

Quarterly Report on Bank Trading and Derivatives Activities

Third 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.¹ A total of 1,185 insured U.S. national and state commercial banks and savings associations reported trading and derivatives activities at the end of the second quarter of 2023.² A small group of large financial institutions continues to dominate trading and derivatives activity in the U.S. commercial banking system. During the third quarter of 2023, four large commercial banks represented 87.8 percent of the total banking industry notional amounts and 61.0 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 112th 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.

Executive Summary

- Insured U.S. commercial banks and savings associations (collectively, banks) reported trading revenue of \$13.2 billion in the third quarter of 2023, \$470 million less (3.4 percent) than in the previous quarter and \$474 million more (3.7 percent) than a year earlier (see table 1).
- Credit exposure from derivatives increased in the third quarter of 2023 compared with the second quarter of 2023. NCCE increased \$35.0 billion, or 12.9 percent, to \$308.0 billion (see table 5).
- Derivative notional amounts decreased in the third quarter of 2023 by \$17.7 trillion, or 8.0 percent, to \$204.2 trillion (see table 10).
- Derivative contracts remained concentrated in interest rate products, which totaled \$145.8 trillion or 71.4 percent of total derivative notional amounts (see table 10).

¹ Values in the tables and figures in this report may not add up to the totals because of rounding.

² 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 \$13.2 billion in trading revenue in the third quarter of 2023, \$470 million less (3.4 percent) than in the previous quarter and \$474 million more (3.7 percent) than a year earlier (see table 1). The quarter-over-quarter decrease in trading revenue was due to decreases in revenue from interest rate and equity 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	3Q 2023	2Q 2023	Q/Q change	Q/Q % change	3Q 2022	Y/Y change	Y/Y % change
Interest rate	\$606	\$3,461	-\$2,854	-82.5%	-\$1,197	\$1,803	150.7%
Foreign exchange	\$8,036	\$5,174	\$2,862	55.3%	\$8,153	-\$118	-1.4%
Equity	\$2,262	\$3,996	-\$1,734	-43.4%	\$3,306	-\$1,044	-31.6%
Commodity and other	\$942	\$824	\$118	14.3%	\$774	\$168	21.6%
Credit	\$1,342	\$204	\$1,138	558.1%	\$1,678	-\$336	-20.0%
Total trading revenue	\$13,188	\$13,658	-\$470	-3.4%	\$12,714	\$474	3.7%

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 \$18.9 billion in the third quarter of 2023 was \$7.4 billion less (28.2 percent) than in the previous quarter. The quarter-over-quarter decrease in trading revenue was due to decreases in revenue from interest rate and equity instruments. Year-over-year holding company trading revenue increased by \$1.5 billion (8.6 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	3Q 2023	2Q 2023	Q/Q change	Q/Q % change	3Q 2022	Y/Y change	Y/Y % change
Interest rate	\$202	\$4,327	-\$4,125	-95.3%	-\$1,976	\$2,178	110.2%
Foreign exchange	\$8,752	\$7,902	\$850	10.8%	\$11,900	-\$3,148	-26.5%
Equity	\$6,363	\$11,347	-\$4,983	-43.9%	\$4,672	\$1,691	36.2%
Commodity and other	\$2,025	\$1,615	\$411	25.4%	\$2,533	-\$508	-20.0%
Credit	\$1,577	\$1,157	\$420	36.3%	\$286	\$1,290	450.4%
Total BHC trading revenue	\$18,919	\$26,348	-\$7,429	-28.2%	\$17,417	\$1,503	8.6%

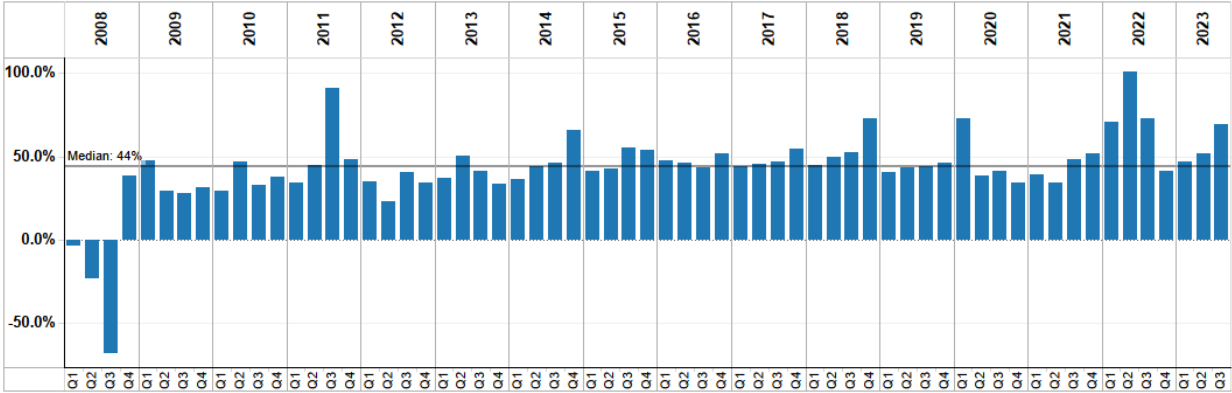
Source: Consolidated Financial Statements for Holding Companies—FR Y-9C, Schedule HI

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 third quarter of 2023 banks generated 69.7 percent of consolidated holding company trading revenue, an increase from 51.8 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 increased by \$108.0 billion (4.6 percent) in the third quarter of 2023 to \$2.5 trillion, primarily driven by a \$74.0 billion (5.0 percent) increase in receivables from interest rate contracts and a \$43.0 billion (6.8 percent) increase in receivables from foreign exchange contracts (see table 3a). GNFV increased \$70.0 billion (3.1 percent) to \$2.4 trillion during the quarter, driven by a \$56.0 billion (3.9 percent) increase in payables on interest rate contracts and a \$36.0 billion (5.7 percent) increase in payables from foreign exchange contracts (see table 3b).

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

Trading instruments	3Q 2023	2Q 2023	Q/Q change	Q/Q % change	3Q 2022	Y/Y change	Y/Y % change
Interest rate	\$1,556	\$1,482	\$74	5.0%	\$1,533	\$24	1.5%
FX	\$680	\$637	\$43	6.8%	\$1,007	-\$327	-32.4%
Equity	\$138	\$147	-\$9	-6.3%	\$187	-\$49	-26.3%
Commodity & other	\$49	\$49	\$1	1.2%	\$109	-\$60	-55.1%
Credit	\$38	\$39	-\$1	-3.3%	\$43	-\$5	-11.9%
GPFV	\$2,461	\$2,353	\$108	4.6%	\$2,879	-\$418	-14.5%

Source: Call reports, Schedule RC-L

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

Trading instruments	3Q 2023	2Q 2023	Q/Q change	Q/Q % change	3Q 2022	Y/Y change	Y/Y % change
Interest rate	\$1,484	\$1,428	\$56	3.9%	\$1,456	\$28	1.9%
FX	\$663	\$627	\$36	5.7%	\$992	-\$329	-33.2%
Equity	\$140	\$154	-\$14	-9.2%	\$170	-\$30	-17.7%
Commodity & other	\$45	\$47	-\$2	-4.2%	\$90	-\$46	-50.5%
Credit	\$36	\$41	-\$5	-12.6%	\$36	\$0	-0.6%
GNFV	\$2,367	\$2,297	\$70	3.1%	\$2,744	-\$377	-13.7%

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
Total contracts	10	\$150	NCCE to Bank A from Counterparty 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 increased by \$35.0 billion (12.9 percent) to \$308.0 billion in the third quarter of 2023 (see table 5).³ Legally enforceable netting agreements allowed banks to reduce GPFV exposures by 87.5 percent (\$2.2 trillion) in the third quarter of 2023.

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

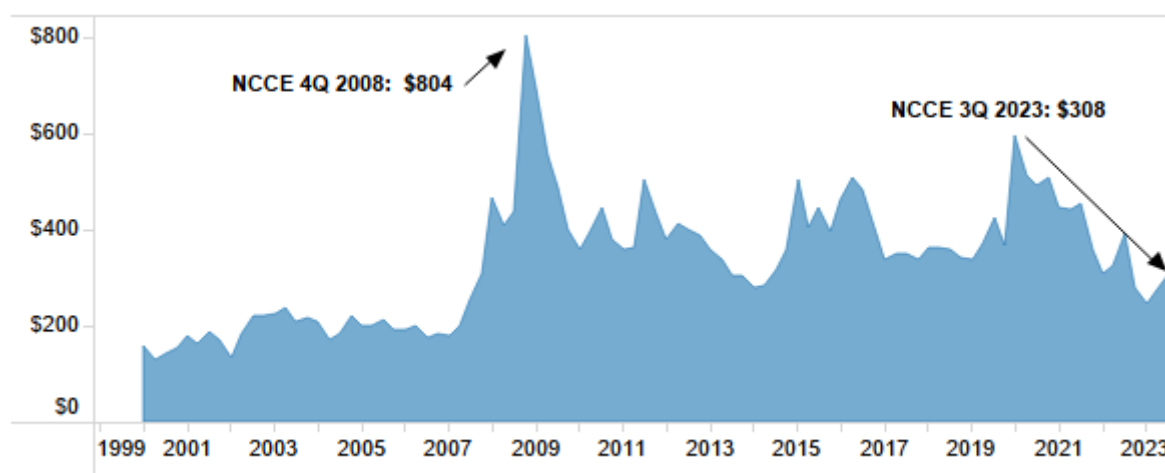
Netting benefit ratio	3Q 2023	2Q 2023	Q/Q change	Q/Q % change
GPFV	\$2,461	\$2,353	\$108	4.6%
NCCE RC-R	\$308	\$273	\$35	12.9%
Netting benefit RC-R	\$2,153	\$2,081	\$72	3.5%
Netting benefit % RC-R	87.5%	88.4%		-0.9%

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

³ 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 third quarter of 2023 at \$308.0 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 (37.9 percent) and in corporations and other counterparties (57.1 percent) (see table 6). The combined exposure to hedge funds and sovereign governments was small (5.0 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
3Q 2023	37.9%	1.7%	3.3%	57.1%
2Q 2023	36.8%	1.7%	4.1%	57.4%
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 111.1 percent of their

total NCCE at the end of the third quarter of 2023, up from 107.4 percent in the second quarter of 2023 (see table 7). Collateral held against hedge fund exposures decreased in the third quarter to 594.3 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 %
3Q 2023	124.2%	594.3%	72.0%	90.7%	111.1%
2Q 2023	119.9%	634.2%	71.4%	86.0%	107.4%
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 65.8 percent held in cash (both U.S. dollar and other currencies) and an additional 8.1 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
3Q 2023	49.9%	15.9%	7.6%	0.5%	4.5%	6.2%	15.4%
2Q 2023	48.5%	16.9%	8.3%	0.6%	4.1%	6.5%	15.2%
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
3Q 2023 average 60-day VaR	\$177	\$152	\$83	\$387
2Q 2023 average 60-day VaR	\$193	\$146	\$113	\$576
Q/Q change	-\$17	\$6	-\$30	-\$189
3Q 2023 total risk-based capital	\$302,050	\$165,977	\$199,115	\$58,395

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
3Q 2023 VaR capital requirement	\$530	\$457	\$249	\$1,161
2Q 2023 VaR capital requirement	\$580	\$439	\$340	\$1,728
Q/Q change	-\$50	\$18	-\$91	-\$567
3Q 2023 total risk-based capital	\$302,050	\$165,977	\$199,115	\$58,395

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

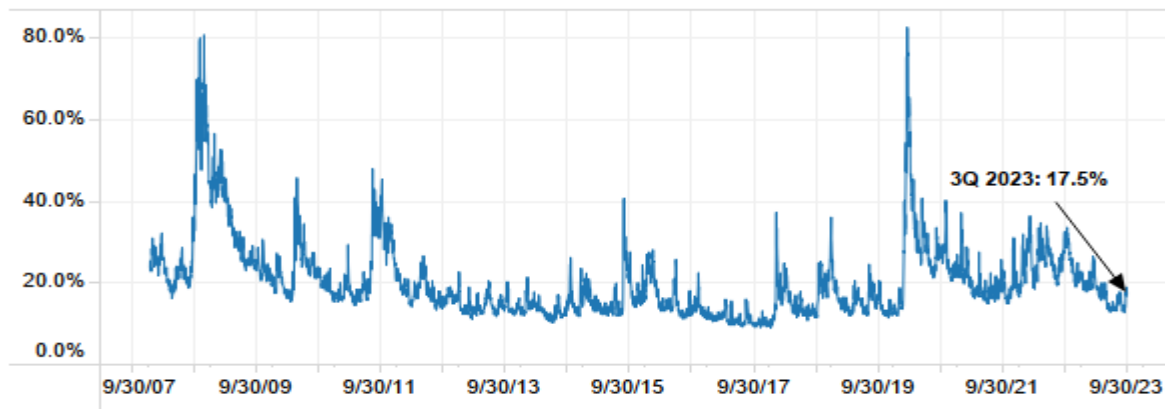
Volatility Index

Figure 3 shows the VIX, a volatility index,⁴ 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

⁴ 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 17.5 percent at the end of the third quarter of 2023.

Figure 3: Volatility Index (VIX)

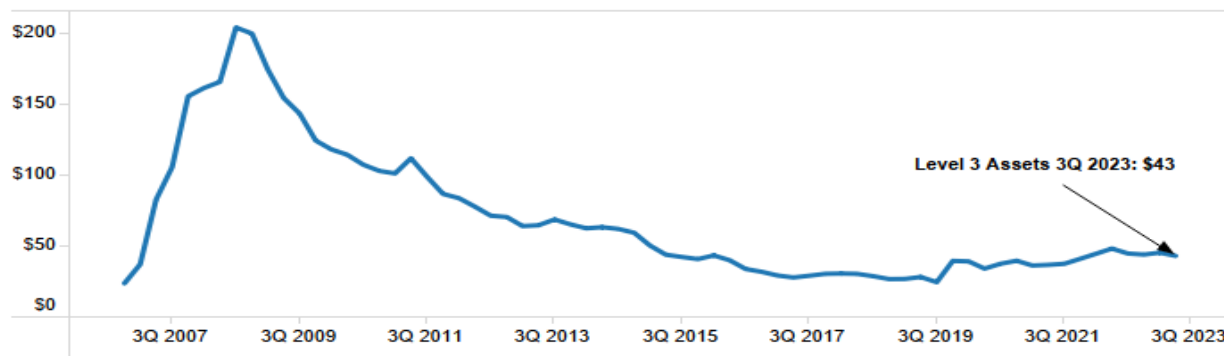


Source: Bloomberg

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 \$204.0 billion at the end of 2008 (see figure 4). At the end of the third quarter of 2023, banks held \$43.0 billion of level 3 trading assets, down 4.9 percent from the previous quarter and 10.6 percent lower than a year ago. Level 3 trading assets are \$161.0 billion (78.9 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 third quarter decreased by \$17.7 trillion (8.0 percent) to \$204.2 trillion from the previous quarter (see table 10). The decrease in the notional amount of derivative contracts by underlying risk exposure was primarily driven by interest rate, and credit contracts. Interest rate notional amounts continued to represent the majority of banks' derivative holdings at \$145.8 trillion, or 71.4 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	3Q 2023	2Q 2023	Q/Q change	Q/Q % change	3Q 2022	Y/Y change	Y/Y % change
Interest rate	\$145,790	\$164,072	-\$18,283	-11.1%	\$141,968	\$3,822	2.7%
FX	\$46,867	\$46,376	\$491	1.1%	\$42,708	\$4,159	9.7%
Equity	\$5,875	\$5,471	\$404	7.4%	\$4,410	\$1,465	33.2%
Commodity and other	\$1,530	\$1,520	\$10	0.7%	\$1,607	-\$77	-4.8%
Credit derivatives	\$4,115	\$4,474	-\$359	-8.0%	\$4,390	-\$275	-6.3%
Total notional	\$204,177	\$221,913	-\$17,737	-8.0%	\$195,082	\$9,094	4.7%

Source: Call reports, Schedule RC-L

The decrease in the total notional amount of derivative contracts by contract type was primarily driven by a decrease in swaps derivatives contracts (see table 11). Swaps contracts remained the leading derivatives contract type at 61.1 percent of all notional amounts.

