Office of the Comptroller of the Currency

Quarterly Report on Bank Trading and Derivatives Activities

Fourth Quarter 2022

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 1,139 insured U.S. national and state commercial banks and savings associations reported trading and derivatives activities at the end of the fourth quarter of 2022.[1] A small group of large financial institutions continues to dominate trading and derivatives activity in the U.S. commercial banking system. During the fourth quarter of 2022, four large commercial banks represented 88.2 percent of the total banking industry notional amounts and 62.5 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 109th 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 $9.6 billion in the fourth quarter of 2022, $3.1 billion less (24.5 percent) than in the previous quarter and $2.4 billion more (33.9 percent) than a year earlier (see table 1).
- Credit exposure from derivatives decreased in the fourth quarter of 2022 compared with the third quarter of 2022. NCCE decreased $111.0 billion, or 28.4 percent, to $279.0 billion (see table 5).
- Derivative notional amounts decreased in the fourth quarter of 2022 by $4.1 trillion, or 2.1 percent, to $191.0 trillion (see table 10).
- Derivative contracts remained concentrated in interest rate products, which totaled $139.8 trillion or 73.2 percent of total derivative notional amounts (see table 10).

[1] 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 $9.6 billion in trading revenue in the fourth quarter of 2022, $3.1 billion less (24.5 percent) than in the previous quarter and $2.4 billion more (33.9 percent) than a year earlier (see table 1). The quarter-over-quarter decrease in trading revenue was primarily due to decreases in revenue from foreign exchange and credit 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	4Q 2022	3Q 2022	Q/Q Change	Q/Q % Change	4Q 2021	Y/Y Change	Y/Y % Change
Interest Rate	$4,576	–$1,197	$5,773	482.5%	$273	$4,304	1578.4%
Foreign Exchange	$1,134	$8,153	–$7,020	–86.1%	$3,747	–$2,614	–69.7%
Equity	$3,100	$3,306	–$206	–6.2%	$3,534	–$435	–12.3%
Commodity & Other	$1,153	$774	$379	48.9%	$347	$806	232.2%
Credit	–$368	$1,678	–$2,046	–121.9%	–$737	$369	50.1%
Total Trading Revenue	**$9,595**	**$12,714**	**–$3,120**	**–24.5%**	**$7,164**	**$2,431**	**33.9%**

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 $23.0 billion in the fourth quarter of 2022 was $5.6 billion more (32.4 percent) than in the previous quarter. The quarter-over-quarter increase in trading revenue was primarily due to increases in revenue from interest rate and equity trading instruments. Year-over-year holding company trading revenue increased by $9.2 billion (67.2 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	4Q 2022	3Q 2022	Q/Q Change	Q/Q % Change	4Q 2021	Y/Y Change	Y/Y % Change
Interest Rate	$6,568	–$1,983	$8,551	431.3%	–$569	$7,137	1254.4%
Foreign Exchange	$1,812	$11,899	–$10,088	–84.8%	$4,496	–$2,684	–59.7%
Equity	$11,535	$4,672	$6,862	146.9%	$8,745	$2,790	31.9%
Commodity & Other	$3,378	$2,533	$845	33.4%	$1,340	$2,038	152.2%
Credit	–$249	$286	–$535	–187.1%	–$225	–$24	–10.6%
Total BHC Trading Revenue	**$23,044**	**$17,408**	**$5,636**	**32.4%**	**$13,786**	**$9,257**	**67.2%**

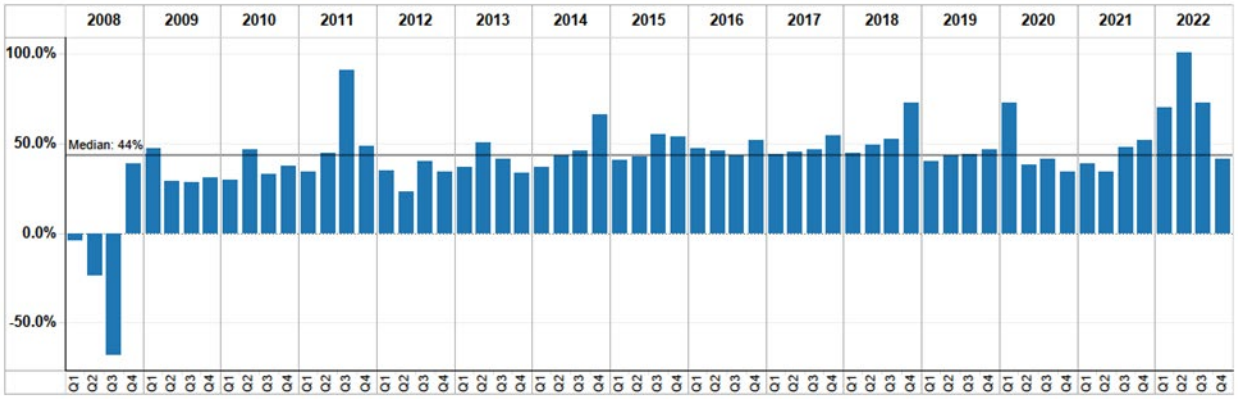
Source: Consolidated Financial Statements for Holding Companies—FR Y-9C, Schedule HI

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 fourth quarter of 2022 banks generated 41.6 percent of consolidated holding company trading revenue, a decrease from 73.0 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 $378.0 billion (13.1 percent) in the fourth quarter of 2022 to $2.5 trillion, primarily driven by a $285.0 billion (28.3 percent) decrease in receivables from foreign exchange contracts (see table 3a). GNFV decreased $315.0 billion (11.5 percent) to $2.4 trillion during the quarter, driven by a $255.0 billion (25.8 percent) decrease in payables on foreign exchange contracts (see table 3b).

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

Trading instruments	4Q 2022	3Q 2022	Q/Q Change	Q/Q % Change	4Q 2021	Y/Y Change	Y/Y % Change
Interest rate	$1,545	$1,534	$12	0.8%	$1,218	$327	26.9%
FX	$721	$1,007	–$285	–28.3%	$492	$229	46.5%
Equity	$129	$187	–$58	–30.9%	$156	–$27	–17.3%
Commodity & Other	$70	$109	–$39	–35.8%	$71	–$1	–0.9%
Credit	$35	$43	–$7	–17.1%	$40	–$4	–10.7%
GPFV	**$2,501**	**$2,880**	**–$378**	**–13.1%**	**$1,977**	**$524**	**26.5%**

Source: Call reports, Schedule RC-L

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

Trading instruments	4Q 2022	3Q 2022	Q/Q Change	Q/Q % Change	4Q 2021	Y/Y Change	Y/Y % Change
Interest rate	$1,472	$1,456	$17	1.1%	$1,163	$310	26.7%
FX	$736	$992	–$255	–25.8%	$496	$240	48.3%
Equity	$125	$170	–$45	–26.6%	$165	–$40	–24.3%
Commodity & Other	$61	$90	–$29	–32.2%	$64	–$3	–4.8%
Credit	$34	$36	–$2	–5.1%	$44	–$10	–22.8%
GNFV	**$2,429**	**$2,744**	**–$315**	**–11.5%**	**$1,932**	**$496**	**25.7%**

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 decreased by $111.0 billion (28.4 percent) to $279.0 billion in the fourth quarter of 2022 (see table 5).[2] Legally enforceable netting agreements allowed banks to reduce GPFV exposures by 88.8 percent ($2.2 trillion) in the fourth quarter of 2022.

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

Netting benefit ratio	4Q 2022	3Q 2022	Q/Q Change	Q/Q % Change
GPFV	$2,501	$2,880	–$379	–13.1%
NCCE RC-R	$279	$390	–$111	–28.4%
Netting benefit RC-R	$2,222	$2,489	–$267	–10.7%
Netting benefit % RC-R	88.8%	86.4%		2.4%

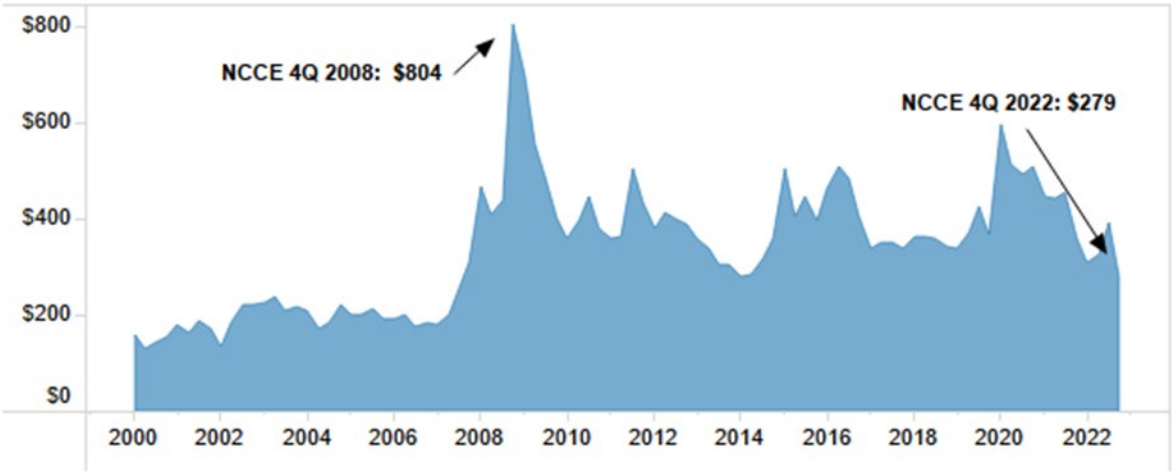
Source: Call reports, Schedules RC-L and RC-R

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

[2] 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.

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 fourth quarter of 2022 lower at $279.0 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 (34.5 percent) and in corporations and other counterparties (59.2 percent) (see table 6). The combined exposure to hedge funds and sovereign governments was small (6.2 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
4Q 2022	34.5%	2.3%	3.9%	59.2%
3Q 2022	34.8%	2.1%	2.9%	60.2%
2Q 2022	34.1%	2.3%	3.5%	60.2%
1Q 2022	35.7%	2.1%	5.0%	57.2%
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 96.5 percent of their total NCCE at the end of the fourth quarter of 2022, up from 89.1 percent in the third quarter of

2022 (see table 7). Collateral held against hedge fund exposures increased in the fourth quarter to 474.5 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 %
4Q 2022	111.4%	474.5%	61.5%	75.4%	96.5%
3Q 2022	105.3%	394.8%	72.3%	70.0%	89.1%
2Q 2022	114.1%	436.3%	71.1%	69.6%	93.2%
1Q 2022	119.5%	535.4%	76.7%	68.5%	97.1%
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 68.0 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
4Q 2022	53.1%	14.9%	8.7%	0.4%	3.8%	5.5%	13.7%
3Q 2022	53.2%	17.1%	6.8%	0.3%	3.0%	4.5%	15.0%
2Q 2022	50.9%	17.8%	6.8%	0.5%	2.7%	5.5%	15.7%
1Q 2022	46.3%	20.4%	7.0%	0.6%	2.4%	6.3%	16.9%
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
4Q 2022 Average 60 Day VaR	$242	$137	$126	$423
3Q 2022 Average 60 Day VaR	$196	$142	$124	$459
Q/Q Change	$46	–$5	$2	–$36
4Q 2022 Total Risk-Based Capital	$288,433	$165,131	$194,254	$54,887

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
4Q 2022 VaR Capital Requirement	$824	$411	$378	$1,268
3Q 2022 VaR Capital Requirement	$784	$425	$435	$1,378
Q/Q Change	$40	–$14	–$57	–$110
4Q 2022 Total Risk-Based Capital	$288,433	$165,131	$194,254	$54,887

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

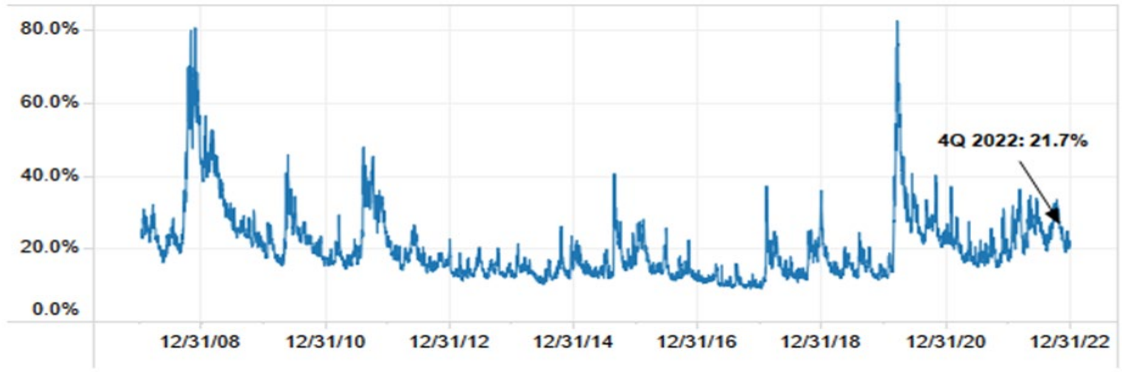
Volatility Index

Figure 3 shows the VIX, a volatility index,[3] 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

[3] 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 21.7 percent at the end of the fourth quarter of 2022.

Figure 3: Volatility Index (VIX)

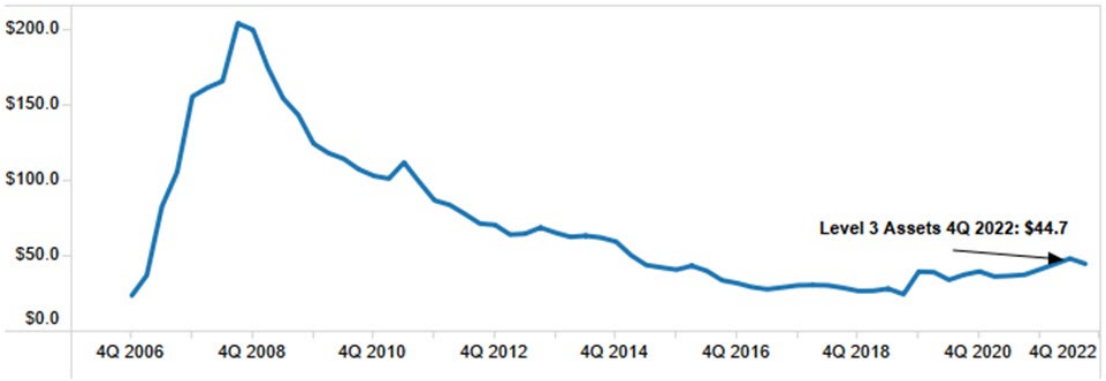


Source: Bloomberg

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 fourth quarter of 2022, banks held $44.7 billion of level 3 trading assets, down 7.2 percent from the previous quarter and 19.4 percent higher than a year ago. Level 3 trading assets are $159.4 billion (78.1 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 fourth quarter decreased by $4.1 trillion (2.1 percent) to $191.0 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 a decrease in interest rate contracts and foreign exchange contracts. Interest rate notional amounts continued to represent the majority of banks' derivative holdings at $139.8 trillion, or 73.2 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	4Q 2022	3Q 2022	Q/Q Change	Q/Q % Change	4Q 2021	Y/Y Change	Y/Y % Change
Interest rate	$139,755	$141,968	–$2,213	–1.6%	$126,236	$13,519	10.7%
FX	$41,124	$42,708	–$1,585	–3.7%	$41,847	–$723	–1.7%
Equity	$4,424	$4,410	$14	0.3%	$4,256	$168	3.9%
Commodity & Other	$1,433	$1,607	–$174	–10.8%	$1,584	–$151	–9.5%
Credit derivatives	$4,241	$4,390	–$148	–3.4%	$3,540	$701	19.8%
Total notional	**$190,977**	**$195,082**	**–$4,105**	**–2.1%**	**$177,464**	**$13,513**	**7.6%**

Source: Call reports, Schedule RC-L

The decrease 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 62.1 percent of all notional amounts.

