

KEY TRENDS IN THE SIZE AND COMPOSITION OF OTC DERIVATIVES MARKETS IN THE SECOND HALF OF 2021

The latest data from the Bank for International Settlements (BIS) over-the-counter (OTC) derivatives statistics shows a decrease in gross market value and gross credit exposure in the second half of 2021 versus the second half of 2020, but a slight increase in notional outstanding.

Gross market value and gross credit exposure significantly increased in 2020 due to pandemic-related market uncertainty. The decline in the second half of 2021 represents a return to pre-pandemic levels.

OTC derivatives notional outstanding rose by 2.8% at year-end 2021 compared to year-end 2020 and fell by 1.9% versus mid-year 2021. Some of this change reflects a seasonal pattern, whereby notional outstanding tends to increase in the first half of the year and decline in the second half.

The gross market value of OTC derivatives contracts at year-end 2021 was 21.2% lower compared to year-end 2020 and 1.4% lower versus mid-year 2021. Gross credit exposure – gross market value after netting – decreased by 24.7% compared to year-end 2020 and fell by 6.6% compared to mid-year 2021.

Market participants reduced their mark-to-market exposure by about 79.6% at year-end 2021 due to close-out netting. This credit exposure is further reduced by the collateral that market participants post for cleared and non-cleared derivatives transactions.

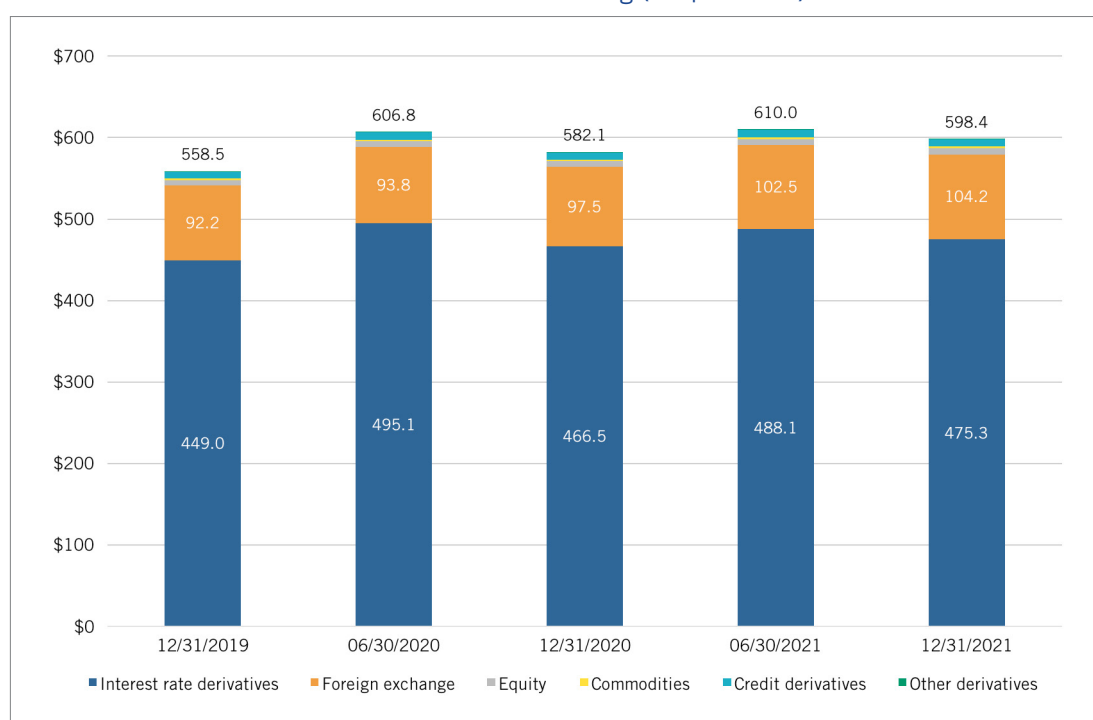
Firms posted \$323.4 billion of initial margin (IM) for cleared interest rate derivatives (IRD) and single-name and index credit default swaps (CDS) at all major central counterparties (CCPs) at year-end 2021. The 20 largest market participants (phase-one firms) collected \$286.0 billion of IM for their non-cleared derivatives transactions at year-end 2021.

KEY TRENDS

OTC derivatives notional outstanding totaled \$598.4 trillion at the end of December 2021, 2.8% higher compared to year-end 2020 and 1.9% lower compared to mid-year 2021^{1,2} (see Chart 1).

IRD notional outstanding increased by 1.9% to \$475.3 trillion at year-end 2021 compared to \$466.5 trillion at year-end 2020, while notional outstanding in foreign exchange (FX) derivatives grew by 6.9% to \$104.2 trillion over the same period. Credit, equity and commodity derivatives notional outstanding totaled \$9.1 trillion, \$7.3 trillion and \$2.2 trillion, respectively, at year-end 2021.