The four banks with the most derivative activity hold 87.8 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	3Q 2023	2Q 2023	Q/Q change	Q/Q % change	3Q 2022	Y/Y change	Y/Y % change
Futures and forwards	\$34,215	\$33,317	\$898	2.7%	\$31,661	\$2,554	8.1%
Swaps	\$124,697	\$143,243	-\$18,546	-12.9%	\$121,133	\$3,564	2.9%
Options	\$41,150	\$40,880	\$270	0.7%	\$37,899	\$3,251	8.6%
Credit derivatives	\$4,115	\$4,474	-\$359	-8.0%	\$4,390	-\$275	-6.3%
Total notional	\$204,177	\$221,913	-\$17,737	-8.0%	\$195,082	\$9,094	4.7%

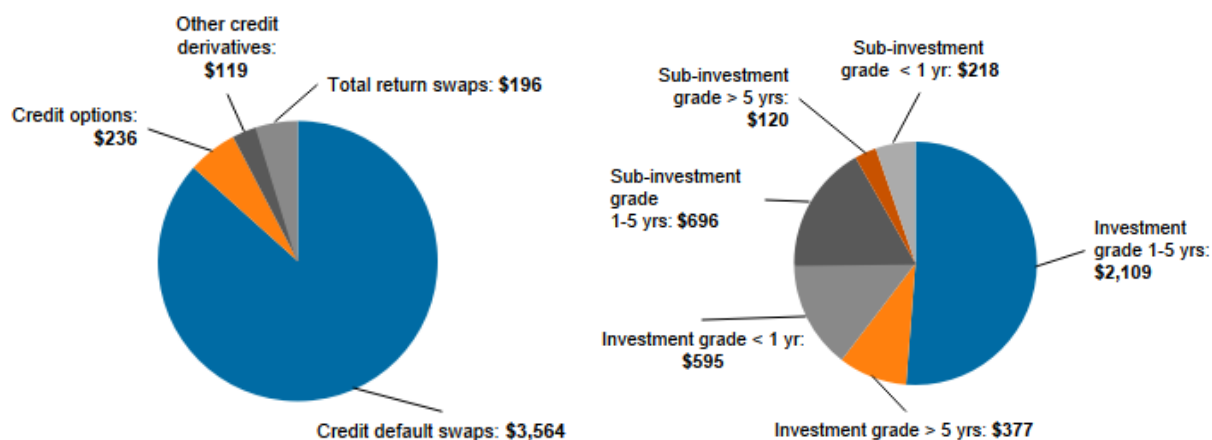
Source: Call reports, Schedule RC-L

Credit Derivatives

The notional amounts of credit derivatives decreased \$359.0 billion (8.0 percent) to \$4.1 trillion in the third 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 \$3.6 trillion (86.6 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 \$2.1 trillion or 51.3 percent of all credit derivative notional amounts. Contracts of all tenors that reference investment-grade entities are \$3.1 trillion or 74.9 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

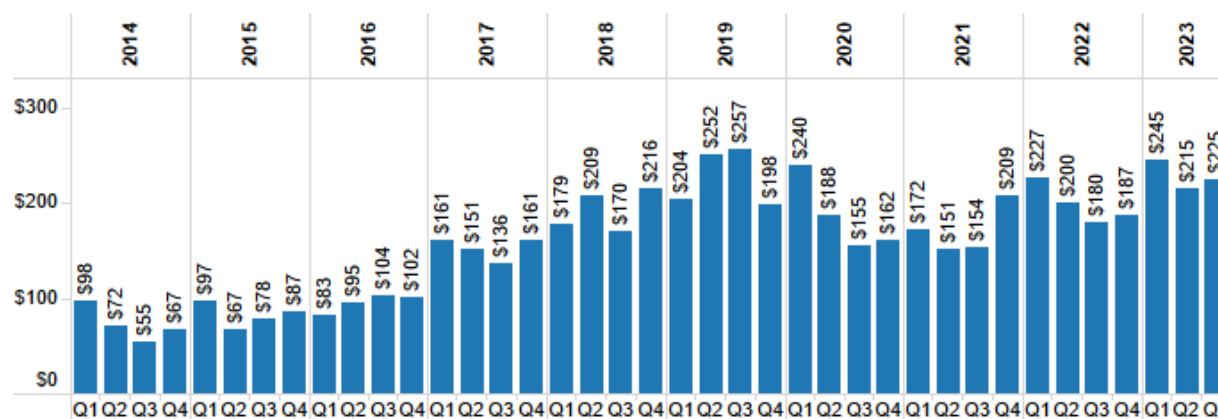
The notional amount for the 103 banks that net sold credit protection (i.e., assumed credit risk) was \$1.9 trillion, down \$194.7 billion (9.1 percent) from the second quarter of 2023 (see table 24 in the appendix). The notional amount for the 83 banks that net purchased credit protection (i.e., hedged credit risk) was \$2.2 trillion, \$164.5 billion lower (7.0 percent) than in the second quarter of 2023 (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 third 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 third quarter of 2023, 37.8 percent of banks’ derivative holdings were centrally cleared (see table 12). From a market factor perspective, 49.7 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 32.5 percent of credit derivative transactions were centrally cleared during the third quarter of 2023.

Centrally cleared derivative transactions were heavily concentrated at qualifying central counterparties, with 85.0 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
3Q 2023	49.7%	3.1%	23.4%	6.8%	32.5%	14.0%	37.8%
2Q 2023	52.9%	3.0%	23.5%	7.7%	35.1%	12.5%	41.3%
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%

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, September 30, 2023

Bank name	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
JPMORGAN CHASE BANK NA	\$3,385,581	\$54,404,568	\$863,675	\$1,034,404	\$9,517,914	\$32,818,285	\$8,890,938	\$1,279,352	\$1,009,336
GOLDMAN SACHS BANK USA	538,127	51,613,940	1,416,905	2,556,486	5,816,654	30,128,011	11,121,456	574,428	796,229
CITIBANK NATIONAL ASSN	1,657,372	51,307,008	490,671	932,772	5,674,771	34,845,164	7,877,933	1,485,697	464,348
BANK OF AMERICA NA	2,465,234	21,874,946	250,955	347,614	4,187,677	12,833,296	3,735,199	520,205	552,606
WELLS FARGO BANK NA	1,704,891	14,056,275	619,185	544,805	1,477,247	8,037,226	3,240,656	137,156	45,247
STATE STREET BANK&TRUST CO	280,469	2,400,979	15,853	0	2,323,774	30,901	30,451	0	64,312
HSBC NA	161,304	1,498,367	46,148	4,871	587,365	766,113	78,479	15,392	56,520
U S BANK NATIONAL ASSN	657,184	1,194,844	1,373	400	84,908	860,141	232,828	15,194	3,694
BANK OF NEW YORK MELLON	328,468	1,038,283	9,528	60	241,064	757,240	30,171	220	102,760
PNC BANK NATIONAL ASSN	553,114	692,400	8,860	11,563	22,336	572,236	63,935	13,470	1,816
TD BANK NATIONAL ASSN	366,252	422,238	0	0	2,425	419,757	55	0	0
TRUIST BANK	535,000	392,524	7,627	29,916	18,674	255,280	71,231	9,796	437
CITIZENS BANK NATIONAL ASSN	224,956	328,115	5,452	0	10,185	276,181	33,962	2,335	113
NORTHERN TRUST CO	145,817	305,494	0	0	284,330	20,735	430	0	32,265
CAPITAL ONE NATIONAL ASSN	468,780	241,386	24,685	0	11,759	197,148	991	6,804	227
MORGAN STANLEY BANK NA	207,376	216,884	1,514	0	22,495	165,702	7,077	20,096	3,156
FIFTH THIRD BANK NA	212,148	194,411	2,320	426	5,933	117,378	63,230	5,124	205
REGIONS BANK	152,906	176,612	110	0	1,969	142,021	26,549	5,963	11
KEYBANK NATIONAL ASSN	185,571	163,004	1,022	0	6,461	136,151	19,211	159	670
BMO BANK NATIONAL ASSN	260,786	144,975	0	0	3,247	139,625	2,103	0	274
HUNTINGTON NATIONAL BANK	186,356	111,216	601	0	5,425	87,773	13,384	4,032	22
MANUFACTURERS&TRADERS TR CO	208,606	75,820	0	0	2,877	69,587	3,355	0	137
COMERICA BANK	85,808	74,010	0	0	3,013	58,355	10,986	1,656	126
BOKF NATIONAL ASSN	48,682	67,035	3,514	3,814	43,247	8,542	7,918	0	0
SANTANDER BANK N A	98,569	62,409	0	0	935	51,348	10,085	42	56
Top 25 commercial banks, SAs & TCs with derivatives	\$15,119,356	\$203,057,743	\$3,769,998	\$5,467,130	\$30,356,685	\$123,794,197	\$35,572,613	\$4,097,120	\$3,134,567
Other commercial banks, SAs & TCs with derivatives	5,745,666	1,118,946	18,103	601	70,581	902,496	109,293	17,872	640
Total all commercial banks, SAs & TCs with derivatives	20,865,022	204,176,689	3,788,101	5,467,731	30,427,267	124,696,693	35,681,906	4,114,991	3,135,207

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, September 30, 2023

Holding company	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
JPMORGAN CHASE & CO.	\$3,898,333	\$53,882,155	\$872,621	\$1,627,025	\$9,978,879	\$31,647,346	\$8,481,185	\$1,275,099	\$993,615
CITIGROUP INC.	2,368,477	51,160,176	666,071	4,328,705	6,660,495	30,741,575	7,169,451	1,593,879	461,767
GOLDMAN SACHS GROUP, INC., THE	1,577,153	42,536,982	1,880,026	3,950,554	4,728,511	19,715,965	11,063,613	1,198,313	349,059
BANK OF AMERICA CORPORATION	3,153,090	39,268,479	730,763	1,753,676	8,037,534	23,007,978	4,811,945	926,583	406,714
MORGAN STANLEY	1,169,013	36,301,262	986,215	1,290,942	3,850,128	21,171,394	8,182,486	820,097	103,854
WELLS FARGO & COMPANY	1,909,261	14,324,717	634,726	602,850	1,853,342	7,873,799	3,238,029	121,971	45,246
MIZUHO AMERICAS LLC	72,112	9,081,837	26,608	46,965	468,127	8,106,476	417,077	16,584	2,843
SMBC AMERICAS HOLDINGS, INC.	37,154	7,405,438	917,272	1,099,377	287,703	3,404,245	1,691,977	4,864	524
HSBC NORTH AMERICA HOLDINGS INC.	224,496	4,747,465	450,082	842,041	590,496	2,764,490	84,964	15,392	56,520
STATE STREET CORPORATION	284,415	2,391,308	15,981	0	2,323,774	21,100	30,453	0	64,312
U.S. BANCORP	668,039	1,201,794	1,373	400	84,315	867,686	232,826	15,194	3,694
BANK OF NEW YORK MELLON CORPORATION, THE	405,248	1,021,776	10,355	60	248,909	732,061	30,171	220	102,771
BARCLAYS US LLC	180,856	722,898	16,572	286,886	378,023	40,524	93	800	130
PNC FINANCIAL SERVICES GROUP, INC., THE	557,356	675,648	8,900	11,563	25,974	551,691	63,935	13,585	1,816
RBC US GROUP HOLDINGS LLC	169,038	675,419	143,165	235,247	23,779	272,109	474	646	243
TD GROUP US HOLDINGS LLC	511,770	528,462	59,155	2,479	30,406	436,129	293	0	0
TRUIST FINANCIAL CORPORATION	542,707	379,334	7,627	29,916	18,868	241,296	71,231	10,396	437
CITIZENS FINANCIAL GROUP, INC.	225,635	328,115	5,452	0	10,185	276,181	33,962	2,335	113
NORTHERN TRUST CORPORATION	146,331	302,744	0	0	284,330	17,985	430	0	32,265
CAPITAL ONE FINANCIAL CORPORATION	471,435	274,698	24,685	0	11,866	230,353	991	6,804	227
BMO FINANCIAL CORP.	291,083	223,329	14,165	5,409	60,566	140,138	2,163	888	296
FIFTH THIRD BANCORP	212,967	198,616	2,320	426	5,933	121,583	63,230	5,124	205
REGIONS FINANCIAL CORPORATION	154,218	175,282	110	0	2,039	140,621	26,549	5,963	11
KEYCORP	187,995	168,534	1,022	0	7,825	140,317	19,211	159	670
SANTANDER HOLDINGS USA, INC.	165,653	135,107	2,961	161	56,998	59,609	15,209	169	63
Top 25 holding companies with derivatives	\$19,583,834	\$268,111,575	\$7,478,228	\$16,114,681	\$40,029,003	\$152,722,651	\$45,731,948	\$6,035,065	\$2,627,394

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 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, September 30, 2023

Bank Name	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
JPMORGAN CHASE BANK NA	\$3,385,581	\$54,404,568	3.5	96.5	66.8	25.4	4.1	1.3	2.4
GOLDMAN SACHS BANK USA	538,127	51,613,940	7.7	92.3	84.4	13.3	1.1	0.1	1.1
CITIBANK NATIONAL ASSN	1,657,372	51,307,008	2.8	97.2	67.3	25.9	3.2	0.7	2.9
BANK OF AMERICA NA	2,465,234	21,874,946	2.7	97.3	65.8	27.0	4.3	0.5	2.4
WELLS FARGO BANK NA	1,704,891	14,056,275	8.3	91.7	82.0	13.9	2.5	0.7	1.0
STATE STREET BANK&TRUST CO	280,469	2,400,979	0.7	99.3	1.9	96.9	0.0	1.2	0.0
HSBC NA	161,304	1,498,367	3.4	96.6	11.6	81.3	1.1	5.0	1.0
U S BANK NATIONAL ASSN	657,184	1,194,844	0.1	99.9	88.5	9.6	0.0	0.6	1.3
BANK OF NEW YORK MELLON	328,468	1,038,283	0.9	99.1	22.1	77.6	0.3	0.0	0.0
PNC BANK NATIONAL ASSN	553,114	692,400	2.9	97.1	92.2	3.4	1.1	1.4	1.9
TD BANK NATIONAL ASSN	366,252	422,238	0.0	100.0	99.5	0.5	0.0	0.0	0.0
TRUIST BANK	535,000	392,524	9.6	90.4	79.4	5.4	10.4	2.3	2.5
CITIZENS BANK NATIONAL ASSN	224,956	328,115	1.7	98.3	89.7	9.2	0.0	0.4	0.7
NORTHERN TRUST CO	145,817	305,494	0.0	100.0	6.7	93.1	0.3	0.0	0.0
CAPITAL ONE NATIONAL ASSN	468,780	241,386	10.2	89.8	83.6	5.7	0.0	7.8	2.8
MORGAN STANLEY BANK NA	207,376	216,884	0.7	99.3	34.2	40.4	16.1	0.0	9.3
FIFTH THIRD BANK NA	212,148	194,411	1.4	98.6	69.0	17.0	1.9	9.5	2.6
REGIONS BANK	152,906	176,612	0.1	99.9	93.3	1.0	0.0	2.3	3.4
KEYBANK NATIONAL ASSN	185,571	163,004	0.6	99.4	86.6	4.3	0.0	9.0	0.1
BMO BANK NATIONAL ASSN	260,786	144,975	0.0	100.0	96.3	2.2	1.5	0.0	0.0
HUNTINGTON NATIONAL BANK	186,356	111,216	0.5	99.5	90.8	4.4	0.5	0.6	3.6
MANUFACTURERS&TRADERS TR CO	208,606	75,820	0.0	100.0	98.2	1.8	0.0	0.0	0.0
COMERICA BANK	85,808	74,010	0.0	100.0	73.6	4.1	0.0	20.1	2.2
BOKF NATIONAL ASSN	48,682	67,035	10.9	89.1	73.6	0.2	0.0	26.2	0.0
SANTANDER BANK N A	98,569	62,409	0.0	100.0	89.6	10.3	0.0	0.0	0.1
Top 25 commercial banks, SAs & TCs with derivatives	\$15,119,356	\$203,057,743	\$9,237,128	\$193,820,615	\$144,738,280	\$46,824,591	\$5,874,513	\$1,523,238	\$4,097,120
Other commercial banks, SAs & TCs with derivatives	5,745,666	1,118,946	18,703	1,100,242	1,051,560	42,567	642	6,305	17,872
Total all commercial banks, SAs & TCs with derivatives	20,865,022	204,176,689	9,255,832	194,920,857	145,789,840	46,867,158	5,875,155	1,529,544	4,114,991
Top 25 Commercial Banks, SAs & TCs with derivatives: percentage of total		99.5	4.5	94.9	70.9	22.9	2.9	0.7	2.0
Other commercial banks, SAs & TCs with derivatives: percentage of total		0.5	0.0	0.5	0.5	0.0	0.0	0.0	0.0
Total all commercial banks, SAs & TCs with derivatives: percentage of total		100.0	4.5	95.5	71.4	23.0	2.9	0.7	2.0

