

Quarterly Report on Bank Trading and Derivatives Activities

Fourth Quarter 2021

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 1,306 insured U.S. national and state commercial banks and savings associations reported trading and derivatives activities at the end of the fourth quarter of 2021.¹ 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 2021, four large commercial banks represented 89.2 percent of the total banking industry notional amounts and 78.8 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.

OCC activities also include assessing London Interbank Offered Rate (LIBOR) exposures in supervised banks and their progress toward an orderly transition away from LIBOR. The OCC and the other federal financial institution regulatory agencies issued a joint statement in October 2021 to emphasize the expectation that supervised institutions with LIBOR exposure continue to progress toward an orderly transition away from LIBOR. Refer to OCC Bulletin 2021-48, "LIBOR Transition: Joint Statement on Managing the LIBOR Transition." Given LIBOR's cessation, the agencies have stated that entering into new contracts, including derivatives, that use LIBOR as a reference rate after December 31, 2021, would create safety and soundness risks, including litigation, operational, and consumer protection risks. In addition, in OCC Bulletin 2021-46, "LIBOR Transition: Updated Self-Assessment Tool for Banks," the OCC provides a tool for banks to evaluate their preparedness for the LIBOR cessation.

This is the 105th 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.

¹ Institutions with total assets of less than \$5 billion have the option to file the 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.

Executive Summary

- Insured U.S. commercial banks and savings associations (collectively, banks) reported trading revenue of \$7.5 billion in the fourth quarter of 2021, \$713.0 million more (10.5 percent) than in the previous quarter and \$1.2 billion more (19.4 percent) than a year earlier (see table 1).
- Credit exposure from derivatives decreased in the fourth quarter of 2021 compared with the third quarter of 2021. NCCE decreased \$97.0 billion, or 21.4 percent, to \$356.0 billion (see table 5).
- Derivative notional amounts decreased in the fourth quarter of 2021 by \$7.0 trillion, or 3.8 percent, to \$177.5 trillion (see table 10).
- Derivative contracts remained concentrated in interest rate products, which totaled \$126.2 trillion or 71.1 percent of total derivative notional amounts (see table 10).

Revenue

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

Insured U.S. commercial banks and savings associations reported \$7.5 billion in trading revenue in the fourth quarter of 2021, \$713.0 million more (10.5 percent) than in the previous quarter and \$1.2 billion more (19.4 percent) than a year earlier (see table 1). The quarter-over-quarter increase in trading revenue was primarily due to increases in revenue from interest rate and equity 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

	4Q 2021	3Q 2021	Q/Q Change	Q/Q % Change	4Q 2020	Y/Y Change	Y/Y % Change
Interest Rate	\$273	-\$330	\$602	182.8%	\$3,616	-\$3,343	-92.5%
Foreign Exchange	\$3,747	\$3,998	-\$251	-6.3%	\$18	\$3,729	20417.1%
Equity	\$3,534	\$1,729	\$1,805	104.4%	\$2,480	\$1,054	42.5%
Commodity & Other	\$347	\$531	-\$184	-34.6%	\$434	-\$87	-20.0%
Credit	-\$375	\$884	-\$1,259	-142.4%	-\$243	-\$132	-54.4%
Total Trading Revenue	\$7,526	\$6,813	\$713	10.5%	\$6,305	\$1,221	19.4%

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 \$14.2 billion in the fourth quarter of 2021 was \$56.0 million (0.4 percent) lower than in the previous quarter. The quarter-over-quarter decrease in trading revenue was primarily due to decreases in revenue from foreign exchange, commodity, and

credit trading instruments. Year-over-year holding company trading revenue decreased by \$3.9 billion (21.6 percent). For a historical view of quarterly holding company trading revenue by instrument, see figure 15b in the appendix.

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

	4Q 2021	3Q 2021	Q/Q Change	Q/Q % Change	4Q 2020	Y/Y Change	Y/Y % Change
Interest Rate	-\$571	-\$1,182	\$611	51.7%	\$4,867	-\$5,438	-111.7%
Foreign Exchange	\$4,496	\$5,144	-\$648	-12.6%	-\$628	\$5,124	815.7%
Equity	\$8,742	\$6,835	\$1,907	27.9%	\$10,826	-\$2,084	-19.2%
Commodity & Other	\$1,340	\$1,978	-\$638	-32.3%	\$1,804	-\$464	-25.7%
Credit	\$152	\$1,440	-\$1,288	-89.5%	\$1,181	-\$1,029	-87.1%
Total BHC Trading Revenue	\$14,158	\$14,215	-\$56	-0.4%	\$18,049	-\$3,891	-21.6%

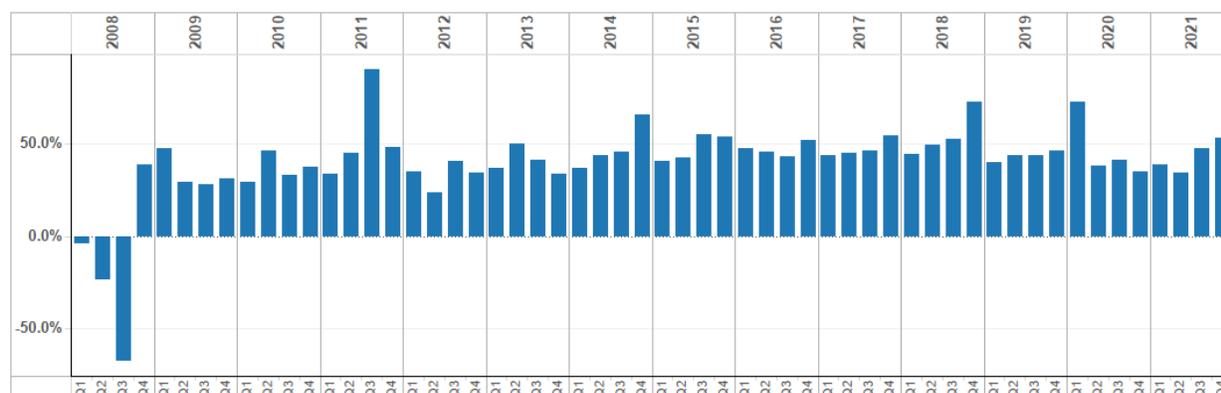
Source: Consolidated Financial Statements for Holding Companies—FR Y-9C, Schedule HI

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

Before the 2008 financial crisis, trading revenue at banks typically ranged from 60 percent to 80 percent of consolidated BHC trading revenue. Since the 2008 financial crisis and the adoption of bank charters by the former investment banks, the percentage of bank trading revenue to consolidated BHC trading revenue has fallen and is now 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 2021, banks generated 53.2 percent of consolidated holding company trading revenue, an increase from 47.9 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 \$125.6 billion (6.0 percent) in the fourth quarter of 2021 to \$2.0 trillion, primarily driven by a \$95.0 billion (7.3 percent) decrease in receivables from interest rate contracts (see table 3a). GNFV decreased \$93.1 billion (4.6 percent) to \$1.9 trillion during the quarter, driven by a \$87 billion (7.0 percent) decrease in payables on interest rate contracts (see table 3b).

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

	4Q 2021	3Q 2021	Q/Q Change	Q/Q % Change	4Q 2020	Y/Y Change	Y/Y % Change
Interest rate	\$1,218	\$1,313	-\$95	-7.3%	\$1,792	-\$574	-32.0%
FX	\$492	\$476	\$17	3.5%	\$601	-\$108	-18.0%
Equity	\$156	\$173	-\$17	-9.9%	\$185	-\$28	-15.4%
Commodity & Other	\$71	\$102	-\$31	-30.5%	\$47	\$24	51.6%
Credit	\$40	\$38	\$2	4.1%	\$31	\$9	29.8%
GPFV	\$1,977	\$2,103	-\$125.6	-6.0%	\$2,654	-\$677	-25.5%

Source: Call reports, Schedule RC-L

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

	4Q 2021	3Q 2021	Q/Q Change	Q/Q % Change	4Q 2020	Y/Y Change	Y/Y % Change
Interest rate	\$1,163	\$1,250	-\$87.0	-7.0%	\$1,721	-\$559	-32.5%
FX	\$496	\$465	\$31.8	6.8%	\$612	-\$116	-18.9%
Equity	\$165	\$184	-\$18.8	-10.2%	\$192	-\$27	-14.0%
Commodity & Other	\$64	\$87	-\$22.4	-25.9%	\$47	\$17	36.4%
Credit	\$44	\$41	\$3.4	8.3%	\$34	\$10	28.2%
GNFV	\$1,932	\$2,026	-\$93.1	-4.6%	\$2,607	-\$674	-25.9%

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 \$97.0 billion (21.4 percent) to \$356.0 billion in the fourth quarter of 2021 (see table 5).² Legally enforceable

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.

netting agreements allowed banks to reduce GPFV exposures by 82.0 percent (\$1.6 trillion) in the fourth quarter of 2021.

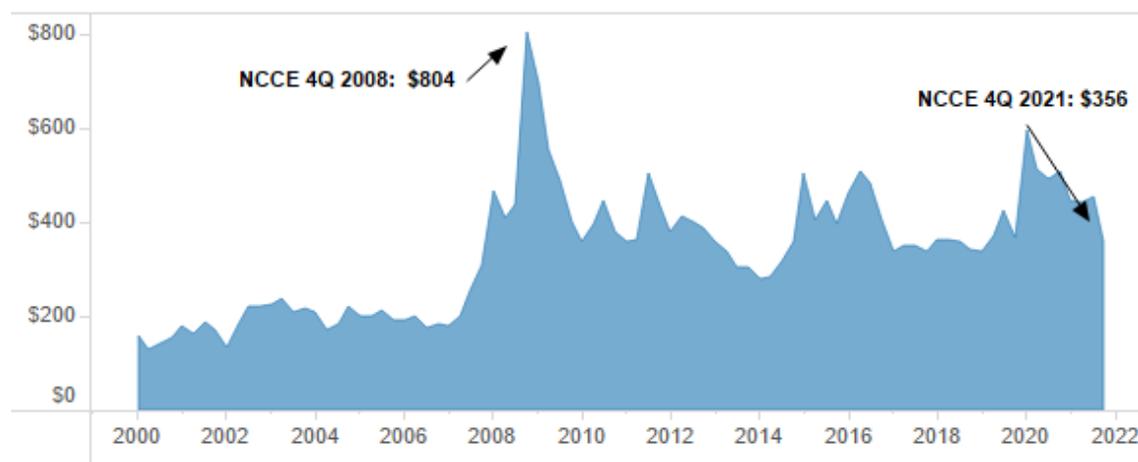
Table 5: Net Current Credit Exposure, in Billions of Dollars

	4Q 2021	3Q 2021	Q/Q Change	Q/Q % Change
GPFV	\$1,977	\$2,103	-\$126	-6.0%
NCCE RC-R	\$356	\$453	-\$97	-21.4%
Netting benefit RC-R	\$1,621	\$1,650	-\$29	-1.7%
Netting benefit % RC-R	82.0%	78.5%		3.5%

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 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 2021 lower at \$356.0 billion as more normal market activity resumed.

Figure 2: Net Current Credit Exposure, in Billions of Dollars



Source: Call reports, Schedule RC-R

The bulk of NCCE in the financial system is concentrated in banks and securities firms (37.9 percent) and in corporations and other counterparties (52.6 percent) (see table 6). The combined exposure to hedge funds and sovereign governments was small (9.4 percent in total).

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

	Banks and securities firms	Hedge funds	Sovereign governments	Corporate and all other counterparties
4Q 2021	37.9%	2.0%	7.4%	52.6%
3Q 2021	34.5%	2.4%	6.8%	56.2%
2Q 2021	33.5%	2.7%	6.8%	57.0%
1Q 2021	36.3%	2.4%	6.8%	54.5%
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%
4Q 2016	48.4%	2.0%	6.5%	43.0%

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 107.9 percent of their total NCCE at the end of the fourth quarter of 2021, up from 94.0 percent in the third quarter of 2021 (see table 7). Collateral held against hedge fund exposures increased in the fourth quarter to 687.6 percent. Bank exposures to hedge funds are secured because banks take initial margin on transactions with hedge funds, in addition to fully securing any current credit exposure. Collateral coverage of corporate and sovereign exposures is much less than coverage of financial institutions and hedge funds.

Table 7: Ratio of Fair Value Collateral to Net Current Credit Exposure

	FV banks and securities firms	FV hedge funds	FV sovereign governments	FV corporate and all other counterparties	FV/NCCE %
4Q 2021	128.5%	687.6%	69.3%	76.0%	107.9%
3Q 2021	122.5%	551.1%	65.3%	60.1%	94.0%
2Q 2021	126.0%	514.0%	59.3%	59.7%	94.3%
1Q 2021	116.9%	490.2%	57.1%	63.8%	92.8%
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%
4Q 2016	119.1%	491.5%	34.2%	67.0%	98.5%

Note: FV stands for fair value.

Source: Call reports, Schedule RC-L

The majority of collateral held by banks against NCCE is very liquid with 63.8 percent held in cash (both U.S. dollar and other currencies) and an additional 9.0 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

	Cash U.S. \$	Cash other currencies	U.S. Treasury securities	U.S. government agency	Corp bonds	Equity securities	All other collateral
4Q 2021	39.3%	24.5%	8.1%	0.9%	1.6%	8.2%	17.3%
3Q 2021	41.4%	26.0%	7.5%	1.3%	1.5%	6.1%	16.3%
2Q 2021	42.0%	24.7%	7.3%	1.4%	1.4%	7.6%	15.6%
1Q 2021	41.3%	26.5%	6.6%	1.4%	1.6%	7.8%	14.8%
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%
4Q 2016	40.1%	31.5%	8.1%	1.7%	1.6%	5.0%	12.0%

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 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

	JPMorgan Chase Bank NA	Citibank NA	Bank of America NA	Goldman Sachs Bank USA
4Q 2021 average 60-Day VaR	\$129	\$151	\$80	\$197
3Q 2021 average 60-Day VaR	\$105	\$169	\$57	\$184
Q/Q change	\$24	-\$18	\$24	\$13
4Q 2021 total risk-based capital	\$281,826	\$166,921	\$194,773	\$48,965

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

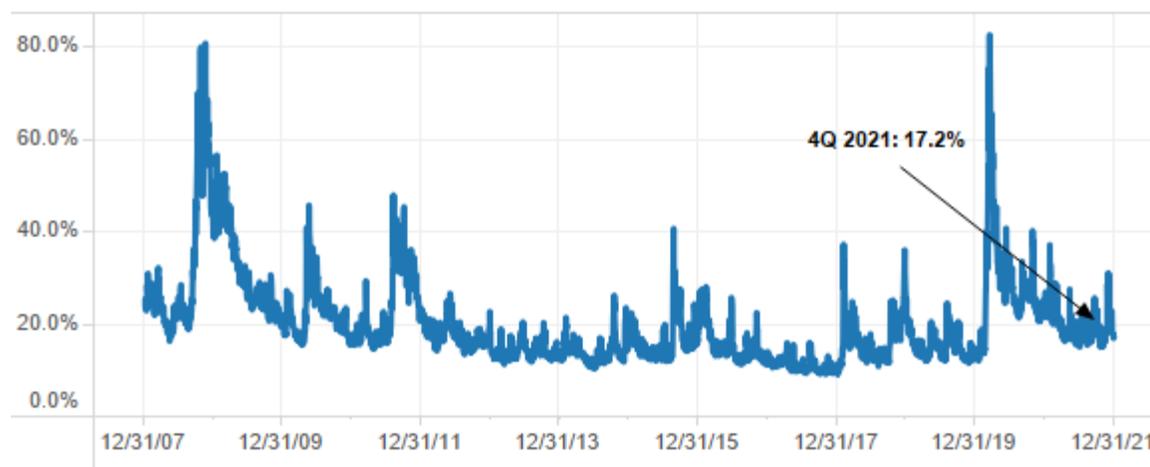
	JPMorgan Chase Bank NA	Citibank NA	Bank of America NA	Goldman Sachs Bank USA
4Q 2021 VaR Capital Requirement	\$498	\$452	\$241	\$592
3Q 2021 VaR Capital Requirement	\$315	\$506	\$170	\$552
Q/Q Change	\$182	-\$54	\$71	\$40
4Q 2021 Total Risk-Based Capital	\$281,826	\$166,921	\$194,773	\$48,965

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 an extended period of low volatility following the end of the 2008 financial crisis that continued until late in the first quarter of 2020. In mid-March 2020 volatility spiked as financial markets reacted to fears over the potential impact of the COVID-19 global pandemic. The VIX exceeded its previous high from the 2008 financial crisis before settling back to a more normal level of 17.2 percent at the end of the fourth quarter of 2021.

