

Quarterly Report on Bank Trading and Derivatives Activities

Second Quarter 2021

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

September 2021

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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 1,372 insured U.S. national and state commercial banks and savings associations reported trading and derivatives activities at the end of the second 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 second quarter of 2021, four large commercial banks represented 88.7 percent of the total banking industry notional amounts and 77.8 percent of industry net current credit exposure (NCCE) (see tables 1 and 4 in the appendix).

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

This is the 103rd edition of the OCC's *Quarterly Report on Bank Trading and Derivatives Activities*. The first report was published in 1995. Please send any comments or feedback on the structure and content of this report to QuarterlyDerivatives@occ.treas.gov.

Executive Summary

- Insured U.S. commercial banks and savings associations (collectively, banks) reported trading revenue of \$8.1 billion in the second quarter of 2021, \$2.4 billion less (22.9 percent) than in the previous quarter and \$5.6 billion less (40.9 percent) than a year earlier (see table 1).
- Credit exposure from derivatives decreased in the second quarter of 2021 compared with the first quarter of 2021. NCCE decreased \$5.0 billion, or 1.1 percent, to \$441.0 billion (see table 5).
- Derivative notional amounts decreased in the second quarter of 2021 by \$5.5 trillion, or 2.9 percent, to \$183.5 trillion (see table 10).
- Derivative contracts remained concentrated in interest rate products, which totaled \$133.3 trillion or 72.6 percent of total derivative notional amounts (see table 10).

¹ Institutions with total assets of less than \$5 billion have the option to file the 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 13 in the appendix.

Revenue

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

Insured U.S. commercial banks and savings associations reported \$8.1 billion in trading revenue in the second quarter of 2021, \$2.4 billion less (22.9 percent) than in the previous quarter and \$5.6 billion less (40.9 percent) than a year earlier (see table 1). The quarter-over-quarter decrease in trading revenue was due to decreases across all trading instruments except interest rate contracts. For a historical view of quarterly bank trading revenue by instrument, see graph 9a in the appendix.

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

	2Q 2021	1Q 2021	Q/Q Change	Q/Q % Change	2Q 2020	Y/Y Change	Y/Y % Change
Interest Rate	\$3,369	-\$42	\$3,411	8055.1%	\$4,634	-\$1,265	-27.3%
Foreign Exchange	\$1,547	\$6,343	-\$4,797	-75.6%	\$3,841	-\$2,294	-59.7%
Equity	\$2,384	\$2,388	-\$4	-0.2%	\$3,139	-\$754	-24.0%
Commodity & Other	\$549	\$623	-\$73	-11.8%	\$905	-\$356	-39.3%
Credit	\$217	\$1,151	-\$934	-81.1%	\$1,130	-\$912	-80.8%
Total Trading Revenue	\$8,066	\$10,462	-\$2,396.2	-22.9%	\$13,648	-\$5,582	-40.9%

Source: Call reports, Schedule RI

Holding Company Trading Revenue

Consolidated bank holding company (BHC) trading performance provides a more complete picture of trading revenue in the banking system. As shown in table 2, consolidated holding company trading revenue of \$23.6 billion in the second quarter of 2021 was \$3.4 billion (12.7 percent) lower than in the previous quarter. The quarter-over-quarter decrease in trading revenue was due to decreases across all trading instruments except interest rate contracts. Year-over-year holding company trading revenue decreased by \$12.1 billion (34.0 percent). For a historical view of quarterly holding company trading revenue by instrument, see graph 9b in the appendix.

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

	2Q 2021	1Q 2021	Q/Q Change	Q/Q % Change	2Q 2020	Y/Y Change	Y/Y % Change
Interest Rate	\$4,968	-\$1,792	\$6,760	377.2%	\$7,801	-\$2,833	-36.3%
Foreign Exchange	\$2,732	\$8,051	-\$5,319	-66.1%	\$6,374	-\$3,642	-57.1%
Equity	\$12,409	\$13,698	-\$1,289	-9.4%	\$12,604	-\$195	-1.5%
Commodity & Other	\$1,802	\$2,665	-\$863	-32.4%	\$2,486	-\$684	-27.5%
Credit	\$1,657	\$4,382	-\$2,725	-62.2%	\$6,431	-\$4,773	-74.2%
Total HC Trading Revenue	\$23,568	\$27,003	-\$3,435	-12.7%	\$35,696	-\$12,128	-34.0%