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, September 30, 2023

Bank Name	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
JPMORGAN CHASE BANK NA	\$3,385,581	\$54,404,568	\$302,050	\$88,706	\$218,151	\$306,857	102
GOLDMAN SACHS BANK USA	538,127	51,613,940	58,395	12,689	63,315	76,004	130
CITIBANK NATIONAL ASSN	1,657,372	51,307,008	165,977	44,754	158,579	203,333	123
BANK OF AMERICA NA	2,465,234	21,874,946	199,115	41,704	60,559	102,263	51
WELLS FARGO BANK NA	1,704,891	14,056,275	165,197	49,180	9,739	58,919	36
STATE STREET BANK&TRUST CO	280,469	2,400,979	18,054	8,375	18,571	26,946	149
HSBC NA	161,304	1,498,367	19,929	6,139	2,607	8,746	44
U S BANK NATIONAL ASSN	657,184	1,194,844	68,851	7,329	6,043	13,372	19
BANK OF NEW YORK MELLON	328,468	1,038,283	20,720	7,407	8,142	15,549	75
PNC BANK NATIONAL ASSN	553,114	692,400	53,960	5,178	-2,455	2,723	5
TD BANK NATIONAL ASSN	366,252	422,238	41,600	44	1,748	1,792	4
TRUIST BANK	535,000	392,524	55,753	488	2,944	3,432	6
CITIZENS BANK NATIONAL ASSN	224,956	328,115	22,535	421	1,757	2,177	10
NORTHERN TRUST CO	145,817	305,494	12,432	3,195	4,645	7,840	63
CAPITAL ONE NATIONAL ASSN	468,780	241,386	52,201	3,793	6,448	10,241	20
MORGAN STANLEY BANK NA	207,376	216,884	22,129	475	4,475	4,950	22
FIFTH THIRD BANK NA	212,148	194,411	22,383	2,225	3,248	5,473	24
REGIONS BANK	152,906	176,612	15,583	513	707	1,220	8
KEYBANK NATIONAL ASSN	185,571	163,004	20,655	640	921	1,561	8
BMO BANK NATIONAL ASSN	260,786	144,975	26,324	394	251	645	2
HUNTINGTON NATIONAL BANK	186,356	111,216	18,135	2,352	1,149	3,501	19
MANUFACTURERS&TRADERS TR CO	208,606	75,820	19,821	307	255	562	3
COMERICA BANK	85,808	74,010	9,346	646	1,374	2,020	22
BOKF NATIONAL ASSN	48,682	67,035	4,708	1,359	1,426	2,785	59
SANTANDER BANK N A	98,569	62,409	12,331	1,444	451	1,895	15
Top 25 commercial banks, SAs & TCs with derivatives	\$15,119,356	\$203,057,743	\$1,428,184	\$289,755	\$575,050	\$864,806	61
Other commercial banks, SAs & TCs with derivatives	5,745,666	1,118,946	596,185	18,194	9,679	27,873	5
Total all commercial banks, SAs & TCs with derivatives	20,865,022	204,176,689	2,024,369	307,950	584,729	892,678	44

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, Schedules 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, September 30, 2023

Bank name	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
JPMORGAN CHASE BANK NA	\$3,385,581	\$54,404,568	\$52,423,285	98.7	\$701,931	1.3
GOLDMAN SACHS BANK USA	538,127	51,613,940	51,003,029	99.9	36,483	0.1
CITIBANK NATIONAL ASSN	1,657,372	51,307,008	49,722,899	99.8	98,412	0.2
BANK OF AMERICA NA	2,465,234	21,874,946	19,385,558	90.8	1,969,183	9.2
Top four commercial banks, SAs & TCs with derivatives	\$8,046,314	\$179,200,462	\$172,534,771	98.4	\$2,806,009	1.6
Other commercial banks, SAs & TCs with derivatives	12,818,708	24,976,227	21,774,716	88.1	2,946,201	11.9
Total all commercial banks, SAs & TCs with derivatives	20,865,022	204,176,689	194,309,487	97.1	5,752,210	2.9

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, September 30, 2023

Bank name	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**
JPMORGAN CHASE BANK NA	\$3,385,581	\$54,404,568	\$663,611	\$641,212	\$6,826	\$2,387	\$11,040	\$11,363
GOLDMAN SACHS BANK USA	538,127	51,613,940	787,012	773,415	102	76	5,951	6,813
CITIBANK NATIONAL ASSN	1,657,372	51,307,008	491,291	470,154	2,538	1,872	12,447	11,742
BANK OF AMERICA NA	2,465,234	21,874,946	165,938	139,623	61,770	66,084	4,680	3,425
Top four commercial banks, SAs & TCs with derivatives	\$8,046,314	\$179,200,462	\$2,107,852	\$2,024,404	\$71,236	\$70,419	\$34,118	\$33,343
Other commercial banks, SAs & TCs with derivatives	12,818,708	24,976,227	188,076	189,782	56,311	46,770	3,480	2,338
Total all commercial banks, SAs & TCs with derivatives	20,865,022	204,176,689	2,295,928	2,214,186	127,547	117,189	37,598	35,681

* 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.

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.

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), September 30, 2023

Bank name	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
JPMORGAN CHASE BANK NA	\$3,385,581	\$54,404,568	5,825	1,432	1,226	2,233	446	488
GOLDMAN SACHS BANK USA	538,127	51,613,940	1,578	-1,462	3,006	-134	9	159
CITIBANK NATIONAL ASSN	1,657,372	51,307,008	1,889	1,420	1,320	-843	151	-159
BANK OF AMERICA NA	2,465,234	21,874,946	1,878	594	611	464	121	88
Top four commercial banks, SAs & TCs with derivatives	\$8,046,314	\$179,200,462	11,170	1,984	6,163	1,720	727	576
Other commercial banks, SAs & TCs with derivatives	12,818,708	24,976,227	2,018	-1,378	1,873	542	215	766
Total all commercial banks, SAs & TCs with derivatives	20,865,022	204,176,689	13,188	606	8,036	2,262	942	1,342

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, Schedules 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, September 30, 2023

Bank name	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
JPMORGAN CHASE BANK NA	\$3,385,581	\$54,404,568	\$33,409,828	\$7,683,652	\$6,335,549	\$47,429,029	\$10,255,179	\$2,516,079	\$1,211,132	\$13,982,390
GOLDMAN SACHS BANK USA	538,127	51,613,940	21,528,678	8,559,048	7,417,460	37,505,186	4,678,748	1,040,490	739,302	6,458,540
CITIBANK NATIONAL ASSN	1,657,372	51,307,008	24,017,553	4,423,352	3,157,510	31,598,415	9,531,397	1,969,934	950,113	12,451,444
BANK OF AMERICA NA	2,465,234	21,874,946	6,206,875	5,226,166	3,279,642	14,712,683	4,959,052	478,471	297,001	5,734,524
Top four commercial banks, SAs & TCs with derivatives	\$8,046,314	\$179,200,462	\$85,162,934	\$25,892,218	\$20,190,161	\$131,245,313	\$29,424,376	\$6,004,974	\$3,197,548	\$38,626,898
Other commercial banks, SAs & TCs with derivatives	12,818,708	24,976,227	12,150,274	3,331,090	1,038,372	16,519,736	6,705,101	290,538	80,138	7,075,777
Total all commercial banks, SAs & TCs with derivatives	20,865,022	204,176,689	97,313,208	29,223,308	21,228,533	147,765,049	36,129,477	6,295,512	3,277,686	45,702,675

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

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, September 30, 2023

Bank name	Total assets	Total derivatives	Precious metals maturity < 1 year	Precious metals maturity 1-5 years	Precious metals maturity > 5 years	Precious metals: all maturities
JPMORGAN CHASE BANK NA	\$3,385,581	\$54,404,568	\$199,472	\$26,079	\$0	\$225,551
GOLDMAN SACHS BANK USA	538,127	51,613,940	162	68	0	230
CITIBANK NATIONAL ASSN	1,657,372	51,307,008	91,377	7,659	0	99,036
BANK OF AMERICA NA	2,465,234	21,874,946	77,342	7,090	0	84,432
Top four commercial banks, SAs & TCs with derivatives	\$8,046,314	\$179,200,462	\$368,353	\$40,896	\$0	\$409,249
Other commercial banks, SAs & TCs with derivatives	12,818,708	24,976,227	16,687	1,232	0	17,918
Total all commercial banks, SAs & TCs with derivatives	20,865,022	204,176,689	385,040	42,128	0	427,167

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 with 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, Schedules 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, September 30, 2023

Bank name	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
JPMORGAN CHASE BANK NA	\$3,385,581	\$54,404,568	\$805,323	\$136,977	\$4,575	\$946,875	\$3,243,063	\$742,579	\$54,040	\$4,039,682
GOLDMAN SACHS BANK USA	538,127	51,613,940	41,452	16,808	323	58,583	457,008	75,268	19,052	551,328
CITIBANK NATIONAL ASSN	1,657,372	51,307,008	123,314	56,078	453	179,845	760,648	182,012	8,240	950,900
BANK OF AMERICA NA	2,465,234	21,874,946	25,104	17,918	11,386	54,408	680,047	265,288	15,898	961,233
Top four commercial banks, SAs & TCs with derivatives	\$8,046,314	\$179,200,462	\$995,193	\$227,781	\$16,737	\$1,239,711	\$5,140,766	\$1,265,147	\$97,230	\$6,503,143
Other commercial banks, SAs & TCs with derivatives	12,818,708	24,976,227	90,336	115,838	270	206,445	381,324	170,295	12,310	563,930
Total all commercial banks, SAs & TCs with derivatives	20,865,022	204,176,689	1,085,529	343,619	17,007	1,446,156	5,522,090	1,435,442	109,540	7,067,073

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

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, September 30, 2023

Bank name	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
JPMORGAN CHASE BANK NA	\$3,385,581	\$54,404,568	\$1,279,352	\$184,147	\$632,230	\$160,578	\$976,955	\$76,256	\$184,967	\$41,174	\$302,397
GOLDMAN SACHS BANK USA	538,127	51,613,940	574,428	49,971	264,331	46,440	360,742	37,807	137,955	37,924	213,686
CITIBANK NATIONAL ASSN	1,657,372	51,307,008	1,485,697	204,079	872,225	95,255	1,171,559	58,369	237,668	18,101	314,138
BANK OF AMERICA NA	2,465,234	21,874,946	520,205	88,505	242,069	56,021	386,595	37,057	85,053	11,500	133,610
Top four commercial banks, SAs & TCs with derivatives	\$8,046,314	\$179,200,462	\$3,859,682	\$526,702	\$2,010,855	\$358,294	\$2,895,851	\$209,489	\$645,643	\$108,699	\$963,831
Other commercial banks, SAs & TCs with derivatives	12,818,708	24,976,227	255,309	68,223	97,887	18,391	184,501	8,903	50,628	11,277	70,808
Total all commercial banks, SAs & TCs with derivatives	20,865,022	204,176,689	4,114,991	594,925	2,108,742	376,685	3,080,352	218,392	696,271	119,976	1,034,639

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, September 30, 2023

Bank name	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
JPMORGAN CHASE BANK NA	\$3,385,581	\$54,404,568	\$1,279,352	\$665,795	\$613,557	\$584,174	\$36,657	\$38,296	\$6,668	\$558,884	\$10,587	\$43,929	\$157
GOLDMAN SACHS BANK USA	538,127	51,613,940	574,428	314,616	259,812	300,433	2,610	11,159	414	245,154	3,500	11,090	68
CITIBANK NATIONAL ASSN	1,657,372	51,307,008	1,485,697	769,102	716,595	707,814	21,880	39,408	0	668,887	7,661	40,047	0
BANK OF AMERICA NA	2,465,234	21,874,946	520,205	269,893	250,312	229,627	15,510	24,756	0	207,983	15,777	26,552	0
WELLS FARGO BANK NA	1,704,891	14,056,275	137,156	94,376	42,780	10,897	58,567	450	24,462	11,197	16,199	0	15,384
STATE STREET BANK&TRUST CO	280,469	2,400,979	0	0	0	0	0	0	0	0	0	0	0
HSBC NA	161,304	1,498,367	15,392	12,135	3,257	7,500	4,636	0	0	3,257	0	0	0
U S BANK NATIONAL ASSN	657,184	1,194,844	15,194	4,810	10,384	1,707	0	0	3,103	690	0	0	9,694
BANK OF NEW YORK MELLON	328,468	1,038,283	220	220	0	220	0	0	0	0	0	0	0
PNC BANK NATIONAL ASSN	553,114	692,400	13,470	5,378	8,091	175	0	0	5,203	0	0	0	8,091
TD BANK NATIONAL ASSN	366,252	422,238	0	0	0	0	0	0	0	0	0	0	0
TRUIST BANK	535,000	392,524	9,796	3,309	6,487	465	1,693	0	1,151	0	0	0	6,487
CITIZENS BANK NATIONAL ASSN	224,956	328,115	2,335	0	2,335	0	0	0	0	0	0	0	2,335
NORTHERN TRUST CO	145,817	305,494	0	0	0	0	0	0	0	0	0	0	0
CAPITAL ONE NATIONAL ASSN	468,780	241,386	6,804	3,721	3,083	0	0	0	3,721	0	0	0	3,083
MORGAN STANLEY BANK NA	207,376	216,884	20,096	17,946	2,150	17,941	5	0	0	1,900	250	0	0
FIFTH THIRD BANK NA	212,148	194,411	5,124	1,227	3,897	0	0	0	1,227	0	0	0	3,897
REGIONS BANK	152,906	176,612	5,963	1,694	4,269	0	0	0	1,694	0	0	0	4,269
KEYBANK NATIONAL ASSN	185,571	163,004	159	66	93	66	0	0	0	0	93	0	0
BMO BANK NATIONAL ASSN	260,786	144,975	0	0	0	0	0	0	0	0	0	0	0
HUNTINGTON NATIONAL BANK	186,356	111,216	4,032	2,370	1,662	0	0	0	2,370	0	0	0	1,662
MANUFACTURERS&TRADERS TR CO	208,606	75,820	0	0	0	0	0	0	0	0	0	0	0
COMERICA BANK	85,808	74,010	1,656	650	1,006	650	0	0	0	1,006	0	0	0
BOKF NATIONAL ASSN	48,682	67,035	0	0	0	0	0	0	0	0	0	0	0
SANTANDER BANK N A	98,569	62,409	42	3	39	3	0	0	0	39	0	0	0
Top 25 commercial banks, SAs & TCs with derivatives	\$15,119,356	\$203,057,743	\$4,097,120	\$2,167,311	\$1,929,809	\$1,861,671	\$141,558	\$114,069	\$50,013	\$1,698,997	\$54,067	\$121,618	\$55,127
Other commercial banks, SAs & TCs with derivatives	5,745,666	1,118,946	17,872	6,058	11,814	1,325	0	0	4,733	2,463	18	0	9,333
Total all commercial banks, SAs & TCs with derivatives	20,865,022	204,176,689	4,114,991	2,173,369	1,941,623	1,862,996	141,558	114,069	54,746	1,701,460	54,084	121,618	64,461
Top 25 commercial banks, SAs & TCs with derivatives: percentage of total			99.6	52.7	46.9	45.2	3.4	2.8	1.2	41.3	1.3	3.0	1.3
Other commercial banks, SAs & TCs with derivatives: percentage of total			0.4	0.1	0.3	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2
Total all commercial banks, SAs & TCs with derivatives: percentage of total			100.0	52.8	47.2	45.3	3.4	2.8	1.3	41.3	1.3	3.0	1.6