Chart 1: Global OTC Derivatives Notional Outstanding (US\$ trillions)



Source: BIS OTC Derivatives Statistics

The gross market value of OTC derivatives was \$12.4 trillion at year-end 2021, 21.2% lower than year-end 2020 and 1.4% lower than mid-year 2021³ (see Chart 2). Gross market value equaled 2.1% of notional outstanding at year-end 2021 compared to 2.7% at year-end 2020.

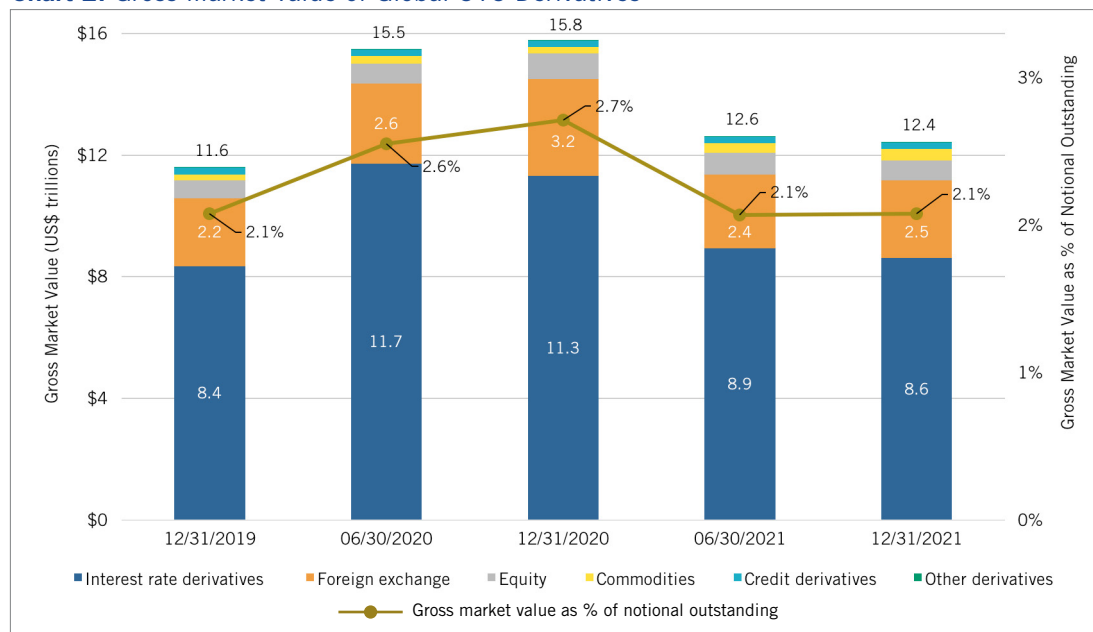
IRD gross market value decreased by 23.9% to \$8.6 trillion at year-end 2021 compared to \$11.3 trillion at year-end 2020, while the gross market value of FX derivatives fell by 19.8% to \$2.5 trillion from \$3.2 trillion over the same period. This decline followed a significant increase in gross market value in 2020 amid pandemic-related market uncertainty.

¹ BIS OTC Derivatives Statistics www.bis.org/statistics/derstats.htm

² This change reflects a seasonal pattern evident in the data since 2016. Notional amounts outstanding tend to be higher in the first half of the year compared to year-end values

³ Gross market value is the sum of the absolute values of all outstanding derivatives contracts with either positive or negative replacement values evaluated at market prices prevailing on the reporting date. See BIS Glossary www.bis.org/statistics/glossary.htm?&selection=312&scope=Statistics&c=a&base=term

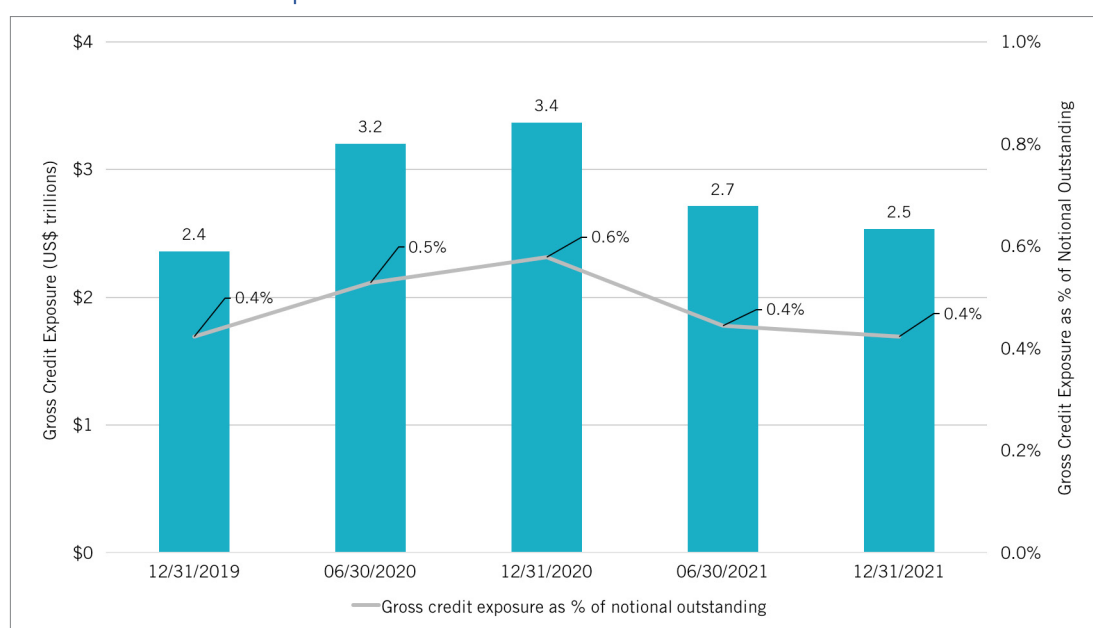
Chart 2: Gross Market Value of Global OTC Derivatives