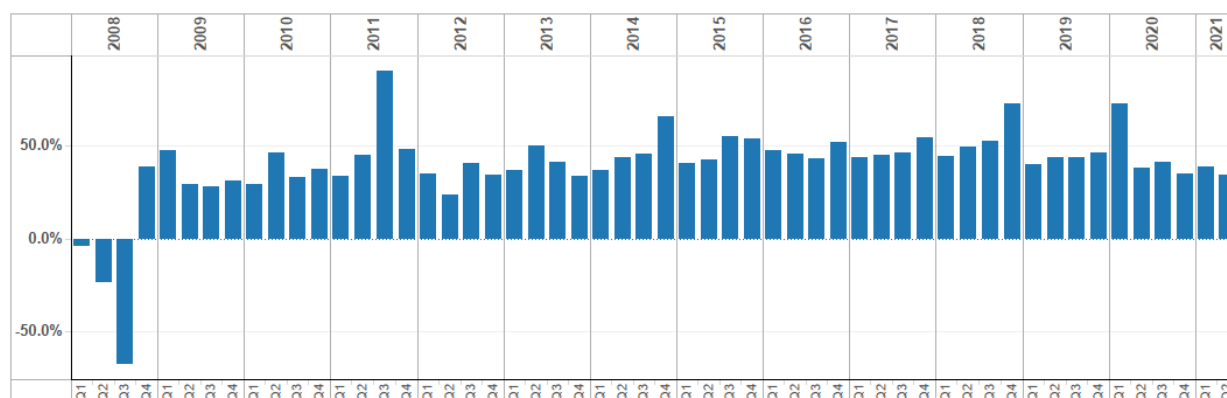
Source: Consolidated Financial Statements for Holding Companies—FR Y-9C, Schedule HI

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 second quarter of 2021, banks generated 34.2 percent of consolidated holding company trading revenue, a decrease from 38.7 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 \$130.3 billion (5.8 percent) in the second quarter of 2021 to \$2.1 trillion, primarily driven by a \$51.0 billion (3.5 percent) decrease in receivables from interest rate contracts and a \$94.0 billion (17.2 percent) decrease in FX contracts (see table 3). GNFV decreased \$114.3 billion (5.3 percent) to \$2.1 trillion during the quarter, driven by a \$44.9 billion (3.3 percent) decrease in payables on interest rate contracts, a \$90.5 billion (16.9 percent) decrease in payables on FX contracts, and a \$1.7 billion (4.8 percent) decrease in credit contracts.

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

	2Q 2021	1Q 2021	Q/Q Change	Q/Q % Change	1Q 2020	Y/Y Change	Y/Y % Change
Interest rate	\$1,390	\$1,440	-\$51	-3.5%	\$1,880	-\$490	-26.1%
FX	\$454	\$548	-\$94	-17.2%	\$506	-\$52	-10.2%
Equity	\$175	\$176	-\$1	-0.6%	\$144	\$31	21.4%
Commodities	\$75	\$55	\$20	35.1%	\$55	\$20	36.0%
Credit	\$30	\$34	-\$4	-12.7%	\$34	-\$4	-12.9%
Gross positive fair value	\$2,123	\$2,253	-\$130.3	-5.8%	\$2,618	-\$496	-18.9%

	2Q 2021	1Q 2021	Q/Q Change	Q/Q % Change	1Q 2020	Y/Y Change	Y/Y % Change
Interest rate	\$1,326	\$1,371	-\$44.9	-3.3%	\$1,820	-\$494	-27.2%
FX	\$444	\$534	-\$90.5	-16.9%	\$525	-\$82	-15.5%
Equity	\$188	\$182	\$5.5	3.0%	\$145	\$43	29.6%
Commodities	\$69	\$51	\$17.3	33.6%	\$59	\$10	16.8%
Credit	\$34	\$36	-\$1.7	-4.8%	\$37	-\$3	-8.0%
Gross negative fair value	\$2,060	\$2,174	-\$114.3	-5.3%	\$2,586	-\$526	-20.3%

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	Gross positive fair value
Contracts with negative value to Bank A	4	-\$350	Gross negative fair value
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 \$5.0 billion (1.1 percent) to \$441.0 billion in the second quarter of 2021 (see table 5).² Legally enforceable netting agreements allowed banks to reduce GPFV exposures by 79.2 percent (\$1.7 trillion) in the second quarter of 2021.