The four banks with the most derivative activity hold 88.2 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	4Q 2022	3Q 2022	Q/Q Change	Q/Q % Change	4Q 2021	Y/Y Change	Y/Y % Change
Futures & forwards	$28,749	$31,661	–$2,912	–9.2%	$31,180	–$2,431	–7.8%
Swaps	$118,598	$121,133	–$2,535	–2.1%	$109,290	$9,308	8.5%
Options	$39,389	$37,899	$1,491	3.9%	$33,453	$5,936	17.7%
Credit derivatives	$4,241	$4,390	–$148	–3.4%	$3,540	$701	19.8%
Total notional	**$190,977**	**$195,082**	**–$4,105**	**–2.1%**	**$177,464**	**$13,513**	**7.6%**

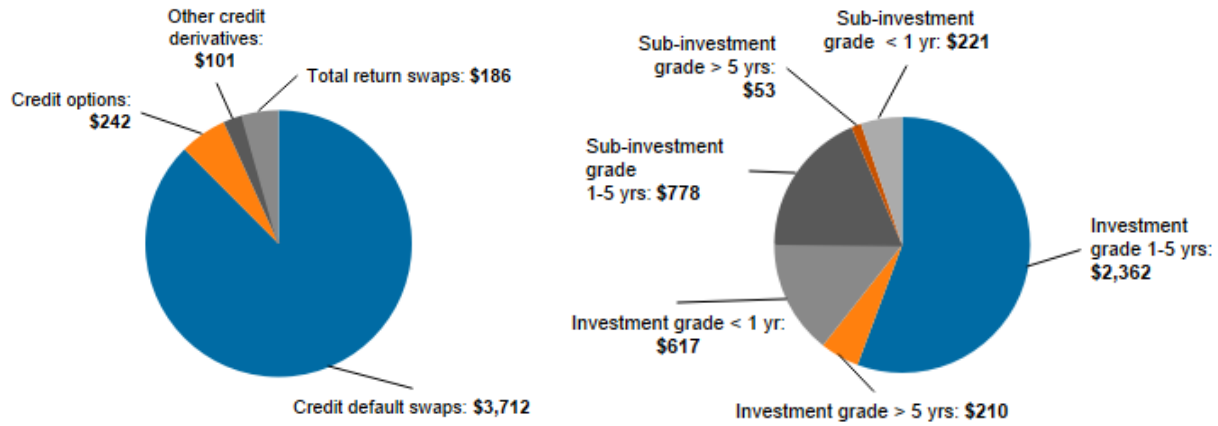
Source: Call reports, Schedule RC-L

Credit Derivatives

The notional amounts of credit derivatives decreased $148.0 billion (3.4 percent) to $4.2 trillion in the fourth quarter of 2022 (see table 11). As shown in the chart on the left of figure 5, credit default swaps are the dominant product, at $3.7 trillion (87.5 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 $2.4 trillion or 55.7 percent of all credit derivative notional amounts. Contracts of all tenors that reference investment-grade entities are $3.2 trillion or 75.2 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

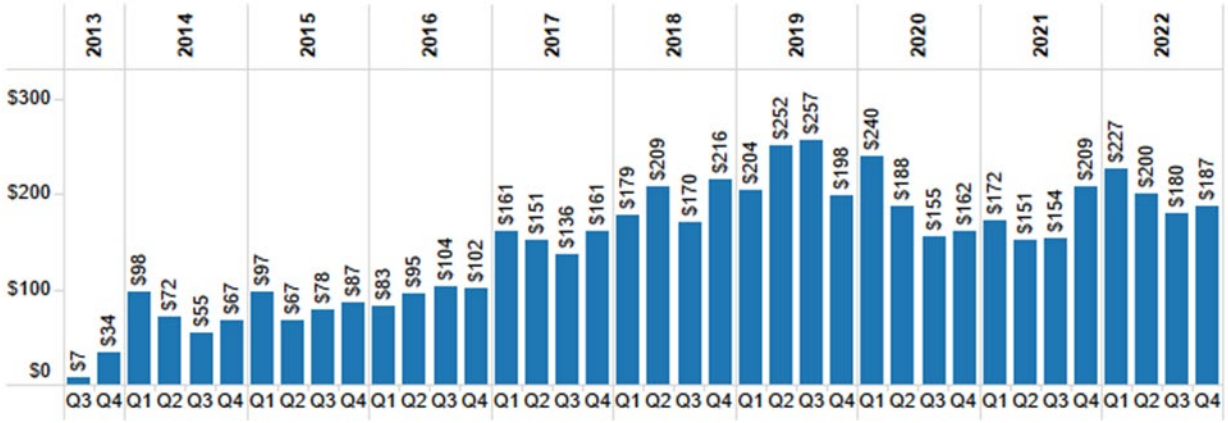
The notional amount for the 101 banks that net sold credit protection (i.e., assumed credit risk) was $2.0 trillion, down $72.0 billion (3.4 percent) from the third quarter of 2022 (see table 24 in the appendix). The notional amount for the 77 banks that net purchased credit protection (i.e., hedged credit risk) was $2.2 trillion, $76.5 billion lower (3.4 percent) than in the third 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 fourth quarter of 2022, 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 fourth quarter of 2022, 37.9 percent of banks' derivative holdings were centrally cleared (see table 12). From a market factor perspective, 49.1 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 28.9 percent of credit derivative transactions were centrally cleared during the fourth quarter of 2022.

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
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, December 31, 2022

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	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	$486,967	$52,637,861	$1,253,768	$2,937,119	$3,841,349	$30,139,543	$13,812,524	$653,558	$583,304
2	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	3,201,942	49,479,182	1,136,863	928,219	7,757,405	30,630,240	7,890,088	1,136,367	552,192
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,766,752	46,989,493	586,286	305,150	4,627,987	33,310,091	6,405,968	1,754,011	254,441
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,418,508	19,395,329	220,218	234,405	3,684,333	11,505,836	3,275,230	475,307	313,968
5	WELLS FARGO BANK NA	KB1H1DSPRFMYMCUFXT09	1,717,531	12,351,152	638,194	392,809	1,068,195	7,695,028	2,442,999	113,927	12,354
6	STATE STREET BANK&TRUST CO	571474TGEMMWANRLN572	298,020	2,320,904	10,233	0	2,244,129	34,099	32,443	0	30,572
7	HSBC NA	1IE8VN30JCEQV1H4R804	162,437	1,299,203	33,436	5,408	427,445	724,014	90,352	18,548	26,809
8	BANK OF NEW YORK MELLON	HPFHU0OQ28E4N0NFVK49	324,646	1,078,502	5,963	38	240,937	805,113	26,251	200	82,055
9	U S BANK NATIONAL ASSN	6BYL5QZYBDK8S7L73M02	585,136	909,352	5,946	400	95,846	576,404	219,661	11,095	4,462
10	PNC BANK NATIONAL ASSN	AD6GFRVSDT01YPT1CS68	552,307	591,260	5,537	16,385	23,170	495,696	37,575	12,897	1,210
11	TD BANK NATIONAL ASSN	03D0JEWFDFUS0SEEKG89	386,799	360,823	0	0	2,392	358,300	132	0	0
12	WESTERN ALLIANCE BANK		67,684	322,051	310,592	0	7,938	1,868	1,605	48	0
13	TRUIST BANK	JJKC32MCHWDI71265Z06	546,228	321,360	5,378	23,906	19,956	204,147	59,026	8,947	319
14	NORTHERN TRUST CO	6PTKHDJ8HDUF78PFWH30	154,523	300,987	0	0	280,516	20,049	421	0	12,450
15	CITIZENS BANK NATIONAL ASSN	DRMSV1Q0EKMEXLAU1P80	226,402	253,227	1,109	0	8,823	220,511	20,052	2,732	82
16	CAPITAL ONE NATIONAL ASSN	207ALC1P1YM0OVDV0K75	453,313	199,068	22,640	0	11,583	157,955	688	6,202	159
17	FIFTH THIRD BANK NA	QFROUN1UWUYU0DVIWD51	206,289	179,093	1,715	326	7,289	115,824	48,972	4,967	252
18	MUFG UNION BANK NA	OX3PU53ZLPQKJ4700D47	104,445	177,521	1,500	0	16,531	154,946	4,544	0	128
19	REGIONS BANK	EQTWLK1G7ODGC2MGLV11	154,203	164,798	570	0	2,061	128,845	27,555	5,767	18
20	KEYBANK NATIONAL ASSN	HUX2X73FUCYHUVH1BK78	187,590	143,887	1,032	0	8,566	121,152	13,042	95	999
21	MORGAN STANLEY BANK NA	G1MLHIS0N32I3QPILB75	201,363	128,804	1,041	0	16,515	87,281	9,671	14,296	520
22	HUNTINGTON NATIONAL BANK	2WHM8VNJH63UN14OL754	182,326	95,738	530	0	5,581	82,867	2,840	3,920	17
23	COMERICA BANK		85,531	70,687	0	0	2,932	56,272	9,950	1,533	161
24	MANUFACTURERS&TRADERS TR CO	WWB2V0FCW3A0EE3ZJN75	200,263	66,232	0	0	2,410	61,326	2,496	0	177
25	SANTANDER BANK N A	TR24TWEY5RVRQV65HD49	99,106	56,982	0	0	1,247	48,716	6,941	79	151
	Top 25 Commercial Banks, SAs & TCs With Derivatives		$14,770,311	$189,893,496	$4,242,551	$4,844,165	$24,405,135	$117,736,123	$34,441,026	$4,224,495	$1,876,799
	Other Commercial Banks, SAs & TCs With Derivatives		6,330,475	1,083,533	6,215	5,566	94,791	861,539	98,565	16,857	1,560
	Total All Commercial Banks, SAs & TCs With Derivatives		21,100,785	190,977,029	4,248,767	4,849,731	24,499,927	118,597,661	34,539,592	4,241,352	1,878,359

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, December 31, 2022

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.	8I5DZWZKVSZI1NUHU748	$3,665,743	$48,935,759	$1,168,343	$1,402,241	$8,189,801	$29,440,500	$7,602,615	$1,132,259	$540,505
2	CITIGROUP INC.	6SHGI4ZSSLCXXQSBB395	2,416,676	46,902,558	755,036	2,555,107	5,424,048	31,187,739	5,745,852	1,234,776	255,501
3	GOLDMAN SACHS GROUP, INC., THE	784F5XWPLTWKTBV3E584	1,441,799	37,911,999	1,657,351	4,033,476	3,369,856	17,951,533	9,790,753	1,109,030	158,335
4	MORGAN STANLEY	IGJSJL3JD5P30I6NJZ34	1,180,231	33,752,442	1,068,309	1,139,116	3,545,259	20,485,061	6,823,648	691,049	57,331
5	BANK OF AMERICA CORPORATION	9DJT3UXIJIZJI4WXO774	3,051,215	33,583,392	694,876	1,247,344	6,324,544	20,244,848	4,299,782	771,998	208,122
6	WELLS FARGO & COMPANY	PBLD0EJDB5FWOLXP3B76	1,881,016	12,540,100	649,505	443,919	1,387,195	7,521,593	2,441,286	96,602	12,352
7	SMBC AMERICAS HOLDINGS, INC.		34,606	10,287,879	1,373,336	2,154,654	231,833	5,050,324	1,475,935	1,797	428
8	MIZUHO AMERICAS LLC		57,256	9,168,463	29,871	16,677	142,331	8,702,640	264,275	12,669	2,726
9	HSBC NORTH AMERICA HOLDINGS INC.	213800JCL1FHBQK3M654	212,813	4,867,942	574,111	1,453,206	428,132	2,296,432	97,513	18,548	26,809
10	STATE STREET CORPORATION	549300ZFEEJ2IP5VME73	301,450	2,310,104	10,233	0	2,244,129	23,299	32,443	0	30,572
11	U.S. BANCORP	N1GZ7BBF3NP8GI976H15	674,805	1,101,007	7,446	400	111,118	746,745	224,203	11,095	4,590
12	BANK OF NEW YORK MELLON CORPORATION, THE	WFLLPEPC7FZXENRZV188	405,783	1,059,263	6,416	38	248,945	777,413	26,251	200	82,032
13	BARCLAYS US LLC	213800H14XVWOV87OI72	173,326	752,713	15,144	363,434	330,398	42,836	101	800	8
14	RBC US GROUP HOLDINGS LLC		167,973	747,422	336,964	121,390	13,818	273,979	447	825	236
15	PNC FINANCIAL SERVICES GROUP, INC., THE	CFGNEKW0P8842LEUIA51	557,294	580,408	5,569	16,385	25,796	482,136	37,575	12,947	1,210
16	TD GROUP US HOLDINGS LLC	549300ARWZ5E3L64UH29	504,886	404,150	14,756	792	15,179	373,072	352	0	0
17	TRUIST FINANCIAL CORPORATION	549300DRQQI75D2JP341	555,255	332,693	5,378	23,906	20,951	214,345	59,026	9,087	319
18	WESTERN ALLIANCE BANCORPORATION	5493003VJXZ5JXT9S762	67,734	322,051	310,592	0	7,938	1,868	1,605	48	0
19	NORTHERN TRUST CORPORATION	549300GLF98S992BC502	155,037	298,237	0	0	280,516	17,299	421	0	12,450
20	CITIZENS FINANCIAL GROUP, INC.	2138004JDDA4ZQUPFW65	227,087	253,227	1,109	0	8,823	220,511	20,052	2,732	82
21	CAPITAL ONE FINANCIAL CORPORATION	ZUE8T73ROZOF6FLBAR73	455,249	227,640	22,640	0	11,693	186,418	688	6,202	159
22	FIFTH THIRD BANCORP	THRNG6BD57P9QWTQLG42	207,452	183,298	1,715	326	7,289	120,029	48,972	4,967	252
23	AMERIPRISE FINANCIAL, INC.		158,430	174,948	24,433	2,755	403	85,521	59,979	1,857	0
24	REGIONS FINANCIAL CORPORATION		155,628	163,655	570	0	2,318	127,445	27,555	5,767	18
25	KEYCORP		189,916	148,690	1,032	0	9,223	125,298	13,042	95	999
	Top 25 Holding Companies with Derivatives		$18,898,660	$247,010,040	$8,734,735	$14,975,166	$32,381,535	$146,698,883	$39,094,372	$5,125,349	$1,395,036