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, September 30, 2023

FFIEC 051 Call Report Schedule SU

Gross notional amount of derivatives	3Q23	2Q23	1Q23	4Q22	3Q22	2Q22	1Q22	4Q21	3Q21	2Q21	1Q21	4Q20
Total gross notional amount of interest rate derivatives held for trading	\$5,325	\$5,242	\$5,016	\$4,792	\$4,915	\$4,953	\$4,994	\$5,011	\$5,301	\$5,189	\$5,391	\$5,819
Total gross notional amount of all other derivatives held for trading	\$50	\$47	\$51	\$43	\$42	\$35	\$39	\$44	\$14	\$173	\$20	\$19
Total gross notional amount of interest rate derivatives not held for trading	\$122,763	\$21,050	\$17,819	\$14,395	\$16,786	\$19,499	\$21,308	\$22,545	\$29,991	\$31,949	\$38,839	\$52,867
Total gross notional amount of all other derivatives not held for trading	\$845	\$842	\$676	\$1,103	\$1,037	\$1,142	\$1,007	\$1,314	\$1,461	\$1,350	\$1,269	\$1,137

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Notional principal amounts of over-the-counter derivative contracts covered by the regulatory capital rules	3Q23	2Q23	1Q23	4Q22	3Q22	2Q22	1Q22	4Q21	3Q21	2Q21	1Q21	4Q20
Interest rate	Data Not Reported	\$20,533	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
Foreign exchange rate	Data Not Reported	\$5	Data Not Reported	\$5	Data Not Reported	\$4	Data Not Reported	\$4	Data Not Reported	\$3	Data Not Reported	\$84
Credit (investment grade reference asset)	Data Not Reported	\$80	Data Not Reported	\$188	Data Not Reported	\$265	Data Not Reported	\$230	Data Not Reported	\$196	Data Not Reported	\$217
Credit (non-investment grade reference asset)	Data Not Reported	\$251	Data Not Reported	\$212	Data Not Reported	\$176	Data Not Reported	\$168	Data Not Reported	\$154	Data Not Reported	\$143
Equity	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0
Precious metals	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$4	Data Not Reported	\$1	Data Not Reported	\$0
Other	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$1	Data Not Reported	\$20

Notional principal amounts of centrally cleared derivative contracts covered by the regulatory capital rules	3Q23	2Q23	1Q23	4Q22	3Q22	2Q22	1Q22	4Q21	3Q21	2Q21	1Q21	4Q20
Interest rate	Data Not Reported	\$90	Data Not Reported	\$79	Data Not Reported	\$108	Data Not Reported	\$21	Data Not Reported	\$193	Data Not Reported	\$250
Foreign exchange rate	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0
Credit (investment grade reference asset)	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0
Credit (non-investment grade reference asset)	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0
Equity	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0
Precious metals	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0
Other	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0	Data Not Reported	\$0

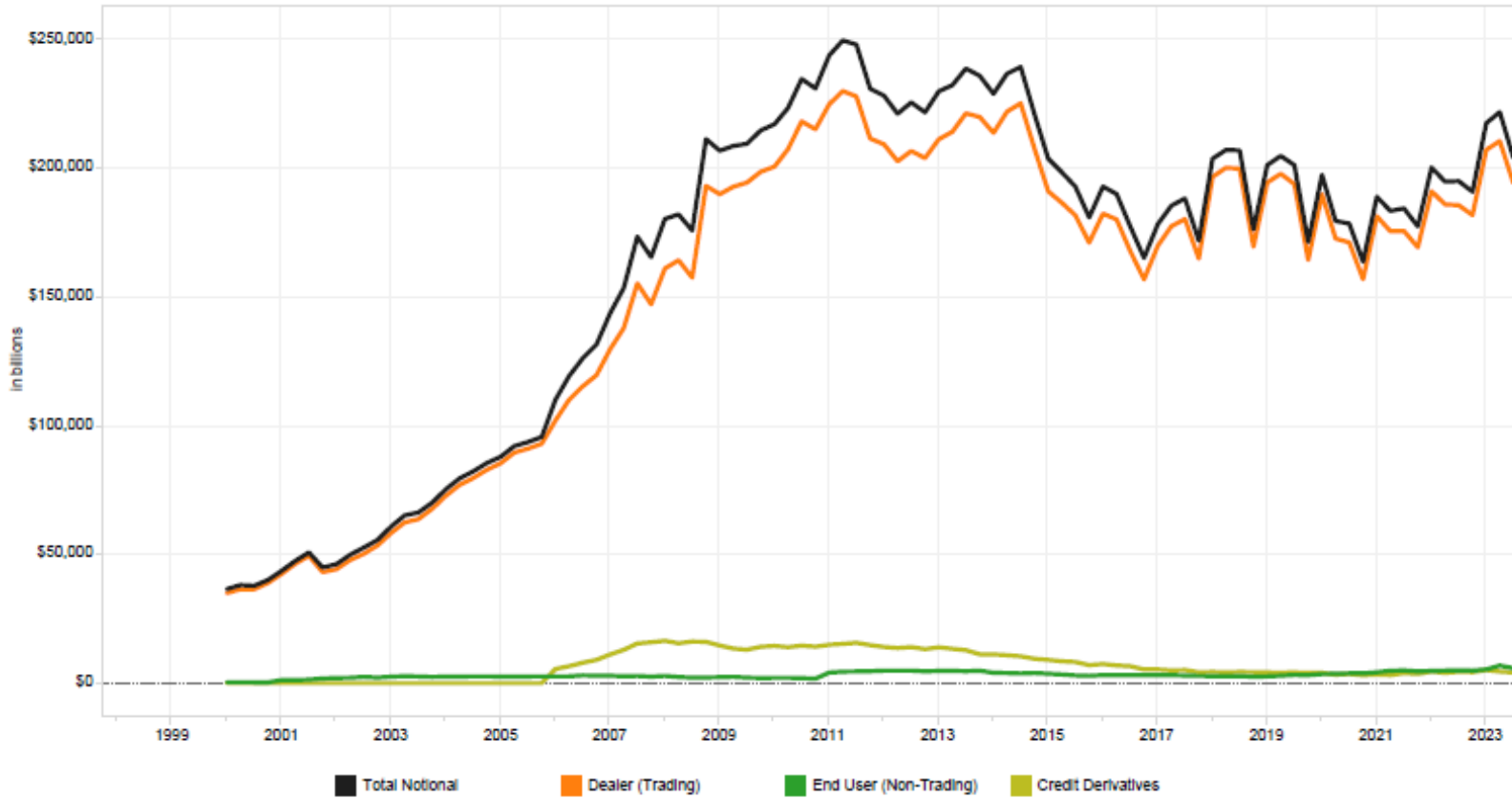
Current Credit Exposure	3Q23	2Q23	1Q23	4Q22	3Q22	2Q22	1Q22	4Q21	3Q21	2Q21	1Q21	4Q20
Current credit exposure across all derivative contracts covered by the regulatory capital rules	Data not reported	\$454	Data not reported	\$493	Data not reported	\$363	Data not reported	\$233	Data not reported	\$287	Data not reported	\$449

* 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



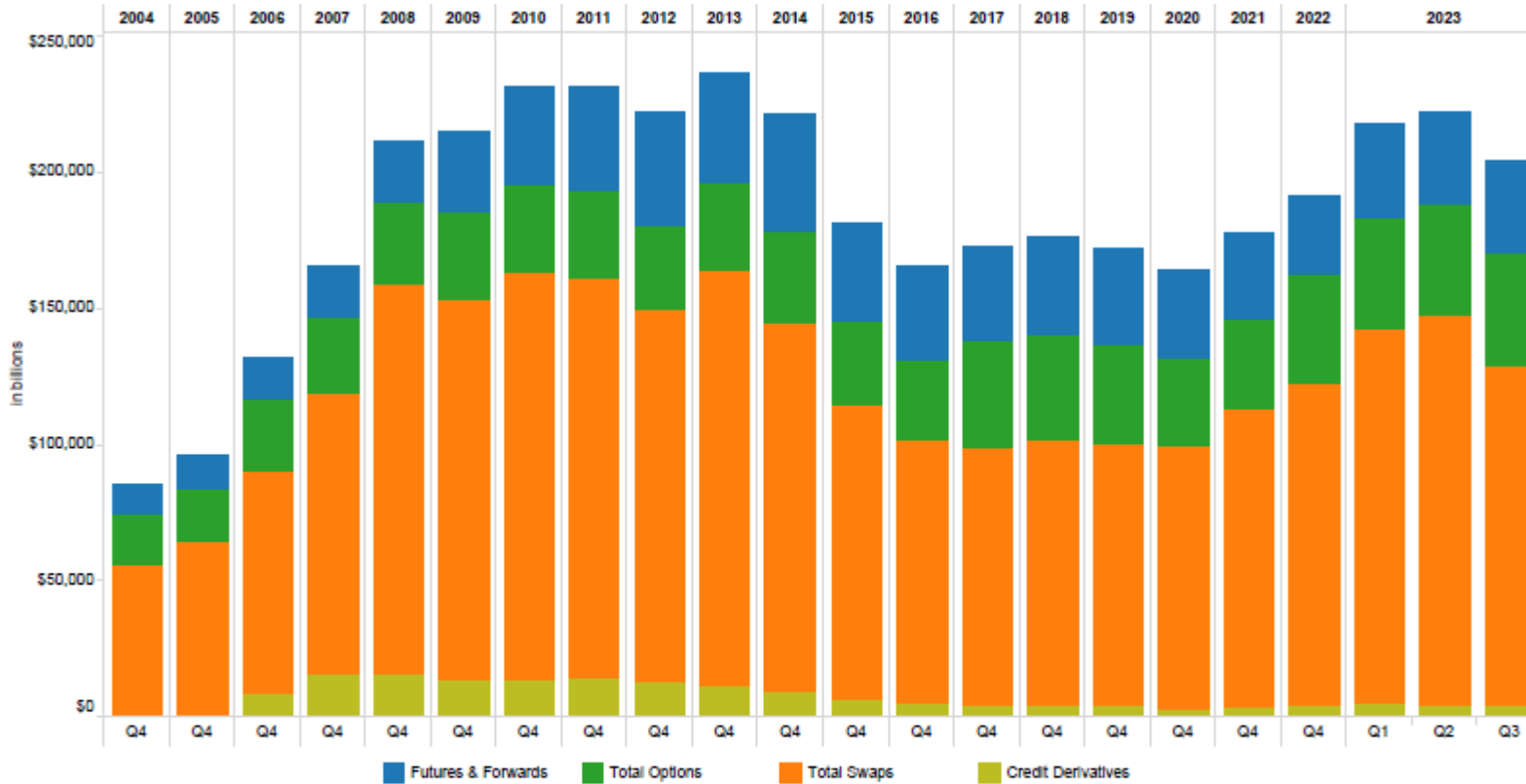
In billions of dollars

	2020				2021				2022				2023		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Total Notional	\$197,504	\$179,573	\$178,579	\$163,799	\$188,990	\$183,501	\$184,480	\$177,464	\$200,354	\$194,851	\$195,082	\$190,977	\$217,602	\$221,913	\$204,177
Dealer (Trading)	189,995	172,723	171,242	156,997	181,421	175,607	175,695	169,360	191,121	186,016	185,701	181,874	207,221	210,642	194,309
End User (Non-Trading)	3,522	3,595	3,757	3,768	4,211	4,791	4,933	4,563	4,729	4,870	4,992	4,861	5,301	6,798	5,752
Credit Derivatives	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	4,474	4,115

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

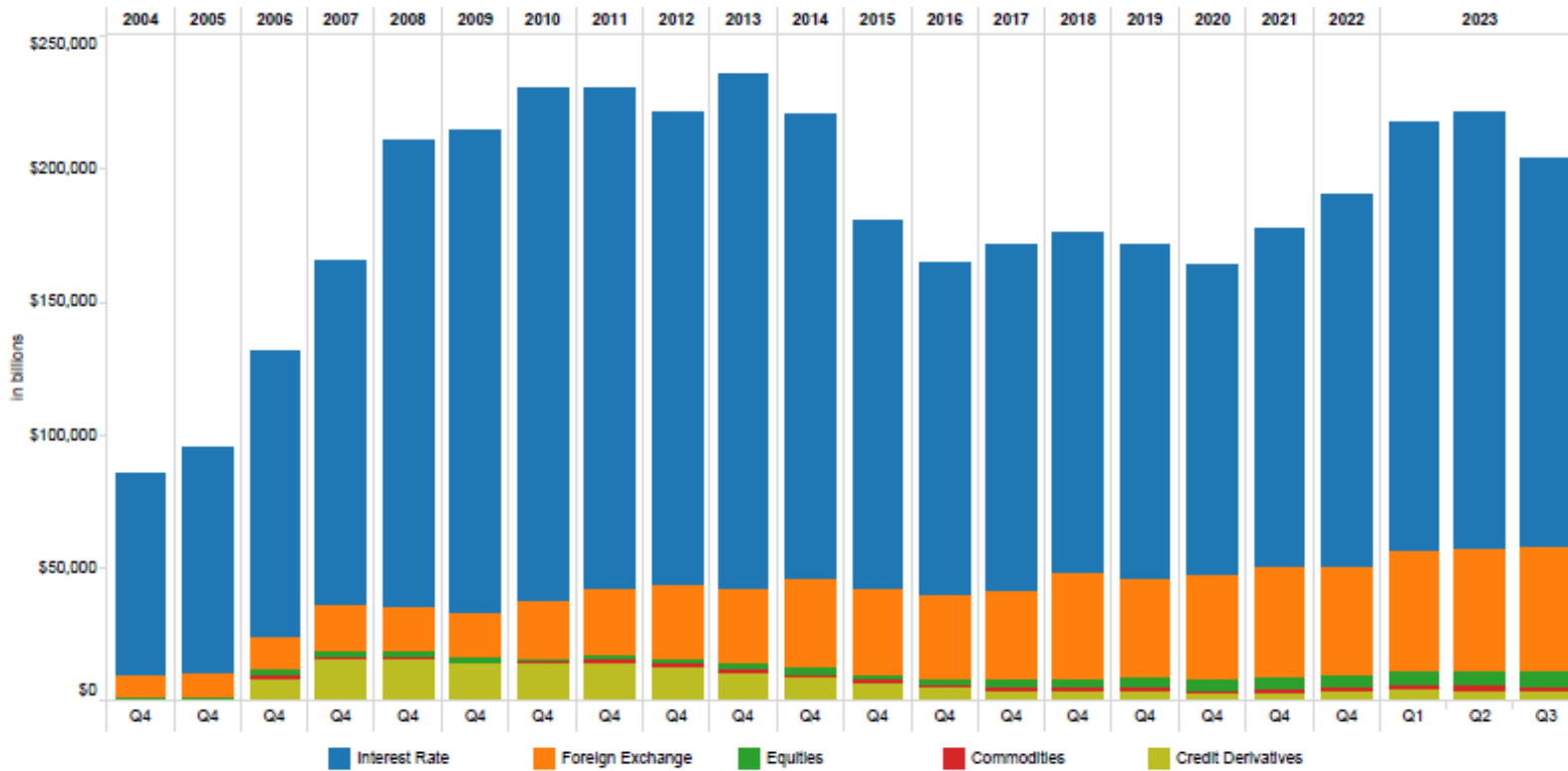
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023		
	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q1	Q2	Q3
Futures & Forwards	\$22,529	\$29,652	\$35,539	\$37,469	\$41,621	\$40,027	\$43,380	\$35,691	\$34,201	\$34,162	\$36,145	\$34,789	\$32,350	\$31,180	\$28,749	\$34,502	\$33,317	\$34,215
Total Options	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	40,880	41,150
Total Swaps	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	143,243	124,697
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	4,474	4,115
Total Notional	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	221,913	204,177