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

	2Q 2021	1Q 2021	Q/Q Change	Q/Q % Change
Gross positive fair value	\$2,123	\$2,253	-\$130	-5.8%
NCCE RC-R	\$441	\$446	-\$5.0	-1.1%
Netting benefit RC-R	\$1,682	\$1,807	-\$125	-6.9%
Netting benefit % RC-R	79.2%	80.2%		-1.0%

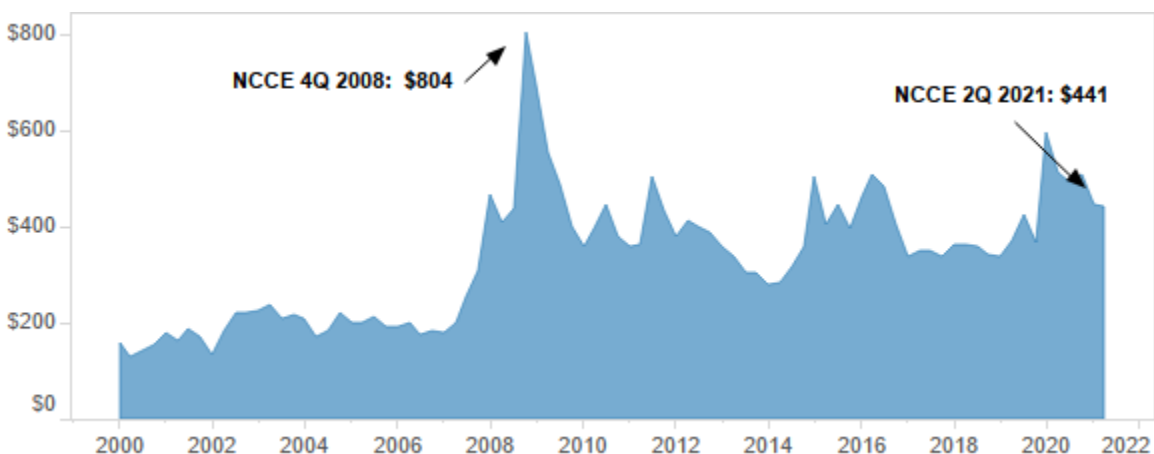
Source: Call reports, Schedules RC-L and RC-R

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

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.

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 second quarter of 2021 lower at \$441.0 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 (34.6 percent) and in corporations and other counterparties (56.0 percent) (see table 6). The combined exposure to hedge funds and sovereign governments was small (9.4 percent in total).

Table 6: NCCE by Counterparty Type as a Percentage of Total NCCE

	Banks and securities firms	Hedge funds	Sovereign governments	Corporate and all other counterparties
2Q 2021	34.6%	2.7%	6.7%	56.0%
1Q 2021	37.5%	2.3%	6.7%	53.5%
4Q 2020	39.8%	2.2%	8.2%	49.9%
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 92.7 percent of their total NCCE at the end of the second quarter of 2021, up from 91.0 percent in the first quarter of 2021 (see table 7). Collateral held against hedge fund exposures increased in the second quarter to 514.0 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 %
2Q 2021	119.8%	514.0%	59.3%	59.7%	92.7%
1Q 2021	110.9%	490.2%	57.1%	63.8%	91.0%
4Q 2020	107.5%	467.6%	52.1%	59.5%	86.9%
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%
4Q 2015	101.6%	435.5%	15.6%	66.2%	89.6%

Source: Call reports, Schedule RC-L

The majority of collateral held by banks against NCCE is very liquid with 66.7 percent held in cash (both U.S. dollar and Cash other currencies) and an additional 8.7 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
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%
4Q 2015	43.7%	31.7%	4.6%	1.6%	1.4%	5.3%	11.7%

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 Form FFIEC 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. Graph 16 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
2Q 2021 Average 60 Day VaR	\$163	\$167	\$68	\$220
1Q 2021 Average 60 Day VaR	\$306	\$127	\$57	\$173
Q/Q Change	-\$143	\$40	\$11	\$48
2Q 2021 Total Risk-Based Capital	\$269,803	\$165,462	\$184,226	\$38,741