Source: BIS OTC Derivatives Statistics

Gross credit exposure of OTC derivatives, which is a more accurate measure of counterparty credit risk, decreased by 24.7% compared to year-end 2020 and fell by 6.6% compared to mid-year 2021 (see Chart 3). It totaled \$2.5 trillion and accounted for 0.4% of notional outstanding at year-end 2021⁴.

Chart 3: Gross Credit Exposure of Global OTC Derivatives

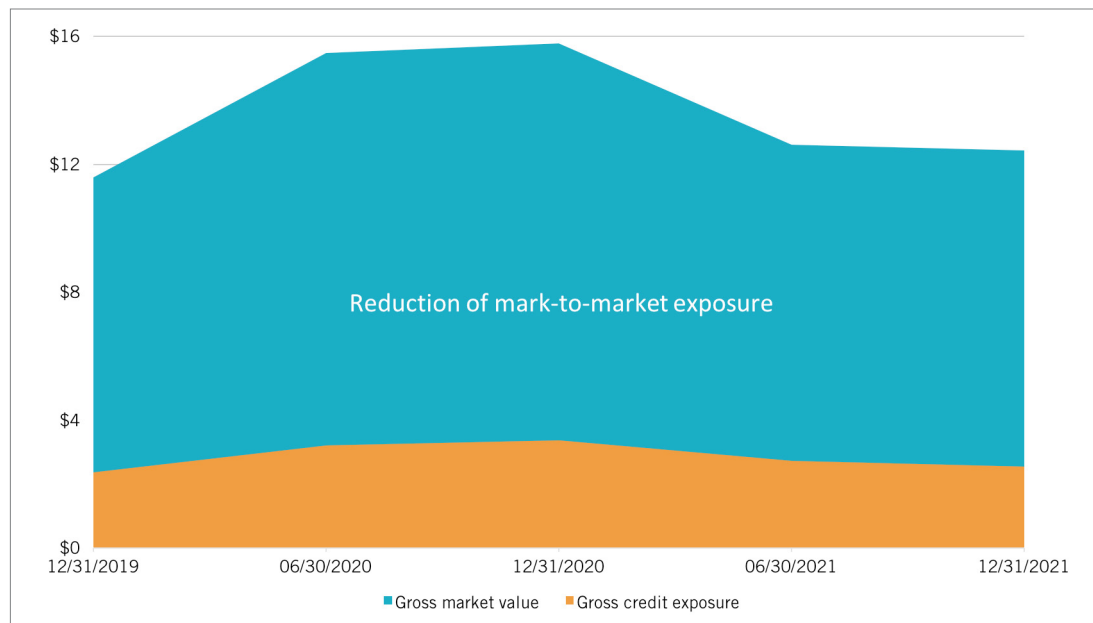


Source: BIS OTC Derivatives Statistics

Market participants reduced their mark-to-market exposure by about 79.6% at year-end 2021 as a result of close-out netting (see Chart 4). This credit exposure is further reduced by the collateral market participants post for cleared and non-cleared derivatives transactions.