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, December 31, 2022

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	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	$486,967	$52,637,861	8.0	92.0	87.2	11.1	0.4	0.1	1.2
2	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	3,201,942	49,479,182	4.2	95.8	67.9	24.8	3.7	1.4	2.3
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,766,752	46,989,493	1.9	98.1	67.9	25.1	2.6	0.7	3.7
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,418,508	19,395,329	2.3	97.7	67.5	25.5	4.1	0.5	2.5
5	WELLS FARGO BANK NA	KB1H1DSPRFMYMCUFXT09	1,717,531	12,351,152	8.3	91.7	83.4	12.4	2.4	0.8	0.9
6	STATE STREET BANK&TRUST CO	571474TGEMMWANRLN572	298,020	2,320,904	0.4	99.6	1.8	96.8	0.0	1.4	0.0
7	HSBC NA	1IE8VN30JCEQV1H4R804	162,437	1,299,203	3.0	97.0	13.0	80.7	1.1	3.7	1.4
8	BANK OF NEW YORK MELLON	HPFHU0OQ28E4N0NFVK49	324,646	1,078,502	0.6	99.4	24.4	75.3	0.2	0.0	0.0
9	U S BANK NATIONAL ASSN	6BYL5QZYBDK8S7L73M02	585,136	909,352	0.7	99.3	85.7	12.9	0.0	0.2	1.2
10	PNC BANK NATIONAL ASSN	AD6GFRVSDT01YPT1CS68	552,307	591,260	3.7	96.3	90.9	4.0	1.2	1.7	2.2
11	TD BANK NATIONAL ASSN	03D0JEWFDFUS0SEEKG89	386,799	360,823	0.0	100.0	99.4	0.6	0.0	0.0	0.0
12	WESTERN ALLIANCE BANK		67,684	322,051	96.4	3.6	99.9	0.1	0.0	0.0	0.0
13	TRUIST BANK	JJKC32MCHWDI71265Z06	546,228	321,360	9.1	90.9	79.6	5.8	10.3	1.5	2.8
14	NORTHERN TRUST CO	6PTKHDJ8HDUF78PFWH30	154,523	300,987	0.0	100.0	6.6	93.2	0.2	0.0	0.0
15	CITIZENS BANK NATIONAL ASSN	DRMSV1Q0EKMEXLAU1P80	226,402	253,227	0.4	99.6	86.8	11.6	0.0	0.4	1.1
16	CAPITAL ONE NATIONAL ASSN	207ALC1P1YM0OVDV0K75	453,313	199,068	11.4	88.6	83.9	6.8	0.0	6.2	3.1
17	FIFTH THIRD BANK NA	QFROUN1UWUYU0DVIWD51	206,289	179,093	1.1	98.9	72.3	14.1	1.9	9.0	2.8
18	MUFG UNION BANK NA	OX3PU53ZLPQKJ4700D47	104,445	177,521	0.8	99.2	89.8	10.1	0.1	0.0	0.0
19	REGIONS BANK	EQTWLK1G7ODGC2MGLV11	154,203	164,798	0.3	99.7	92.8	1.2	0.0	2.5	3.5
20	KEYBANK NATIONAL ASSN	HUX2X73FUCYHUVH1BK78	187,590	143,887	0.7	99.3	82.1	6.6	0.0	11.2	0.1
21	MORGAN STANLEY BANK NA	G1MLHIS0N32I3QPILB75	201,363	128,804	0.8	99.2	43.9	24.1	20.9	0.0	11.1
22	HUNTINGTON NATIONAL BANK	2WHM8VNJH63UN14OL754	182,326	95,738	0.6	99.4	89.2	5.3	0.6	0.8	4.1
23	COMERICA BANK		85,531	70,687	0.0	100.0	73.1	4.2	0.0	20.5	2.2
24	MANUFACTURERS&TRADERS TR CO	WWB2V0FCW3A0EE3ZJN75	200,263	66,232	0.0	100.0	97.7	2.3	0.0	0.0	0.0
25	SANTANDER BANK N A	TR24TWEY5RVRQV65HD49	99,106	56,982	0.0	100.0	89.3	10.5	0.0	0.0	0.1
	Top 25 Commercial Banks, SAs & TCs With Derivatives		$14,770,311	$189,893,496	$9,086,716	$180,806,780	$138,780,371	$41,055,771	$4,421,160	$1,411,699	$4,224,495
	Other Commercial Banks, SAs & TCs With Derivatives		6,330,475	1,083,533	11,781	1,071,752	974,799	67,855	2,744	21,278	16,857
	Total All Commercial Banks, SAs & TCs With Derivatives		21,100,785	190,977,029	9,098,497	181,878,531	139,755,170	41,123,626	4,423,904	1,432,977	4,241,352
	Top 25 Commercial Banks, SAs & TCs With Derivatives: Percentage of Total			99.4	4.8	94.7	72.7	21.5	2.3	0.7	2.2
	Other Commercial Banks, SAs & TCs With Derivatives: Percentage of Total			0.6	0.0	0.6	0.5	0.0	0.0	0.0	0.0
	Total All Commercial Banks, SAs & TCs With Derivatives: Percentage of Total			100.0	4.8	95.2	73.2	21.5	2.3	0.8	2.2

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, December 31, 2022

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	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	$486,967	$52,637,861	$54,887	$18,026	$54,366	$72,392	132
2	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	3,201,942	49,479,182	288,433	78,532	248,583	327,115	113
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,766,752	46,989,493	165,131	45,787	149,245	195,032	118
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,418,508	19,395,329	194,254	32,402	60,888	93,290	48
5	WELLS FARGO BANK NA	KB1H1DSPRFMYMCUFXT09	1,717,531	12,351,152	163,885	43,226	15,374	58,600	36
6	STATE STREET BANK&TRUST CO	571474TGEMMWANRLN572	298,020	2,320,904	18,935	6,860	17,391	24,251	128
7	HSBC NA	1IE8VN30JCEQV1H4R804	162,437	1,299,203	20,114	5,449	3,695	9,145	45
8	BANK OF NEW YORK MELLON	HPFHU0OQ28E4N0NFVK49	324,646	1,078,502	20,320	8,145	8,510	16,655	82
9	U S BANK NATIONAL ASSN	6BYL5QZYBDK8S7L73M02	585,136	909,352	56,736	6,853	3,904	10,757	19
10	PNC BANK NATIONAL ASSN	AD6GFRVSDT01YPT1CS68	552,307	591,260	50,666	4,157	-455	3,702	7
11	TD BANK NATIONAL ASSN	03D0JEWFDFUS0SEEKG89	386,799	360,823	39,972	63	1,632	1,695	4
12	WESTERN ALLIANCE BANK		67,684	322,051	6,280	26	15	41	1
13	TRUIST BANK	JJKC32MCHWDI71265Z06	546,228	321,360	51,633	606	1,933	2,539	5
14	NORTHERN TRUST CO	6PTKHDJ8HDUF78PFWH30	154,523	300,987	11,767	1,431	4,284	5,715	49
15	CITIZENS BANK NATIONAL ASSN	DRMSV1Q0EKMEXLAU1P80	226,402	253,227	23,535	649	1,585	2,234	9
16	CAPITAL ONE NATIONAL ASSN	207ALC1P1YM0OVDV0K75	453,313	199,068	51,165	3,687	5,855	9,542	19
17	FIFTH THIRD BANK NA	QFROUN1UWUYU0DVIWD51	206,289	179,093	21,463	2,009	2,810	4,819	22
18	MUFG UNION BANK NA	OX3PU53ZLPQKJ4700D47	104,445	177,521	11,565	565	-5	560	5
19	REGIONS BANK	EQTWLK1G7ODGC2MGLV11	154,203	164,798	15,172	460	700	1,160	8
20	KEYBANK NATIONAL ASSN	HUX2X73FUCYHUVH1BK78	187,590	143,887	19,903	1,006	1,603	2,609	13
21	MORGAN STANLEY BANK NA	G1MLHIS0N32I3QPILB75	201,363	128,804	20,694	122	3,925	4,047	20
22	HUNTINGTON NATIONAL BANK	2WHM8VNJH63UN14OL754	182,326	95,738	17,647	2,320	1,030	3,350	19
23	COMERICA BANK		85,531	70,687	9,190	502	1,280	1,782	19
24	MANUFACTURERS&TRADERS TR CO	WWB2V0FCW3A0EE3ZJN75	200,263	66,232	18,888	315	255	570	3
25	SANTANDER BANK N A	TR24TWEY5RVRQV65HD49	99,106	56,982	11,821	1,194	421	1,615	14
	Top 25 Commercial Banks, SAs & TCs With Derivatives		$14,770,311	$189,893,496	$1,364,056	$264,391	$588,825	$853,216	63
	Other Commercial Banks, SAs & TCs With Derivatives		6,330,475	1,083,533	624,383	15,051	10,025	25,076	4
	Total All Commercial Banks, SAs & TCs With Derivatives		21,100,785	190,977,029	1,988,439	279,443	598,850	878,292	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, 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, December 31, 2022

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	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	$486,967	$52,637,861	$51,950,630	99.9	$33,673	0.1
2	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	3,201,942	49,479,182	47,843,736	99.0	499,079	1.0
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,766,752	46,989,493	45,123,183	99.8	112,299	0.2
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,418,508	19,395,329	17,410,797	92.0	1,509,225	8.0
	Top Four Commercial Banks, SAs & TCs With Derivatives		$7,874,169	$168,501,865	$162,328,346	98.7	$2,154,276	1.3
	Other Commercial Banks, SAs & TCs With Derivatives		13,226,616	22,475,164	19,546,270	87.8	2,706,785	12.2
	Total All Commercial Banks, SAs & TCs With Derivatives		21,100,785	190,977,029	181,874,616	97.4	4,861,061	2.6

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, December 31, 2022

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	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	$486,967	$52,637,861	$815,946	$802,696	$36	$746	$6,654	$7,272
2	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	3,201,942	49,479,182	684,488	669,778	3,708	4,549	9,969	10,027
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,766,752	46,989,493	492,301	471,268	3,237	2,658	12,238	11,887
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,418,508	19,395,329	177,492	153,355	60,915	60,594	3,692	3,302
	Top Four Commercial Banks, SAs & TCs With Derivatives		$7,874,169	$168,501,865	$2,170,227	$2,097,097	$67,896	$68,547	$32,553	$32,488
	Other Commercial Banks, SAs & TCs With Derivatives		13,226,616	22,475,164	185,988	188,552	41,946	40,650	2,855	1,576
	Total All Commercial Banks, SAs & TCs With Derivatives		21,100,785	190,977,029	2,356,215	2,285,649	109,842	109,197	35,408	34,064

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), December 31, 2022

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	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	$486,967	$52,637,861	655	2,537	-1,769	391	-5	-499
2	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	3,201,942	49,479,182	4,722	1,027	1,097	2,129	512	-43
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,766,752	46,989,493	1,636	807	1,195	-426	122	-62
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,418,508	19,395,329	836	277	-311	795	137	-62
	Top Four Commercial Banks, SAs & TCs With Derivatives		$7,874,169	$168,501,865	7,849	4,648	212	2,889	766	-666
	Other Commercial Banks, SAs & TCs With Derivatives		13,226,616	22,475,164	1,746	-72	922	211	387	298
	Total All Commercial Banks, SAs & TCs With Derivatives		21,100,785	190,977,029	9,595	4,576	1,134	3,100	1,153	-368

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, December 31, 2022

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	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	$486,967	$52,637,861	$20,851,575	$9,213,960	$8,301,126	$38,366,661	$4,193,723	$1,018,185	$715,360	$5,927,268
2	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	3,201,942	49,479,182	32,216,173	6,666,204	5,273,186	44,155,563	8,749,768	2,466,075	1,161,300	12,377,143
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,766,752	46,989,493	23,118,487	3,972,934	2,761,092	29,852,513	10,142,095	614,623	216,870	10,973,588
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,418,508	19,395,329	5,510,203	4,652,017	3,237,798	13,400,018	4,137,938	439,446	278,927	4,856,311
	Top Four Commercial Banks, SAs & TCs With Derivatives		$7,874,169	$168,501,865	$81,696,438	$24,505,115	$19,573,202	$125,774,755	$27,223,524	$4,538,329	$2,372,457	$34,134,310
	Other Commercial Banks, SAs & TCs With Derivatives		13,226,616	22,475,164	10,996,115	2,866,344	1,087,332	14,949,791	5,933,164	273,292	71,826	6,278,282
	Total All Commercial Banks, SAs & TCs With Derivatives		21,100,785	190,977,029	92,692,553	27,371,459	20,660,534	140,724,546	33,156,688	4,811,621	2,444,283	40,412,592

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, December 31, 2022

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	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	$486,967	$52,637,861	$242	$62	$0	$304
2	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	3,201,942	49,479,182	182,624	17,493	0	200,117
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,766,752	46,989,493	94,396	4,248	0	98,644
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,418,508	19,395,329	63,862	3,256	0	67,118
	Top Four Commercial Banks, SAs & TCs With Derivatives		$7,874,169	$168,501,865	$341,124	$25,059	$0	$366,183
	Other Commercial Banks, SAs & TCs With Derivatives		13,226,616	22,475,164	11,000	934	0	11,934
	Total All Commercial Banks, SAs & TCs With Derivatives		21,100,785	190,977,029	352,124	25,993	0	378,117

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, December 31, 2022

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	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	$486,967	$52,637,861	$34,048	$15,949	$338	$50,335	$180,787	$43,550	$15,855	$240,192
2	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	3,201,942	49,479,182	761,018	104,785	4,780	870,583	2,665,596	518,885	47,349	3,231,830
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,766,752	46,989,493	113,374	47,405	1,147	161,926	599,451	118,441	7,538	725,430
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,418,508	19,395,329	22,832	6,012	279	29,123	567,639	240,372	18,531	826,542
	Top Four Commercial Banks, SAs & TCs With Derivatives		$7,874,169	$168,501,865	$931,272	$174,151	$6,544	$1,111,967	$4,013,473	$921,248	$89,273	$5,023,994
	Other Commercial Banks, SAs & TCs With Derivatives		13,226,616	22,475,164	106,403	98,267	250	204,920	321,947	78,081	9,493	409,521
	Total All Commercial Banks, SAs & TCs With Derivatives		21,100,785	190,977,029	1,037,675	272,418	6,794	1,316,887	4,335,420	999,329	98,766	5,433,515