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
2Q 2021 VaR Capital Requirement	\$489	\$500	\$204	\$660
1Q 2021 VaR Capital Requirement	\$917	\$380	\$171	\$518
Q/Q Change	-\$429	\$120	\$33	\$143
2Q 2021 Total Risk-Based Capital	\$269,803	\$165,462	\$184,226	\$38,741

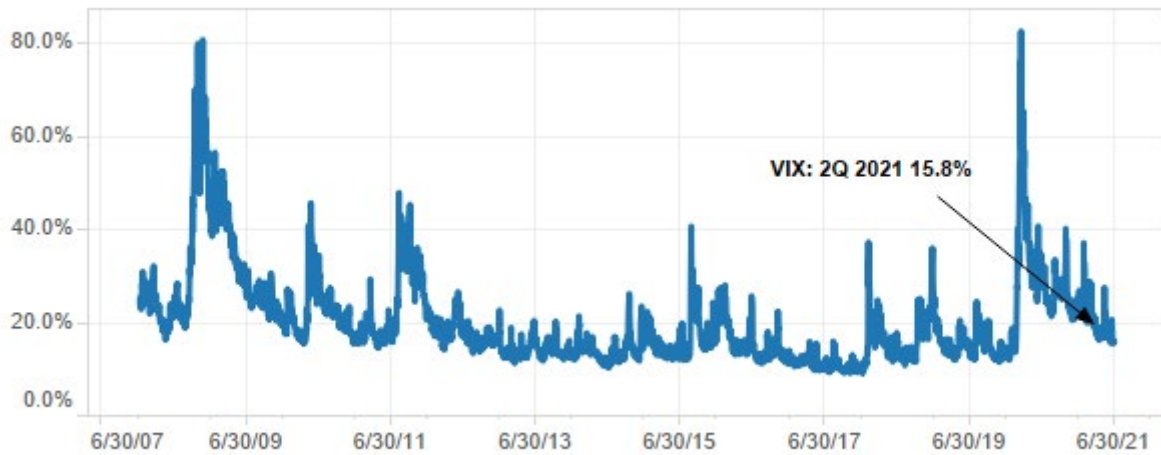
Source: Market Risk Regulatory Report for Institutions Subject to the Market Risk Capital Rule—FFIEC 102

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 15.8 percent at the end of the second quarter of 2021.

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

Figure 3: Volatility Index (VIX)