Figure 3: Volatility Index (VIX)



Source: Bloomberg

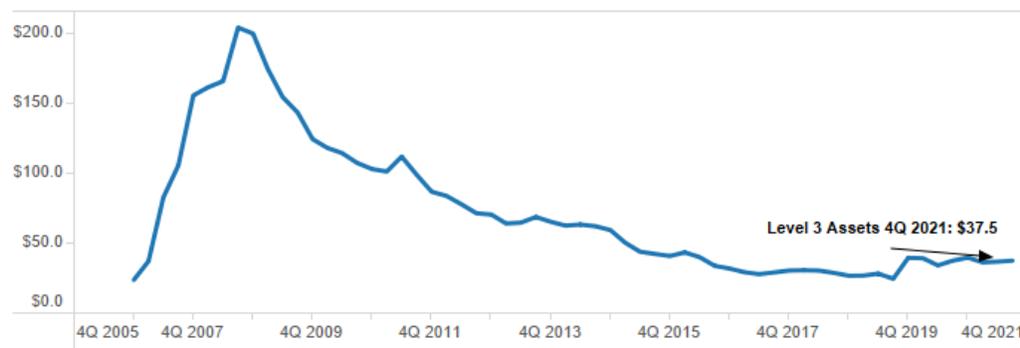
Level 3 Trading Assets

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,

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

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 2021, banks held \$37.5 billion of level 3 trading assets, up 2.0 percent from the previous quarter and 0.1 percent lower than a year ago. Level 3 trading assets are \$166.6 billion (81.6 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 \$7.0 trillion (3.8 percent) to \$177.5 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. Interest rate notional amounts continued to represent the majority of banks' derivative holdings at \$126.2 trillion, or 71.1 percent of total derivatives (see table 10).

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

	4Q 2021	3Q 2021	Q/Q Change	Q/Q % Change	4Q 2020	Y/Y Change	Y/Y % Change
Interest rate	\$126,236	\$131,769	-\$5,533	-4.2%	\$116,000	\$10,236	8.8%
FX	\$41,847	\$42,504	-\$657	-1.5%	\$39,596	\$2,251	5.7%
Equity	\$4,256	\$4,649	-\$393	-8.5%	\$3,775	\$481	12.8%
Commodity & Other	\$1,584	\$1,703	-\$119	-7.0%	\$1,395	\$190	13.6%
Credit derivatives	\$3,540	\$3,854	-\$314	-8.1%	\$3,034	\$506	16.7%
Total notional	\$177,464	\$184,480	-\$7,016	-3.8%	\$163,799	\$13,665	8.3%

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 contracts (see table 11). Swaps contracts remained the leading derivatives contract type at 61.6 percent of all notional amounts.

The four banks with the most derivative activity hold 89.2 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

	4Q 2021	3Q 2021	Q/Q Change	Q/Q % Change	4Q 2020	Y/Y Change	Y/Y % Change
Futures and forwards	\$31,180	\$35,311	-\$4,131	-11.7%	\$32,350	-\$1,170	-3.6%
Swaps	\$109,290	\$111,081	-\$1,791	-1.6%	\$96,423	\$12,867	13.3%
Options	\$33,453	\$34,233	-\$779	-2.3%	\$31,991	\$1,463	4.6%
Credit derivatives	\$3,540	\$3,854	-\$314	-8.1%	\$3,034	\$506	16.7%
Total notional	\$177,464	\$184,480	-\$7,016	-3.8%	\$163,799	\$13,665	8.3%

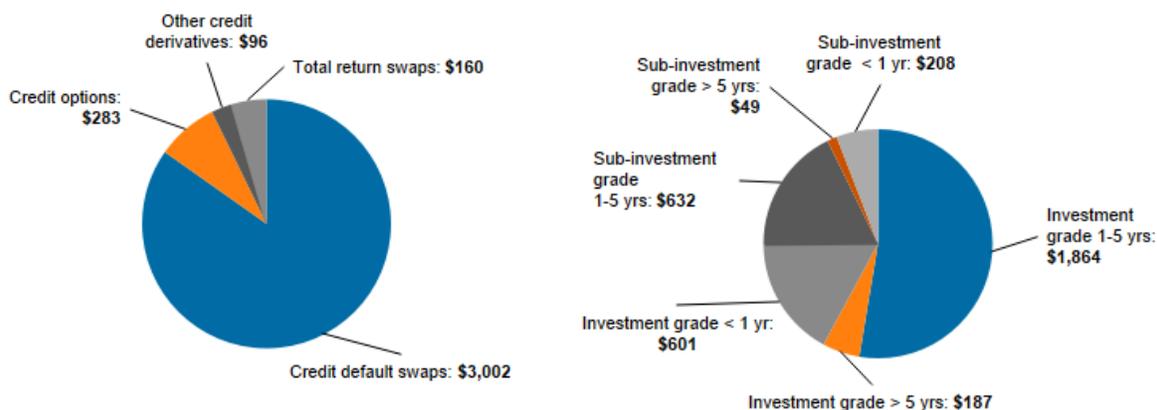
Source: Call reports, Schedule RC-L

Credit Derivatives

The notional amounts of credit derivatives decreased \$314.0 billion (8.1 percent), to \$3.5 trillion in the fourth quarter of 2021 (see table 10). Contracts referencing investment-grade firms decreased \$180.0 billion, and contracts referencing sub-investment-grade firms decreased \$134.0 billion in the fourth quarter (see figure 20 in the appendix). As shown in the chart on the left of figure 5, credit default swaps are the dominant product, at \$3.0 trillion (84.8 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 \$1.9 trillion or 52.6 percent of all credit derivative notional amounts. Contracts of all tenors that reference investment-grade entities are \$2.7 trillion or 74.9 percent of the market (see the chart on the right in figure 5).

Figure 5: Credit Derivative Composition, in Billions of Dollars



Source: Call reports, Schedule RC-L

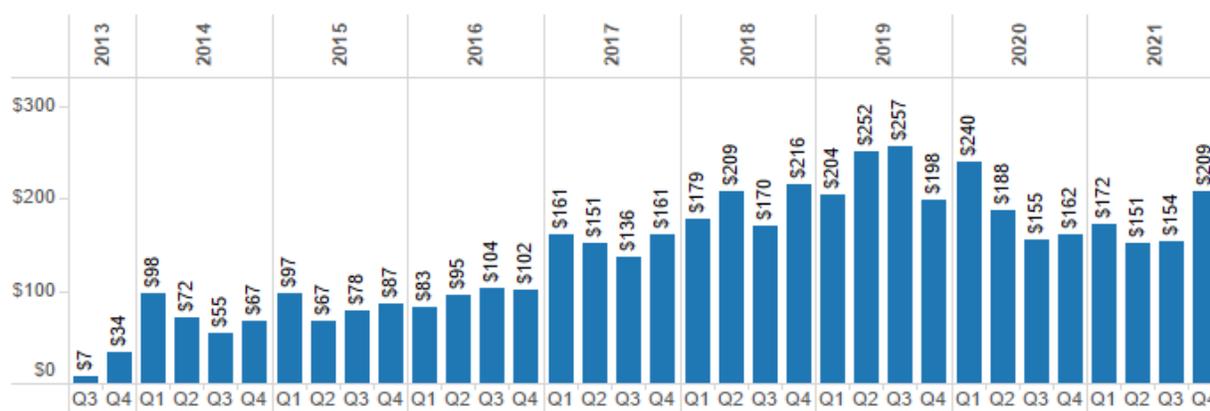
The notional amount for the 94 banks that net sold credit protection (i.e., assumed credit risk) was \$1.7 trillion, down \$156.3 billion (8.5 percent) from the third quarter of 2021 (see table 24 in the appendix). The notional amount for the 76 banks that net purchased credit protection (i.e., hedged credit risk) was \$1.9 trillion, \$157.4 billion lower (7.8 percent) than in the third quarter of 2021 (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 2021, 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 2021, 39.4 percent of banks' derivative holdings were centrally cleared (see table 12). From a market factor perspective, 51.8 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 29.2 percent of credit derivative transactions were centrally cleared during the fourth quarter of 2021.

Centrally cleared derivative transactions were heavily concentrated at qualifying central counterparties, with 92.1 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

	Interest rate	FX	Equity	Precious metals	Credit	Other	Total
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%
3Q 2020	49.2%	1.9%	24.9%	2.8%	39.2%	12.9%	38.9%
2Q 2020	50.7%	1.9%	25.7%	2.0%	36.0%	12.0%	40.3%
1Q 2020	52.9%	2.0%	26.5%	2.1%	34.4%	11.8%	42.3%

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											
DECEMBER 31, 2021 (MILLIONS OF DOLLARS)											
Rank	Bank Name	Legal Entity Identifier	Total Assets	Total Derivatives	Total Futures (EXCH TR)	Total Options (EXCH TR)	Total Forwards (OTC)	Total Swaps (OTC)	Total Options (OTC)	Total Credit Derivatives (OTC)	Spot FX
1	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	\$3,306,982	\$49,840,602	\$1,070,179	\$1,245,379	\$8,479,462	\$30,288,115	\$7,716,039	\$1,041,428	\$527,591
2	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	434,075	47,952,062	1,426,850	911,955	5,235,738	27,355,308	12,503,785	518,426	571,158
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,669,227	42,226,413	714,064	284,178	4,887,644	29,981,651	5,018,394	1,340,482	274,429
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,519,525	18,192,095	227,082	265,660	3,574,611	10,778,058	2,900,230	446,454	305,962
5	WELLS FARGO BANK NA	KB1H1DSPRFMYMCFXT09	1,779,504	9,098,582	450,912	238,417	502,658	6,117,634	1,684,244	104,717	5,839
6	STATE STREET BANK&TRUST CO	571474TGEMMWANRLN572	311,063	2,607,378	11,963	0	2,540,040	21,969	33,406	0	34,790
7	HSBC NA	1IE8VN30JCEQV1H4R804	187,957	1,356,998	45,824	7,649	476,715	735,022	84,762	7,026	31,319
8	BANK OF NEW YORK MELLON	HPFHU00Q28E4N0NFVK49	356,225	1,132,491	3,812	63	258,609	841,903	27,914	190	53,057
9	U S BANK NATIONAL ASSN	6BYL5QZYBDK8S7L73M02	564,155	759,269	19,476	1,400	97,418	428,312	203,332	9,331	2,457
10	PNC BANK NATIONAL ASSN	AD6GFRVSDT01YPT1CS68	551,903	521,017	5,346	3,603	27,642	429,724	43,019	11,682	1,330
11	WESTERN ALLIANCE BANK		55,997	480,763	447,094	0	29,250	1,387	3,033	0	0
12	NORTHERN TRUST CO	6PTKHDJ8HDUF78PFWH30	183,743	333,597	0	0	314,108	19,105	384	0	9,394
13	TD BANK NATIONAL ASSN	03D0JEWFDUS0SEEKG89	423,649	312,141	0	0	3,209	307,654	1,279	0	0
14	TRUIST BANK	JJKC32MCHWDI71265Z06	528,514	291,591	5,742	21,629	24,751	186,381	42,939	10,149	184
15	CITIZENS BANK NATIONAL ASSN	DRMSV1Q0EKMEXLAW1P80	188,070	201,985	3,825	0	16,793	163,287	15,712	2,368	95
16	FIFTH THIRD BANK NA	QFROUN1UWUYU0DVIWD51	209,697	156,168	1,818	183	6,456	101,547	40,740	5,423	269
17	MUFG UNION BANK NA	OX3PU53ZLPQKJ4700D47	127,859	144,569	767	0	17,395	121,738	4,669	1	340
18	REGIONS BANK	EQTWLK1G7ODGC2MGLV11	162,193	139,462	1,265	42	2,602	112,148	16,838	6,567	5
19	CAPITAL ONE NATIONAL ASSN	207ALC1P1YM0QVDV0K75	381,300	138,173	15,140	0	4,954	112,150	618	5,312	29
20	KEYBANK NATIONAL ASSN	HUX2X73FUCYHUVH1BK78	183,978	133,232	2,051	0	9,029	108,954	12,733	465	763
21	MORGAN STANLEY BANK NA	G1MLHIS0N32I3QPILB75	191,917	125,620	0	0	20,897	82,497	12,801	9,425	557
22	BOKF NATIONAL ASSN	FU7RSW4CQQY98A2O7J66	50,093	97,158	3,799	1,436	76,991	8,987	5,938	7	0
23	HUNTINGTON NATIONAL BANK	2WHM8VNHJH63UN14OL754	173,414	70,064	280	0	6,000	55,844	3,944	3,997	4
24	MANUFACTURERS&TRADERS TR CO	WWW2V0FCW3A0EE3ZJN75	154,653	58,976	0	0	2,631	53,819	2,525	0	158
25	SANTANDER BANK N A	TR24TWEY5RVRQV65HD49	101,845	54,160	0	0	2,023	45,522	6,520	96	74
Top 25 Commercial Banks, SAs & TCs With Derivatives			\$14,797,537	\$176,424,568	\$4,457,289	\$2,981,593	\$26,617,626	\$108,458,716	\$30,385,797	\$3,523,545	\$1,819,804
Other Commercial Banks, SAs & TCs With Derivatives			6,518,454	1,039,355	5,420	787	99,675	831,321	85,238	16,914	1,418
Total All Commercial Banks, SAs & TCs With Derivatives			21,315,991	177,463,922	4,462,709	2,982,380	26,717,301	109,290,037	30,471,035	3,540,460	1,821,222

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

Source: Call reports, Schedule RC-L

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

TOP 25 HOLDING COMPANIES IN DERIVATIVES											
DECEMBER 31, 2021 (MILLIONS OF DOLLARS)											
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.	815DZWZKVSZI1NUHU748	\$3,743,567	\$49,225,482	\$1,107,737	\$1,740,215	\$8,907,780	\$28,984,092	\$7,432,575	\$1,053,083	\$509,265
2	CITIGROUP INC.	6SHGI4ZSSLCXXQSB395	2,291,413	43,376,591	787,209	2,172,413	5,683,602	28,837,088	4,677,798	1,218,481	273,956
3	GOLDMAN SACHS GROUP, INC., THE	784F5XWPLTWKTBV3E584	1,463,990	42,443,322	1,936,678	2,156,405	5,107,212	22,671,262	9,490,987	1,080,778	206,964
4	MORGAN STANLEY	IGJSJL3JD5P30I6NJZ34	1,188,140	32,752,654	862,428	1,469,536	3,475,144	19,623,899	6,632,866	688,781	54,686
5	BANK OF AMERICA CORPORATION	9DJT3UXIJZJ4WXXO774	3,169,495	32,384,997	790,017	1,251,491	5,545,193	19,980,543	4,070,416	747,337	210,012
6	WELLS FARGO & COMPANY	PBLD0EJDB5FWOLXP3B76	1,948,068	9,343,489	464,199	263,014	930,033	5,920,657	1,681,413	84,173	5,837
7	MIZUHO AMERICAS LLC		47,639	6,602,310	28,296	17,729	161,386	6,189,023	197,322	8,554	1,038
8	SMBC AMERICAS HOLDINGS, INC.		26,740	5,587,115	136,843	2,057,306	114,257	2,214,740	1,062,601	1,368	549
9	HSBC NORTH AMERICA HOLDINGS INC.	213800JCL1FHBQK3M654	239,900	3,570,790	292,414	739,799	477,453	1,963,289	90,809	7,026	31,319
10	STATE STREET CORPORATION	549300ZFEEJ2IP5VME73	314,624	2,601,828	11,963	0	2,540,040	16,419	33,406	0	34,790
11	BANK OF NEW YORK MELLON CORPORATION, THE	WFLLEPC7FZXENRZV188	444,438	1,123,327	4,771	298	274,989	815,165	27,914	190	53,048
12	U.S. BANCORP	N1GZ7BBF3NP8GI976H15	573,284	765,504	19,476	1,400	96,095	435,870	203,332	9,331	2,457
13	RBC US GROUP HOLDINGS LLC		174,999	715,682	195,539	263,270	11,482	244,443	361	587	153
14	BARCLAYS US LLC	213800H14XVWV087OI72	160,476	564,595	17,286	282,179	218,535	44,910	0	1,685	6
15	PNC FINANCIAL SERVICES GROUP, INC., THE	CFGNEKW0P8842LEUIA51	557,251	514,572	5,499	3,603	31,843	418,927	43,019	11,682	1,330
16	WESTERN ALLIANCE BANCORPORATION	5493003VJXZ5JXT9S762	55,983	480,763	447,094	0	29,250	1,387	3,033	0	0
17	TD GROUP US HOLDINGS LLC	549300ARWZ5E3L64UH29	524,425	346,548	19,755	90	10,928	314,496	1,279	0	0
18	NORTHERN TRUST CORPORATION	549300GLF98S992BC502	183,890	330,847	0	0	314,108	16,355	384	0	9,394
19	TRUIST FINANCIAL CORPORATION	549300DRQQI75D2JP341	541,241	300,388	5,742	21,629	27,105	192,814	42,939	10,159	184
20	CREDIT SUISSE HOLDINGS (USA), INC.	549300YHT5NGRKJD1R94	98,726	218,820	4,248	1,902	103,381	42,501	14,266	52,521	22
21	CAPITAL ONE FINANCIAL CORPORATION	ZUE8T73ROZOF6FLBAR73	432,381	213,040	15,140	0	13,204	178,406	618	5,672	29
22	CITIZENS FINANCIAL GROUP, INC.	2138004JDDA4ZQUPFW65	188,709	201,985	3,825	0	16,793	163,287	15,712	2,368	95
23	MUFG AMERICAS HOLDINGS CORPORATION	5493004K1ECE43Q0BX47	163,136	157,541	2,164	600	26,244	121,738	6,543	251	340
24	FIFTH THIRD BANCORP	THRNG6BD57P9QWTQLG42	211,116	157,373	1,818	183	6,456	102,752	40,740	5,423	269
25	AMERIPRISE FINANCIAL, INC.	GRI2NT5QHYW751NMR949	175,983	144,863	11,541	5,167	215	72,947	53,246	1,748	1
Top 25 Holding Companies With Derivatives			\$18,919,613	\$234,124,425	\$7,171,680	\$12,448,230	\$34,122,727	\$139,567,009	\$35,823,580	\$4,991,198	\$1,819,804