⁴ Gross credit exposure adjusts gross market value for legally enforceable netting agreements, but not for collateral. See BIS Glossary www.bis.org/statistics/glossary.htm?&selection=312&scope=Statistics&c=a&base=term

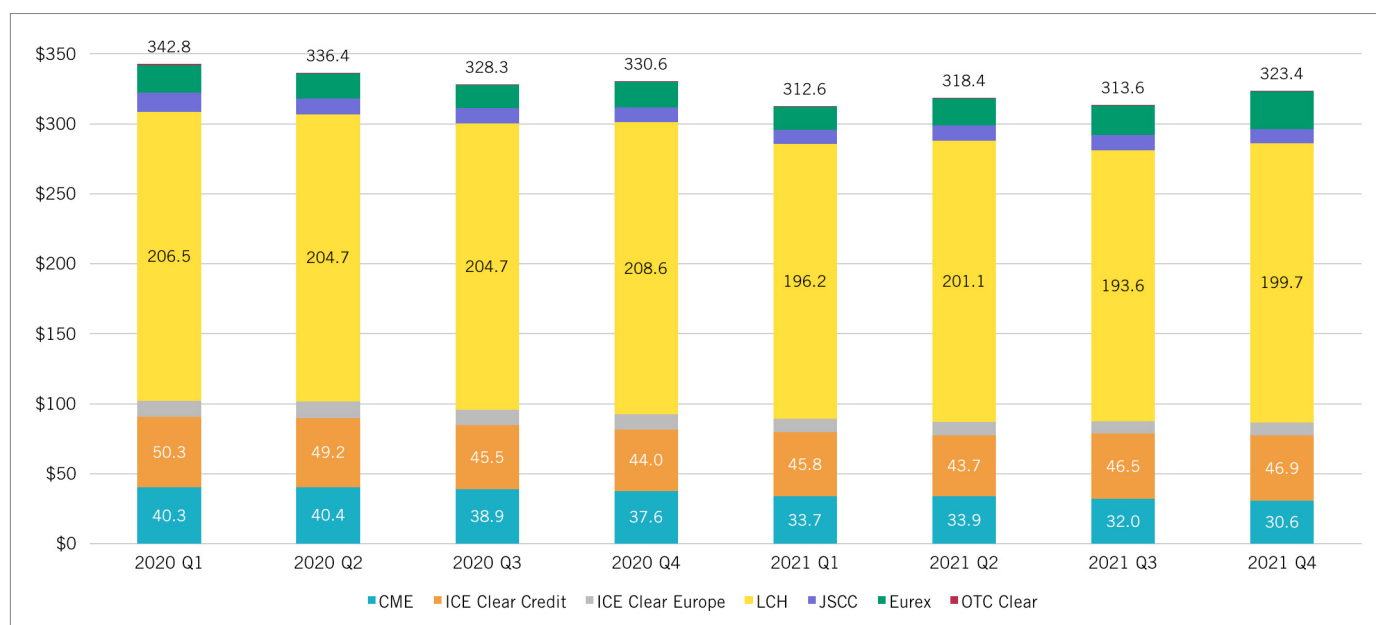
Chart 4: Reduction of Mark-to-market Exposure (US\$ trillions)



Source: BIS OTC Derivatives Statistics

Firms posted \$323.4 billion of IM for cleared IRD and single-name and index CDS at all major CCPs in the fourth quarter of 2021^{5,6}. This represents a 2.2% decrease compared to \$330.6 billion in the fourth quarter of 2020 (see Chart 5).

Chart 5: IM for IRD and CDS (US\$ billions)



Source: CCP disclosure

⁵ All numbers are converted to US dollars based on the exchange rates at the end of each quarter www.x-rates.com/historical

⁶ LCH includes LCH Ltd and LCH SA

Additionally, the 20 largest market participants (phase-one firms) collected \$286.0 billion of IM for their non-cleared derivatives transactions at year-end 2021. This represents a 38.0% increase versus the \$207.3 billion of IM that phase-one firms collected at year-end 2020⁷ (see Table 1).

Table 1: Phase-one Firms Regulatory IM and IA (US\$ billions)

	2021	2020	2019	2018	2017	2021 vs. 2020	2020 vs. 2019	2019 vs. 2018	2018 vs. 2017
Regulatory IM Received	203.5	129.2	105.2	83.8	73.7	57.5%	22.8%	25.5%	13.7%
IA Received	82.5	78.1	68.0	74.1	56.9	5.6%	14.8%	-8.2%	30.2%
Total IM Received	286.0	207.3	173.2	157.9	130.6	38.0%	19.7%	9.7%	20.9%
Regulatory IM Posted	201.9	130.2	105.6	83.2	75.2	55.1%	23.3%	26.9%	10.6%
IA Posted	8.4	9.4	9.5	10.1	6.4	-10.6%	-0.9%	-6.7%	57.5%
Total IM Posted	210.3	139.5	115.0	93.3	81.7	50.7%	21.3%	23.2%	14.3%

Source: ISDA Margin Survey

⁷ ISDA Margin Survey Year-End 2021 www.isda.org/a/TwVgE/ISDA-Margin-Survey-Year-End-2021.pdf