* 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

	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	Q1	Q2	Q3
Interest Rate	\$181,454	\$193,399	\$187,866	\$177,650	\$193,084	\$174,687	\$138,369	\$124,488	\$130,417	\$128,175	\$125,065	\$116,000	\$126,236	\$139,755	\$160,260	\$164,072	\$145,790
Foreign Exchange	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	46,376	46,867
Equities	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	5,471	5,875
Commodities	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	1,520	1,530
Credit Derivatives	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	4,474	4,115
Total Notional	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	221,913	204,177

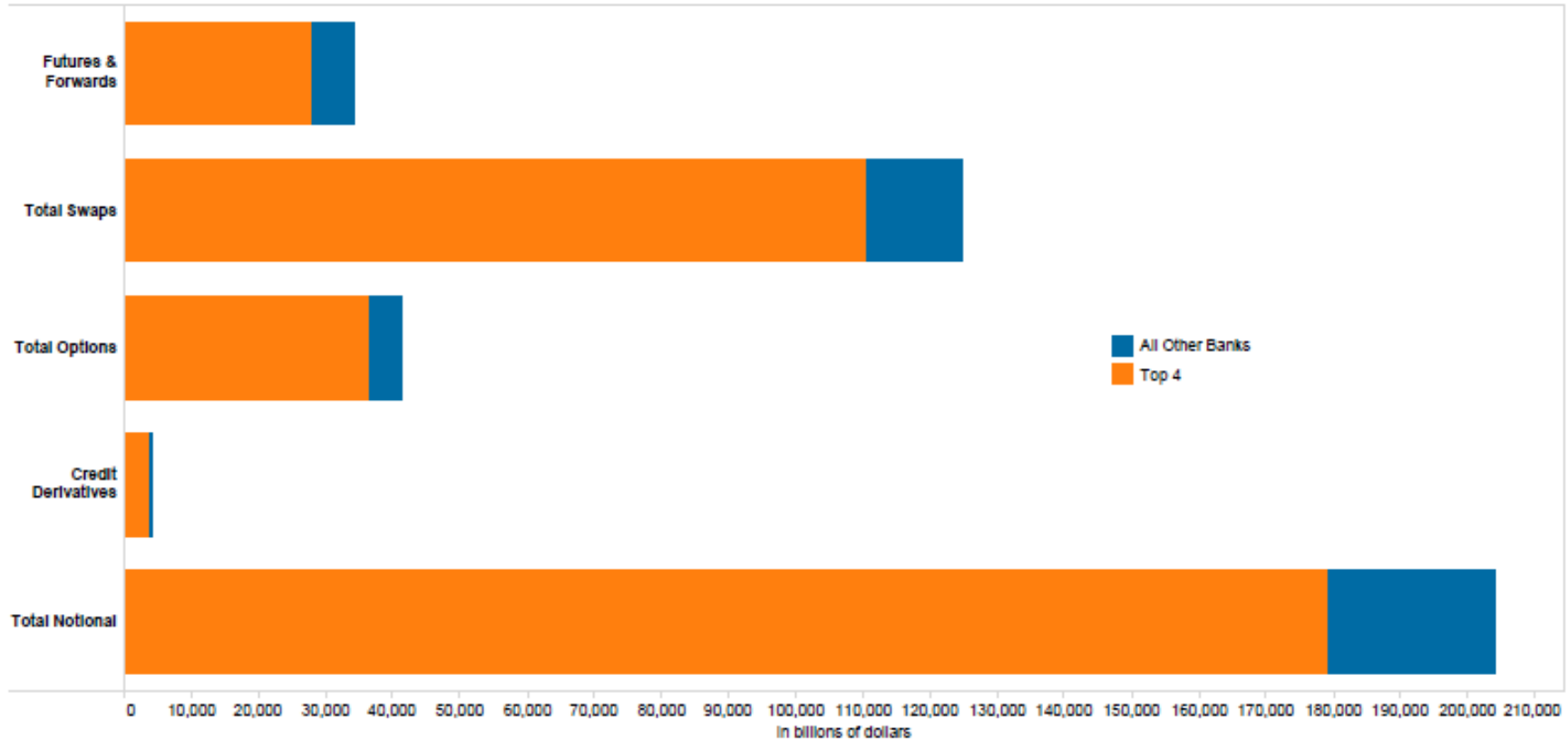
* Notional amount of total: futures, exchange-traded options, over-the-counter options, forwards, and swaps.

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, September 30, 2023



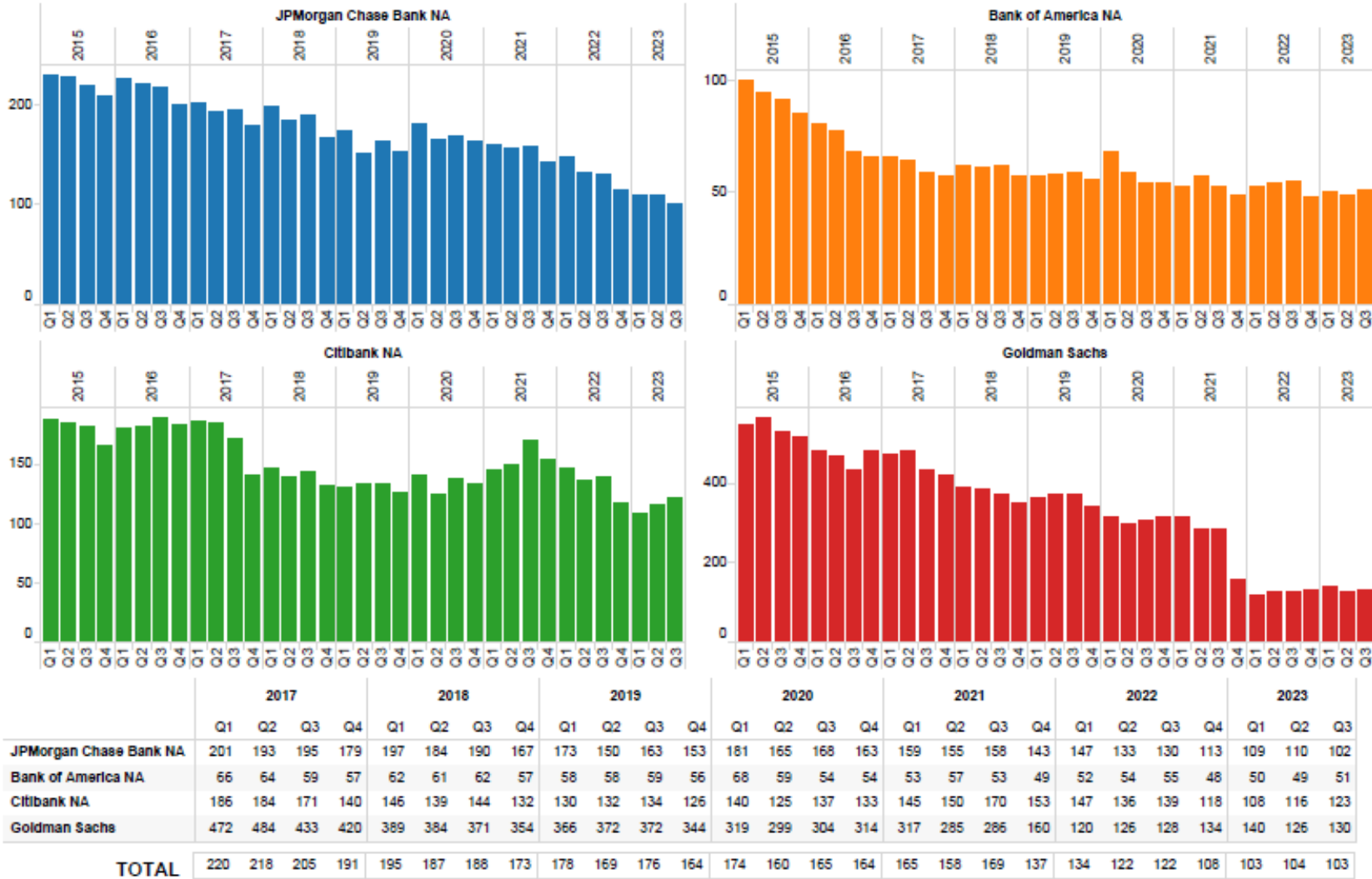
In billions of dollars

	Top 4	All Other Banks	Grand Total
Futures & Forwards	\$28,219	\$5,996	\$34,215
Total Swaps	110,625	14,072	124,697
Total Options	36,497	4,653	41,150
Credit Derivatives	3,860	255	4,115
Total Notional	179,200	24,976	204,177

* Notional amount of total: futures, exchange-traded options, over-the-counter options, forwards, and swaps. See table 13 for a list of the top four banks.

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

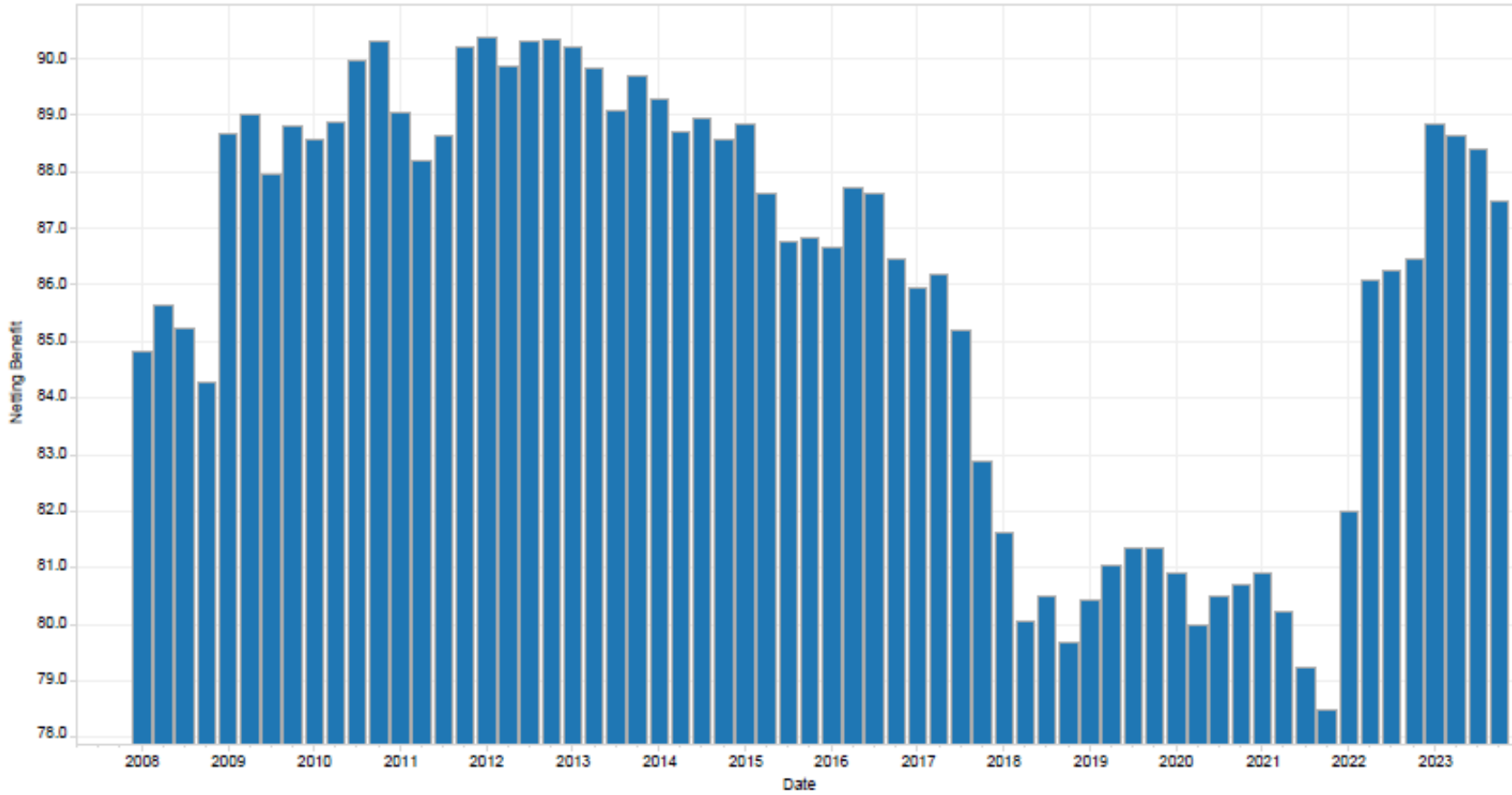


Note: Beginning January 1, 2022, the largest banks are required to calculate their derivative exposure amount for regulatory capital purposes using the Standardized Approach for Counterparty Credit Risk (SA-CCR). Refer to the call report instructions and OCC Bulletin 2020-7, "Standardized Approach for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

Note: The methodology to calculate the ratio of credit risk exposure to capital 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