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

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											
DECEMBER 31, 2021 (MILLIONS OF DOLLARS)											
Rank	Bank Name	Legal Entity Identifier	Total Assets	Total Derivatives	Percent Exchange Traded Contracts	Percent OTC Contracts	Percent Interest Rate Contracts	Percent Foreign Exchange Contracts	Percent Equity Contracts	Percent Other Contracts	Percent Credit Derivatives
1	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	\$3,306,982	\$49,840,602	4.6%	95.4%	66.5%	25.7%	3.9%	1.8%	2.1%
2	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	434,075	47,952,062	4.9	95.1	84.6	13.9	0.3	0.1	1.1
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,669,227	42,226,413	2.4	97.6	65.2	28.4	2.4	0.8	3.2
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,519,525	18,192,095	2.7	97.3	67.7	25.5	4.1	0.3	2.5
5	WELLS FARGO BANK NA	KB1H1DSPRFMYMUCUFXT09	1,779,504	9,098,582	7.6	92.4	87.8	7.0	3.2	0.8	1.2
6	STATE STREET BANK&TRUST CO	571474TGEMMWANRLN572	311,063	2,607,378	0.5	99.5	1.2	97.6	0.0	1.3	0.0
7	HSBC NA	11E8VN30JCEQV1H4R804	187,957	1,356,998	3.9	96.1	18.2	76.0	2.1	3.2	0.5
8	BANK OF NEW YORK MELLON	HPFHU0OQ28E4N0NFVK49	356,225	1,132,491	0.3	99.7	21.7	77.5	0.8	0.0	0.0
9	U S BANK NATIONAL ASSN	6BYL5QZYBDK8S7L73M02	564,155	759,269	2.7	97.3	86.5	12.0	0.0	0.2	1.2
10	PNC BANK NATIONAL ASSN	AD6GFRVSDT01YPT1CS68	551,903	521,017	1.7	98.3	90.1	4.0	1.4	2.3	2.2
11	WESTERN ALLIANCE BANK		55,997	480,763	93.0	7.0	100.0	0.0	0.0	0.0	0.0
12	NORTHERN TRUST CO	6PTKHDJ8HDUF78PFWH30	183,743	333,597	0.0	100.0	5.6	94.2	0.2	0.0	0.0
13	TD BANK NATIONAL ASSN	03D0JEWDFUS0SEEK89	423,649	312,141	0.0	100.0	95.6	4.4	0.0	0.0	0.0
14	TRUIST BANK	JJKC32MCHWDI71265Z06	528,514	291,591	9.4	90.6	77.7	5.5	11.7	1.6	3.5
15	CITIZENS BANK NATIONAL ASSN	DRMSV1Q0EKMEXLAU1P80	188,070	201,985	1.9	98.1	88.0	10.6	0.0	0.3	1.2
16	FIFTH THIRD BANK NA	QFROUN1UWUYU0DV1WD51	209,697	156,168	1.3	98.7	71.6	14.8	2.3	7.9	3.5
17	MUFG UNION BANK NA	OX3PU53ZLPQKJ4700D47	127,859	144,569	0.5	99.5	89.1	10.8	0.1	0.0	0.0
18	REGIONS BANK	EQTWLK1G7ODGC2MGLV11	162,193	139,462	0.9	99.1	93.2	1.0	0.0	1.1	4.7
19	CAPITAL ONE NATIONAL ASSN	207ALC1P1YMOOVDV0K75	381,300	138,173	11.0	89.0	84.9	3.1	0.0	8.1	3.8
20	KEYBANK NATIONAL ASSN	HUX2X73FUCYHUVH1BK78	183,978	133,232	1.5	98.5	82.2	6.8	0.0	10.6	0.3
21	MORGAN STANLEY BANK NA	G1MLHIS0N32I3QPILB75	191,917	125,620	0.0	100.0	37.5	23.1	31.9	0.0	7.5
22	BOKF NATIONAL ASSN	FU7RSW4CQQY98A2O7J66	50,093	97,158	5.4	94.6	86.3	0.4	0.1	13.2	0.0
23	HUNTINGTON NATIONAL BANK	2WHM8VNJH63UN14OL754	173,414	70,064	0.4	99.6	86.6	5.3	0.8	1.5	5.7
24	MANUFACTURERS&TRADERS TR CO	WWB2V0FCW3A0EE3ZJN75	154,653	58,976	0.0	100.0	98.8	1.2	0.0	0.0	0.0
25	SANTANDER BANK N A	TR24TWEY5RVRQV65HD49	101,845	54,160	0.0	100.0	91.2	8.6	0.0	0.0	0.2
Top 25 Commercial Banks, SAs & TCs with Derivatives			\$14,797,537	\$176,424,568	\$7,438,883	\$168,985,685	\$125,292,751	\$41,783,704	\$4,253,187	\$1,571,379	\$3,523,545
Other Commercial Banks, SAs & TCs with Derivatives			6,518,454	1,039,355	6,207	1,033,148	943,317	63,367	2,927	12,828	16,914
Total All Commercial Banks, SAs & TCs with Derivatives			21,315,991	177,463,922	7,445,089	170,018,833	126,236,069	41,847,071	4,256,115	1,584,207	3,540,460
Top 25 Commercial Banks, SAs & TCs: Percentage with Derivatives				99.4%	4.2%	95.2%	70.6%	23.5%	2.4%	0.9%	2.0%
Other Commercial Banks, SAs & TCs: Percentage with Derivatives				0.6	0.0	0.6	0.5	0.0	0.0	0.0	0.0
Total All Commercial Banks, SAs & TCs: Percentage with Derivatives				100.0	4.2	95.8	71.1	23.6	2.4	0.9	2.0

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

Source: Call reports, Schedule RC-L

Table 16: Credit Equivalent Exposures

TOP 25 COMMERCIAL BANKS, SAVINGS ASSOCIATIONS AND TRUST COMPANIES IN DERIVATIVES									
DECEMBER 31, 2021 (MILLIONS OF DOLLARS)									
Rank	Bank Name	Legal Entity Identifier	Total Assets	Total Derivatives	Total Risk-Based Capital	Bilaterally Netted Current Credit Exposure	Potential Future Exposure	Total Credit Exposure From All Contracts	Percent of Total Credit Exposure To Capital
1	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	\$3,306,982	\$49,840,602	\$281,826	\$165,769	\$237,730	\$403,499	143%
2	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	434,075	47,952,062	48,965	13,888	58,905	72,793	149
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,669,227	42,226,413	166,921	67,774	187,968	255,742	153
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,519,525	18,192,095	194,773	32,966	61,574	94,540	49
5	WELLS FARGO BANK NA	KB1H1DSPRFMYMCUFXT09	1,779,504	9,098,582	173,044	26,098	23,115	49,213	28
6	STATE STREET BANK&TRUST CO	571474TGEMMWANRLN572	311,063	2,607,378	19,703	6,280	7,347	13,627	69
7	HSBC NA	1IE8VN30JCEQV1H4R804	187,957	1,356,998	22,157	2,857	4,806	7,664	35
8	BANK OF NEW YORK MELLON	HPFHU00Q28E4N0NFVK49	356,225	1,132,491	21,683	4,783	3,634	8,417	39
9	U S BANK NATIONAL ASSN	6BYL5QZYBDK8S7L73M02	564,155	759,269	53,125	3,275	5,976	9,251	17
10	PNC BANK NATIONAL ASSN	AD6GFRVSDT01YPT1CS68	551,903	521,017	49,083	4,843	962	5,804	12
11	WESTERN ALLIANCE BANK		55,997	480,763	5,120	9	36	46	1
12	NORTHERN TRUST CO	6PTKHDJ8HDUF78PFWH30	183,743	333,597	11,158	1,280	2,658	3,939	35
13	TD BANK NATIONAL ASSN	03D0JEWFDUFUS0SEEG89	423,649	312,141	36,466	188	1,418	1,606	4
14	TRUIST BANK	JJKC32MCHWDI71265Z06	528,514	291,591	45,562	2,430	2,597	5,027	11
15	CITIZENS BANK NATIONAL ASSN	DRMSV1Q0EKMEXLAU1P80	188,070	201,985	19,600	1,114	1,433	2,548	13
16	FIFTH THIRD BANK NA	QFROUN1UWUYU0DVIWD51	209,697	156,168	18,917	2,526	2,503	5,029	27
17	MUFG UNION BANK NA	OX3PU53ZLPQKJ4700D47	127,859	144,569	16,265	1,123	454	1,577	10
18	REGIONS BANK	EQTWLK1G7ODGC2MGLV11	162,193	139,462	13,985	459	523	982	7
19	CAPITAL ONE NATIONAL ASSN	207ALC1P1YM0OVDV0K75	381,300	138,173	29,449	2,630	3,256	5,887	20
20	KEYBANK NATIONAL ASSN	HUX2X73FUCYHUVH1BK78	183,978	133,232	17,211	1,826	1,973	3,799	22
21	MORGAN STANLEY BANK NA	G1MLHIS0N32I3QPILB75	191,917	125,620	19,544	311	4,589	4,900	25
22	BOKF NATIONAL ASSN	FU7RSW4CQQY98A2O7J66	50,093	97,158	4,165	1,378	1,077	2,455	59
23	HUNTINGTON NATIONAL BANK	2WHM8VNJH63UN14OL754	173,414	70,064	16,427	828	715	1,543	9
24	MANUFACTURERS&TRADERS TR CO	VWB2V0FCW3A0EE3ZJN75	154,653	58,976	14,170	427	141	568	4
25	SANTANDER BANK N A	TR24TWEY5RVRQV65HD49	101,845	54,160	11,413	616	410	1,027	9
Top 25 Commercial Banks, SAs & TCs With Derivatives			\$14,797,537	\$176,424,568	\$1,310,734	\$345,681	\$615,799	\$961,480	73%
Other Commercial Banks, SAs & TCs With Derivatives			6,518,454	1,039,355	616,327	10,146	9,803	19,948	3
Total All Commercial Banks, SAs & TCs With Derivatives			21,315,991	177,463,922	1,927,061	355,827	625,602	981,429	51

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

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								
DECEMBER 31, 2021 (MILLIONS OF DOLLARS)								
Rank	Bank Name	Legal Entity Identifier	Total Assets	Total Derivatives	Total Held for Trading & MTM	Percent Held for Trading & MTM	Total Not Held For Trading & MTM	Percent Not Held for Trading & MTM
1	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	\$3,306,982	\$49,840,602	\$48,357,684	99.1%	\$441,490	0.9%
2	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	434,075	47,952,062	47,399,710	99.9	33,926	0.1
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,669,227	42,226,413	40,730,375	99.6	155,556	0.4
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,519,525	18,192,095	16,322,555	92.0	1,423,086	8.0
Top 4 Commercial Banks, SAs & TCs With Derivatives			\$7,929,809	\$158,211,172	\$152,810,324	98.7%	\$2,054,058	1.3%
Other Commercial Banks, SAs & TCs With Derivatives			13,386,182	19,252,750	16,550,519	86.8	2,508,562	13.2
Total All Commercial Banks, SAs & TCs With Derivatives			21,315,991	177,463,922	169,360,843	97.4	4,562,620	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. Numbers may not add up to total due to rounding.

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										
DECEMBER 31, 2021 (MILLIONS OF DOLLARS)										
					Trading		Not For Trading		Credit Derivatives	
Rank	Bank Name	Legal Entity Identifier	Total Assets	Total Derivatives	Gross Positive Fair Value*	Gross Negative Fair Value**	Gross Positive Fair Value*	Gross Negative Fair Value**	Gross Positive Fair Value	Gross Negative Fair Value**
1	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	\$3,306,982	\$49,840,602	\$585,934	\$560,804	\$1,542	\$2,211	\$9,118	\$10,070
2	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	434,075	47,952,062	623,402	618,461	117	183	9,603	10,892
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,669,227	42,226,413	406,078	397,006	2,622	1,949	15,400	15,721
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,519,525	18,192,095	153,354	152,658	23,052	26,477	3,854	4,333
Top 4 Commercial Banks, SAs & TCs With Derivatives			\$7,929,809	\$158,211,172	\$1,768,768	\$1,728,929	\$27,333	\$30,820	\$37,975	\$41,016
Other Commercial Banks, SAs & TCs With Derivatives			13,386,182	19,252,750	127,092	117,143	14,100	11,490	1,698	3,084
Total All Commercial Banks, SAs & TCs With Derivatives			21,315,991	177,463,922	1,895,860	1,846,072	41,433	42,310	39,673	44,100

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.

Numbers may not sum due to rounding.

*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										
DECEMBER 31, 2021 (MILLIONS OF DOLLARS)										
NOTE: REVENUE FIGURES ARE FOR THE QUARTER (NOT YEAR-TO-DATE)										
Rank	Bank Name	Legal Entity Identifier	Total Assets	Total Derivatives	Total Trading Revenues From Cash & Off-Balance Sheet Positions	Trading Revenue From Interest Rate Positions	Trading Revenue From Foreign Exchange Positions	Trading Revenue From Equity Positions	Trading Revenue From Commodity & Other Positions	Trading Revenue From Credit Positions
1	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	\$3,306,982	\$49,840,602	\$3,294	\$269	\$448	\$2,284	\$196	\$97
2	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	434,075	47,952,062	230	(404)	763	333	15	(477)
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,669,227	42,226,413	2,220	322	961	651	45	241
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,519,525	18,192,095	632	12	375	263	2	(20)
Top 4 Commercial Banks, SAs & TCs With Derivatives			\$7,929,809	\$158,211,172	\$6,376	\$199	\$2,547	\$3,531	\$258	(\$159)
Other Commercial Banks, SAs & TCs With Derivatives			13,386,182	19,252,750	1,150	74	1,200	3	89	(216)
Total All Commercial Banks, SAs & TCs With Derivatives			21,315,991	177,463,922	7,526	273	3,747	3,534	347	(375)

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." Numbers may not add up to total due to rounding.

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

Table 20: Notional Amounts of Derivative Contracts by Contract Type and Maturity (Interest Rate, FX, and Gold)

TOP FOUR COMMERCIAL BANKS, SAVINGS ASSOCIATIONS AND TRUST COMPANIES IN DERIVATIVES												
DECEMBER 31, 2021 (MILLIONS OF DOLLARS)												
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	FX and Gold Maturity < 1 Year	FX and Gold Maturity 1-5 Years	FX and Gold Maturity > 5 Years	FX and Gold: All Maturities
1	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	\$3,306,982	\$49,840,602	\$18,946,847	\$21,434,745	\$5,090,659	\$45,472,251	\$7,447,330	\$2,481,595	\$1,191,106	\$11,120,031
2	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	434,075	47,952,062	20,269,196	7,230,619	6,741,427	34,241,242	5,042,232	899,003	701,056	6,642,291
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,669,227	42,226,413	19,831,311	3,459,012	2,590,438	25,880,761	10,394,140	737,231	265,219	11,396,590
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,519,525	18,192,095	3,982,719	4,821,245	3,776,909	12,580,873	3,726,524	482,886	312,010	4,521,420
Top 4 Commercial Banks, SAs & TCs With Derivatives			\$7,929,809	\$158,211,172	\$63,030,073	\$36,945,621	\$18,199,433	\$118,175,127	\$26,610,226	\$4,600,715	\$2,469,391	\$33,680,332
Other Commercial Banks, SAs & TCs With Derivatives			13,386,182	19,252,750	5,008,503	4,300,824	2,268,239	11,577,567	4,343,736	263,156	82,542	4,689,433
Total All Commercial Banks, SAs & TCs With Derivatives			21,315,991	177,463,922	68,038,576	41,246,445	20,467,672	129,752,694	30,953,962	4,863,871	2,551,933	38,369,765

Note: Figures above exclude any contracts not subject to risk-based capital requirements, such as FX contracts with an original maturity of 14 days or less, futures contracts, written options, and basis swaps. Therefore, the total notional amount of derivatives by maturity will not add to the total derivatives figure in this table. Numbers may not add up to total due to rounding. Effective 2015 Q1, the reporting form and call report instructions changed. Schedule RC-R now requires banks to report FX and gold notional amounts in aggregate, rather than separately.

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								
DECEMBER 31, 2021 (MILLIONS OF DOLLARS)								
Rank	Bank Name	Legal Entity Identifier	Total Assets	Total Derivatives	Precious Metals Maturity < 1 Year	Precious Metals Maturity 1-5 Years	Precious Metals Maturity > 5 Years	Precious Metals: All Maturities
1	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	\$3,306,982	\$49,840,602	\$27,037	\$1,145	\$0	\$28,182
2	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	434,075	47,952,062	4,398	412	0	4,810
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,669,227	42,226,413	6,578	401	0	6,979
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,519,525	18,192,095	26,789	531	0	27,320
Top 4 Commercial Banks, SAs & TCs With Derivatives			\$7,929,809	\$158,211,172	\$64,802	\$2,489	\$0	\$67,291
Other Commercial Banks, SAs & TCs With Derivatives			13,386,182	19,252,750	10,974	968	14	11,955
Total All Commercial Banks, SAs & TCs With Derivatives			21,315,991	177,463,922	75,776	3,457	14	79,246

Note: Figures above exclude any contracts not subject to risk-based capital requirements, such as FX contracts with an original maturity of 14 days or less, futures contracts, written options, and basis swaps. Therefore, the total notional amount of derivatives by maturity will not add to the total derivatives figure in this table. Precious metals include Silver, Platinum, and Palladium. Numbers may not add up to total due to rounding.