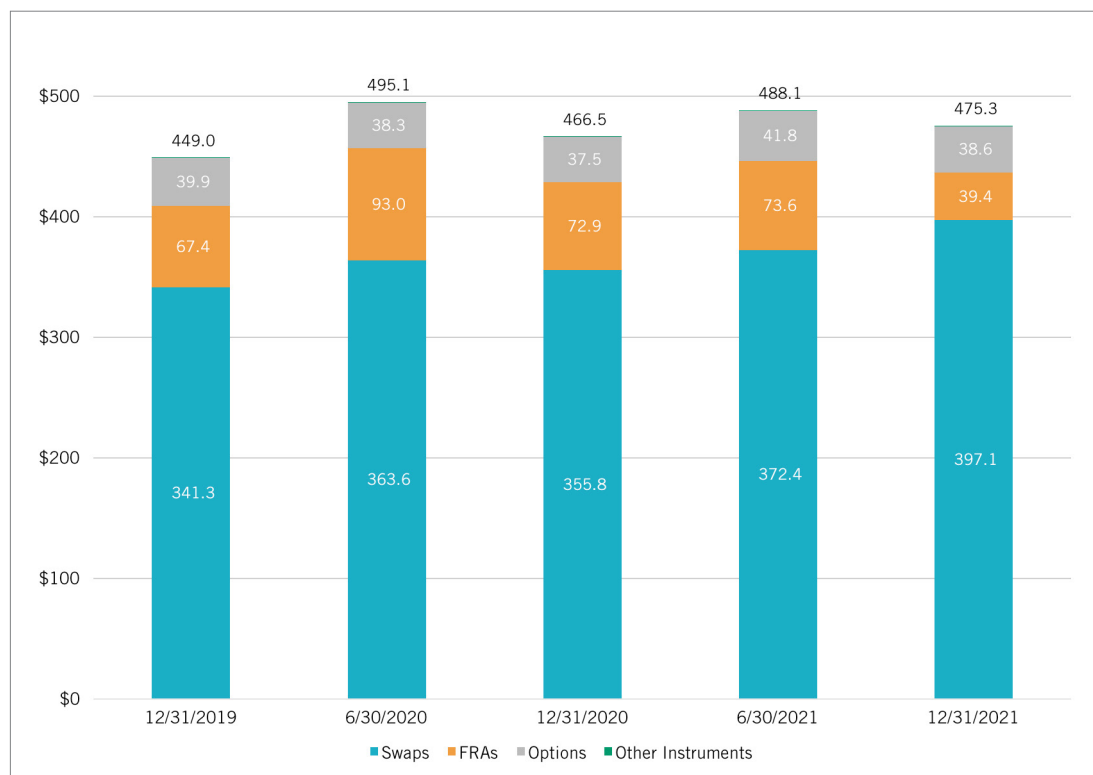
INTEREST RATE DERIVATIVES

IRD notional outstanding was \$475.3 trillion and accounted for 79.4% of total OTC derivatives notional outstanding at year-end 2021. IRD notional outstanding increased by 1.9% versus year-end 2020 and decreased by 2.6% compared to mid-year 2021 (see Chart 1).

Interest rate swaps (IRS) notional outstanding was \$397.1 trillion and accounted for 83.6% of total IRD notional outstanding at year-end 2021. Forward rate agreements (FRAs) and options notional outstanding was \$39.4 trillion and \$38.6 trillion, respectively (see Chart 6).

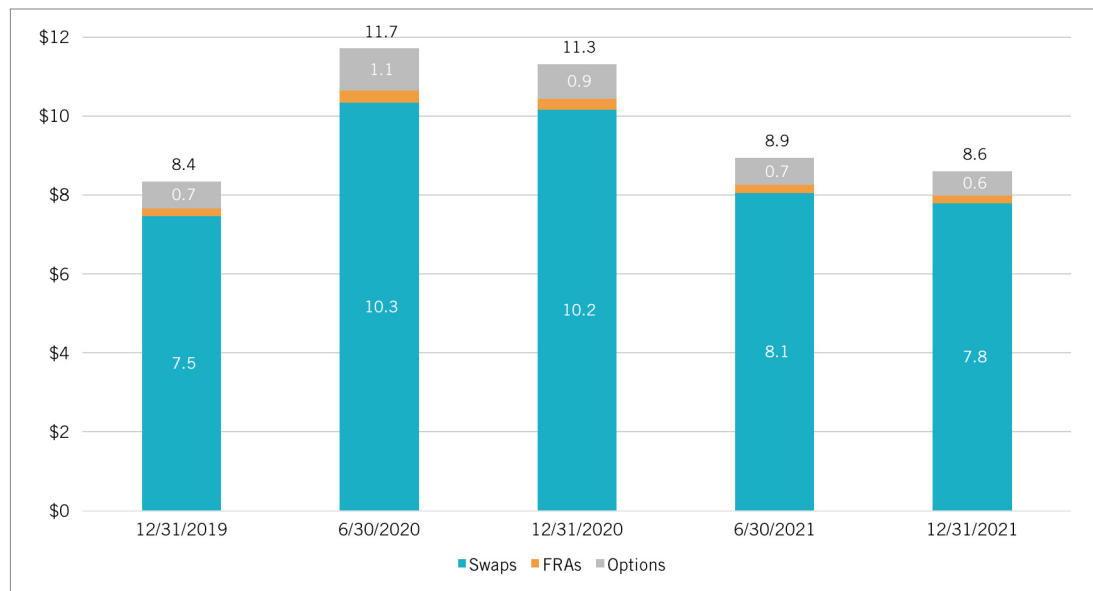
FRA notional outstanding declined by 45.9% compared to year-end 2020 and fell by 46.4% versus mid-year 2021. The decrease was driven by a replacement of FRAs with single-period IRS that reference backward-looking rates.