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, December 31, 2022

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	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	$486,967	$52,637,861	$653,558	$41,463	$329,801	$46,393	$417,657	$30,227	$185,063	$20,611	$235,901
2	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	3,201,942	49,479,182	1,136,367	199,170	611,224	60,259	870,653	73,337	184,317	8,060	265,714
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,766,752	46,989,493	1,754,011	212,480	1,109,629	65,849	1,387,958	66,802	292,466	6,785	366,053
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,418,508	19,395,329	475,307	106,460	229,487	20,765	356,712	42,943	71,016	4,636	118,595
	Top Four Commercial Banks, SAs & TCs With Derivatives		$7,874,169	$168,501,865	$4,019,243	$559,573	$2,280,141	$193,266	$3,032,980	$213,309	$732,862	$40,092	$986,263
	Other Commercial Banks, SAs & TCs With Derivatives		13,226,616	22,475,164	222,109	57,260	81,772	17,014	156,047	7,851	45,416	12,795	66,062
	Total All Commercial Banks, SAs & TCs With Derivatives		21,100,785	190,977,029	4,241,352	616,833	2,361,913	210,280	3,189,027	221,160	778,278	52,887	1,052,325

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, December 31, 2022

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	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	$486,967	$52,637,861	$653,558	$352,984	$300,574	$342,130	$1,872	$8,408	$574	$290,265	$2,084	$8,107	$118
2	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	3,201,942	49,479,182	1,136,367	586,449	549,918	508,809	34,613	37,063	5,964	492,104	13,771	44,000	43
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,766,752	46,989,493	1,754,011	898,317	855,694	851,867	16,337	30,113	0	808,091	8,218	39,385	0
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,418,508	19,395,329	475,307	241,840	233,467	192,289	11,017	38,534	0	172,455	24,985	36,027	0
5	WELLS FARGO BANK NA	KB1H1DSPRFMYMCUFXT09	1,717,531	12,351,152	113,927	65,748	48,179	11,352	37,898	250	16,248	10,328	26,429	0	11,422
6	STATE STREET BANK&TRUST CO	571474TGEMMWANRLN572	298,020	2,320,904	0	0	0	0	0	0	0	0	0	0	0
7	HSBC NA	1IE8VN30JCEQV1H4R804	162,437	1,299,203	18,548	14,598	3,949	7,610	6,988	0	0	3,949	0	0	0
8	BANK OF NEW YORK MELLON	HPFHU0OQ28E4N0NFVK49	324,646	1,078,502	200	200	0	200	0	0	0	0	0	0	0
9	U S BANK NATIONAL ASSN	6BYL5QZYBDK8S7L73M02	585,136	909,352	11,095	2,780	8,315	583	0	0	2,197	347	0	0	7,968
10	PNC BANK NATIONAL ASSN	AD6GFRVSDT01YPT1CS68	552,307	591,260	12,897	5,044	7,853	300	0	0	4,744	0	0	0	7,853
11	TD BANK NATIONAL ASSN	03D0JEWFDFUS0SEEKG89	386,799	360,823	0	0	0	0	0	0	0	0	0	0	0
12	WESTERN ALLIANCE BANK		67,684	322,051	48	0	48	0	0	0	0	0	0	0	48
13	TRUIST BANK	JJKC32MCHWDI71265Z06	546,228	321,360	8,947	3,172	5,775	394	1,729	0	1,049	0	0	0	5,775
14	NORTHERN TRUST CO	6PTKHDJ8HDUF78PFWH30	154,523	300,987	0	0	0	0	0	0	0	0	0	0	0
15	CITIZENS BANK NATIONAL ASSN	DRMSV1Q0EKMEXLAU1P80	226,402	253,227	2,732	0	2,732	0	0	0	0	0	0	0	2,732
16	CAPITAL ONE NATIONAL ASSN	207ALC1P1YM0OVDV0K75	453,313	199,068	6,202	3,698	2,504	0	0	0	3,698	0	0	0	2,504
17	FIFTH THIRD BANK NA	QFROUN1UWUYU0DVIWD51	206,289	179,093	4,967	1,257	3,710	0	0	0	1,257	0	0	0	3,710
18	MUFG UNION BANK NA	OX3PU53ZLPQKJ4700D47	104,445	177,521	0	0	0	0	0	0	0	0	0	0	0
19	REGIONS BANK	EQTWLK1G7ODGC2MGLV11	154,203	164,798	5,767	1,873	3,894	0	0	0	1,873	0	0	0	3,894
20	KEYBANK NATIONAL ASSN	HUX2X73FUCYHUVH1BK78	187,590	143,887	95	1	94	1	0	0	0	1	93	0	0
21	MORGAN STANLEY BANK NA	G1MLHIS0N32I3QPILB75	201,363	128,804	14,296	13,581	715	13,206	0	375	0	715	0	0	0
22	HUNTINGTON NATIONAL BANK	2WHM8VNJH63UN14OL754	182,326	95,738	3,920	2,312	1,608	0	0	0	2,312	0	0	0	1,608
23	COMERICA BANK		85,531	70,687	1,533	582	951	582	0	0	0	951	0	0	0
24	MANUFACTURERS&TRADERS TR CO	WWB2V0FCW3A0EE3ZJN75	200,263	66,232	0	0	0	0	0	0	0	0	0	0	0
25	SANTANDER BANK N A	TR24TWEY5RVRQV65HD49	99,106	56,982	79	4	75	4	0	0	0	75	0	0	0
	Top 25 Commercial Banks, SAs & TCs With Derivatives		$14,770,311	$189,893,496	$4,224,495	$2,194,439	$2,030,055	$1,929,327	$110,454	$114,743	$39,915	$1,779,281	$75,580	$127,519	$47,675
	Other Commercial Banks, SAs & TCs With Derivatives		6,330,475	1,083,533	16,857	5,649	11,208	1,510	0	0	4,139	2,278	24	0	8,906
	Total All Commercial Banks, SAs & TCs With Derivatives		21,100,785	190,977,029	4,241,352	2,200,088	2,041,264	1,930,836	110,454	114,743	44,055	1,781,559	75,604	127,519	56,581
	Top 25 Commercial Banks, SAs & TCs With Derivatives: Percentage of Total				99.6	51.7	47.9	45.5	2.6	2.7	0.9	42.0	1.8	3.0	1.1
	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	51.9	48.1	45.5	2.6	2.7	1.0	42.0	1.8	3.0	1.3

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, December 31, 2022

FFIEC 051 Call Report Schedule SU

Gross Notional Amount of Derivatives	4Q22	3Q22	2Q22	1Q22	4Q21	3Q21	2Q21	1Q21	4Q20	3Q20	2Q20	1Q20
Total gross notional amount of interest rate derivatives held for trading	$4,792	$4,915	$4,953	$4,994	$5,011	$5,301	$5,189	$5,391	$5,819	$6,236	$5,183	$4,476
Total gross notional amount of all other derivatives held for trading	$43	$42	$35	$39	$44	$14	$173	$20	$19	$53	$34	$48
Total gross notional amount of interest rate derivatives not held for trading	$14,284	$16,786	$19,499	$21,308	$22,545	$29,991	$31,949	$38,839	$52,867	$57,459	$52,779	$37,572
Total gross notional amount of all other derivatives not held for trading	$1,103	$1,037	$1,142	$1,007	$1,314	$1,461	$1,350	$1,269	$1,137	$1,202	$1,302	$1,171

FFIEC 051 Call Report Schedule RC-R**

Notional principal amounts of over-the-counter derivative contracts covered by the regulatory capital rules	4Q22	3Q22	2Q22	1Q22	4Q21	3Q21	2Q21	1Q21	4Q20	3Q20	2Q20	1Q20
Interest rate	$12,839	Data Not Reported	$13,714	Data Not Reported	$14,005	Data Not Reported	$17,688	Data Not Reported	$22,947	Data Not Reported	$33,122	Data Not Reported
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		$135		$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	

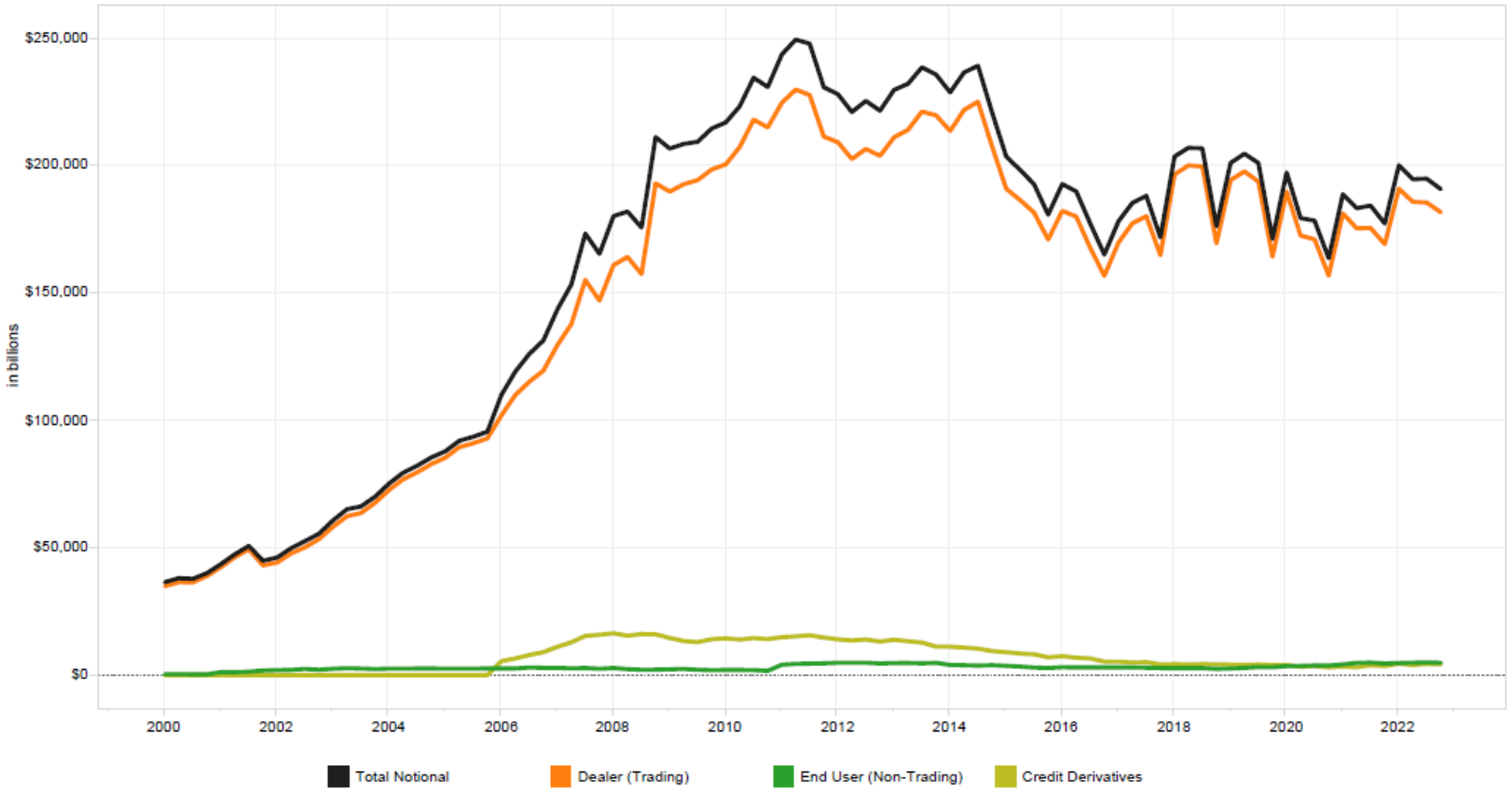
Notional principal amounts of centrally cleared derivative contracts covered by the regulatory capital rules	4Q22	3Q22	2Q22	1Q22	4Q21	3Q21	2Q21	1Q21	4Q20	3Q20	2Q20	1Q20
Interest rate	$79	Data Not Reported	$108	Data Not Reported	$21	Data Not Reported	$193	Data Not Reported	$250	Data Not Reported	$299	Data Not Reported
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	4Q22	3Q22	2Q22	1Q22	4Q21	3Q21	2Q21	1Q21	4Q20	3Q20	2Q20	1Q20
Current credit exposure across all derivative contracts covered by the regulatory capital rules	$493	Data Not Reported	$363	Data Not Reported	$233	Data Not Reported	$287	Data Not Reported	$449	Data Not Reported	$504	Data Not Reported

*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



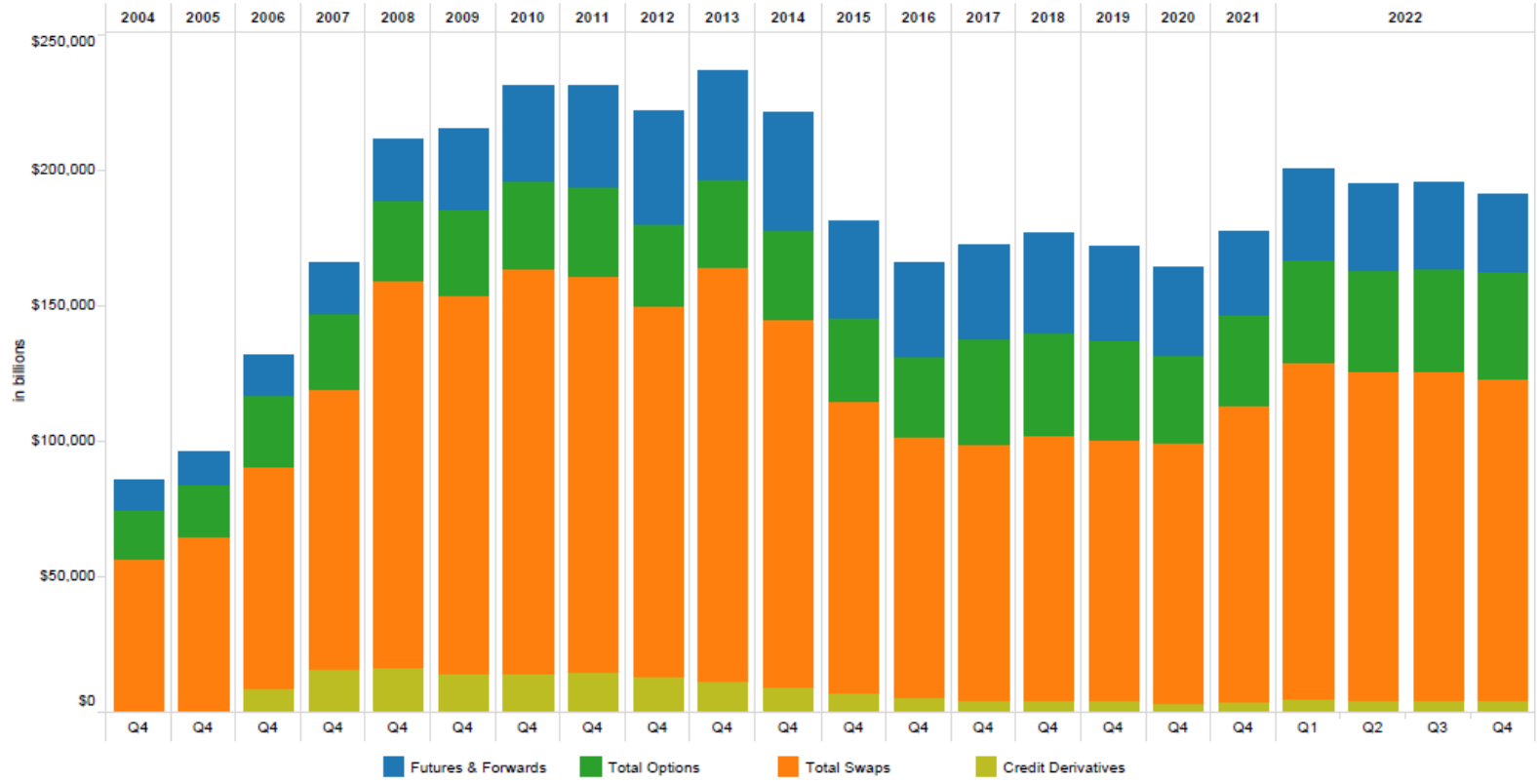
In billions of dollars

	2019				2020				2021				2022			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Total Notional	$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
Dealer (Trading)	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
End User (Non-Trading)	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
Credit Derivatives	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