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												
DECEMBER 31, 2021 (MILLIONS OF DOLLARS)												
Rank	Bank Name	Legal Entity Identifier	Total Assets	Total Derivatives	Other Commodity Maturity < 1 Year	Other Commodity Maturity 1-5 Years	Other Commodity Maturity > 5 Years	Other Commodity: All Maturities	Equity Maturity < 1 Year	Equity Maturity 1-5 Years	Equity Maturity > 5 Years	Equity: All Maturities
1	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	\$3,306,982	\$49,840,602	\$952,466	\$100,621	\$6,436	\$1,059,523	\$2,455,286	\$550,999	\$103,249	\$3,109,534
2	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	434,075	47,952,062	43,241	15,051	41	58,333	178,323	43,263	9,846	231,432
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,669,227	42,226,413	136,234	47,983	688	184,905	488,619	148,382	8,942	645,943
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,519,525	18,192,095	16,480	7,351	9	23,840	563,398	223,358	18,212	804,968
Top 4 Commercial Banks, SAs & TCs With Derivatives			\$7,929,809	\$158,211,172	\$1,148,421	\$171,006	\$7,174	\$1,326,601	\$3,685,626	\$966,002	\$140,249	\$4,791,877
Other Commercial Banks, SAs & TCs With Derivatives			13,386,182	19,252,750	67,652	107,557	164	175,374	195,145	89,171	4,471	288,787
Total All Commercial Banks, SAs & TCs With Derivatives			21,315,991	177,463,922	1,216,073	278,563	7,338	1,501,975	3,880,771	1,055,173	144,720	5,080,664

Note: Figures above exclude any contracts not subject to risk-based capital requirements, such as FX contracts with an original maturity of 14 days or less, futures contracts, written options, and basis swaps. Therefore, the total notional amount of derivatives by maturity will not add to the total derivatives figure in this table. Numbers may not add up to total due to rounding.

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													
DECEMBER 31, 2021 (MILLIONS OF DOLLARS)													
Rank	Bank Name	Legal Entity Identifier	Total Assets	Total Derivatives	Total Credit Derivatives	Credit Derivatives Investment Grade				Credit Derivatives Sub-Investment Grade			
						Maturity <1 Year	Maturity 1-5 Years	Maturity >5 Years	All Maturities	Maturity <1 Year	Maturity 1-5 Years	Maturity >5 Years	All Maturities
1	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	\$3,306,982	\$49,840,602	\$1,041,428	\$204,467	\$523,772	\$54,874	\$783,113	\$72,980	\$176,340	\$8,995	\$258,315
2	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAYLU02	434,075	47,952,062	518,426	59,895	247,297	37,073	344,265	26,506	133,545	14,110	174,161
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,669,227	42,226,413	1,340,482	180,840	821,289	60,475	1,062,604	59,180	211,116	7,582	277,878
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,519,525	18,192,095	446,454	114,667	194,770	20,048	329,485	40,405	70,549	6,015	116,969
Top 4 Commercial Banks, SAs & TCs With Derivatives			\$7,929,809	\$158,211,172	\$3,346,790	\$559,869	\$1,787,128	\$172,470	\$2,519,467	\$199,071	\$591,550	\$36,702	\$827,323
Other Commercial Banks, SAs & TCs With Derivatives			13,386,182	19,252,750	193,670	40,668	76,519	14,308	131,496	9,038	40,903	12,233	62,174
Total All Commercial Banks, SAs & TCs With Derivatives			21,315,991	177,463,922	3,540,460	600,537	1,863,647	186,778	2,650,963	208,109	632,453	48,935	889,497

Note: Figures above exclude any contracts not subject to risk-based capital requirements, such as FX contracts with an original maturity of 14 days or less, futures contracts, written options, and basis swaps. Therefore, the total notional amount of derivatives by maturity will not add to the total derivatives figure in this table. Numbers may not add up to total due to rounding.

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

Table 24: Distribution of Credit Derivative Contracts Held for Trading

TOP 25 COMMERCIAL BANKS, SAVINGS ASSOCIATIONS AND TRUST COMPANIES IN DERIVATIVES																
DECEMBER 31, 2021 (MILLIONS OF DOLLARS)																
Rank	Bank Name	Legal Entity Identifier	Total Assets	Total Derivatives	Total Credit Derivatives	Total Credit Derivatives Purchased	Total Credit Derivatives Sold	Purchased				Sold				
								Credit Default Swaps	Total Return Swaps	Credit Options	Other Credit Derivatives	Credit Default Swaps	Total Return Swaps	Credit Options	Other Credit Derivatives	
1	JPMORGAN CHASE BANK NA	7H6GLXDRUGQFU57RNE97	\$3,306,982	\$49,840,602	\$1,041,428	\$543,915	\$497,513	\$450,896	\$25,906	\$61,982	\$5,131	\$435,674	\$9,946	\$51,890	\$3	
2	GOLDMAN SACHS BANK USA	KD3XUN7C6T14HNAFLU02	434,075	47,952,062	518,426	287,178	231,248	267,117	3,294	15,696	1,071	216,759	3,294	11,177	18	
3	CITIBANK NATIONAL ASSN	E57ODZWZ7FF32TWEFA76	1,669,227	42,226,413	1,340,482	698,349	642,133	655,006	16,264	27,079	0	606,215	7,298	28,620	0	
4	BANK OF AMERICA NA	B4TYDEB6GKMZO031MB27	2,519,525	18,192,095	446,454	230,035	216,419	171,003	12,639	46,393	0	158,989	18,192	39,238	0	
5	WELLS FARGO BANK NA	KB1H1DSPRFMYMCUFXT09	1,779,504	9,098,582	104,717	62,707	42,010	9,518	37,097	250	15,842	7,680	23,895	0	10,435	
6	STATE STREET BANK&TRUST CO	571474TGEMMWANRLN572	311,063	2,607,378	0	0	0	0	0	0	0	0	0	0	0	
7	HSBC NA	1IE8VN30JCEQV1H4R804	187,957	1,356,998	7,026	4,852	2,174	4,613	239	0	0	2,174	0	0	0	
8	BANK OF NEW YORK MELLON	HPFHU0OQ28E4NONFVK49	356,225	1,132,491	190	190	0	190	0	0	0	0	0	0	0	
9	U S BANK NATIONAL ASSN	6BYL5QZYBDK8S7L73M02	564,155	759,269	9,331	3,315	6,016	858	0	0	2,457	0	0	0	6,016	
10	PNC BANK NATIONAL ASSN	AD6GFRVSDT01YPT1CS68	551,903	521,017	11,682	4,147	7,535	600	0	0	3,547	0	0	0	7,535	
11	WESTERN ALLIANCE BANK		55,997	480,763	0	0	0	0	0	0	0	0	0	0	0	
12	NORTHERN TRUST CO	6PTKHDJ8HDFU78PFWH30	183,743	333,597	0	0	0	0	0	0	0	0	0	0	0	
13	TD BANK NATIONAL ASSN	03D0JEWDFDUS0SEK89	423,649	312,141	0	0	0	0	0	0	0	0	0	0	0	
14	TRUIST BANK	JJKC32MCHWDI71265Z06	528,514	291,591	10,149	3,363	6,786	560	1,445	0	1,358	0	0	0	6,786	
15	CITIZENS BANK NATIONAL ASSN	DRMSV1Q0EKEMEXLAU1P80	188,070	201,985	2,368	0	2,368	0	0	0	0	0	0	0	2,368	
16	FIFTH THIRD BANK NA	QFROUN1UWUJU0DVIWD51	209,697	156,168	5,423	1,643	3,780	0	0	0	1,643	0	0	0	3,780	
17	MUFG UNION BANK NA	OX3PU53ZLPQKJ4700D47	127,859	144,569	1	1	0	1	0	0	0	0	0	0	0	
18	REGIONS BANK	EQTWLKG7ODGC2MGLV11	162,193	139,462	6,567	2,739	3,828	0	0	0	2,739	0	0	0	3,828	
19	CAPITAL ONE NATIONAL ASSN	207ALC1P1YM0QVDV0K75	381,300	138,173	5,312	2,487	2,825	0	0	0	2,487	0	0	0	2,825	
20	KEYBANK NATIONAL ASSN	HUX2X73FUCYHUVH1BK78	183,978	133,232	465	223	242	223	0	0	0	149	93	0	0	
21	MORGAN STANLEY BANK NA	G1MLHISON32I3QPILB75	191,917	125,620	9,425	9,055	370	8,360	0	695	0	370	0	0	0	
22	BOKF NATIONAL ASSN	FU7RSW4CQQY98A2O7J66	50,093	97,158	7	1	6	1	0	0	0	6	0	0	0	
23	HUNTINGTON NATIONAL BANK MANUFACTURERS&TRADERS TR CO	2WHM8VNH63UN14OL754	173,414	70,064	3,997	2,809	1,188	0	0	0	2,809	0	0	0	1,188	
24		WWB2V0FCW3A0EE3ZJN75	154,653	58,976	0	0	0	0	0	0	0	0	0	0	0	
25	SANTANDER BANK N A	TR24TWEY5RVRQV65HD49	101,845	54,160	96	4	92	4	0	0	0	92	0	0	0	
Top 25 Commercial Banks, SAs & TCs with Derivatives			\$14,797,537	\$176,424,568	\$3,523,545	\$1,857,013	\$1,666,533	\$1,568,950	\$96,884	\$152,095	\$39,084	\$1,428,108	\$62,718	\$130,925	\$44,782	
Other Commercial Banks, SAs & TCs with Derivatives			6,518,454	1,039,355	16,914	6,298	10,617	1,673	75	0	4,550	3,095	2	0	7,520	
Total All Commercial Banks, SAs & TCs with Derivatives			21,315,991	177,463,922	3,540,460	1,863,311	1,677,149	1,570,622	96,959	152,095	43,634	1,431,203	62,720	130,925	52,301	
Top 25 Commercial Banks, SAs & TCs: Percentage with Derivatives					99.5	52.5	47.1	44.3	2.7	4.3	1.1	40.3	1.8	3.7	1.3	99.5
Other Commercial Banks, SAs & TCs: Percentage with Derivatives					0.5	0.2	0.3	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.5
Total All Commercial Banks, SAs & TCs: Percentage with Derivatives					100.0	52.6	47.4	44.4	2.7	4.3	1.2	40.4	1.8	3.7	1.5	100.0

Note: Credit derivatives have been excluded from the sum of total derivatives here. Numbers may not add up to total due to rounding.

Source: Call reports, Schedule RC-L

Table 25: Derivatives Data Reported by FFIEC 051 Filers*

COMMERCIAL BANKS, SAVINGS ASSOCIATIONS AND TRUST COMPANIES IN DERIVATIVES												
DECEMBER 31, 2021 (MILLIONS OF DOLLARS)												
Call Report Schedule SU												
Gross Notional Amount of Derivatives	4Q21	3Q21	2Q21	1Q21	4Q20	3Q20	2Q20	1Q20	4Q19	3Q19	2Q19	1Q19
<i>Total gross notional amount of interest rate derivatives held for trading</i>	\$5,002	\$5,301	\$5,189	\$5,391	\$5,819	\$6,236	\$5,183	\$4,476	\$2,293	\$2,526	\$913	\$1,131
<i>Total gross notional amount of all other derivatives held for trading</i>	\$34	\$14	\$173	\$20	\$19	\$53	\$34	\$48	\$33	\$30	\$37	\$24
<i>Total gross notional amount of interest rate derivatives not held for trading</i>	\$22,495	\$29,991	\$31,949	\$38,839	\$52,867	\$57,459	\$52,779	\$37,572	\$20,044	\$18,527	\$11,135	\$9,020
<i>Total gross notional amount of all other derivatives not held for trading</i>	\$1,306	\$1,461	\$1,350	\$1,269	\$1,137	\$1,202	\$1,302	\$1,171	\$631	\$546	\$273	\$242
	\$5,002	\$5,301	\$5,189	\$5,391	\$5,819	\$6,236	\$5,183	\$4,476	\$2,293	\$2,526	\$913	\$1,131
Call Report Schedule RC-R**												
Notional principal amounts of over-the-counter derivative contracts covered by the regulatory capital rules:												
	4Q21	3Q21	2Q21	1Q21	4Q20	3Q20	2Q20	1Q20	4Q19	3Q19	2Q19	1Q19
<i>Interest rate</i>	\$13,975	Data Not Reported	\$17,688	Data Not Reported	\$22,947	Data Not Reported	\$33,122	Data Not Reported	\$12,478	Data Not Reported	\$7,177	\$5,858
<i>Foreign exchange rate and gold</i>	\$4		\$3		\$84		\$19		\$18		\$4	\$5
<i>Credit (investment grade reference asset)</i>	\$230		\$196		\$217		\$199		\$166		\$39	\$41
<i>Credit (non-investment grade reference asset)</i>	\$160		\$154		\$143		\$138		\$61		\$25	\$25
<i>Equity</i>	\$0		\$0		\$0		\$0		\$0		\$0	\$0
<i>Other</i>	\$4		\$1		\$20		\$25		\$9		\$5	\$5
Notional principal amounts of centrally cleared derivative contracts covered by the regulatory capital rules:												
	4Q21	3Q21	2Q21	1Q21	4Q20	3Q20	2Q20	1Q20	4Q19	3Q19	2Q19	1Q19
<i>Interest rate</i>	\$21	Data Not Reported	\$193	Data Not Reported	\$250	Data Not Reported	\$299	Data Not Reported	\$96	Data Not Reported	\$168	\$686
<i>Foreign exchange rate and gold</i>	\$0		\$0		\$0		\$0		\$0		\$0	\$0
<i>Credit (investment grade reference asset)</i>	\$0		\$0		\$0		\$0		\$0		\$0	\$0
<i>Credit (non-investment grade reference asset)</i>	\$0		\$0		\$0		\$0		\$0		\$0	\$0
<i>Equity</i>	\$0		\$0		\$0		\$0		\$0		\$0	\$0
<i>Other</i>	\$0		\$0		\$0		\$0		\$0		\$0	\$0
Current credit exposure across all derivative contracts covered by the regulatory capital rules												
	4Q21	3Q21	2Q21	1Q21	4Q20	3Q20	2Q20	1Q20	4Q19	3Q19	2Q19	1Q19
	\$233	Data Not Reported	\$287	Data Not Reported	\$449	Data Not Reported	\$504	Data Not Reported	\$140	Data Not Reported	\$95	\$59

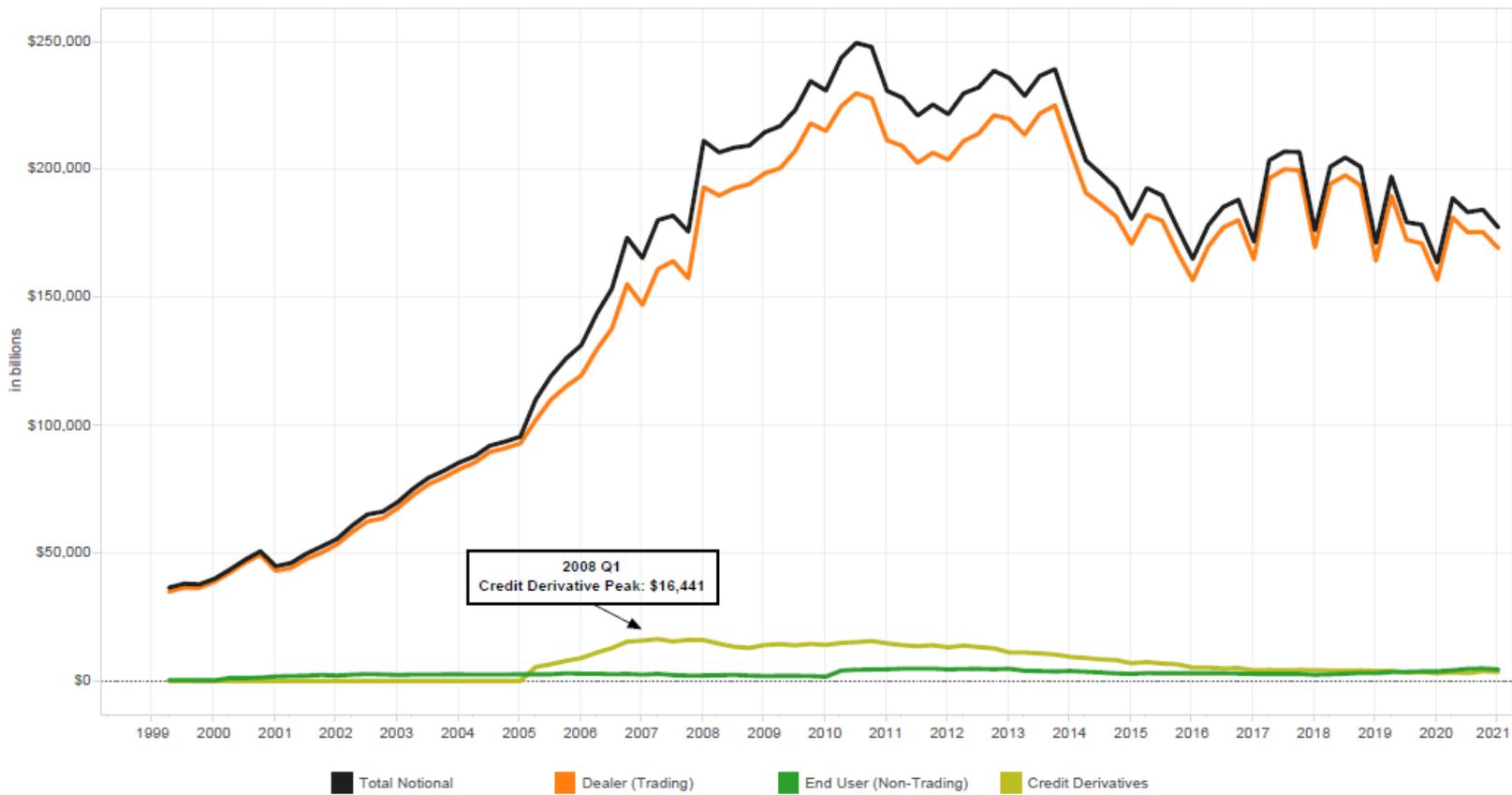
*Beginning December 31, 2019, the eligibility to file the FFIEC 051 Call Report expanded from banks with total assets less than \$1 billion to include banks with less than \$5 billion in total assets.