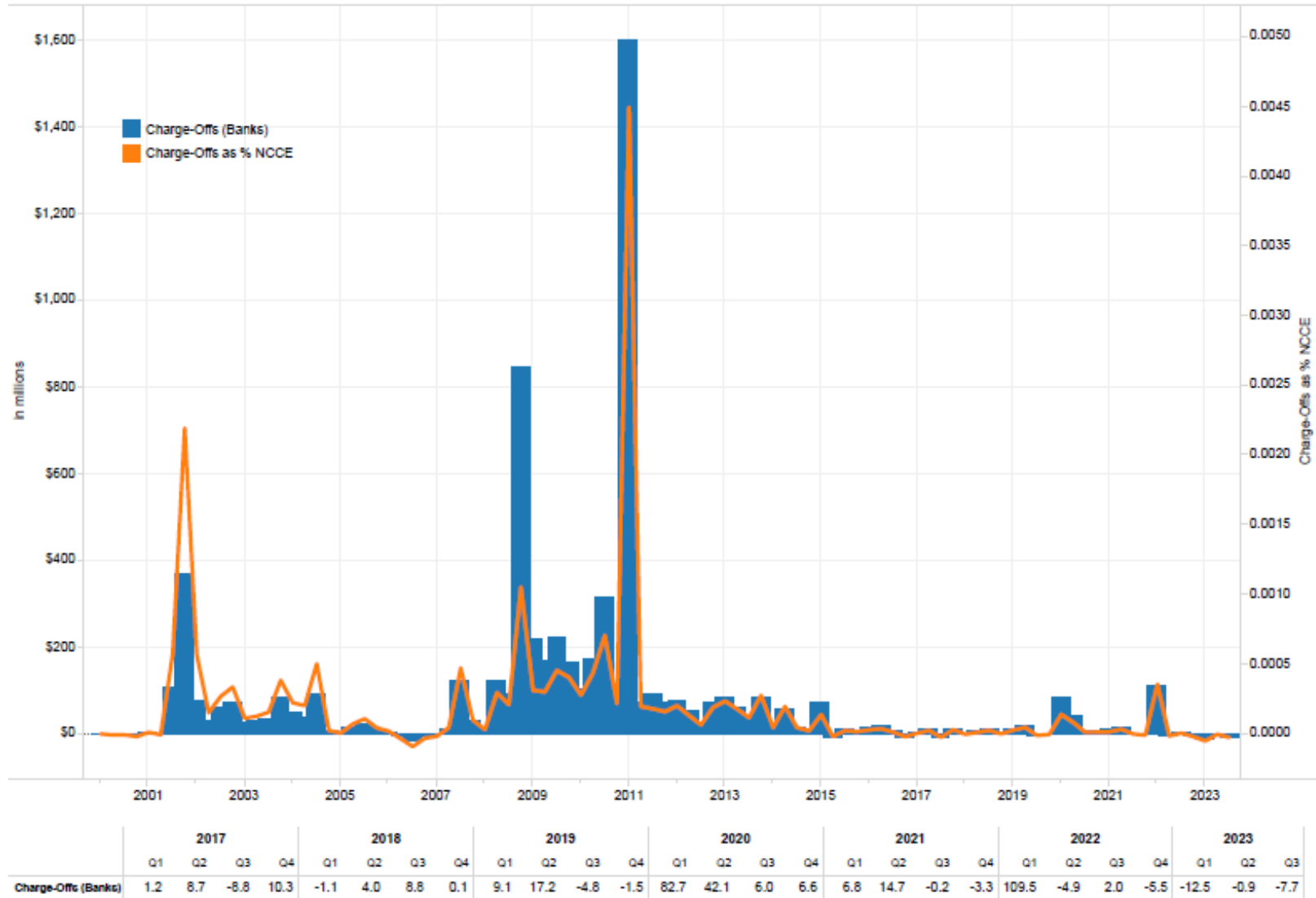
2015				2016				2017				2018				2019				2020				2021				2022				2023		
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3				
87.5	86.8	86.8	86.7	87.7	87.6	86.5	86.0	85.2	85.2	82.9	81.6	80.0	80.5	79.7	80.4	81.0	81.3	81.4	80.9	80.0	80.5	80.7	80.9	80.2	79.2	78.5	82.0	86.1	86.3	86.5	88.8	88.6	88.4	87.5

* 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

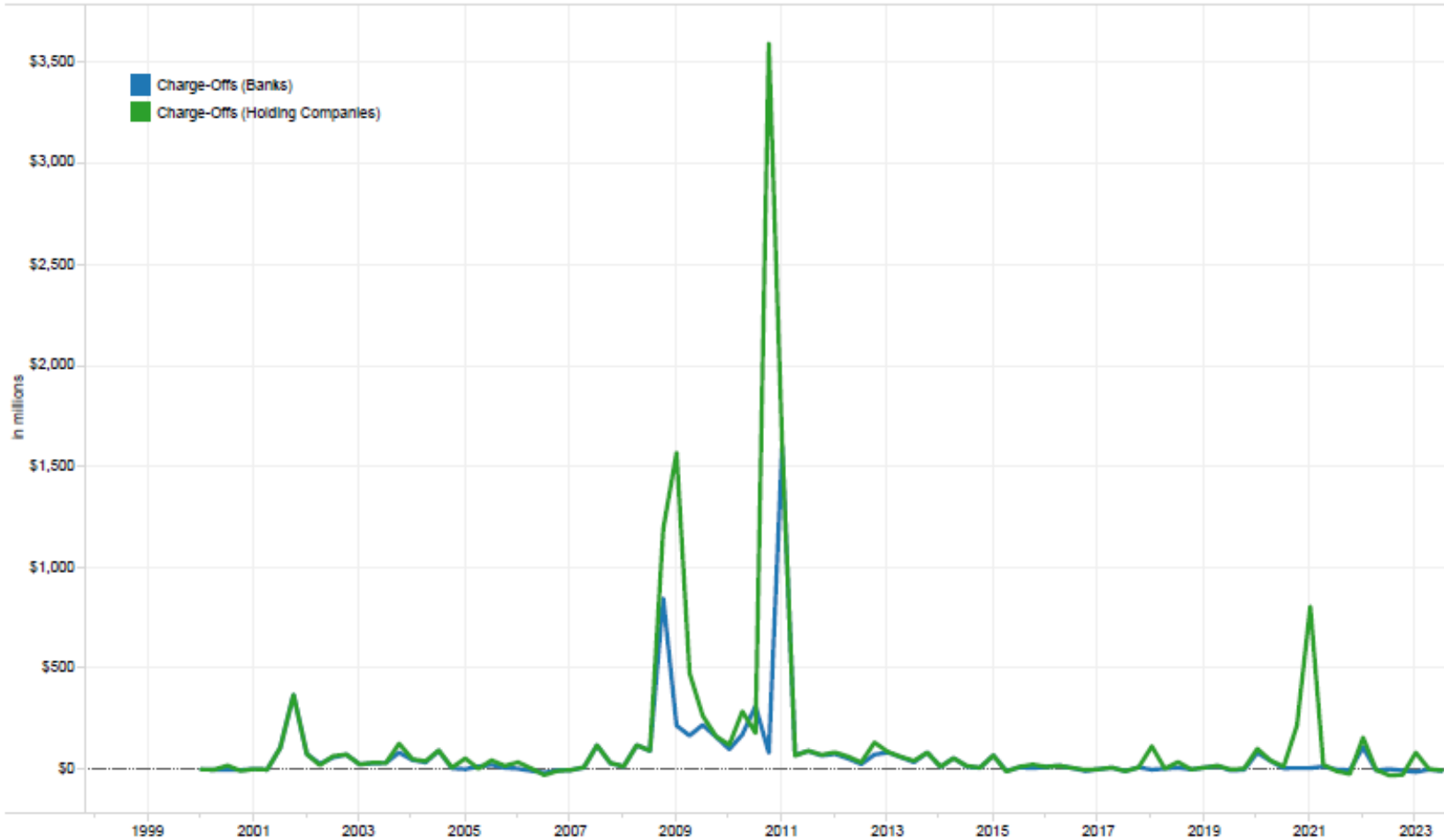
Figure 13: Quarterly Charge-Offs/(Recoveries) From Derivatives—Bank Insured U.S. Commercial Banks and Savings Associations With Derivatives



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

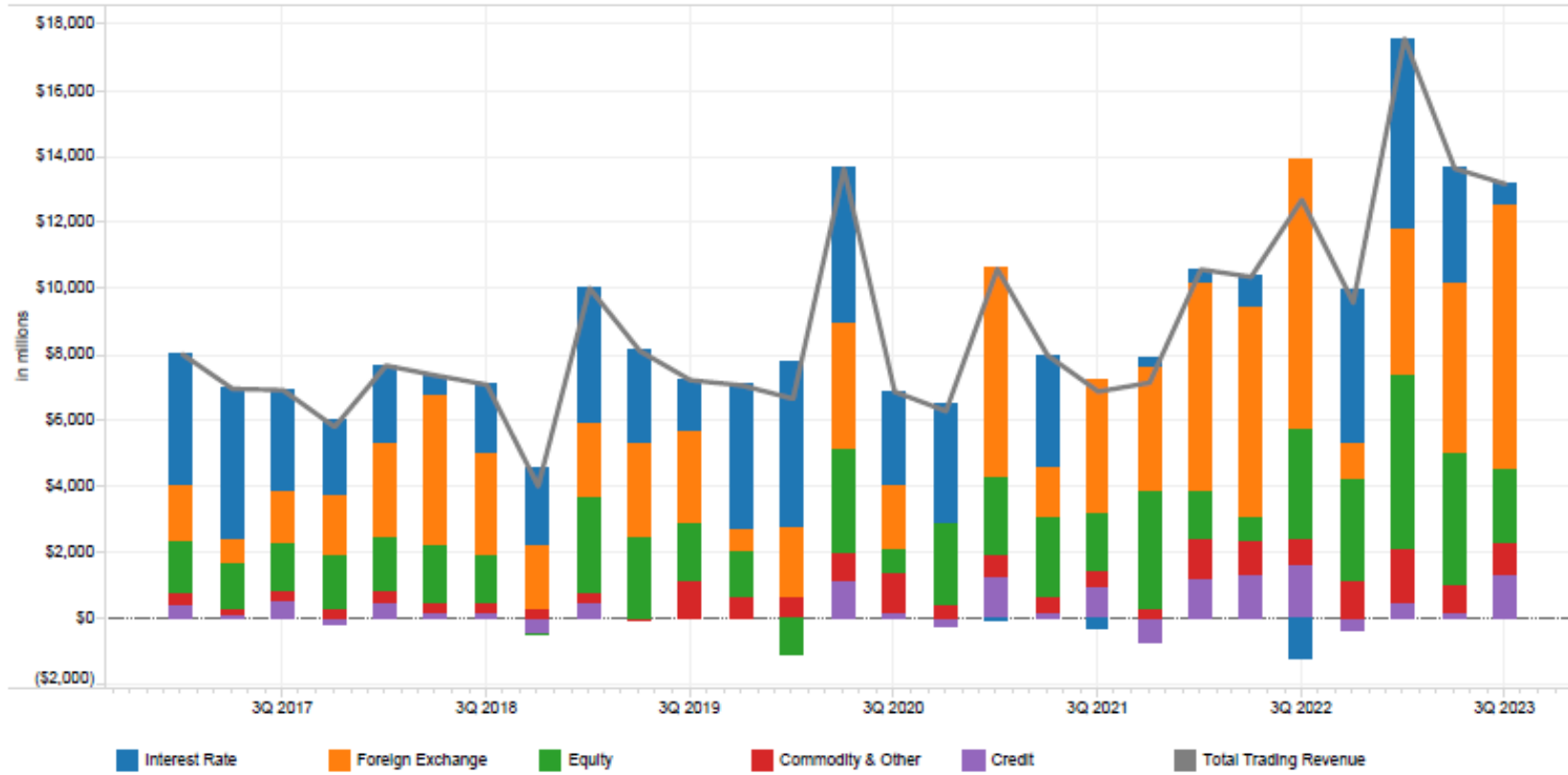


	2018				2019				2020				2021				2022				2023		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Charge-Offs (Banks)	-1.1	4.0	8.8	0.1	9.1	17.2	-4.8	-1.5	82.7	42.1	6.0	6.6	6.8	14.7	-0.2	-3.3	109.5	-4.9	2.0	-5.5	-12.5	-0.9	-7.7
Charge-Offs (Holding Companies)	114.5	3.5	36.6	0.1	9.5	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	2.5	-4.9

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



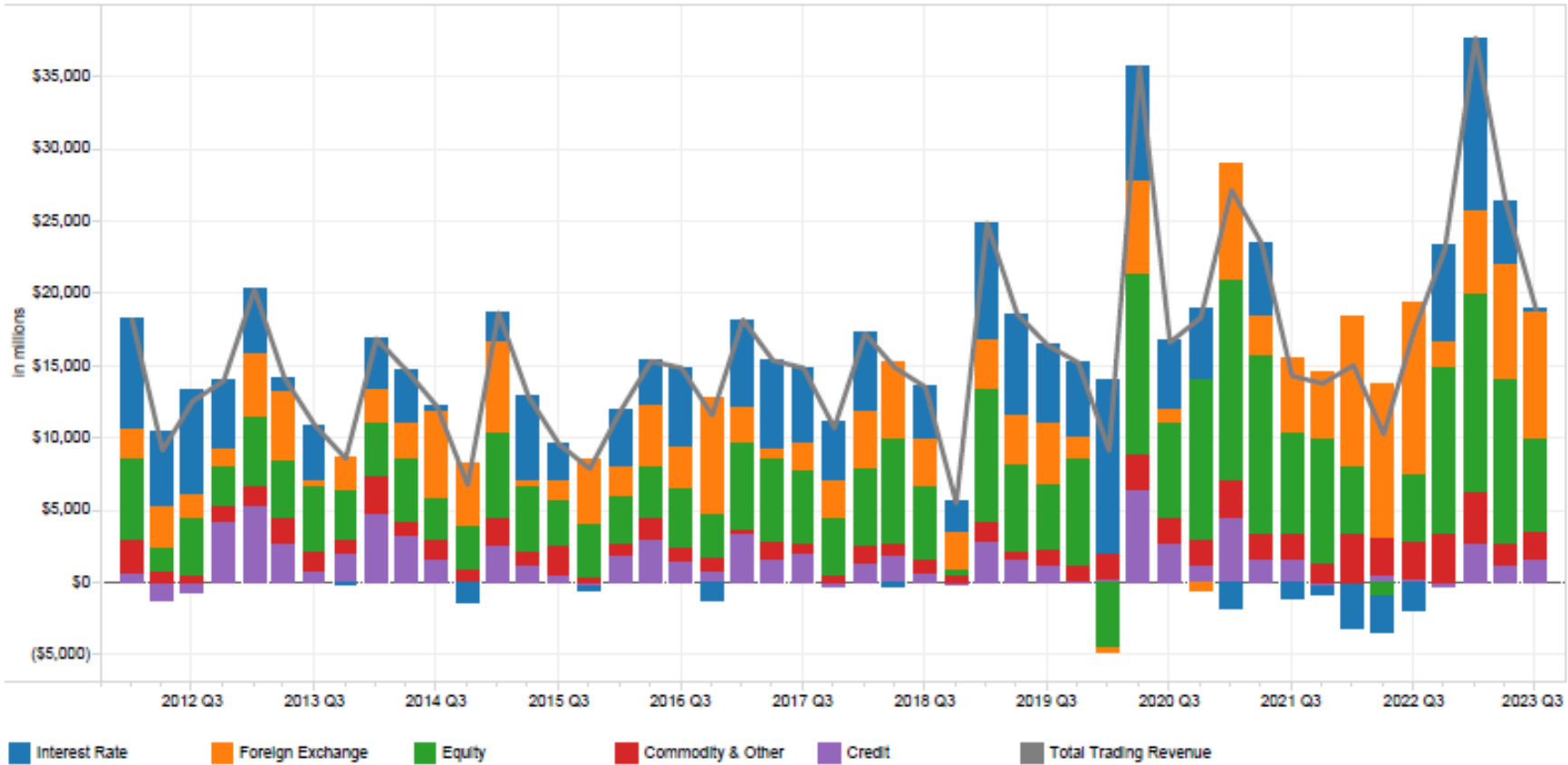
In millions of dollars

	2019				2020				2021				2022				2023		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Interest Rate	\$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	\$5,735	\$3,461	\$606
Foreign Exchange	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	5,174	8,036
Equity	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	3,996	2,262
Commodity & Other	323	-43	1,109	600	646	905	1,226	434	622	549	531	347	1,161	1,029	774	1,153	1,570	824	942
Credit	485	30	43	34	-34	1,129	154	-243	1,300	150	967	-737	1,235	1,334	1,678	-368	516	204	1,342
Total Trading Revenue	10,035	8,131	7,242	7,083	6,681	13,648	6,893	6,305	10,611	7,999	6,896	7,164	10,598	10,373	12,714	9,595	17,594	13,658	13,188