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

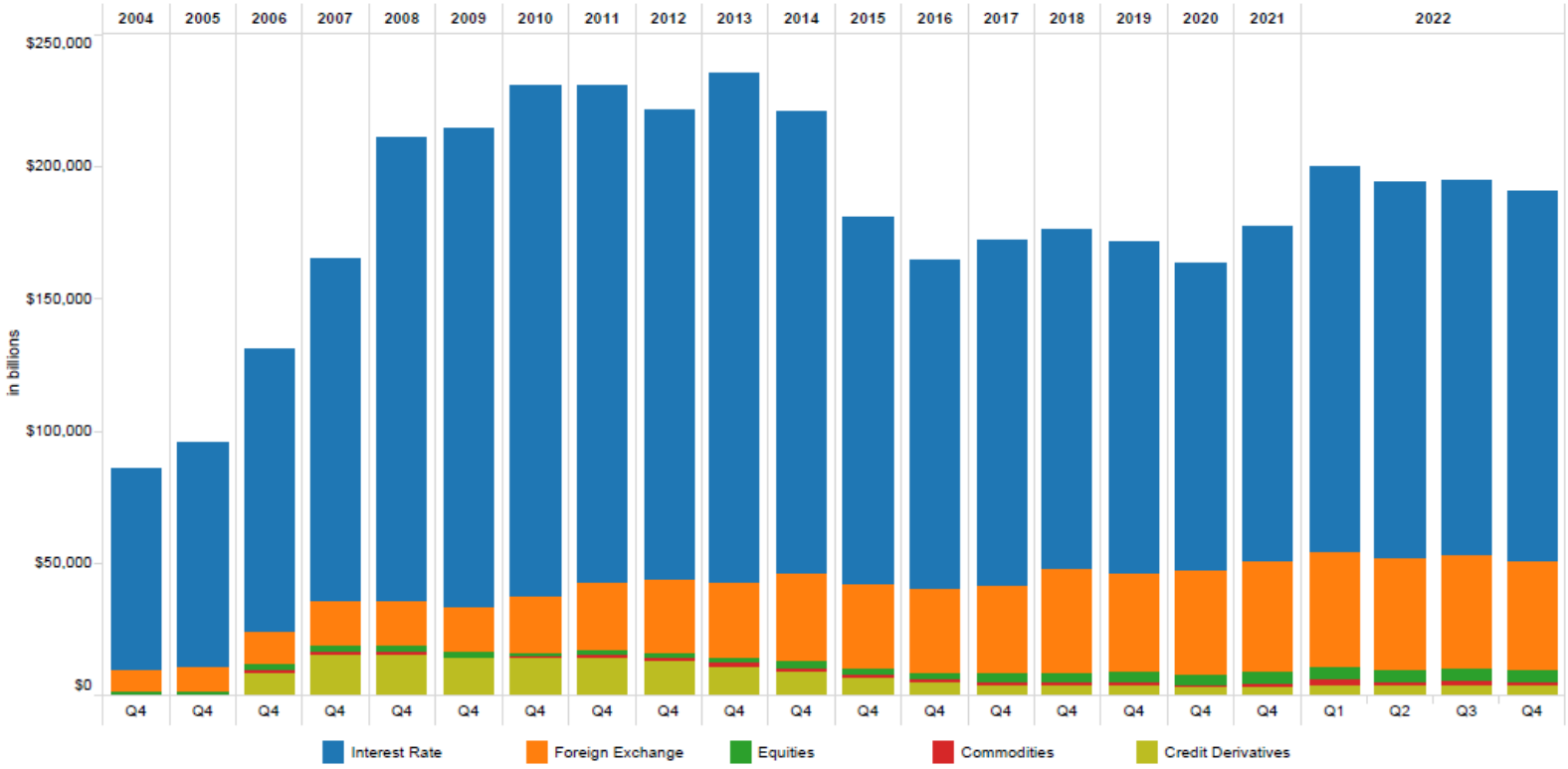
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022			
	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q1	Q2	Q3	Q4
Futures & Forwards	$18,867	$22,529	$29,652	$35,539	$37,469	$41,621	$40,027	$43,380	$35,691	$34,201	$34,162	$36,145	$34,789	$32,350	$31,180	$33,523	$32,045	$31,661	$28,749
Total Options	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	37,930	37,555	37,899	39,389
Total Swaps	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	124,397	121,285	121,133	118,598
Credit Derivatives	15,863	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	4,504	3,966	4,390	4,241
Total Notional	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	200,354	194,851	195,082	190,977

*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

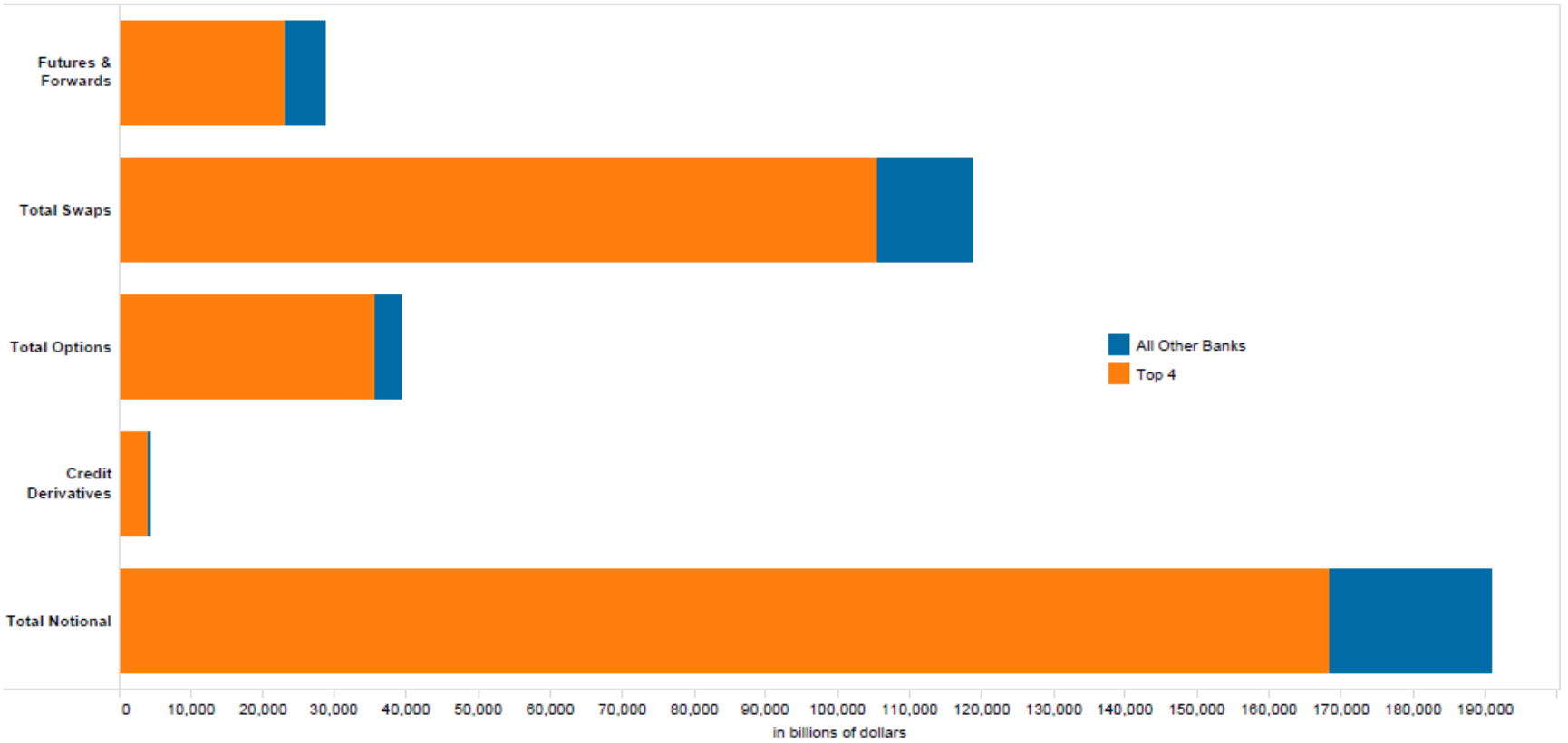
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022			
	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q1	Q2	Q3	Q4
Interest Rate	$175,895	$181,454	$193,399	$187,866	$177,650	$193,084	$174,687	$138,369	$124,488	$130,417	$128,175	$125,065	$116,000	$126,236	$145,875	$142,860	$141,968	$139,755
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	43,580	41,915	42,708	41,124
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	4,489	4,331	4,410	4,424
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	1,906	1,779	1,607	1,433
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	4,504	3,966	4,390	4,241
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	200,354	194,851	195,082	190,977

*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	$23,108	$5,640	$28,749
Total Swaps	105,586	13,012	118,598
Total Options	35,789	3,601	39,389
Credit Derivatives	4,019	222	4,241
Total Notional	168,502	22,475	190,977

*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			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
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
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
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
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

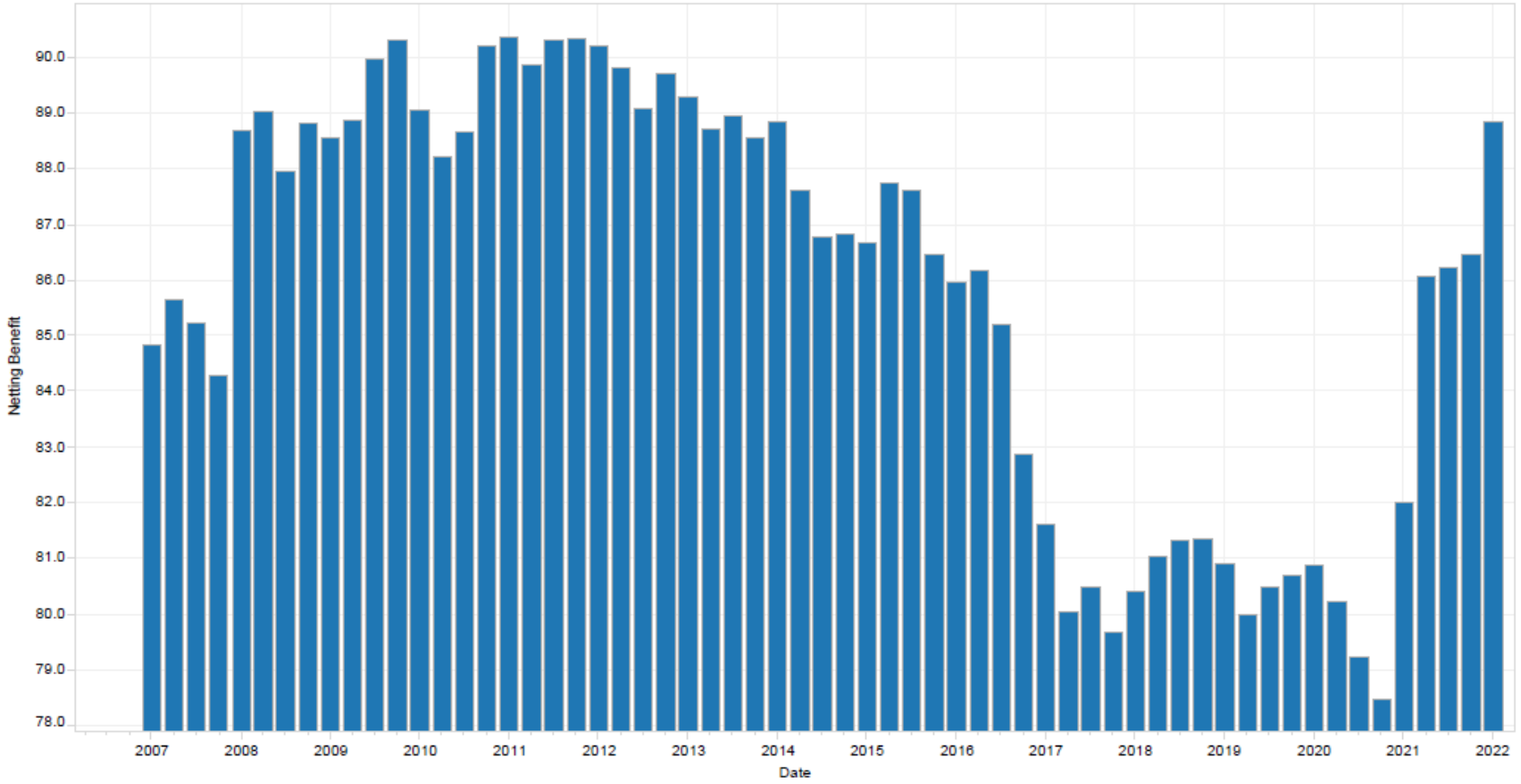
TOTAL	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	220	218	205	191	195	187	188	173	178	169	176	164	174	160	165	164	165	158	168	136	133	121	122	108