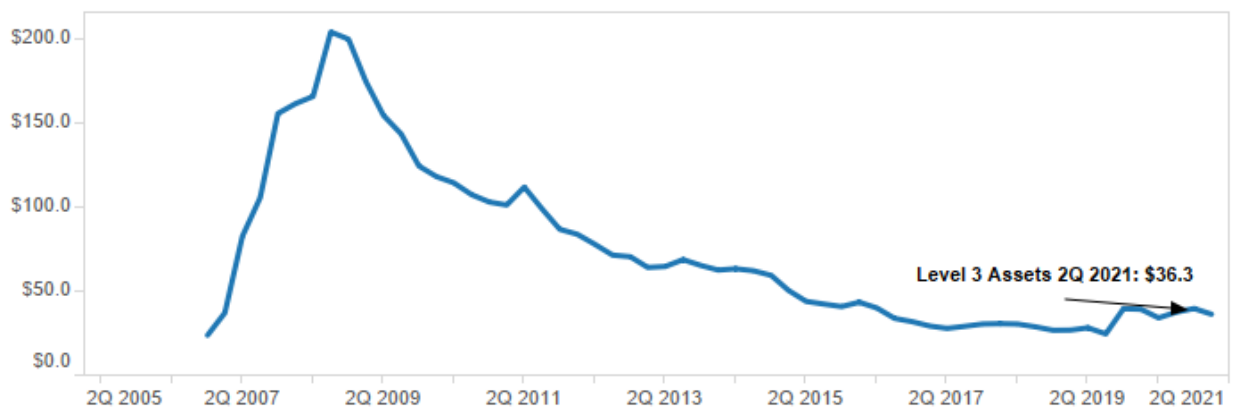


Source: Bloomberg

Level 3 Trading Assets

Another measure used to assess market risk is the volume of and changes in level 3 trading assets. Level 3 trading assets are assets whose fair value cannot be determined by using observable inputs, such as market prices. Since the peak of the financial crisis at the end of 2008, major dealers have reduced the volume of level 3 trading assets. Because the model inputs that determine the fair value of these exposures are not derived from observable market transactions, banks use their own model assumptions in determining their fair values. Level 3 trading assets peaked at \$204.1 billion at the end of 2008 (see figure 4). At the end of the second quarter of 2021, banks held \$36.3 billion of level 3 trading assets, down 8.5 percent from the previous quarter, and 7.4 percent lower than a year ago. Level 3 trading assets are \$167.8 billion (82.2 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 second quarter decreased by \$5.5 trillion (2.9 percent) to \$183.5 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 decreases in interest rate and FX contracts. Interest rate notional amounts continued to represent the majority of banks' derivative holdings at \$133.3 trillion, or 72.6 percent of total derivatives (see table 10).

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

	2Q 2021	1Q 2021	Q/Q Change	Q/Q % Change	2Q 2020	Y/Y Change	Y/Y % Change
Interest rate	\$133,298	\$137,433	-\$4,136	-3.0%	\$132,061	\$1,236	0.9%
FX	\$41,210	\$42,609	-\$1,399	-3.3%	\$39,191	\$2,019	5.2%
Equity	\$4,255	\$4,005	\$250	6.2%	\$3,574	\$681	19.0%
Commodity	\$1,632	\$1,582	\$50	3.1%	\$1,491	\$141	9.4%
Credit derivatives	\$3,106	\$3,361	-\$255	-7.6%	\$3,255	-\$148	-4.6%
Total notional	\$183,501	\$188,990	-\$5,489	-2.9%	\$179,573	\$3,928	2.2%

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 future and forward contracts and option contracts (see table 11). Swap contracts remained the leading derivatives contract type at 58.3 percent of all notional amounts.

The four banks with the most derivative activity hold 88.7 percent of all bank derivatives, while the largest 25 banks account for nearly 100 percent of all contracts (see tables 3 and 5 and graph 4 in the appendix for more information).

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

	2Q 2021	1Q 2021	Q/Q Change	Q/Q % Change	2Q 2020	Y/Y Change	Y/Y % Change
Futures and forwards	\$37,584	\$40,934	-\$3,350	-8.2%	\$41,020	-\$3,436	-8.4%
Swaps	\$106,971	\$107,720	-\$749	-0.7%	\$101,734	\$5,237	5.1%
Options	\$35,840	\$36,975	-\$1,135	-3.1%	\$33,564	\$2,275	6.8%
Credit derivatives	\$3,106	\$3,361	-\$255	-7.6%	\$3,255	-\$148	-4.6%
Total notional	\$183,501	\$188,990	-\$5,489	-2.9%	\$179,573	\$3,928	2.2%