* 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
Bank Holding Companies



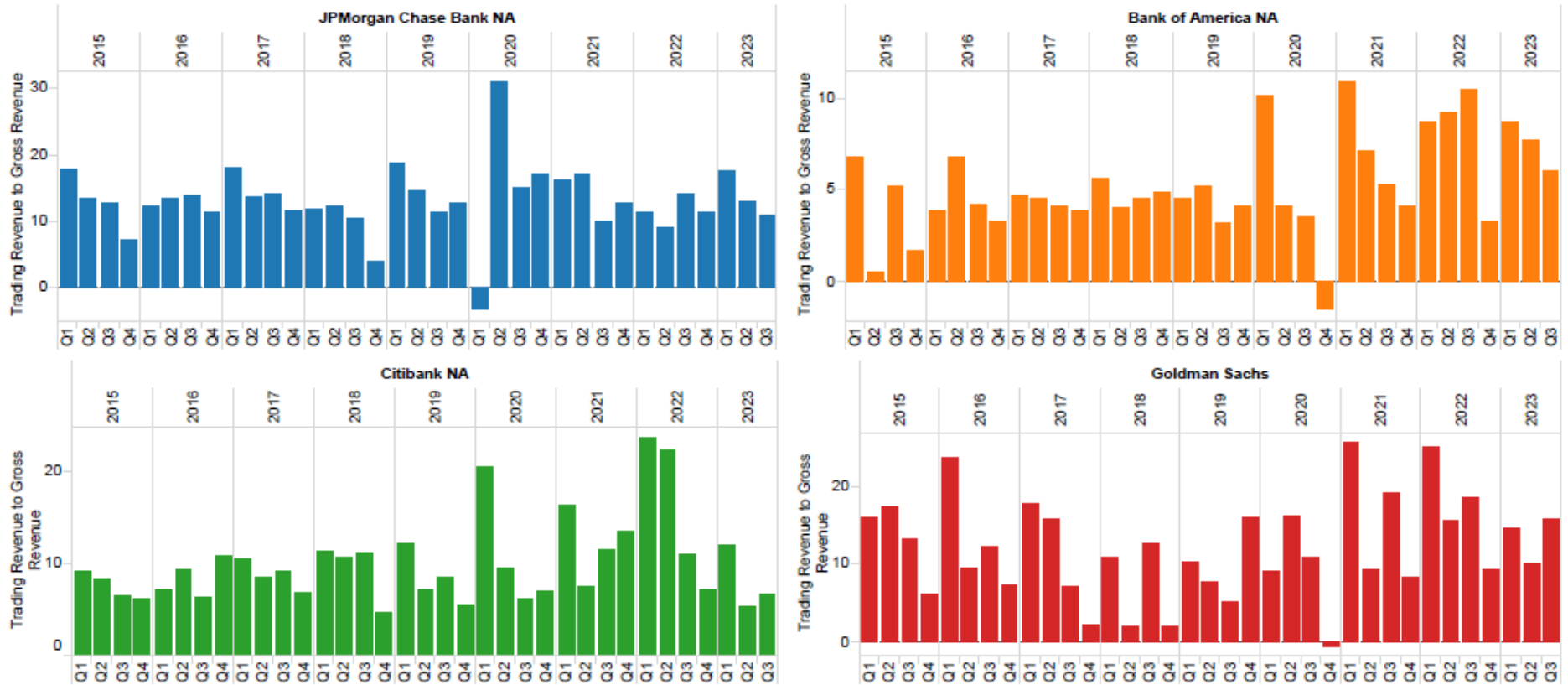
In millions of dollars

	2019				2020				2021				2022				2023		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
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)	\$6,572	\$11,967	\$4,327	\$202
Foreign Exchange	3,396	3,351	4,241	1,463	-302	6,374	1,037	-628	8,051	2,732	5,144	4,496	10,267	10,574	11,900	1,810	5,760	7,902	8,752
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	13,714	11,347	6,363
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	1,615	2,025
Credit	2,903	1,684	1,226	159	257	6,410	2,675	1,181	4,531	1,595	1,530	-225	-129	438	286	-249	2,771	1,157	1,577
Total Trading Revenue	24,862	18,604	16,437	15,223	9,157	35,676	16,631	18,337	27,172	23,483	14,305	13,786	15,046	10,281	17,417	23,047	37,683	26,348	18,919

* 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	Q2	Q3
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	12.79	10.83
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	7.71	6.09
Citibank NA	10.47	8.50	9.12	6.94	11.33	10.69	11.26	4.66	12.32	7.23	8.48	5.66	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	5.44	6.66
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	10.12	15.74
TOTAL	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	9.67	9.08

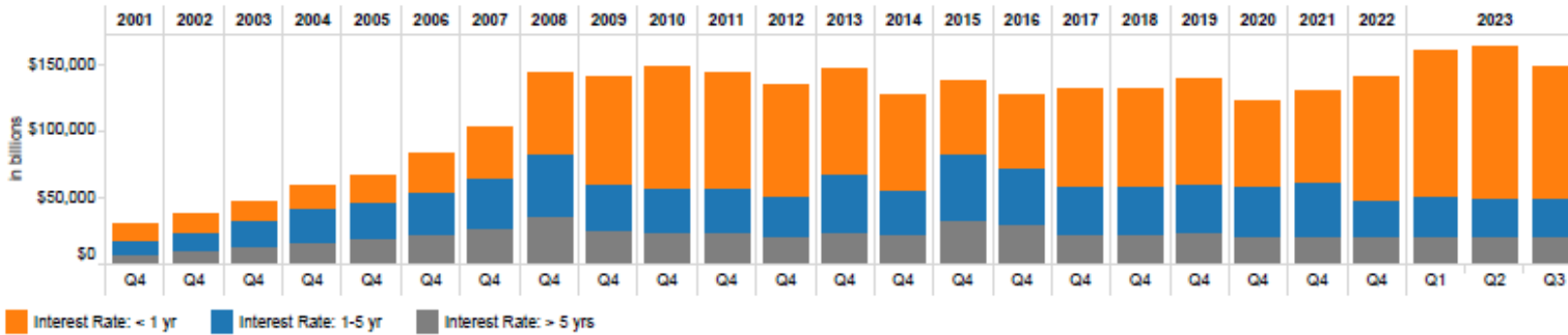
* The trading revenue figures are for cash and derivative activities. Revenue figures are quarterly, not year-to-date numbers.

Note: Gross revenue equals interest income plus non-interest income.

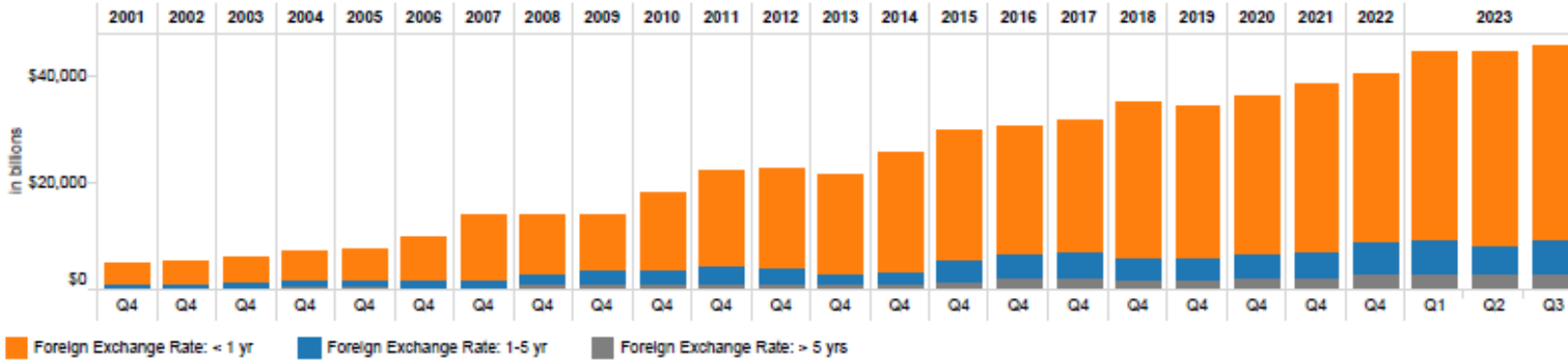
Source: Call reports, Schedule RI

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

Interest Rate



Foreign Exchange Rate



In billions of dollars

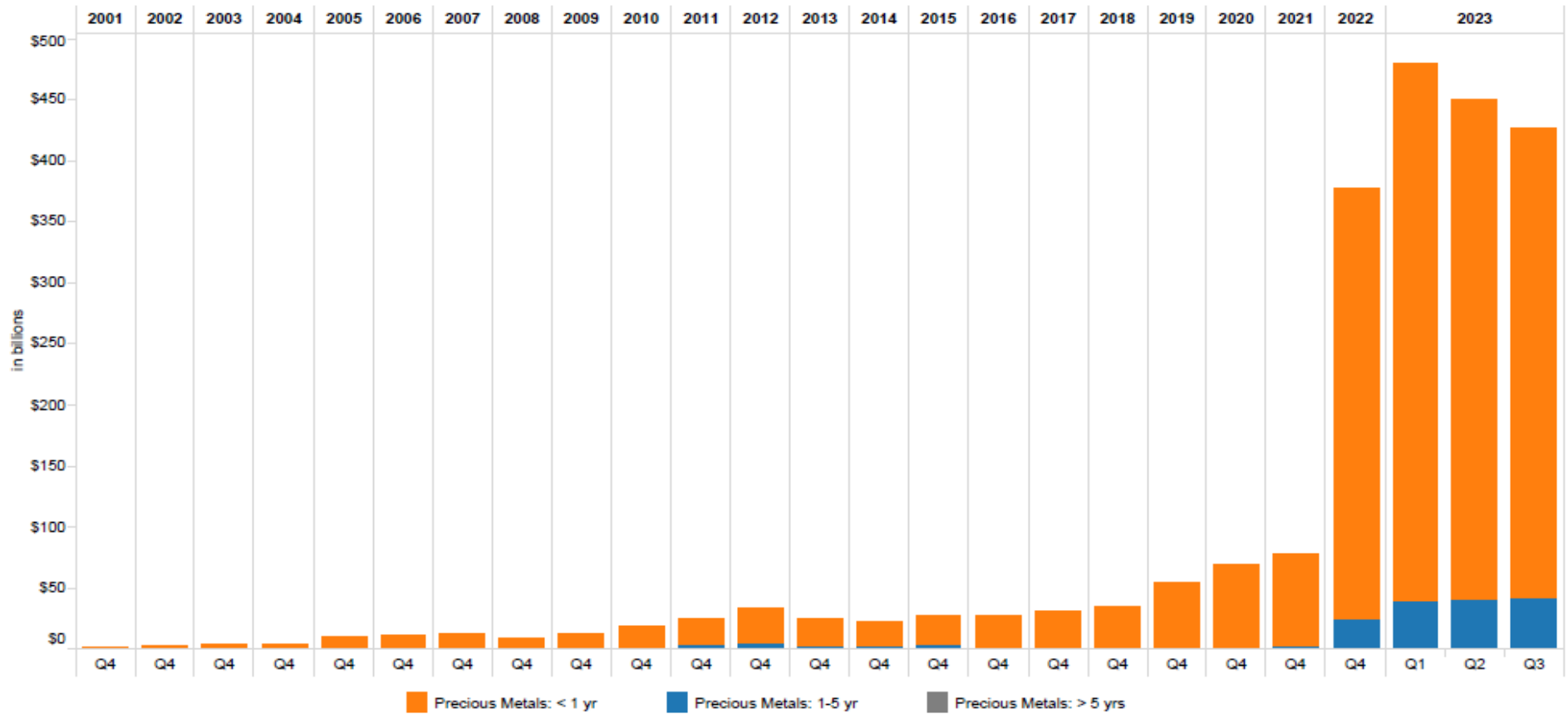
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023		
	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q1	Q2	Q3
Interest Rate: < 1 yr	\$90,843	\$87,812	\$82,948	\$77,758	\$71,808	\$55,054	\$55,061	\$72,589	\$71,492	\$79,132	\$62,444	\$68,044	\$92,693	\$109,261	\$112,936	\$97,313
Interest Rate: 1-5 yr	33,497	32,750	30,191	44,157	33,727	49,406	43,261	36,154	36,681	35,854	39,198	41,244	27,371	30,208	29,386	29,223
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	21,493	21,229
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	31,271	34,846	35,714	36,129
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	5,996	6,287	5,265	6,296
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	3,146	3,272	3,321	3,278

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

Precious Metals



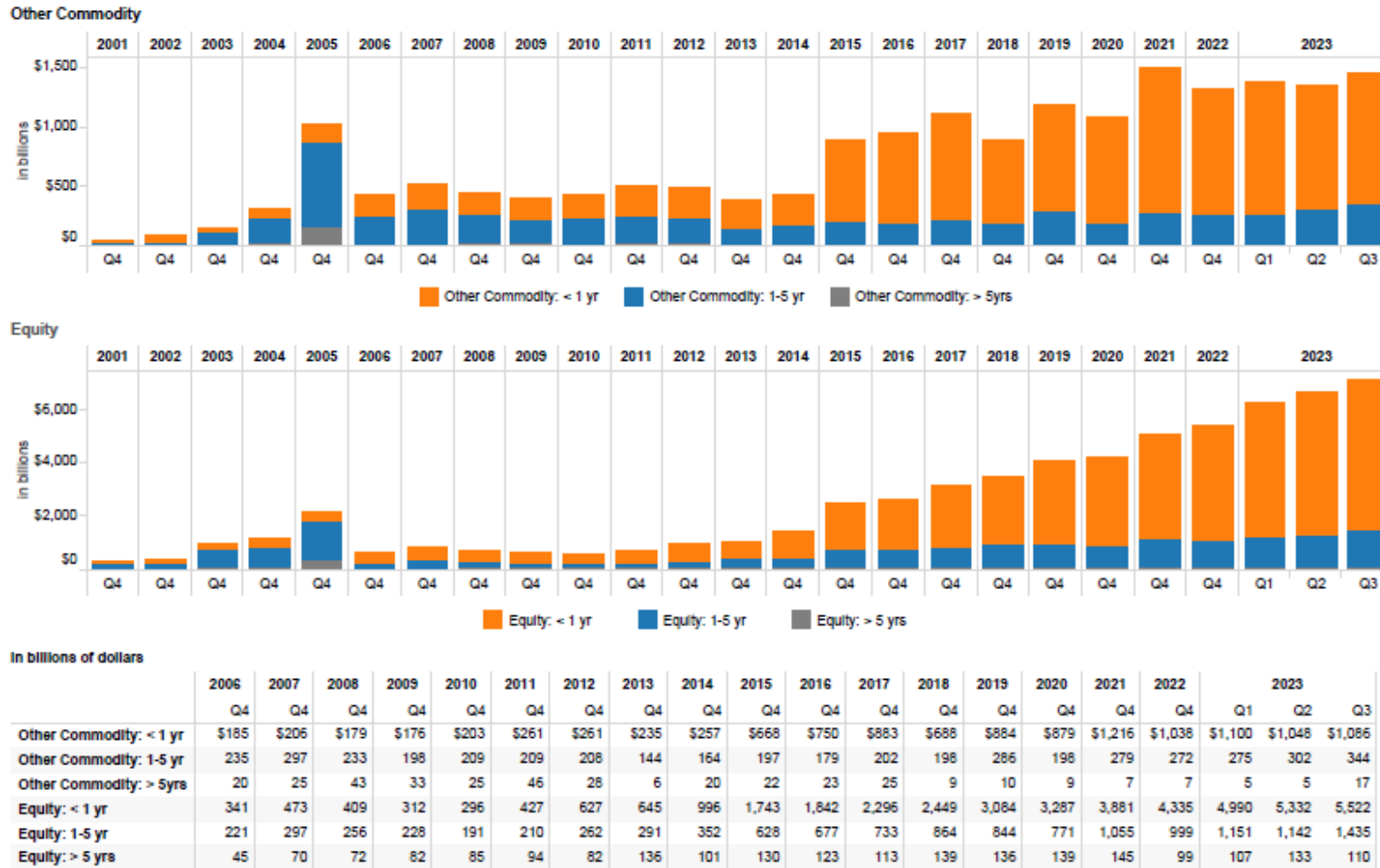
In billions of dollars

	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	Q1	Q2	Q3
Precious Metals: < 1 yr	\$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	\$408.54	\$385.04
Precious Metals: 1-5 yr	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	41.6	42.1
Precious Metals: > 5 yrs	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	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 with 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