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

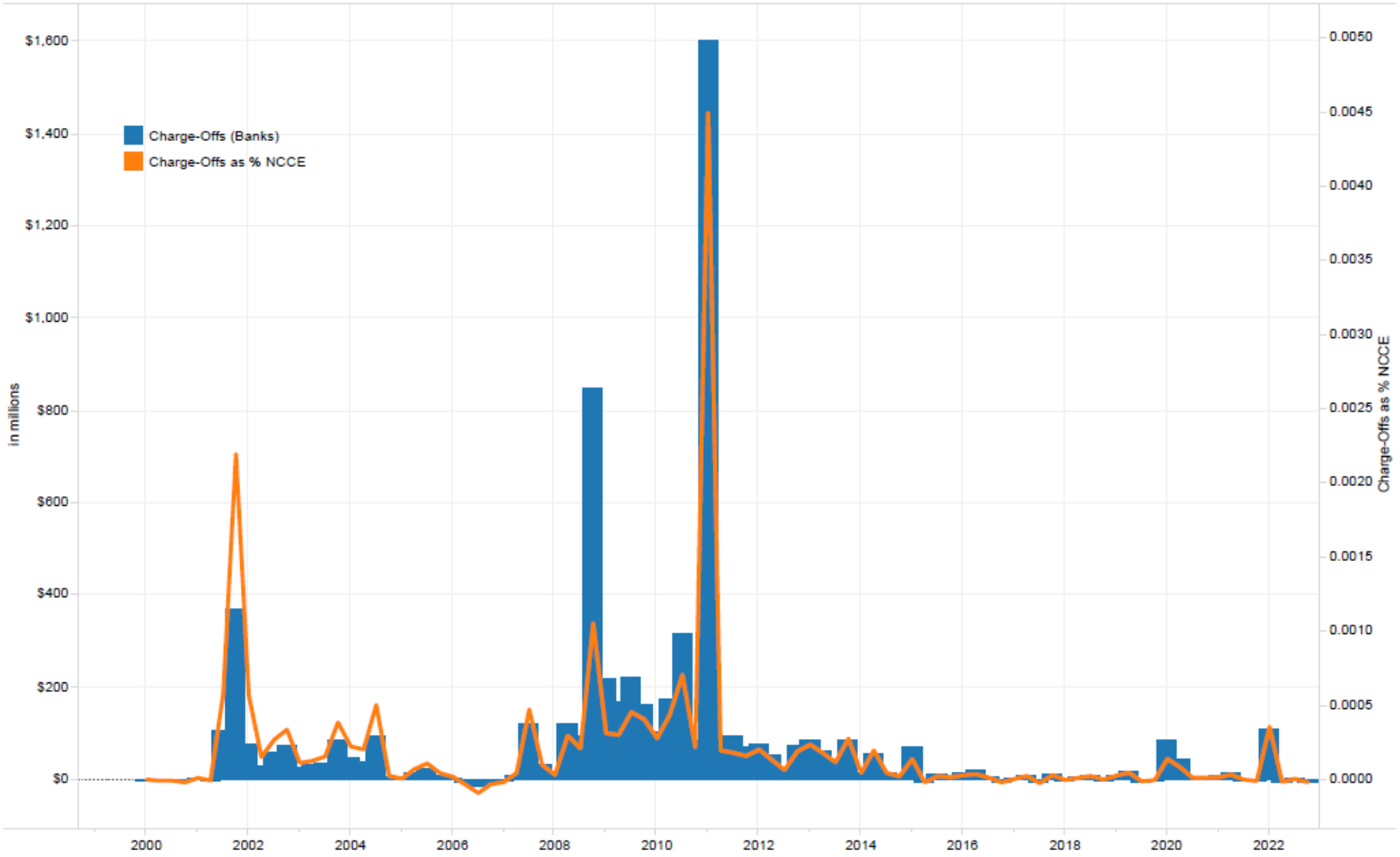
2014				2015				2016				2017				2018				2019				2020				2021				2022			
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
88.7	88.9	88.6	88.8	87.6	86.8	86.8	86.7	87.7	87.6	86.5	86.0	86.2	85.2	82.9	81.6	80.0	80.5	79.7	80.4	81.0	81.3	81.4	80.9	80.0	80.5	80.7	80.9	80.2	79.2	78.5	82.0	86.1	86.2	86.4	88.8

*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

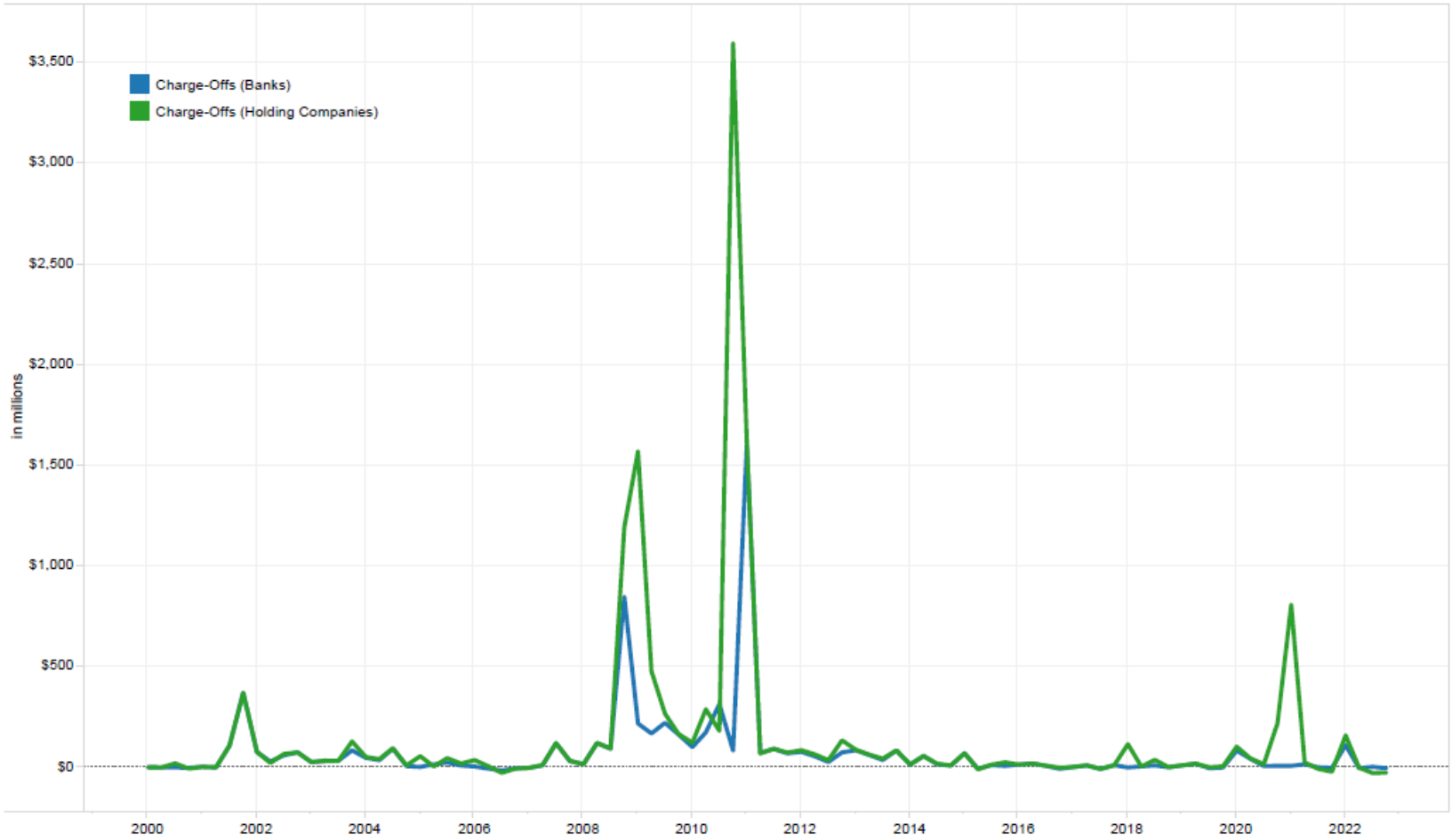


	2016				2017				2018				2019				2020				2021				2022			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Charge-Offs (Banks)	13.3	18.6	6.5	-7.8	1.2	8.7	-8.8	10.3	-1.1	4.0	8.8	0.1	9.1	17.2	-4.8	-1.5	82.7	42.1	6.0	6.6	6.8	14.7	-0.2	-3.3	109.5	-4.9	2.0	-4.9

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

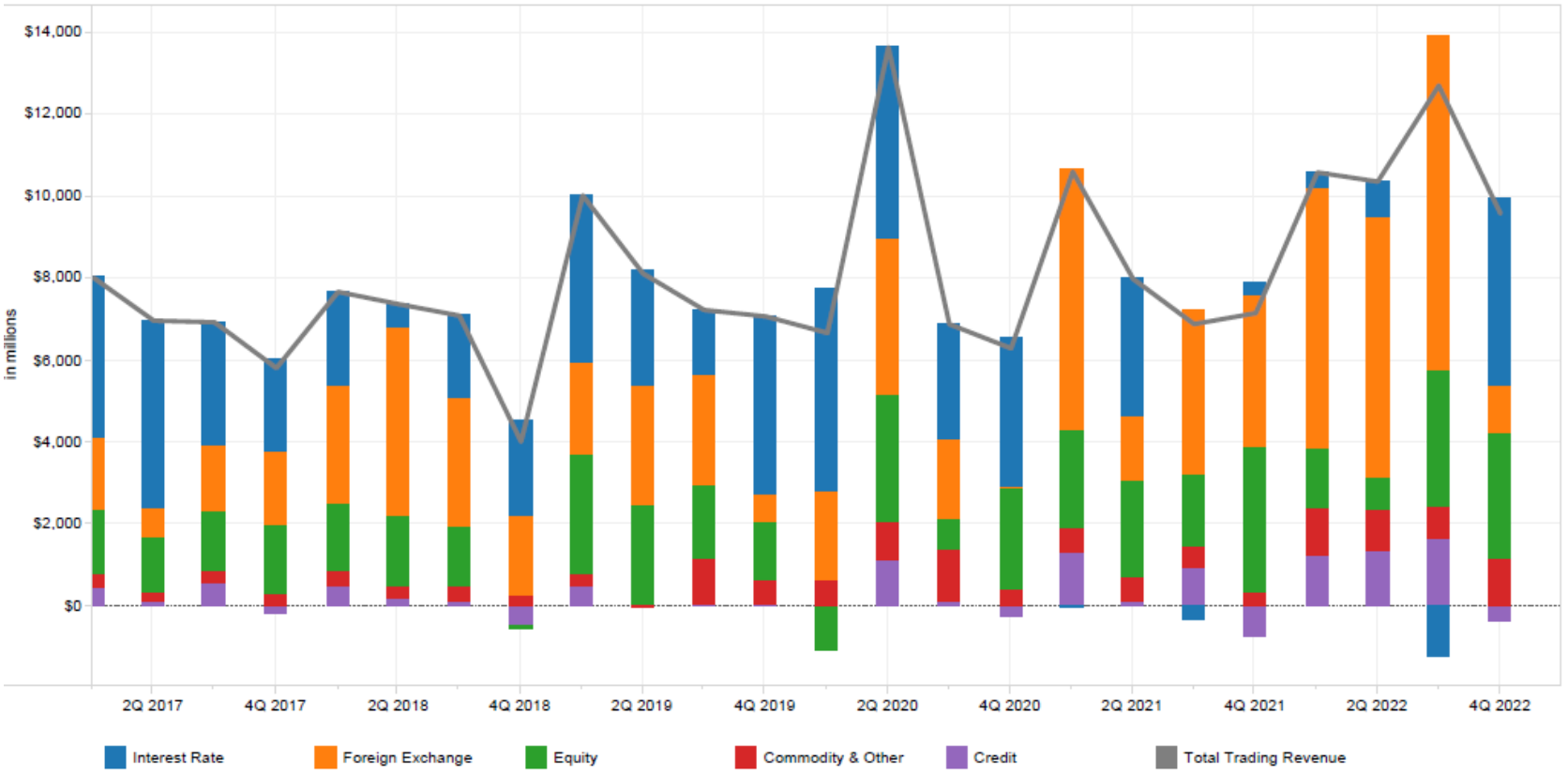


	2017				2018				2019				2020				2021				2022			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Charge-Offs (Banks)	1.2	8.7	-8.8	10.3	-1.1	4.0	8.8	0.1	9.1	17.2	-4.8	-1.5	82.7	42.1	6.0	6.6	6.8	14.7	-0.2	-3.3	109.5	-4.9	2.0	-4.9
Charge-Offs (Holding Companies)	1.4	8.9	-8.3	9.6	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

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



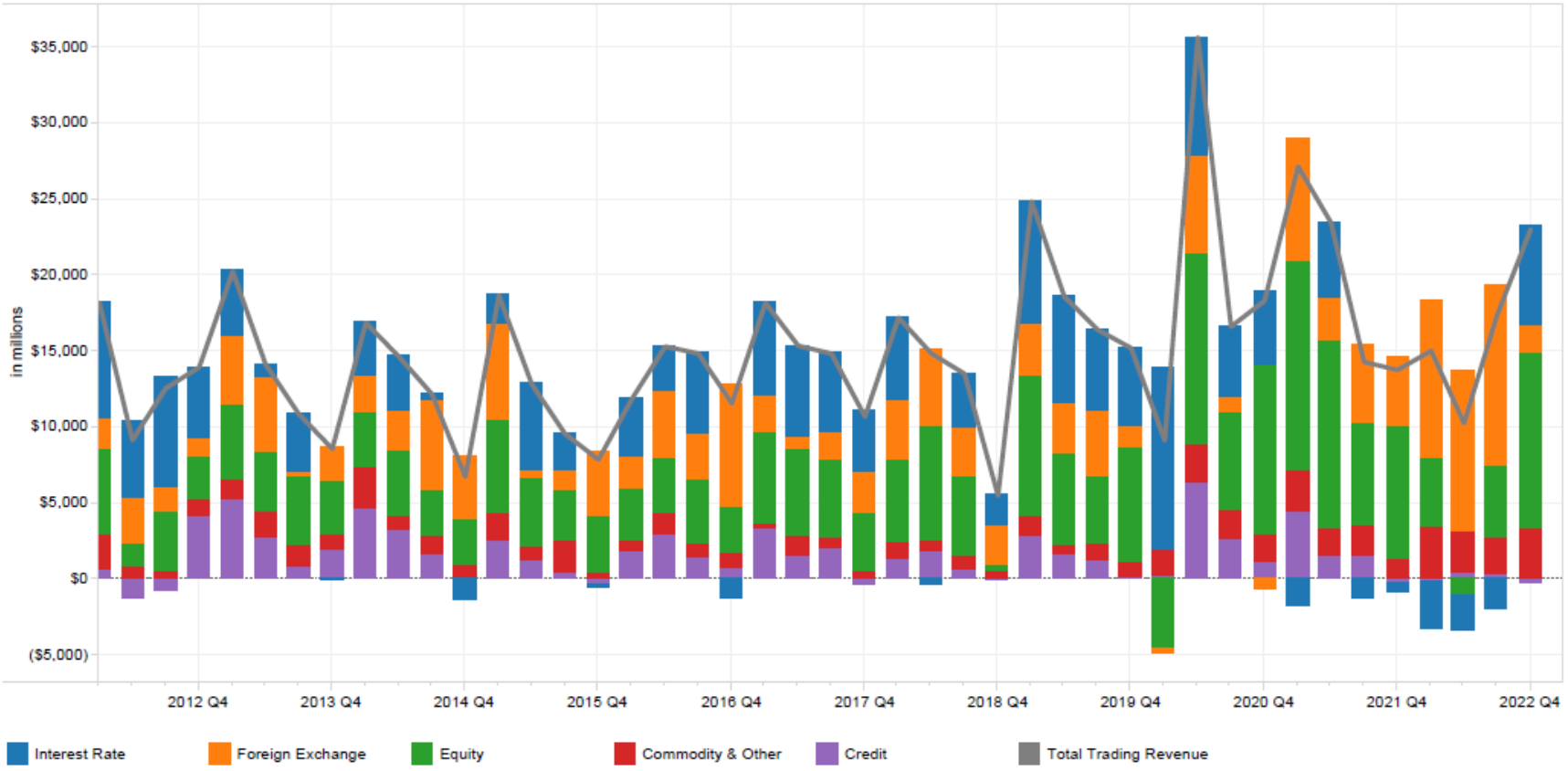
n millions of dollars

	2018				2019				2020				2021				2022			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
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
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
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
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
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
Total Trading Revenue	7,684	7,384	7,103	4,030	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