**Beginning December 31, 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

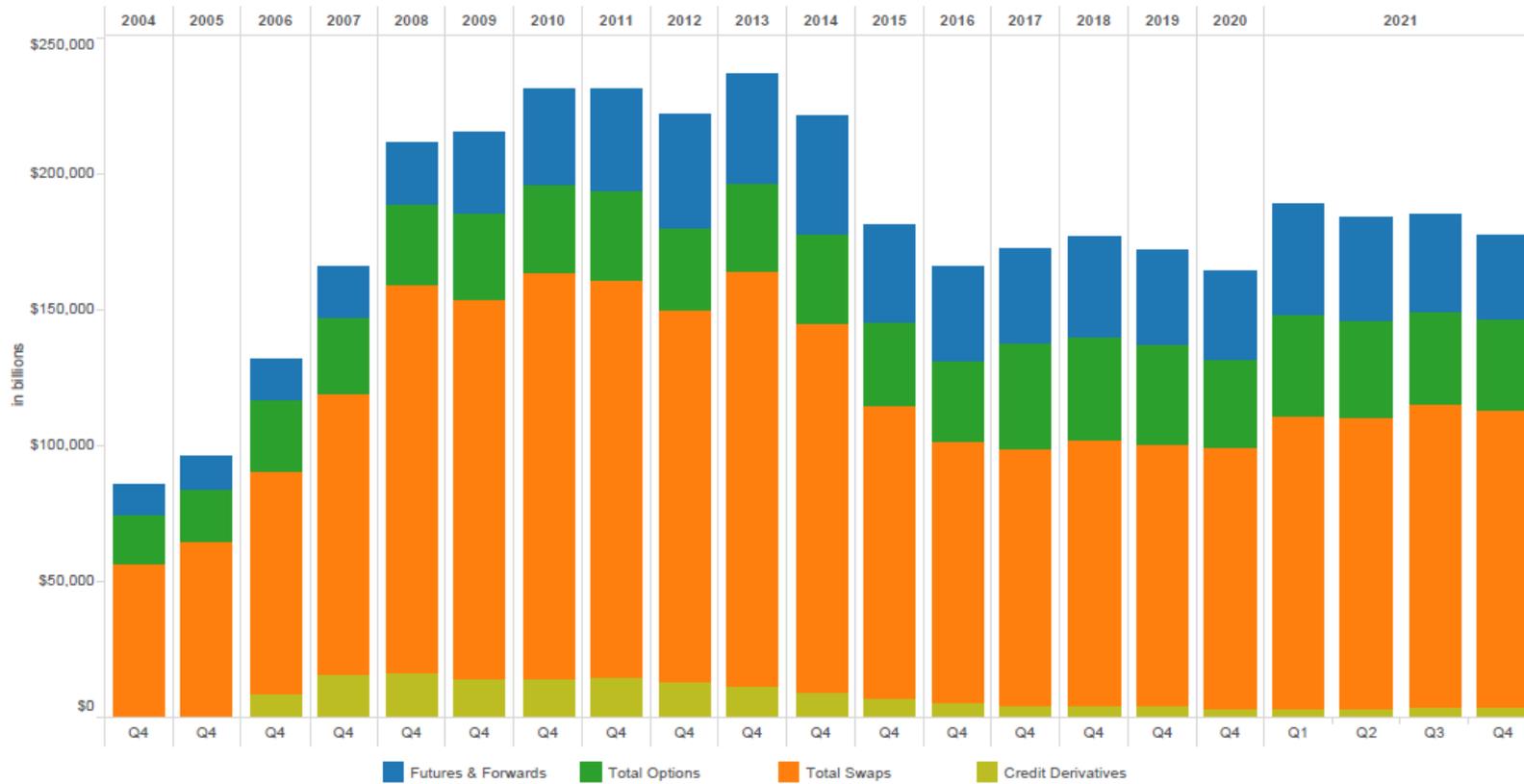
	2018				2019				2020				2021			
	Q1	Q2	Q3	Q4												
Total Notional	\$203,796	\$207,203	\$206,996	\$176,354	\$201,283	\$204,876	\$201,258	\$171,465	\$197,504	\$179,573	\$178,579	\$163,799	\$188,990	\$183,501	\$184,480	\$177,464
Dealer (Trading)	196,712	200,286	199,891	169,636	194,518	197,950	193,912	164,441	189,995	172,723	171,242	156,997	181,421	175,607	175,695	169,361
End User (Non-Trading)	2,738	2,738	2,764	2,448	2,620	2,852	3,163	3,079	3,522	3,595	3,757	3,768	4,208	4,788	4,931	4,563
Credit Derivatives	4,345	4,179	4,342	4,270	4,145	4,074	4,183	3,945	3,986	3,255	3,581	3,034	3,361	3,106	3,854	3,540

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

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021			
	Q4	Q1	Q2	Q3	Q4														
Futures & Forwards	\$14,882	\$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	\$40,934	\$37,584	\$35,311	\$31,180
Total Options	26,277	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	36,975	35,840	34,233	33,453
Total Swaps	81,340	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	107,720	106,971	111,081	109,290
Credit Derivatives	9,020	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	3,361	3,108	3,854	3,540
Total Notional	131,519	165,559	211,418	214,786	231,099	230,998	221,794	235,992	221,078	180,959	165,252	171,974	176,354	171,465	163,799	188,990	183,501	184,480	177,464

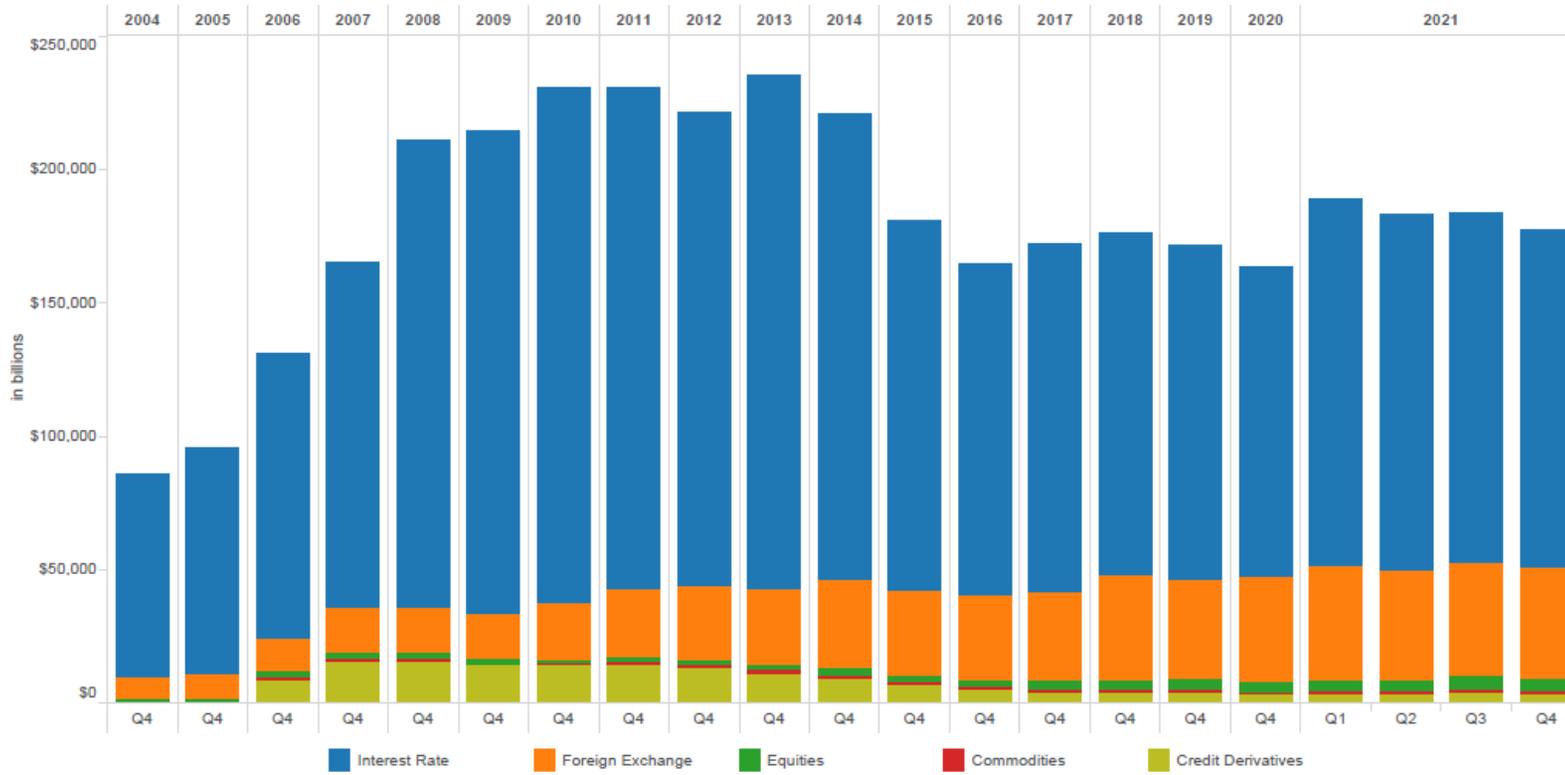
*Notional amount of total: futures, exchange-traded options, over the counter options, forwards and swaps.

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

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021			
	Q4	Q1	Q2	Q3	Q4													
Interest Rate	\$129,491	\$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	\$137,433	\$133,298	\$131,769	\$126,236
Foreign Exchange	16,614	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	42,809	41,210	42,504	41,847
Equities	2,524	2,207	1,885	1,364	1,606	1,970	2,028	2,537	2,395	2,475	3,080	3,374	3,796	3,775	4,005	4,255	4,649	4,256
Commodities	1,087	1,081	979	1,195	1,330	1,397	1,209	1,222	1,108	1,257	1,388	1,315	1,488	1,395	1,582	1,632	1,703	1,584
Credit Derivatives	15,863	16,029	14,112	14,151	14,759	13,190	11,191	9,449	6,988	5,293	4,186	4,270	3,945	3,034	3,361	3,106	3,854	3,540
Total Notional	165,559	211,418	214,788	231,099	230,998	221,794	235,992	221,078	180,959	165,252	171,974	176,354	171,465	163,799	188,990	183,501	184,480	177,464

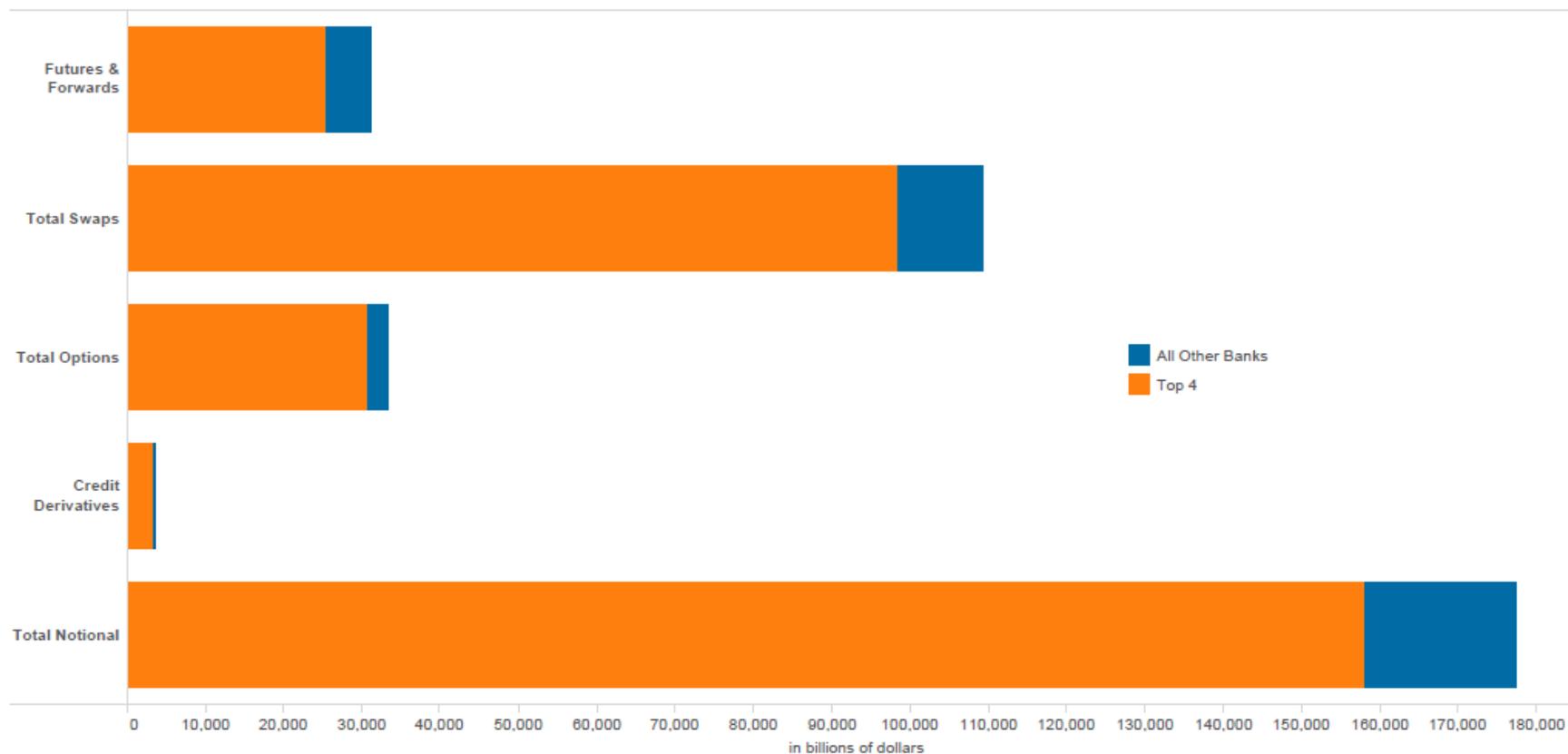
*Notional amount of total: futures, exchange traded options, over the counter options, forwards, and swaps.