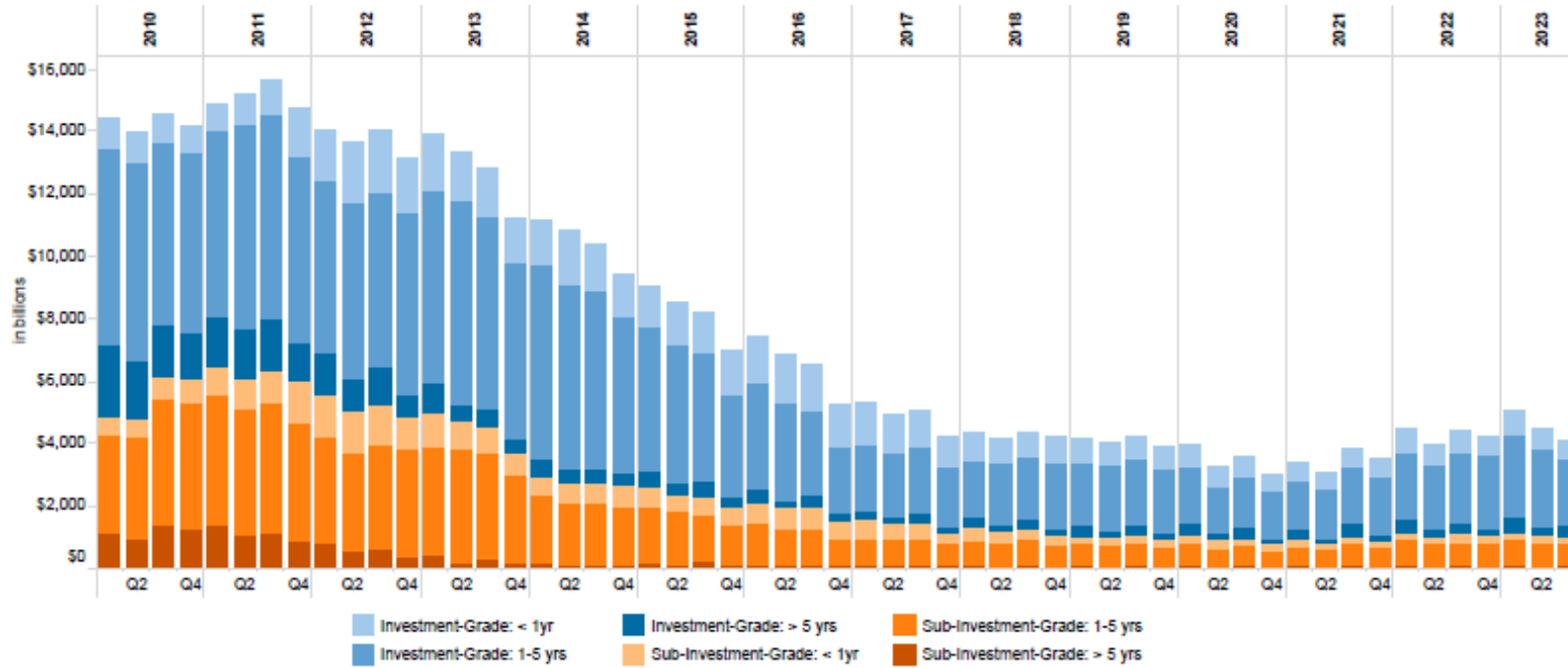
Figure 19: Notional Amounts of Other Commodity and Equity Contracts by Maturity
Insured U.S. Commercial Banks and Savings Associations



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



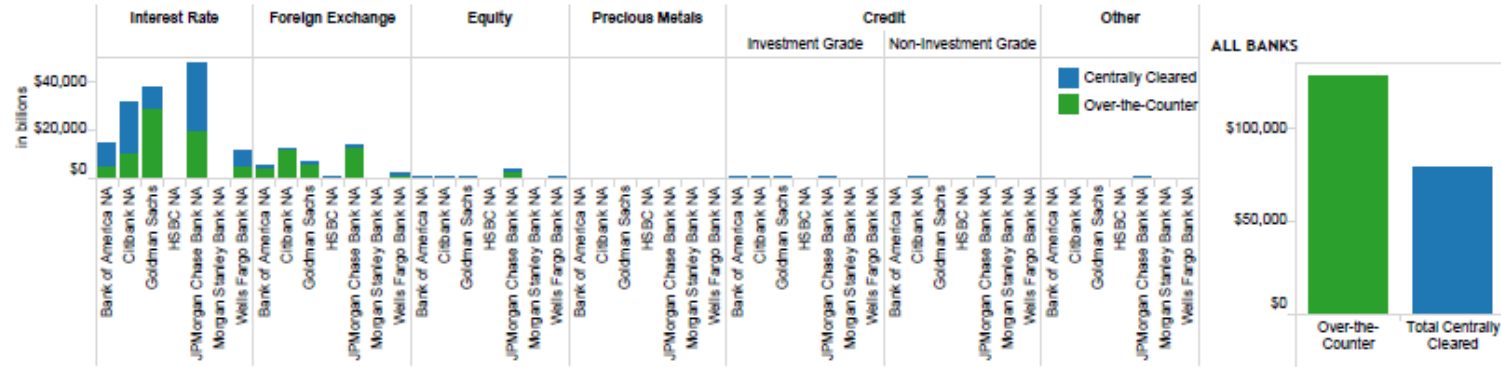
In billions of dollars

	2019				2020				2021				2022				2023		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Investment-Grade: < 1yr	\$763	\$758	\$675	\$781	\$726	\$619	\$648	\$554	\$546	\$539	\$565	\$601	\$795	\$642	\$692	\$617	\$769	\$658	\$595
Investment-Grade: 1-5 yrs	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	2,507	2,109
Investment-Grade: > 5 yrs	367	189	330	198	367	171	336	160	332	160	418	187	449	198	408	210	440	217	377
Total Investment Grade	\$3,106	\$3,030	\$3,089	\$2,997	\$2,891	\$2,313	\$2,622	\$2,235	\$2,423	\$2,289	\$2,829	\$2,651	\$3,352	\$2,916	\$3,291	\$3,189	\$3,897	\$3,382	\$3,080

	2019				2020				2021				2022				2023		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Sub-Investment-Grade: < 1yr	\$259	\$283	\$275	\$268	\$247	\$278	\$233	\$218	\$245	\$215	\$244	\$208	\$225	\$248	\$247	\$221	\$252	\$238	\$218
Sub-Investment-Grade: 1-5 yrs	661	701	708	624	743	608	618	533	570	551	654	632	777	751	747	778	826	804	696
Sub-Investment-Grade: > 5 yrs	119	60	111	56	105	56	108	48	119	49	125	49	150	51	105	53	104	51	120
Total Sub-Investment Grade	\$1,039	\$1,044	\$1,093	\$947	\$1,095	\$942	\$959	\$799	\$935	\$815	\$1,023	\$889	\$1,152	\$1,049	\$1,099	\$1,052	\$1,182	\$1,092	\$1,035

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



In billions of dollars

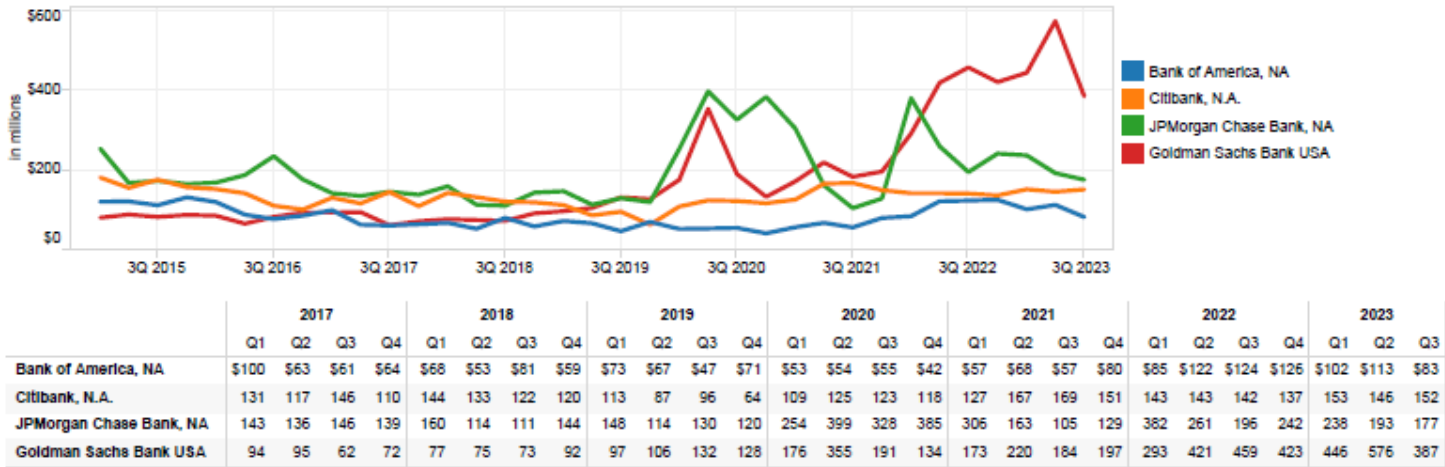
Bank Name	Interest Rate		Foreign Exchange		Equity		Precious Metals		Credit				Other		Total Centrally Cleared	Over-the-Counter	Total Notional
	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter			
JPMorgan Chase Bank NA	27,108	20,321	615	13,367	1,080	2,959	0	226	290	244	457	363	80	867	29,630	38,347	67,977
Citibank NA	20,469	11,129	414	12,037	175	776	21	78	247	896	79	232	78	102	21,484	25,251	46,735
Bank of America NA	9,361	5,352	150	5,584	225	736	8	77	158	238	36	88	20	35	9,958	12,108	22,067
Goldman Sachs	7,758	29,748	173	6,286	56	495	0	0	38	356	6	163	0	58	8,031	37,106	45,137
HSBC NA	66	57	50	1,228	0	16	0	13	0	6	0	1	0	1	116	1,321	1,437
Wells Fargo Bank NA	5,794	5,652	0	1,970	117	367	0	5	0	37	0	24	0	82	5,912	8,138	14,049
Morgan Stanley Bank NA	2	71	0	81	0	32	0	0	0	15	0	6	0	0	2	204	205
Grand Total	70,558	72,330	1,402	40,552	1,654	5,382	29	398	733	1,792	579	905	203	1,244	75,133	122,474	197,607
ALL OTHER	2,922	1,956	21	3,727	0	32	0	0	2	34	0	29	24	99	2,969	5,877	8,846
TOTAL	73,480	74,285	1,423	44,280	1,654	5,413	29	398	735	1,826	579	905	203	1,244	78,102	128,351	206,453

% of Total

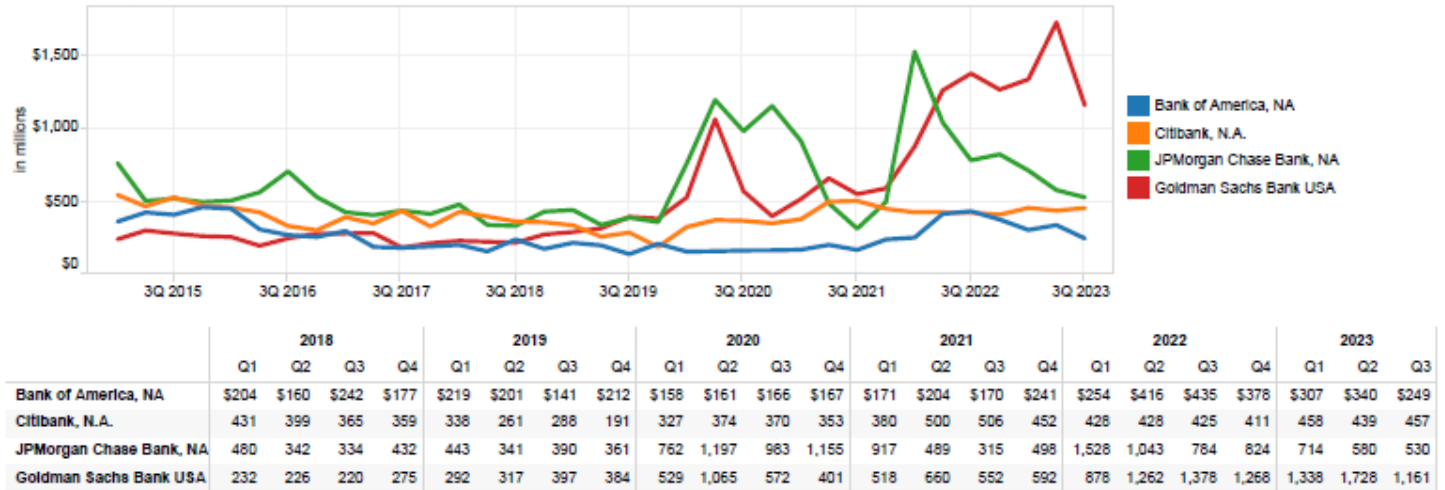
Bank Name	Interest Rate		Foreign Exchange		Equity		Precious Metals		Credit				Other		Total Centrally Cleared as a % of Total Notional	Total Over-the-Counter as a % of Total Notional
	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter		
JPMorgan Chase Bank NA	57%	43%	4%	96%	27%	73%	0%	100%	54%	46%	56%	44%	8%	92%	44%	56%
Citibank NA	65%	35%	3%	97%	18%	82%	21%	79%	22%	78%	25%	75%	43%	57%	46%	54%
Bank of America NA	64%	36%	3%	97%	23%	77%	9%	91%	40%	60%	29%	71%	36%	64%	45%	55%
Goldman Sachs	21%	79%	3%	97%	10%	90%	0%	100%	10%	90%	4%	96%	0%	100%	18%	82%
HSBC NA	54%	46%	4%	96%	0%	100%	0%	100%	0%	100%	12%	88%	0%	100%	6%	92%
Wells Fargo Bank NA	51%	49%	0%	100%	24%	76%	0%	100%	0%	100%	0%	100%	0%	100%	42%	58%
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



VaR Capital Requirement



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