Chart 6: Global IRD Notional Outstanding by Product (US\$ trillions)



Source: BIS OTC Derivatives Statistics

The gross market value of IRD declined by 23.9% to \$8.6 trillion at year-end 2021 compared to \$11.3 trillion at year-end 2020. IRS gross market value decreased to \$7.8 trillion at year-end 2021, down by 23.4% compared to \$10.2 trillion at year-end 2020. The gross market value of FRAs and options fell by 31.5% and 27.7%, respectively, over the same period (see Chart 7).

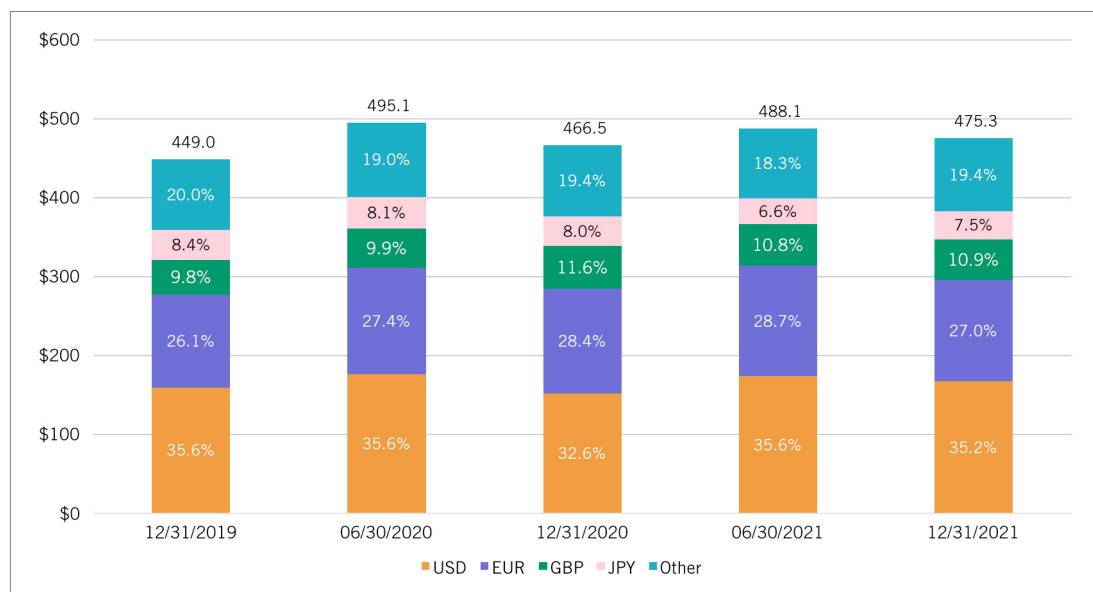
Chart 7: Gross Market Value of Global IRD by Product (US\$ trillions)

Source: BIS OTC Derivatives Statistics

US dollar-denominated IRD notional outstanding totaled \$167.3 trillion at year-end 2021, up by 10.0% compared to year-end 2020 and down by 3.7% versus mid-year 2021. US dollar trades accounted for 35.2% of total IRD notional outstanding at year-end 2021 (see Chart 8).

Euro-denominated IRD notional outstanding was \$128.4 trillion at year-end 2021, down by 3.2% versus year-end 2020 and a decline of 8.4% compared to mid-year 2021. Euro-denominated transactions comprised 27.0% of total IRD notional outstanding at year-end 2021.

Sterling-denominated IRD notional outstanding was \$51.6 trillion at year-end 2021, down by 4.9% compared to year-end 2020 and a fall of 2.3% compared to mid-year 2021. Sterling trades accounted for 10.9% of total IRD notional outstanding at year-end 2021.