Note: As of 2006 Q2 equities and commodities types 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

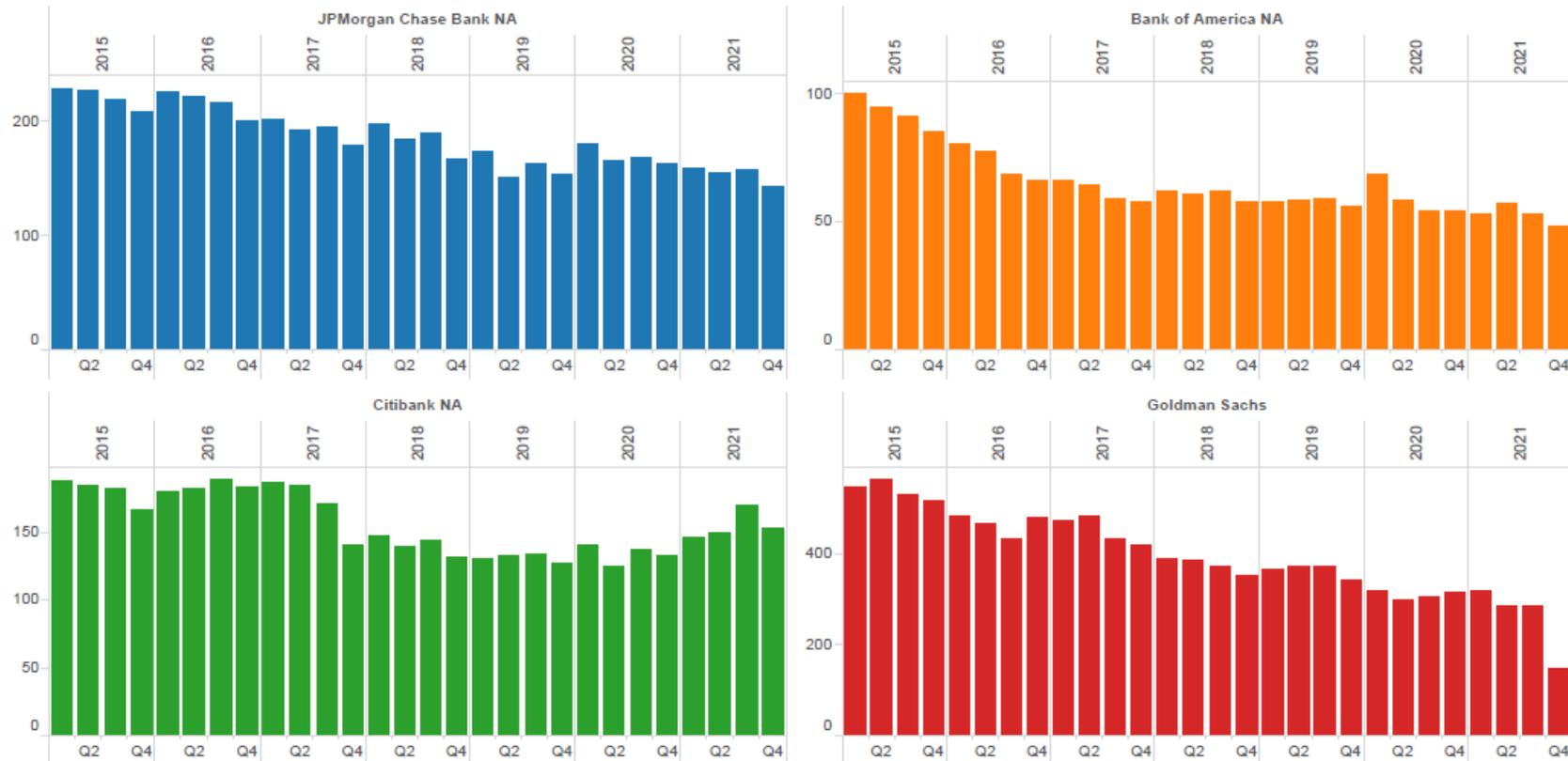
	Top 4	All Other Banks	Grand Total
Futures & Forwards	\$25,616	\$5,564	\$31,180
Total Swaps	98,403	10,887	109,290
Total Options	30,846	2,608	33,453
Credit Derivatives	3,347	194	3,540
Total Notional	158,211	19,253	177,464

*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



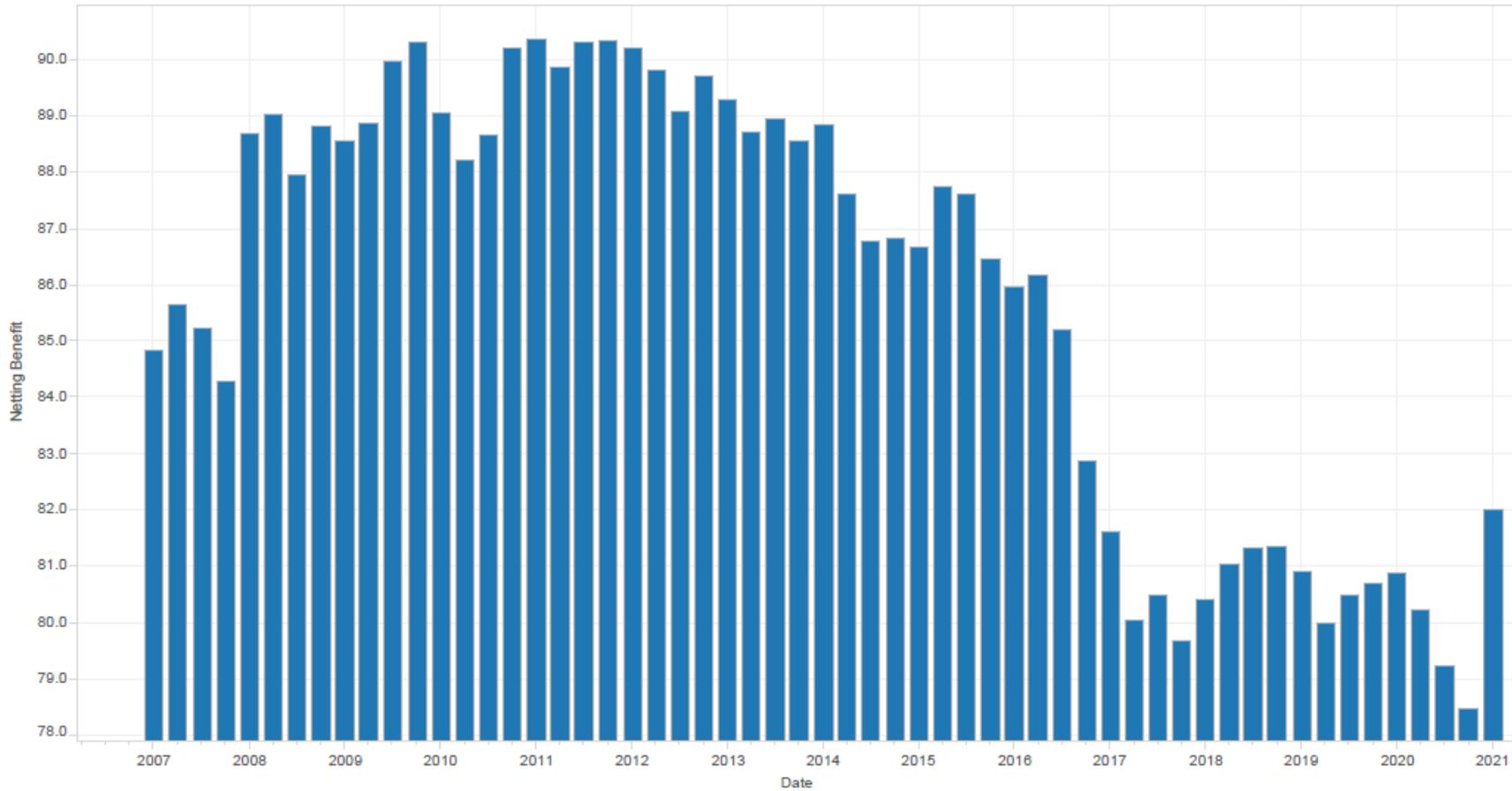
	2014				2015				2016				2017				2018				2019				2020				2021			
	Q1	Q2	Q3	Q4																												
JPMorgan Chase Bank NA	183	189	181	177	229	228	219	209	225	221	216	199	201	193	195	179	197	184	190	167	173	150	163	153	181	165	168	163	159	155	158	143
Bank of America NA	109	107	107	93	100	95	91	85	81	77	68	68	66	64	59	57	62	61	62	57	58	58	59	56	68	59	54	54	53	57	53	49
Citibank NA	147	156	190	173	187	184	181	166	180	181	188	183	186	184	171	140	146	139	144	132	130	132	134	126	140	125	137	132	145	150	170	153
Goldman Sachs	689	620	539	516	547	563	530	516	482	467	433	481	472	484	433	420	389	384	371	354	366	372	372	344	319	299	304	314	316	285	288	149
TOTAL	Q1	Q2	Q3	Q4																												
	248	240	224	211	238	242	232	223	226	222	217	220	220	218	205	191	195	187	188	173	178	169	176	164	174	160	165	163	165	158	168	136

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

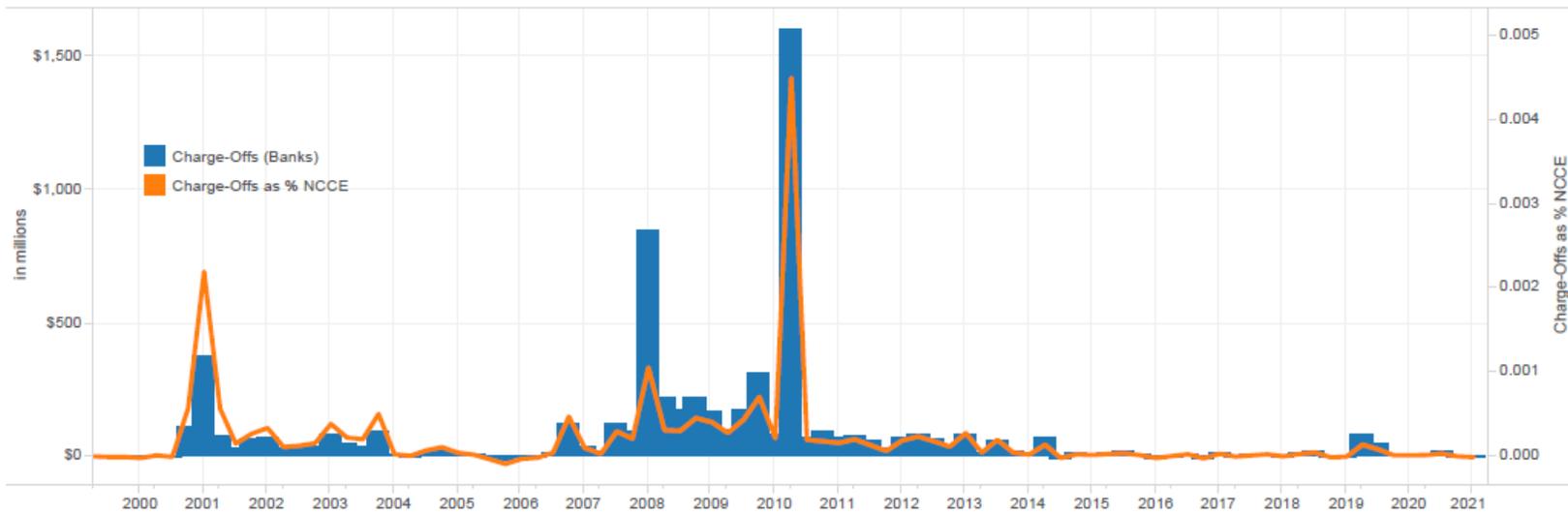
2013				2014				2015				2016				2017				2018				2019				2020				2021			
Q1	Q2	Q3	Q4																																
89.8	89.1	89.7	89.3	88.7	88.9	88.6	88.8	87.6	86.8	86.8	86.7	87.7	87.6	86.5	86.0	86.2	85.2	82.9	81.6	80.0	80.5	79.7	80.4	81.0	81.3	81.4	80.9	80.0	80.5	80.7	80.9	80.2	79.2	78.5	82.0

*The netting benefit is defined as: \$ amount of netting benefits/gross positive fair value.

Source: Call reports, beginning the first quarter of 2015 Schedule RC-R; otherwise Schedule RC-L

Figure 13: Quarterly Charge-Offs/(Recoveries) From Derivatives—Bank

Insured U.S. Commercial Banks and Savings Associations With Derivatives



In millions of dollars

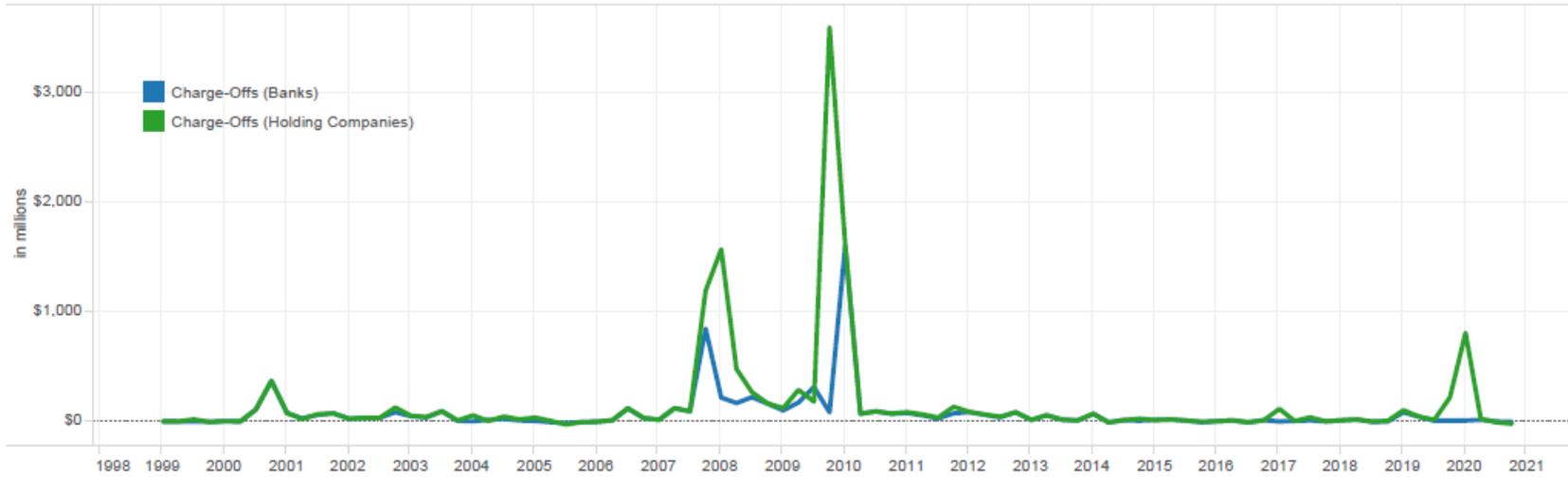
	2000				2001				2002				2003											
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4								
Charge-Offs (Banks)	0.0	-1.0	-1.0	-3.0	2.0	-1.0	107.3	370.0	75.8	28.2	59.0	73.7	25.3	29.9	32.3	83.7								
	2004				2005				2006				2007											
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4								
Charge-Offs (Banks)	46.7	34.9	92.2	5.4	1.3	14.2	23.0	8.3	3.8	-7.0	-16.0	-5.8	-3.1	9.1	119.5	30.7								
	2008				2009				2010				2011											
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4								
Charge-Offs (Banks)	15	120	92	847	217	168	221	162	100	173	314	83	1,601	72	91	89								
	2012				2013				2014				2015											
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4								
Charge-Offs (Banks)	76.35	54.34	26.12	73.44	84.28	60.72	35.77	83.45	12.78	55.90	14.53	7.91	69.31	-7.93	10.44	6.40								
	2016				2017				2018				2019				2020				2021			
	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)	13.30	18.56	6.48	-7.84	1.22	8.71	-8.77	10.26	-1.14	3.97	8.80	0.06	9.11	17.23	-4.78	-1.45	82.70	42.08	5.98	6.62	6.77	14.70	-0.24	-3.31

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

Source: Call reports Schedule RI, NCA: 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



In millions of dollars

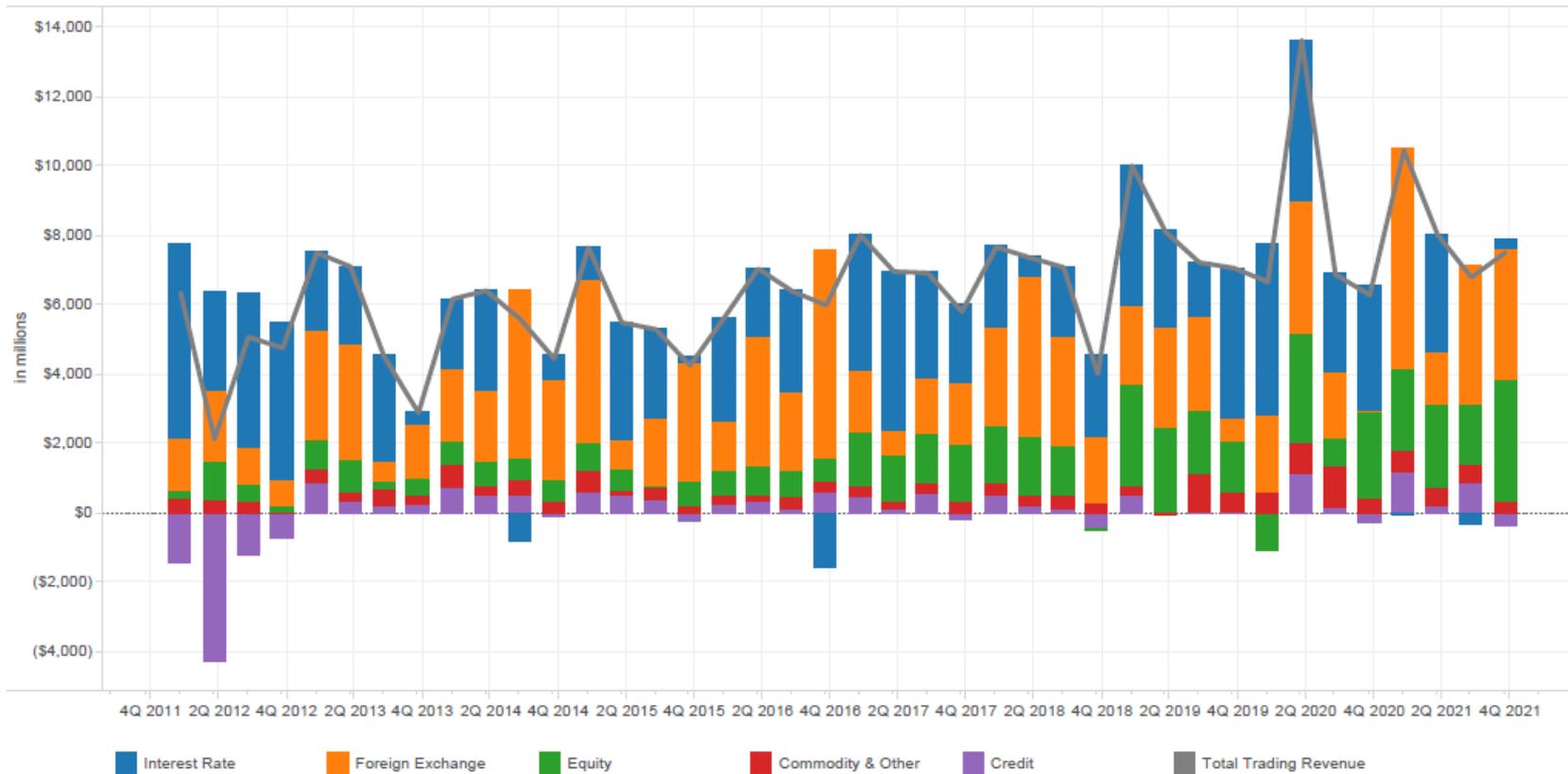
	2000				2001				2002				2003				2004							
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
Charge-Offs (Banks)	0.0	-1.0	-1.0	-3.0	2.0	-1.0	107.3	370.0	75.8	28.2	59.0	73.7	25.3	29.9	32.3	83.7	46.7	34.9	92.2	5.4				
Charge-Offs (Holding Companies)	0.1	-1.0	19.3	-7.0	2.0	-1.0	107.3	369.6	75.8	21.2	66.0	73.7	25.3	32.9	31.4	127.8	51.2	40.4	94.2	9.0				
	2005				2006				2007				2008				2009							
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
Charge-Offs (Banks)	1	14	23	8	4	-7	-16	-6	-3	9	119	31	15	120	92	847	217	168	221	162				
Charge-Offs (Holding Companies)	55	4	45	18	35	5	-28	-7	-3	10	119	32	15	120	93	1,192	1,570	477	266	164				
	2010				2011				2012				2013				2014				2015			
	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)	100	173	314	83	1,601	72	91	89	76	54	26	73	84	61	36	83	13	56	15	8	89	-8	10	6
Charge-Offs (Holding Companies)	122	288	181	3,598	1,617	68	92	73	85	64	35	133	87	63	43	83	14	56	17	9	89	-10	13	24
	2016				2017				2018				2019				2020				2021			
	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
Charge-Offs (Holding Companies)	12.8	18.0	7.5	-2.5	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