*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



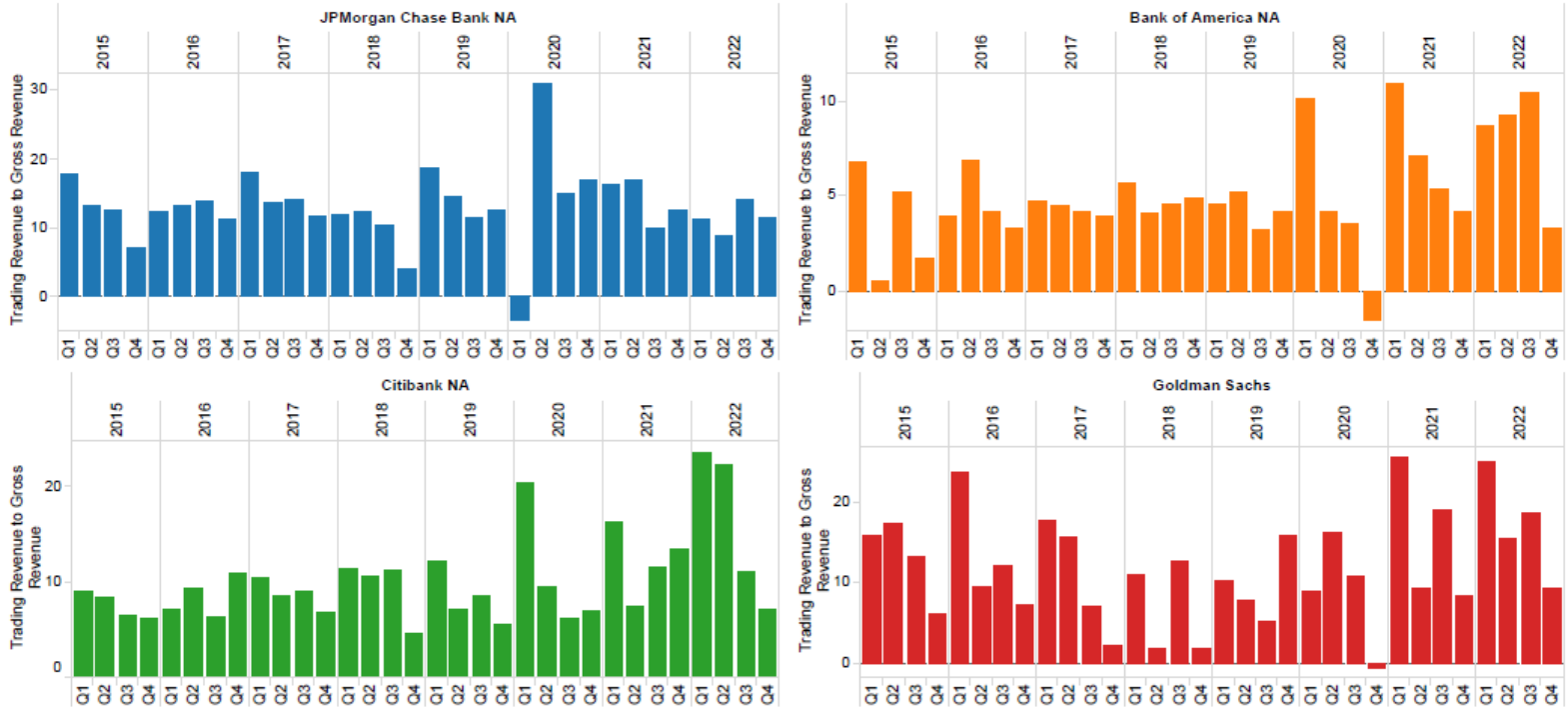
In millions of dollars

	2019				2020				2021				2022			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
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)	($1,983)	$6,568
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	11,899	1,812
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
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
Credit	2,903	1,684	1,226	159	257	6,404	2,681	1,181	4,531	1,595	1,530	-225	-129	437	286	-249
Total Trading Revenue	24,862	18,604	16,437	15,223	9,157	35,669	16,637	18,337	27,172	23,483	14,305	13,786	15,045	10,281	17,408	23,044

*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*

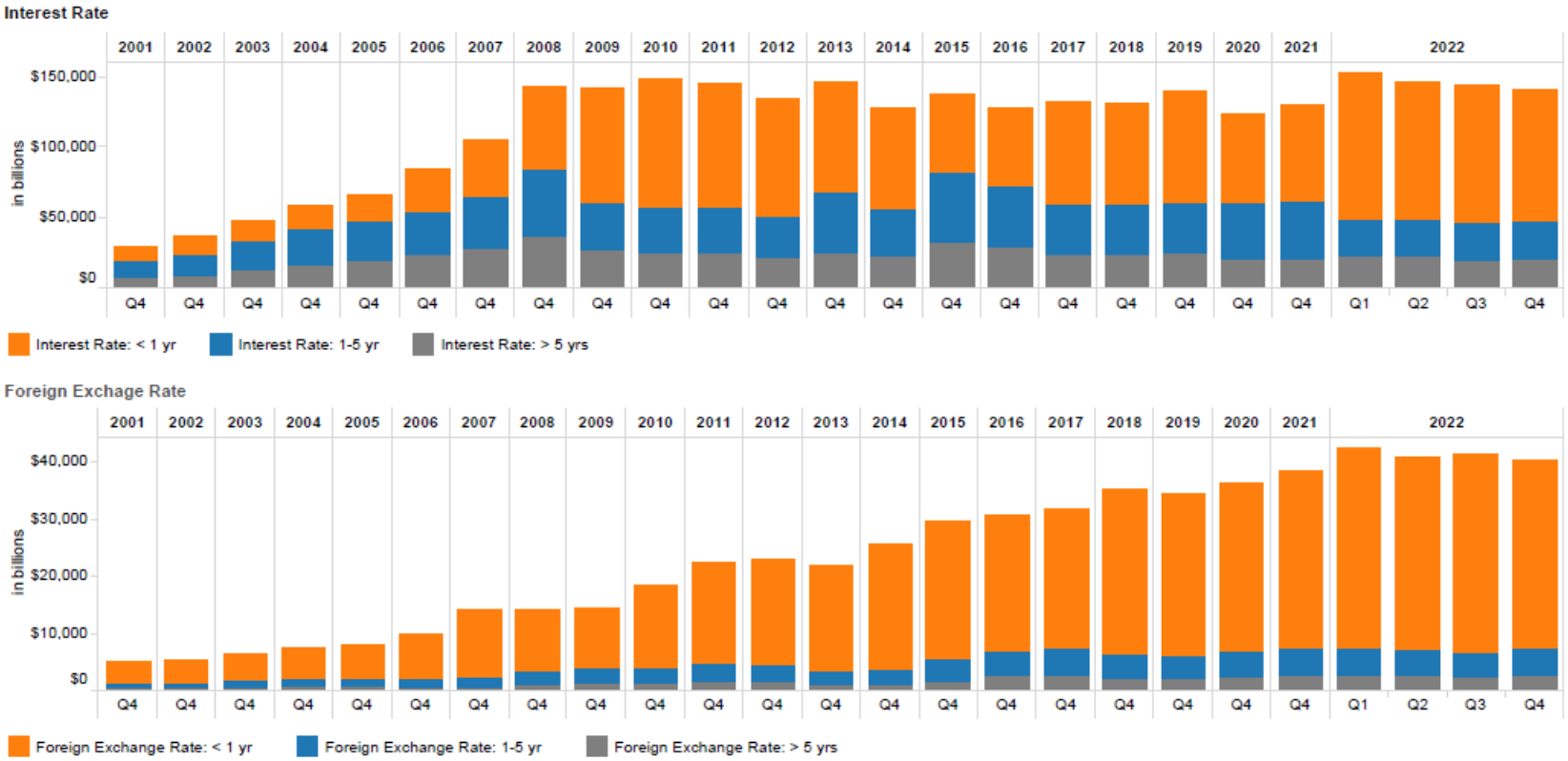
	2017				2018				2019				2020				2021				2022			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
JPMorgan Chase Bank NA	17.98	13.66	14.01	11.52	11.90	12.19	10.26	3.92	18.57	14.57	11.30	12.62	-3.33	30.88	14.83	16.96	16.12	16.90	9.84	12.70	11.13	8.86	14.06	11.38
Bank of America 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
Citibank NA	10.47	8.50	9.12	6.94	11.33	10.69	11.26	4.66	12.32	7.23	8.48	5.56	20.50	9.63	6.27	7.08	16.24	7.42	11.57	13.44	23.64	22.30	11.05	7.15
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

TOTAL	2017				2018				2019				2020				2021				2022			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	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

*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



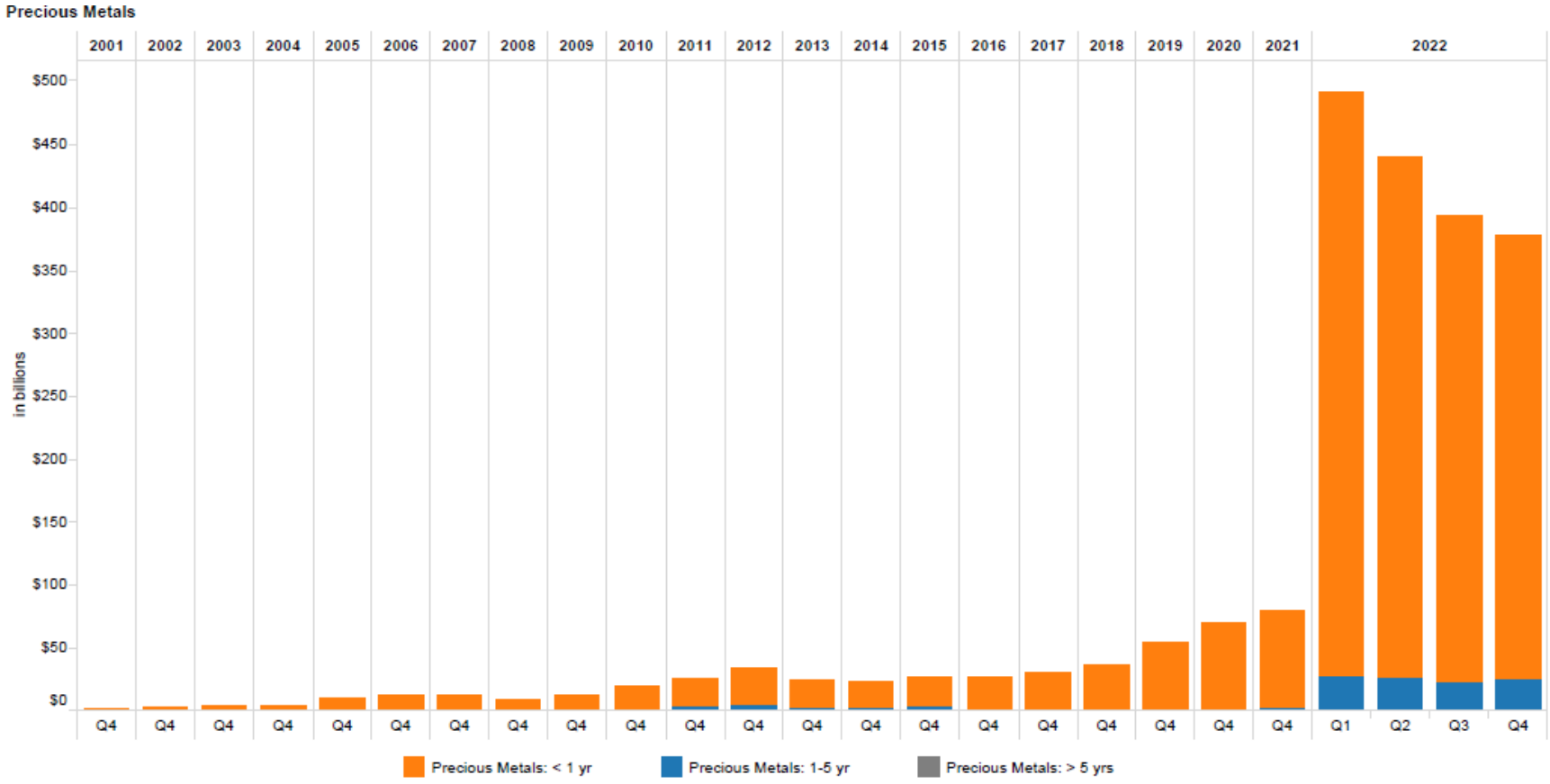
In billions of dollars

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022			
	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q1	Q2	Q3	Q4
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	$102,946	$96,669	$97,477	$92,693
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	26,323	26,250	26,086	27,371
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	23,004	22,973	19,920	20,661
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	34,852	33,883	34,753	33,157
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	4,822	4,546	4,482	4,812
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	2,618	2,476	2,227	2,444

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



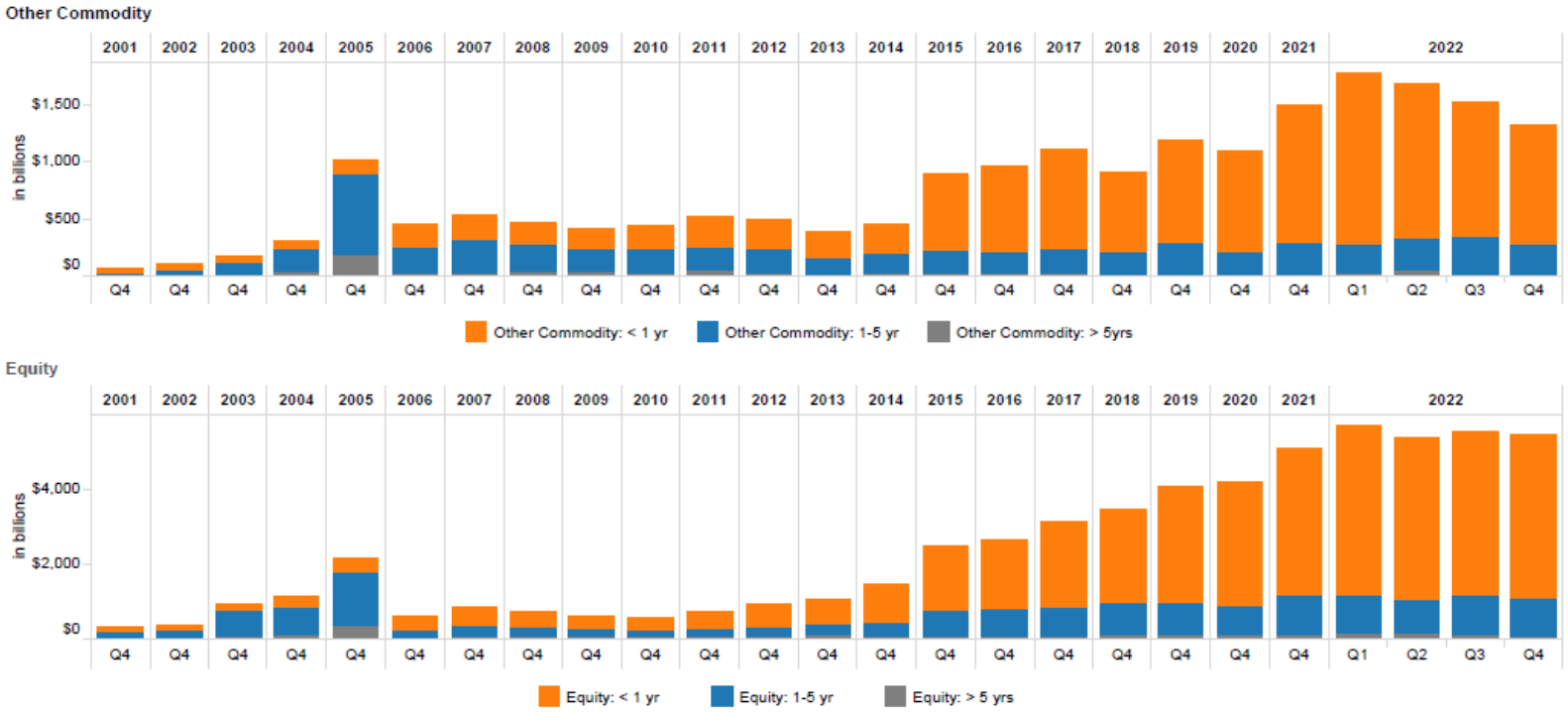
In billions of dollars

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022			
	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q1	Q2	Q3	Q4
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	$463.17	$413.25	$371.62	$352.12
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	28.4	26.8	22.6	26.0
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	0.3	0.5	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