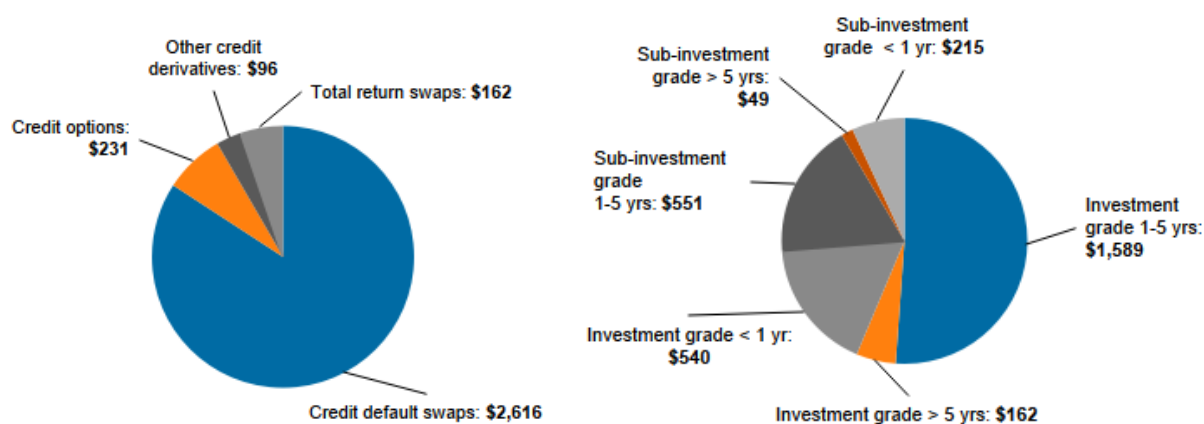
Source: Call reports, Schedule RC-L

Credit Derivatives

The notional amounts of credit derivatives decreased \$255.0 billion (7.6 percent), to \$3.1 trillion, in the second quarter of 2021 (see table 10). Contracts referencing investment-grade firms decreased \$135.0 billion and contracts referencing sub-investment-grade firms decreased \$120.0 billion in the second quarter (see graph 14 in the appendix). Credit derivatives outstanding remained well below the peak of \$16.4 trillion in the first quarter of 2008 (see graph 1 in the appendix). As shown in the chart on the left of figure 5, credit default swaps are the dominant product, at \$2.6 trillion (84.3 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 \$1.6 trillion or 51.2 percent of all credit derivative notional amounts. Contracts of all tenors that reference investment-grade entities are \$2.3 trillion or 73.8 percent of the market (see the chart on the right in figure 5).

Figure 5: 2Q 2021 Credit Derivative Composition, in Billions of Dollars



Source: Call reports, Schedule RC-L

The notional amount for the 102 banks that net sold credit protection (i.e., assumed credit risk) was \$1.5 trillion, down \$136.5 billion (8.5 percent) from the first quarter of 2021 (see table 12 in the appendix). The notional amount for the 76 banks that net purchased credit protection (i.e., hedged credit risk) was \$1.6 trillion, \$118.1 billion lower (6.7 percent) than in the first quarter of 2021 (see table 12 in the appendix).

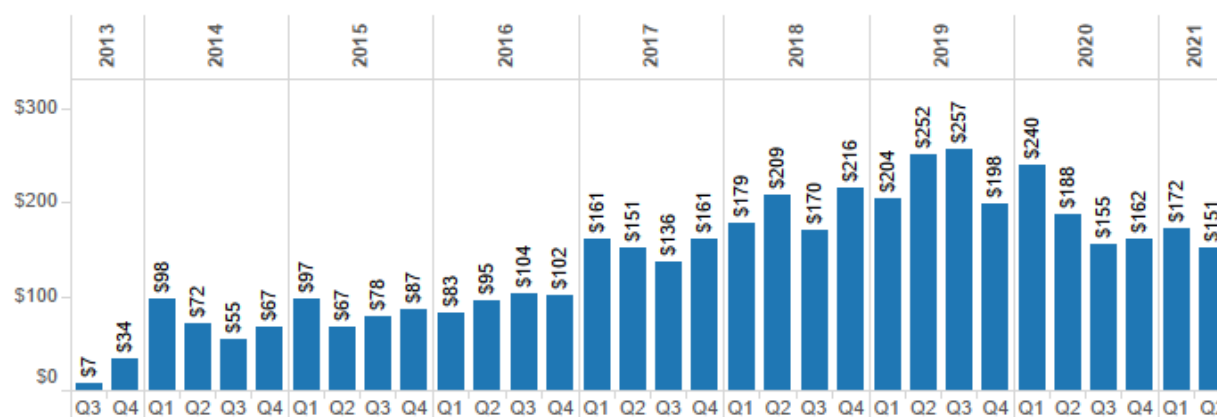
Compression Activity

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 decreased in the second quarter of 2021, as shown in figure 6.

Figure 6: Quarterly Compression Activity, in Trillions of Dollars



Source: LCH Cleamnet

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 second quarter of 2021, 39.5 percent of banks' derivative holdings were centrally cleared (see table 12). From a market factor perspective, 50.7 percent of interest rate derivative contracts' notional amounts outstanding were centrally cleared, while very little of the FX derivative market was centrally cleared. The bank-held credit derivative market remained largely uncleared, as 35.3 percent of credit derivative transactions were centrally cleared during the second quarter of 2021.

Centrally cleared derivative transactions were heavily concentrated at qualifying central counterparties, with 92.4 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
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%
4Q 2019	46.7%	1.7%	24.8%	2.8%	26.4%	11.5%	37.1%
3Q 2019	55.1%	1.5%	26.8%	6.5%	28.3%	15.2%	43.0%

Source: Call reports, Schedule RC-R

Glossary of Terms

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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