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

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

Figure 15a: Quarterly Trading Revenue (Cash and Derivative Positions)*—Bank

Insured U.S. Commercial Banks and Savings Associations



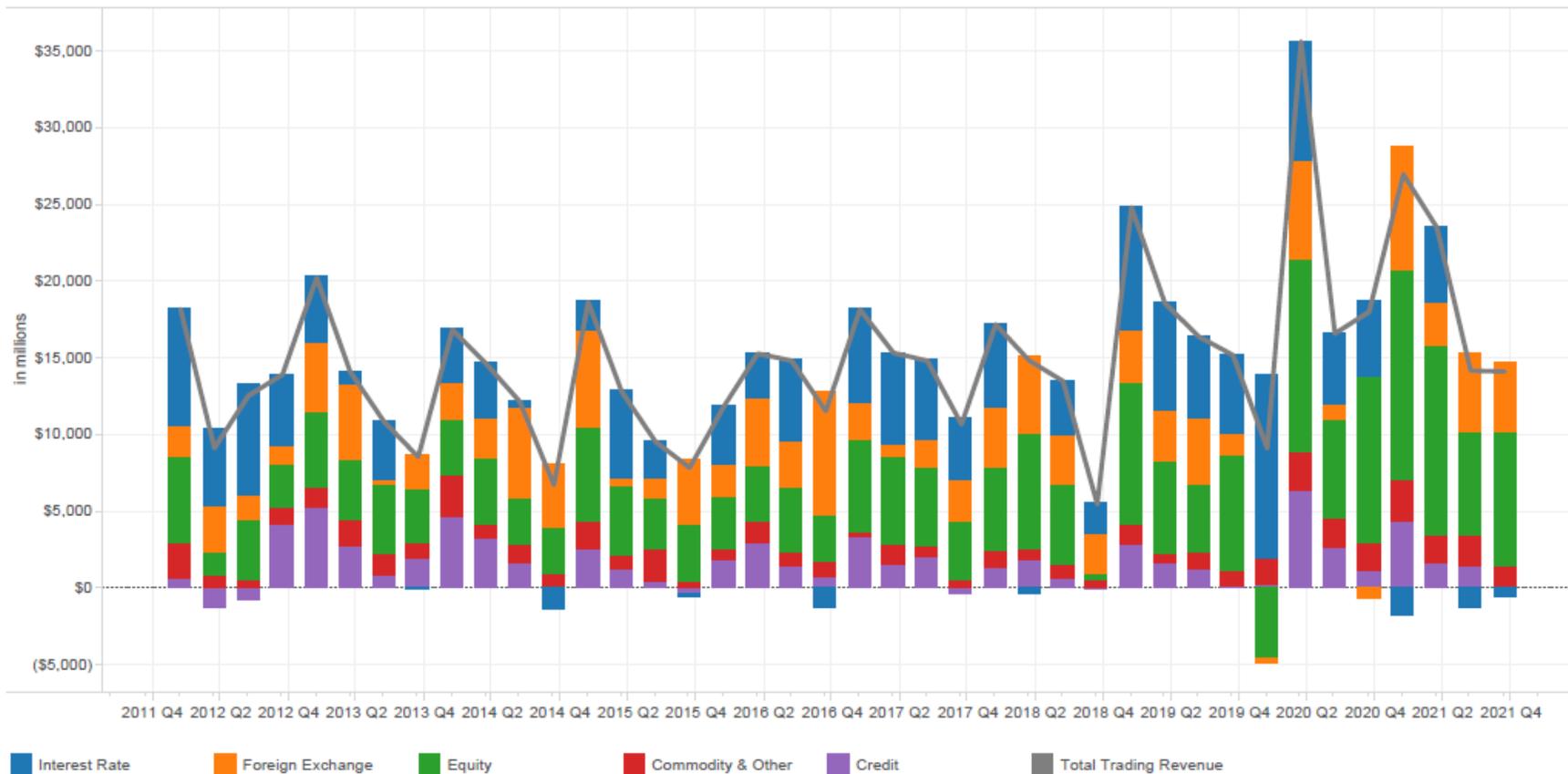
In millions of dollars

	2017				2018				2019				2020				2021			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Interest Rate	\$3,917	\$4,586	\$3,011	\$2,220	\$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
Foreign Exchange	1,743	697	1,608	1,811	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
Equity	1,595	1,359	1,454	1,649	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
Commodity & Other	330	211	300	324	395	286	349	274	323	-43	1,109	600	646	905	1,226	434	622	549	531	347
Credit	447	128	566	-178	487	215	141	-476	485	30	43	34	-34	1,129	154	-243	1,164	204	884	-375
Total Trading Revenue	8,031	6,981	6,940	5,824	7,684	7,384	7,103	4,030	10,035	8,131	7,242	7,083	6,681	13,648	6,893	6,305	10,475	8,053	6,813	7,526

*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

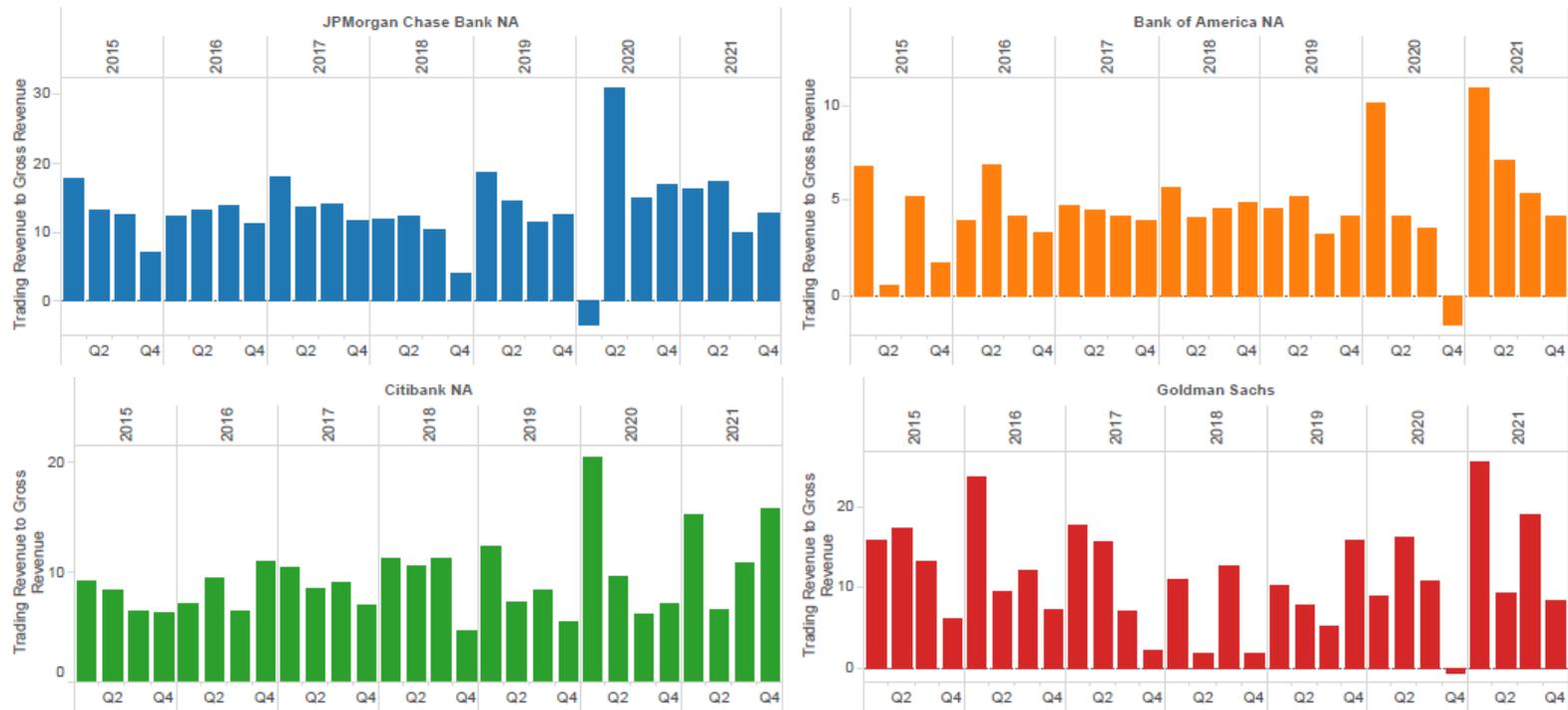
	2018				2019				2020				2021			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Interest Rate	\$5,361	(\$336)	\$3,550	\$1,997	\$8,050	\$6,973	\$5,377	\$5,075	\$12,036	\$7,801	\$4,582	\$4,867	(\$1,792)	\$4,968	(\$1,182)	(\$571)
Foreign Exchange	3,900	5,133	3,222	2,530	3,396	3,351	4,241	1,463	-302	6,374	1,037	-628	8,051	2,732	5,144	4,496
Equity	5,431	7,445	5,222	502	9,215	6,083	4,548	7,546	-4,499	12,604	6,424	10,826	13,698	12,409	6,835	8,742
Commodity & Other	1,177	779	874	508	1,298	512	1,045	981	1,664	2,486	1,912	1,804	2,665	1,802	1,978	1,340
Credit	1,359	1,848	666	-25	2,903	1,684	1,226	159	257	6,404	2,681	1,181	4,395	1,644	1,440	152
Total Trading Revenue	17,229	14,870	13,534	5,513	24,862	18,604	16,437	15,223	9,157	35,669	16,837	18,049	27,016	23,555	14,215	14,158

*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*

	2016				2017				2018				2019				2020				2021			
	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	12.26	13.34	13.83	11.17	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	17.50	9.89	12.79
Bank of America NA	3.90	6.87	4.18	3.28	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
Citibank NA	7.19	9.41	6.47	10.97	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	15.35	6.63	10.88	15.86
Goldman Sachs	23.78	9.54	12.16	7.22	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
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
	8.45	10.14	8.51	8.51	11.88	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	14.89	11.84	9.36	10.99

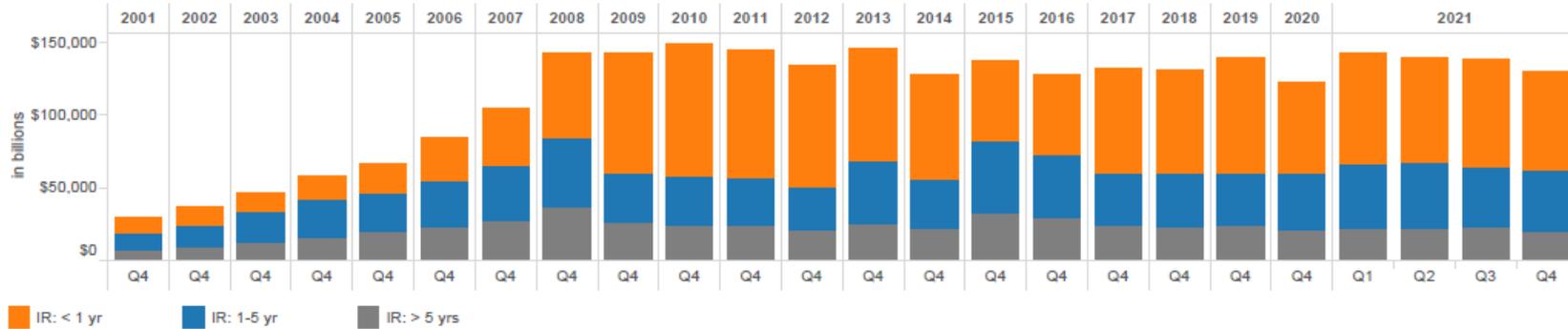
*The trading revenue figures are for cash and derivative activities. Revenue figures are quarterly, not year-to-date numbers. Note: Gross revenue equals interest income plus non-interest income.

Source: Call reports, Schedule RI

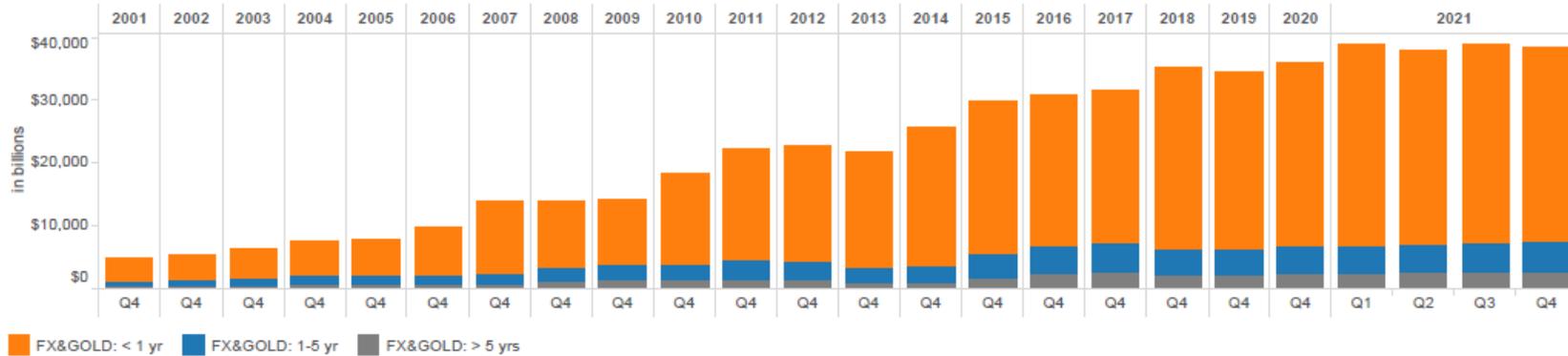
Figure 17: Notional Amounts of Interest Rate and FX + Gold Contracts by Maturity

Insured U.S. Commercial Banks and Savings Associations

Interest Rate



FX & Gold



In billions of dollars

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021			
	Q4	Q1	Q2	Q3	Q4															
IR: < 1 yr	\$18,483	\$29,552	\$30,085	\$58,618	\$81,236	\$90,843	\$87,812	\$82,948	\$77,758	\$71,808	\$55,054	\$55,061	\$72,589	\$71,492	\$79,132	\$62,444	\$76,502	\$71,252	\$73,185	\$68,039
IR: 1-5 yr	27,683	31,388	37,222	47,456	33,970	33,497	32,750	30,191	44,157	33,727	49,406	43,261	36,154	36,681	35,854	39,198	44,408	45,944	41,534	41,246
IR: > 5 yrs	19,825	23,273	27,724	36,868	26,374	24,307	24,168	21,175	24,630	22,214	32,981	29,762	23,565	23,244	24,259	20,838	22,231	22,273	22,927	20,468
FX&GOLD: < 1 yr	5,728	7,730	11,660	10,640	10,490	14,629	17,632	18,386	18,372	22,145	24,130	23,912	24,380	28,891	28,241	29,434	32,130	30,840	31,560	30,954
FX&GOLD: 1-5 yr	1,381	1,452	1,639	2,195	2,473	2,462	3,117	2,910	2,341	2,587	3,986	4,454	4,805	4,219	4,052	4,404	4,336	4,558	4,723	4,864
FX&GOLD: > 5 yrs	689	594	622	1,082	1,347	1,290	1,503	1,480	1,029	969	1,648	2,420	2,525	2,096	2,148	2,402	2,405	2,503	2,576	2,552

