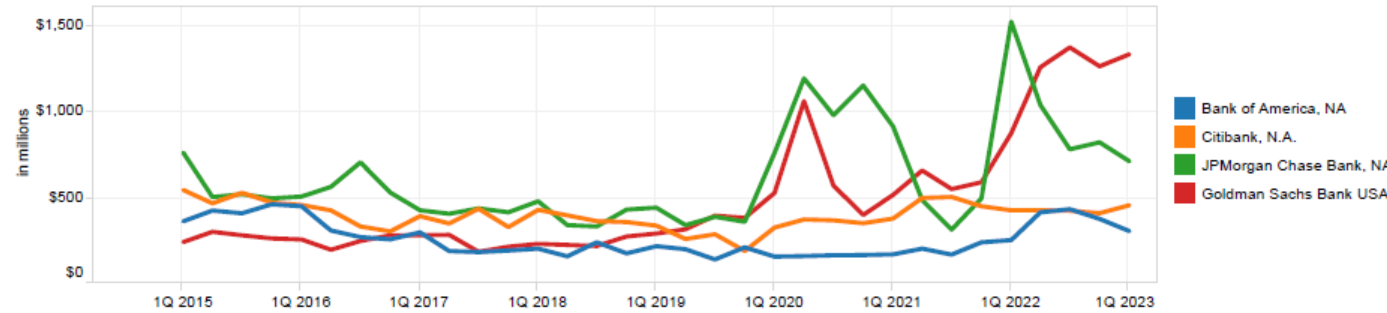
Source: Call reports, Schedule RC-R

Figure 22: Average 60-Day Value-at-Risk



	2017				2018				2019				2020				2021				2022				2023
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Bank of America, NA	\$100	\$63	\$61	\$64	\$68	\$53	\$81	\$59	\$73	\$67	\$47	\$71	\$53	\$54	\$55	\$42	\$57	\$68	\$57	\$80	\$85	\$122	\$124	\$126	\$102
Citibank, N.A.	131	117	146	110	144	133	122	120	113	87	96	64	109	125	123	118	127	167	169	151	143	143	142	137	153
JPMorgan Chase Bank, NA	143	136	146	139	160	114	111	144	148	114	130	120	254	399	328	385	306	163	105	129	382	261	196	242	238
Goldman Sachs Bank USA	94	95	62	72	77	75	73	92	97	106	132	128	176	355	191	134	173	220	184	197	293	421	459	423	446

VaR Capital Requirement



	2017				2018				2019				2020				2021				2022				2023
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Bank of America, NA	\$299	\$190	\$184	\$193	\$204	\$180	\$242	\$177	\$219	\$201	\$141	\$212	\$158	\$161	\$166	\$167	\$171	\$204	\$170	\$241	\$254	\$416	\$435	\$378	\$307
Citibank, N.A.	394	351	437	330	431	399	365	359	338	261	288	191	327	374	370	353	380	500	506	452	428	428	425	411	458
JPMorgan Chase Bank, NA	428	408	439	416	480	342	334	432	443	341	390	361	762	1,197	983	1,155	917	489	315	498	1,528	1,043	784	824	714
Goldman Sachs Bank USA	282	285	186	216	232	226	220	275	292	317	397	384	529	1,065	572	401	518	660	552	592	878	1,262	1,378	1,268	1,338

Source: Market Risk Regulatory Report for Institutions Subject to the Market Risk Capital Rule—FFIEC 102