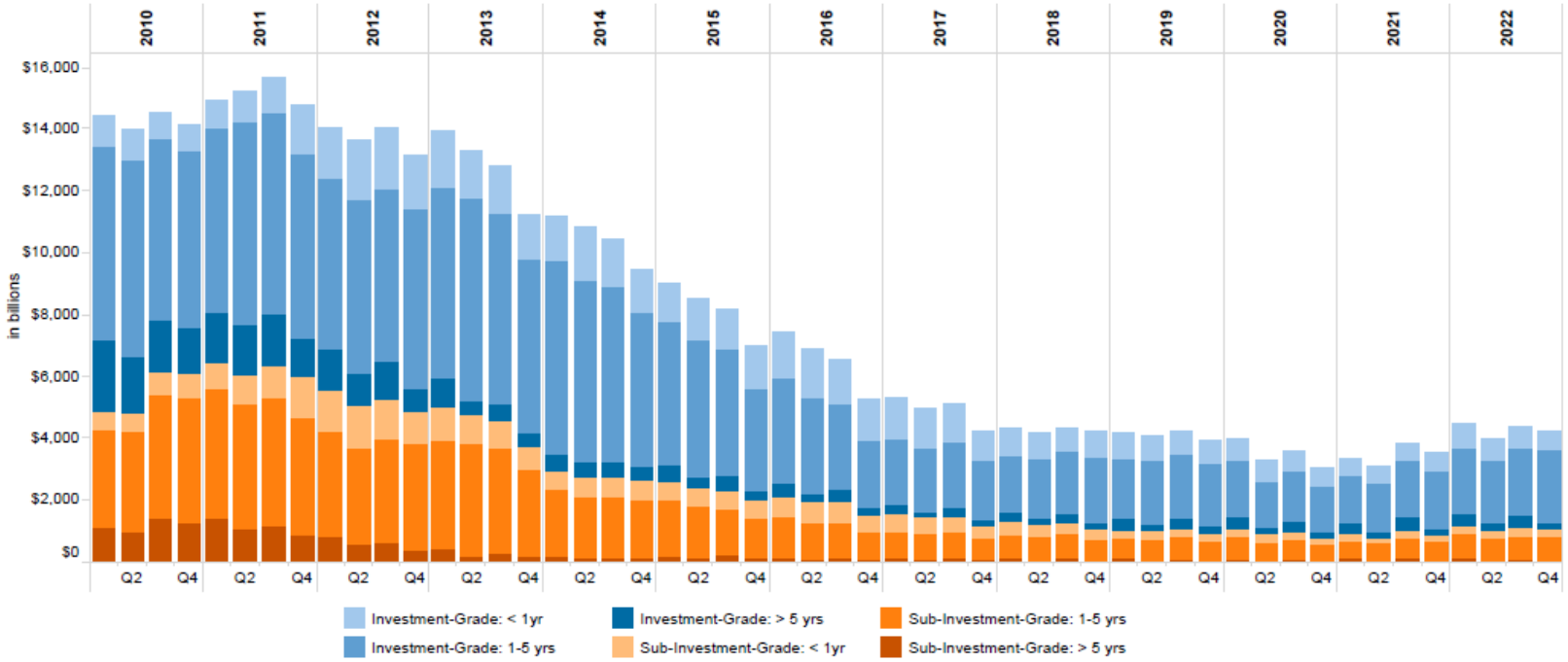
In billions of dollars

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022			
	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q1	Q2	Q3	Q4
Other Commodity: < 1 yr	$133	$185	$206	$179	$176	$203	$261	$261	$235	$257	$668	$750	$883	$688	$884	$879	$1,216	$1,496	$1,354	$1,178	$1,038
Other Commodity: 1-5 yr	707	235	297	233	198	209	209	208	144	164	197	179	202	198	286	198	279	250	282	336	272
Other Commodity: > 5yrs	175	20	25	43	33	25	46	28	6	20	22	23	25	9	10	9	7	31	45	7	7
Equity: < 1 yr	321	341	473	409	312	296	427	627	645	996	1,743	1,842	2,296	2,449	3,084	3,287	3,881	4,491	4,272	4,315	4,335
Equity: 1-5 yr	1,428	221	297	256	228	191	210	262	291	352	628	677	733	864	844	771	1,055	1,001	911	1,058	999
Equity: > 5 yrs	383	45	70	72	82	85	94	82	136	101	130	123	113	139	136	139	145	175	174	140	99

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



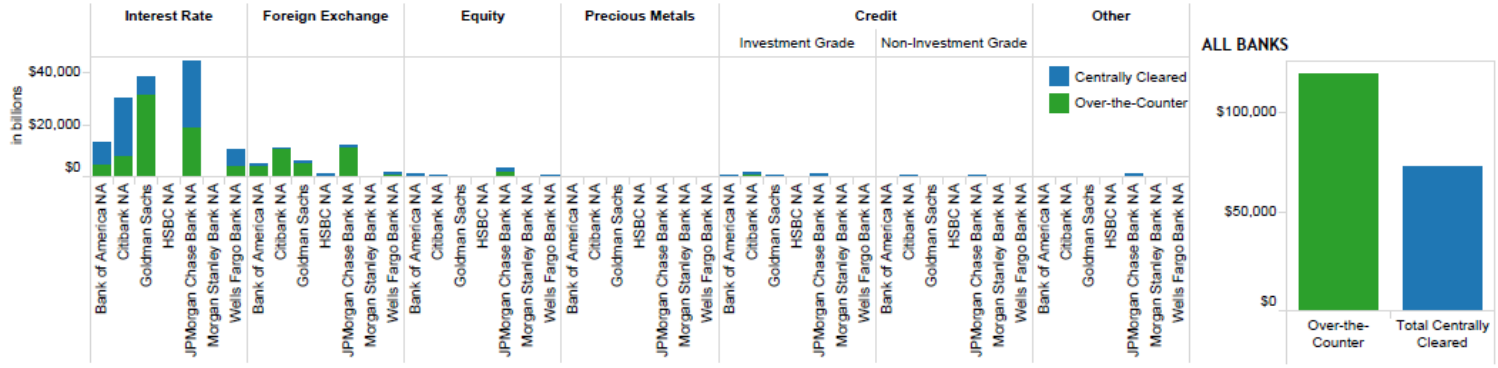
In billions of dollars

	2018				2019				2020				2021				2022			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Investment-Grade: < 1yr	$880	$805	$764	$837	$763	$758	$675	$781	$726	$619	$648	$554	$546	$539	$565	$601	$795	$642	$692	$617
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
Investment-Grade: > 5 yrs	331	184	338	204	367	189	330	198	367	171	336	160	332	160	418	187	449	198	408	210
Total Investment Grade	$3,050	$2,984	$3,089	$3,214	$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

	2018				2019				2020				2021				2022			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Sub-Investment-Grade: < 1yr	$400	$335	$318	$304	$259	$283	$275	$268	$247	$278	$233	$218	$245	$215	$244	$208	$225	$248	$247	$221
Sub-Investment-Grade: 1-5 yrs	763	791	801	691	661	701	708	624	743	608	618	533	570	551	654	632	777	751	747	778
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
Total Sub-Investment Grade	$1,296	$1,195	$1,252	$1,056	$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

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

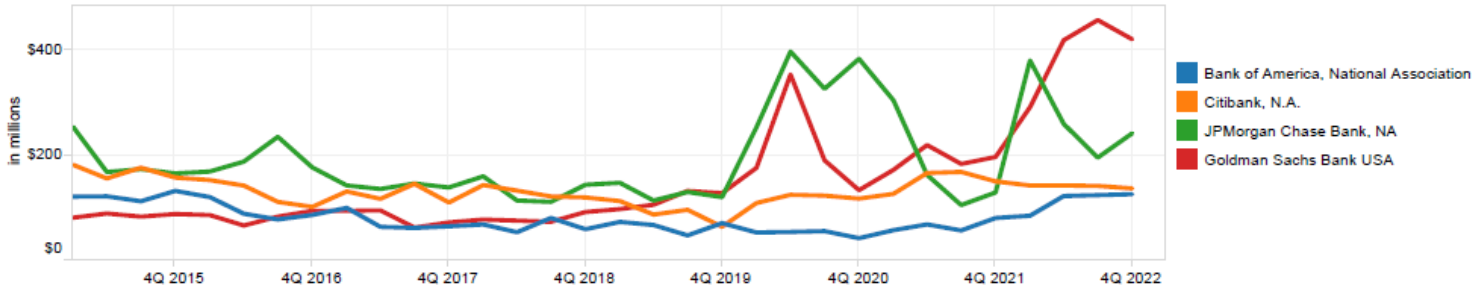
Bank Name	Interest Rate		Foreign Exchange		Equity		Precious Metals		Credit				Other		Total Centrally Cleared	Over-the-Counter	Total Notional
									Investment Grade		Non-Investment Grade						
	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter			
JPMorgan Chase Bank NA	24,551	19,605	511	11,866	971	2,261	0	200	462	364	172	188	72	799	26,739	35,282	62,021
Citibank NA	21,578	8,274	319	10,655	11	714	28	71	238	1,121	85	276	74	88	22,333	21,200	43,532
Bank of America NA	8,084	5,316	118	4,738	171	656	6	62	141	200	42	101	0	29	8,563	11,101	19,664
Goldman Sachs	6,277	32,090	95	5,832	22	218	0	0	48	390	9	195	0	50	6,451	38,776	45,227
HSBC NA	60	73	33	1,049	0	14	0	8	0	7	1	3	0	0	94	1,154	1,249
Wells Fargo Bank NA	5,690	4,581	1	1,529	116	230	0	4	3	25	1	21	0	94	5,810	6,483	12,294
Morgan Stanley Bank NA	1	52	0	30	0	22	0	0	0	11	0	3	0	0	1	118	119
Grand Total	66,241	69,991	1,076	35,700	1,291	4,115	33	345	892	2,118	311	785	148	1,060	69,991	114,115	184,106
ALL OTHER	2,869	1,623	16	3,621	0	27	0	0	1	31	0	26	15	96	2,902	5,423	8,325
TOTAL	69,111	71,614	1,092	39,321	1,291	4,142	33	345	894	2,149	311	811	161	1,156	72,892	119,538	192,430

% 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
									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	Centrally Cleared	Over-the-Counter	Centrally Cleared	Over-the-Counter		
JPMorgan Chase Bank NA	56%	44%	4%	96%	30%	70%	0%	100%	56%	44%	48%	52%	8%	92%	43%	57%
Citibank NA	72%	28%	3%	97%	2%	98%	28%	72%	18%	82%	24%	76%	46%	54%	51%	49%
Bank of America NA	60%	40%	2%	98%	21%	79%	8%	92%	41%	59%	30%	70%	0%	100%	44%	56%
Goldman Sachs	16%	84%	2%	98%	9%	91%	0%	100%	11%	89%	4%	96%	0%	100%	14%	86%
HSBC NA	45%	55%	3%	97%	0%	100%	0%	100%	0%	100%	20%	80%	0%	100%	8%	92%
Wells Fargo Bank NA	55%	45%	0%	100%	34%	66%	0%	100%	11%	89%	4%	96%	0%	100%	47%	53%
Morgan Stanley Bank NA	2%	98%	0%	100%	0%	100%			0%	100%	0%	100%	0%	100%	1%	99%

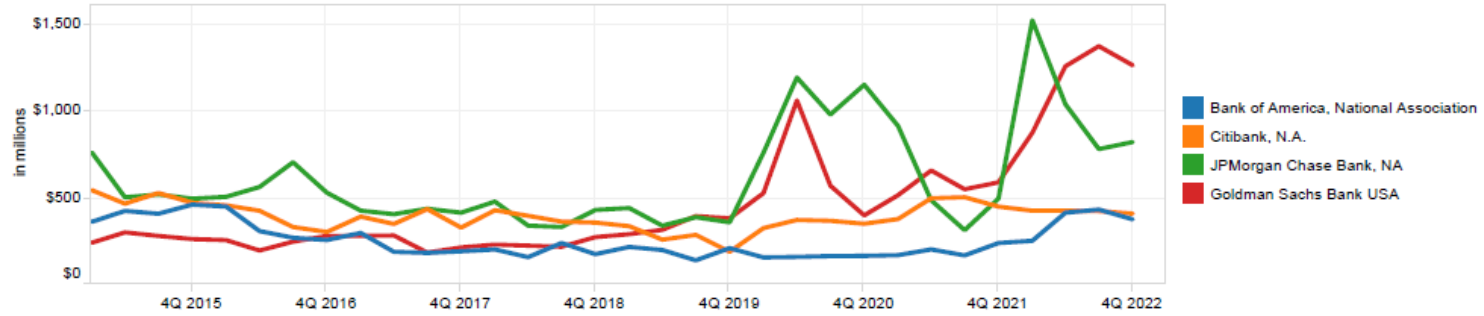
Source: Call reports, Schedule RC-R

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



	2017				2018				2019				2020				2021				2022			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Bank of America, National Association	$100	$63	$61	$64	$68	$53	$81	$59	$73	$67	$47	$71	$53	$54	$55	$42	$57	$68	$57	$80	$85	$122	$124	$126
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
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
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

VaR Capital Requirement



	2017				2018				2019				2020				2021				2022			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Bank of America, National Association	$299	$190	$184	$193	$204	$160	$242	$177	$219	$201	$141	$212	$158	$161	$166	$167	$171	$204	$170	$241	$254	$416	$435	$378
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
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
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

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