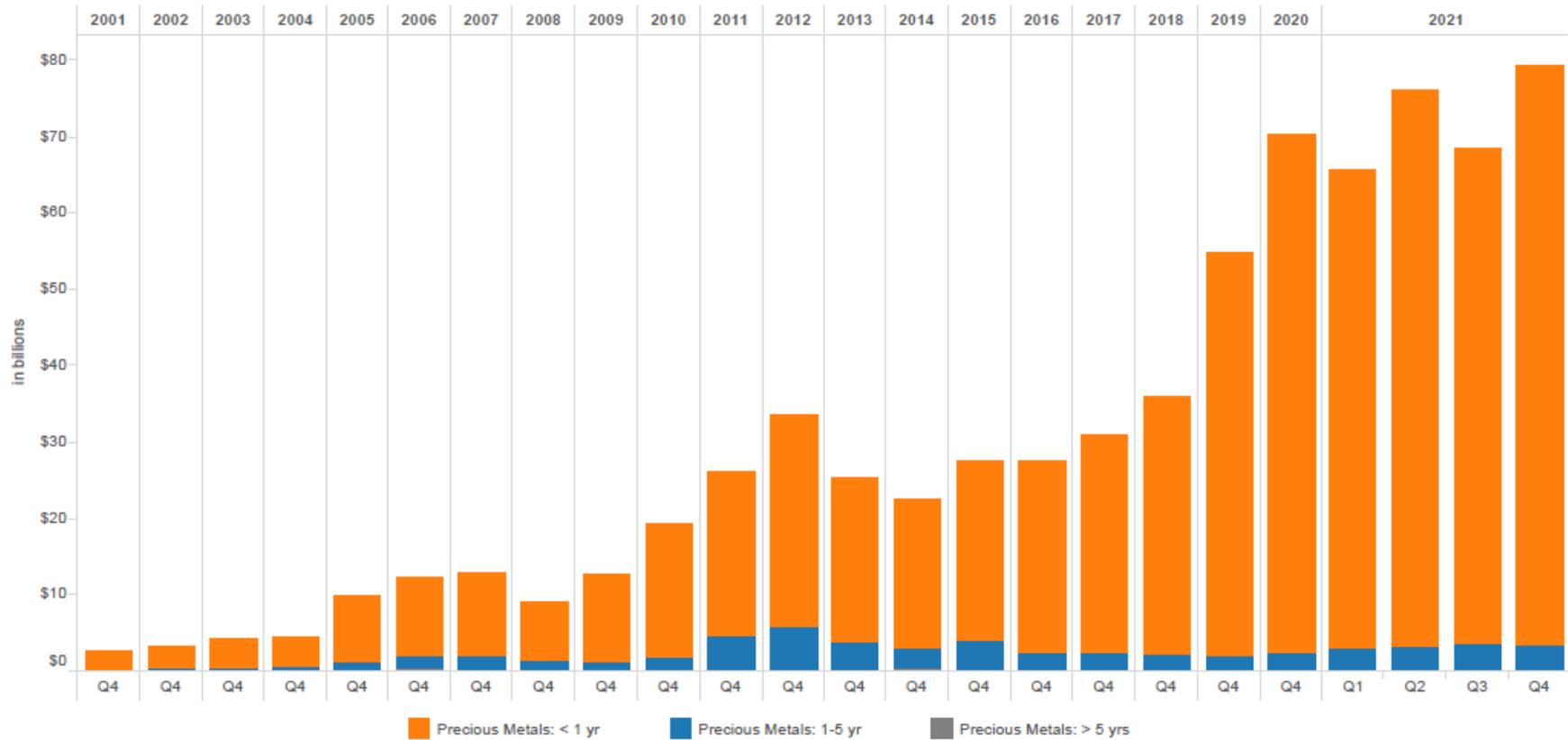
Note: Figures above exclude FX contracts with an original maturity of 14 days or less, written options, basis swaps, and any other contracts not subject to risk-based capital requirements. Effective Q1 2015, the reporting form and call report instructions changed. Schedule RC-R now requires banks to report gold and FX notionals in aggregate, rather than separately.

Source: Call reports, Schedule RC-R

Figure 18: Notional Amounts of Precious Metal Contracts by Maturity

Insured U.S. Commercial Banks and Savings Associations

Precious Metals



In billions of dollars

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021			
	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q1	Q2	Q3	Q4
Precious Metals: < 1 yr	\$4.04	\$8.59	\$10.35	\$10.72	\$7.55	\$11.55	\$17.47	\$21.12	\$27.68	\$21.41	\$19.29	\$23.51	\$25.07	\$28.82	\$33.82	\$52.58	\$67.80	\$62.60	\$72.78	\$64.75	\$75.78
Precious Metals: 1-5 yr	0.51	1.29	1.75	2.10	1.51	1.24	1.89	4.74	5.82	3.80	2.84	3.92	2.49	2.38	2.25	2.06	2.53	3.03	3.23	3.69	3.46
Precious Metals: > 5 yrs	0.00	0.06	0.33	0.01	0.00	0.00	0.03	0.10	0.03	0.00	0.29	0.07	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00

Note: Figures exclude FX contracts with an original maturity of 14 days or less, written options, basis swaps, and any other contracts not subject to risk-based capital requirements. Precious metals include Silver, Platinum, and Palladium.

Source: Call reports, Schedule RC-R

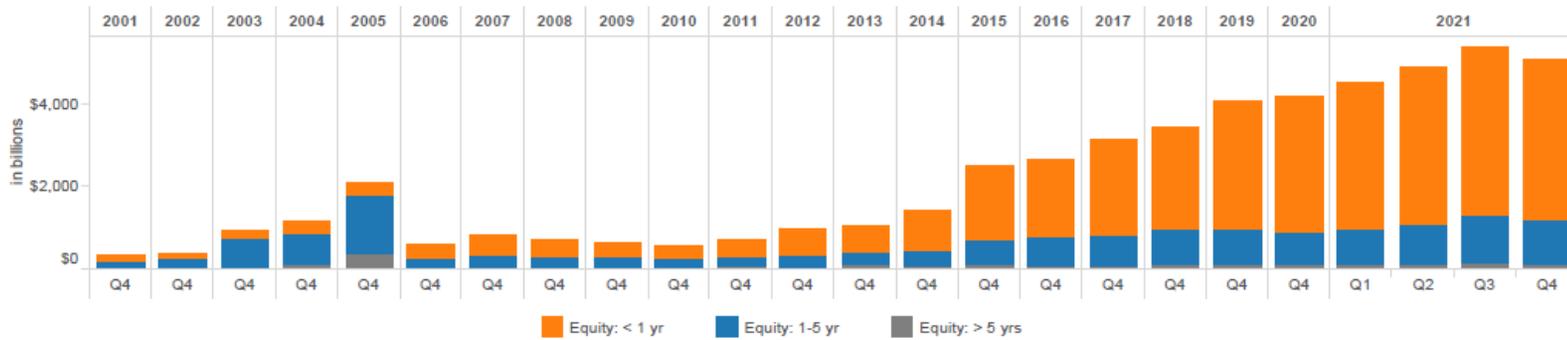
Figure 19: Notional Amounts of Other Commodity and Equity Contracts by Maturity

Insured U.S. Commercial Banks and Savings Associations

Other Commodity



Equity



In billions of dollars

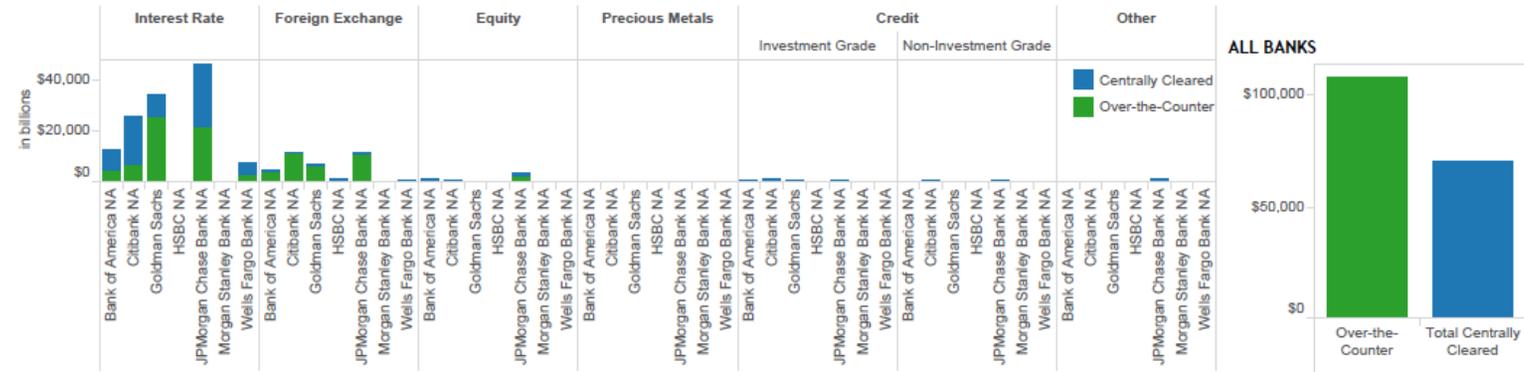
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021			
	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q1	Q2	Q3	Q4
Other Commodity: < 1 yr	\$64	\$133	\$185	\$206	\$179	\$176	\$203	\$261	\$261	\$235	\$257	\$668	\$750	\$883	\$688	\$884	\$879	\$1,098	\$1,225	\$1,289	\$1,216
Other Commodity: 1-5 yr	205	707	235	297	233	198	209	209	208	144	164	197	179	202	198	286	198	201	236	295	279
Other Commodity: > 5yrs	40	175	20	25	43	33	25	46	28	6	20	22	23	25	9	10	9	10	10	11	7
Equity: < 1 yr	273	321	341	473	409	312	298	427	627	645	998	1,743	1,842	2,296	2,449	3,084	3,287	3,504	3,807	4,080	3,881
Equity: 1-5 yr	736	1,428	221	297	256	228	191	210	262	291	352	628	677	733	864	844	771	871	957	1,136	1,055
Equity: > 5 yrs	140	383	45	70	72	82	85	94	82	136	101	130	123	113	139	136	139	124	153	159	145

Note: Figures above exclude foreign exchange contracts with an original maturity of 14 days or less, written options, basis swaps, and any other contracts not subject to risk-based capital requirements.

Source: Call reports, Schedule RC-R

Figure 21: Notional Amounts of Over-the-Counter and Centrally Cleared Derivative Contracts

Insured U.S. Commercial Banks and Savings Associations



In billions of dollars

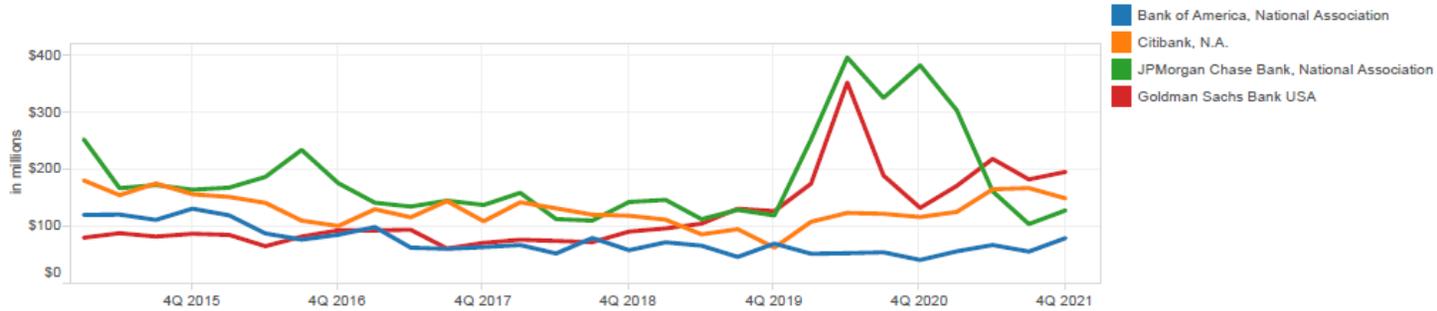
Bank Name	Interest Rate		Foreign Exchange		Equity		Precious Metals		Credit				Other		Total Centrally Cleared	Over-the-Counter	Total Notional
	Centrally Cleared	Over-the-Counter															
JPMorgan Chase Bank NA	23,892	21,580	156	10,964	759	2,350	0	28	356	366	143	205	98	962	25,405	36,455	61,859
Citibank NA	19,273	8,608	319	11,078	26	620	1	6	233	801	49	225	75	110	19,975	19,447	39,423
Bank of America NA	7,768	4,812	108	4,413	199	606	1	26	133	198	35	84	0	24	8,246	10,163	18,409
Goldman Sachs	8,875	25,366	128	6,514	5	226	0	5	31	287	14	171	0	58	9,053	32,628	41,681
HSBC NA	81	114	43	1,019	0	29	0	9	0	1	1	1	0	0	125	1,173	1,297
Wells Fargo Bank NA	4,744	2,481	0	624	58	129	0	3	0	4	0	20	1	78	4,803	3,340	8,143
Morgan Stanley Bank NA	0	40	0	22	0	39	0	0	0	7	0	3	0	0	0	110	110
Grand Total	64,633	61,001	754	34,634	1,048	3,999	2	77	753	1,664	242	709	173	1,232	67,807	103,316	170,923
ALL OTHER	2,628	1,490	8	2,974	0	34	0	0	1	29	0	21	11	85	2,649	4,632	7,281
TOTAL	67,261	62,491	762	37,608	1,048	4,033	2	77	755	1,693	242	730	185	1,317	70,255	107,949	178,204

% of Total

Bank Name	Interest Rate		Foreign Exchange		Equity		Precious Metals		Credit				Other		Total Centrally Cleared as a % of Total Notional	Total Over-the-Counter as a % of Total Notional
	Centrally Cleared	Over-the-Counter														
JPMorgan Chase Bank NA	53%	47%	1%	99%	24%	76%	0%	100%	49%	51%	41%	50%	9%	91%	41%	59%
Citibank NA	74%	26%	3%	97%	4%	96%	14%	86%	23%	77%	18%	82%	41%	59%	51%	49%
Bank of America NA	62%	38%	2%	98%	25%	75%	5%	95%	40%	60%	30%	70%	0%	100%	45%	55%
Goldman Sachs	26%	74%	2%	98%	2%	98%	0%	100%	10%	90%	7%	93%	0%	100%	22%	78%
HSBC NA	42%	58%	4%	96%	0%	100%	0%	100%	0%	100%	38%	62%	0%	100%	10%	90%
Wells Fargo Bank NA	66%	34%	0%	100%	31%	69%	0%	100%	6%	94%	2%	98%	1%	99%	59%	41%
Morgan Stanley Bank NA	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%

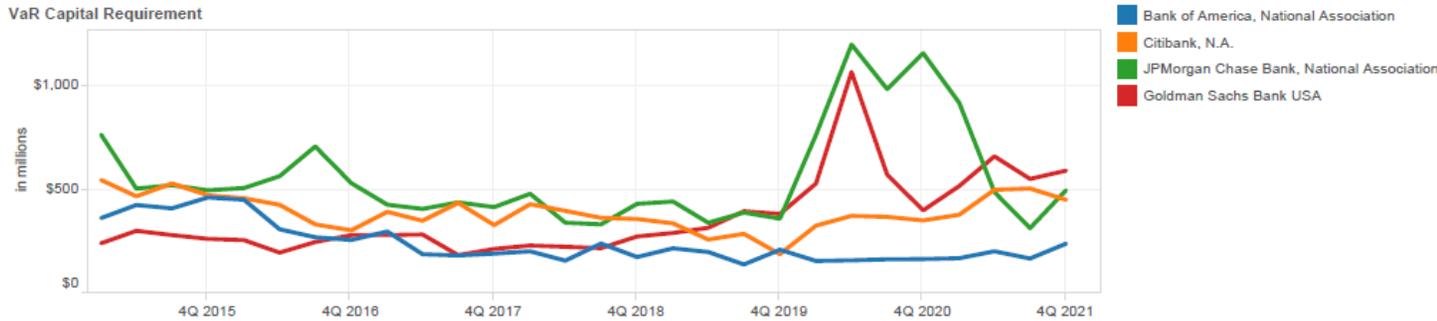
Source: Call reports, Schedule RC-R

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



	2017				2018				2019				2020				2021			
	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	\$81	\$64	\$68	\$53	\$81	\$59	\$73	\$67	\$47	\$71	\$53	\$54	\$55	\$42	\$57	\$68	\$57	\$80
Citibank, N.A.	131	117	146	110	144	133	122	120	113	87	96	64	109	125	123	118	127	167	169	151
JPMorgan Chase Bank, National Association	143	136	146	139	160	114	111	144	148	114	130	120	254	399	328	385	306	163	105	129
Goldman Sachs Bank USA	94.0	95.0	82.0	71.9	77.4	75.4	73.2	91.8	97.5	105.8	132.2	127.9	176.4	355.0	190.8	133.7	172.5	220.1	183.9	197.2

VaR Capital Requirement



	2017				2018				2019				2020				2021			
	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
Citibank, N.A.	394	351	437	330	431	399	365	359	338	261	288	191	327	374	370	353	380	500	506	452
JPMorgan Chase Bank, National Association	428	408	439	416	480	342	334	432	443	341	390	361	762	1,197	983	1,155	917	489	315	498
Goldman Sachs Bank USA	282	285	186	216	232	226	220	275	292	317	397	384	529	1,085	572	401	518	660	552	592

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

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