Chart 8: Global IRD Notional Outstanding by Currencies (US\$ trillions)

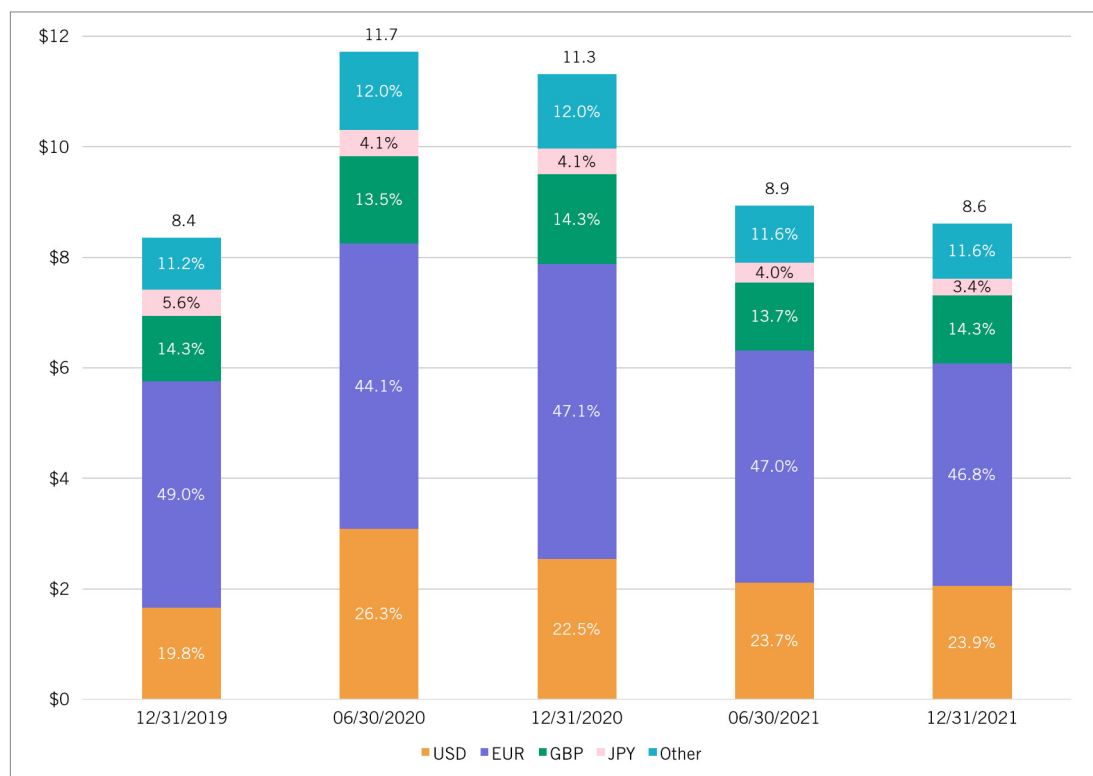
Source: BIS OTC Derivatives Statistics

US dollar-denominated IRD gross market value was \$2.1 trillion at year-end 2021, down by 19.2% compared to year-end 2020 and a fall of 2.9% compared to mid-year 2021. US dollar accounted for 23.9% of total IRD gross market value at year-end 2021 compared to 22.5% at year-end 2020 (see Chart 9).

Euro-denominated IRD gross market value totaled \$4.0 trillion at year-end 2021, a decrease of 24.5% versus year-end 2020 and a decline of 4.2% compared to mid-year 2021. Euro-denominated transactions comprised 46.8% of total IRD gross market value at year-end 2021 compared to 47.1% at year-end 2020.

Sterling-denominated IRD gross market value equaled \$1.2 trillion at year-end 2021, down by 23.9% compared to year-end 2020 and up by 0.9% versus mid-year 2021. Sterling accounted for 14.3% of total IRD gross market value at year-end 2021.

Chart 9: Global IRD Gross Market Value by Currency (US\$ trillions)



Source: BIS OTC Derivatives Statistics

IRD contracts with a remaining maturity up to and including one year totaled \$193.6 trillion and accounted for 40.7% of global IRD notional outstanding at year-end 2021 (see Chart 10). IRD notional outstanding with a remaining maturity over one year and up to five years equaled \$169.3 trillion (35.6% of total IRD notional outstanding) and contracts with a remaining maturity over five years totaled \$112.2 trillion (23.6% of total IRD notional outstanding).

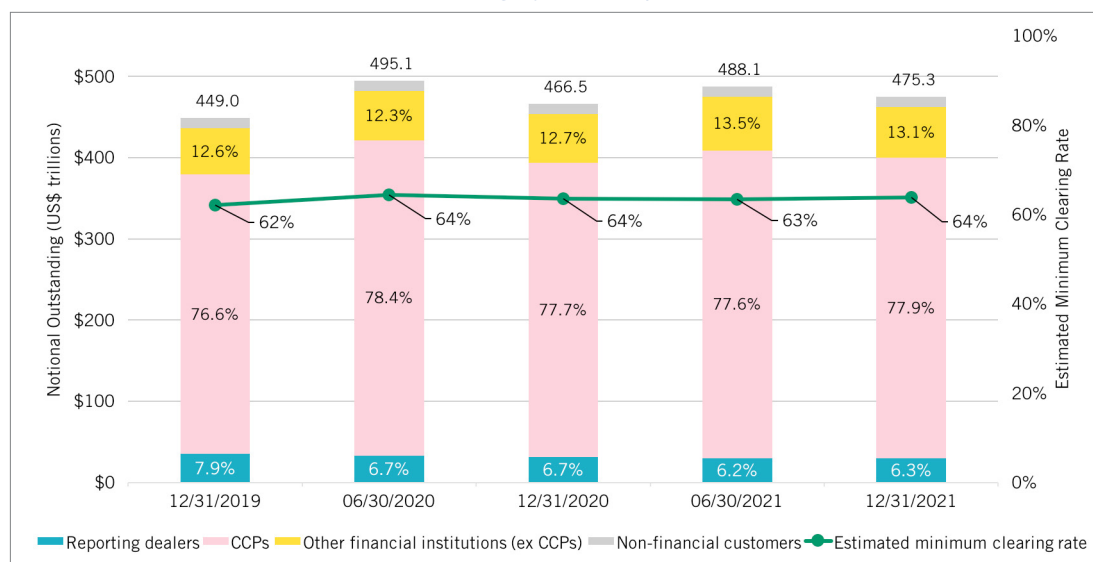
Chart 10: Global IRD Notional Outstanding by Remaining Maturity (US\$ trillions)



Source: BIS OTC Derivatives Statistics

The share of IRD notional cleared by CCPs was 77.9% in the second half of 2021 and totaled \$370.2 trillion. The estimated minimum clearing rate for IRD was 63.8% at year-end 2021⁸ (see Chart 11).

Chart 11: Global IRD Notional Outstanding by Counterparties (US\$ trillions)

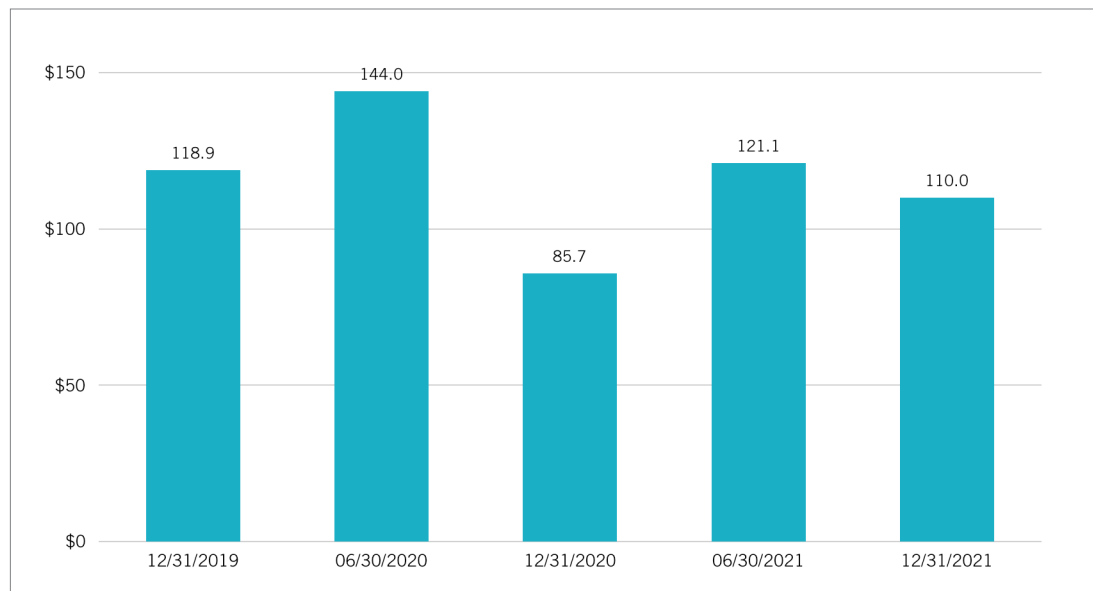


Source: BIS OTC Derivatives Statistics

ISDA SwapsInfo data shows that trading in IRD products reported in the US increased by 28.3% during the second half of 2021 versus the second half of 2020 and decreased by 9.2% compared to the first half of 2021⁹. IRD traded notional totaled \$110.0 trillion in the second half of 2021 compared to \$85.7 trillion in the second half of 2020 and \$121.1 trillion in the first half of 2021 (see Chart 12).

⁸ The estimated minimum clearing rate adjusts for potential double counting of interdealer trades novated to central counterparties (CCPs). It is calculated as $(CCP / 2) / (1 - (CCP / 2))$, where the CCP represents the share of notional amounts outstanding that dealers report against CCPs. The true clearing rate is likely to be higher as many trades will be initiated with CCPs

⁹ Based on data from the Depository Trust and Clearing Corporation (DTCC) swap data repository (SDR). This data covers only transactions required to be disclosed under Commodity Futures Trading Commission regulations. See ISDA SwapsInfo website www.swapsinfo.org/

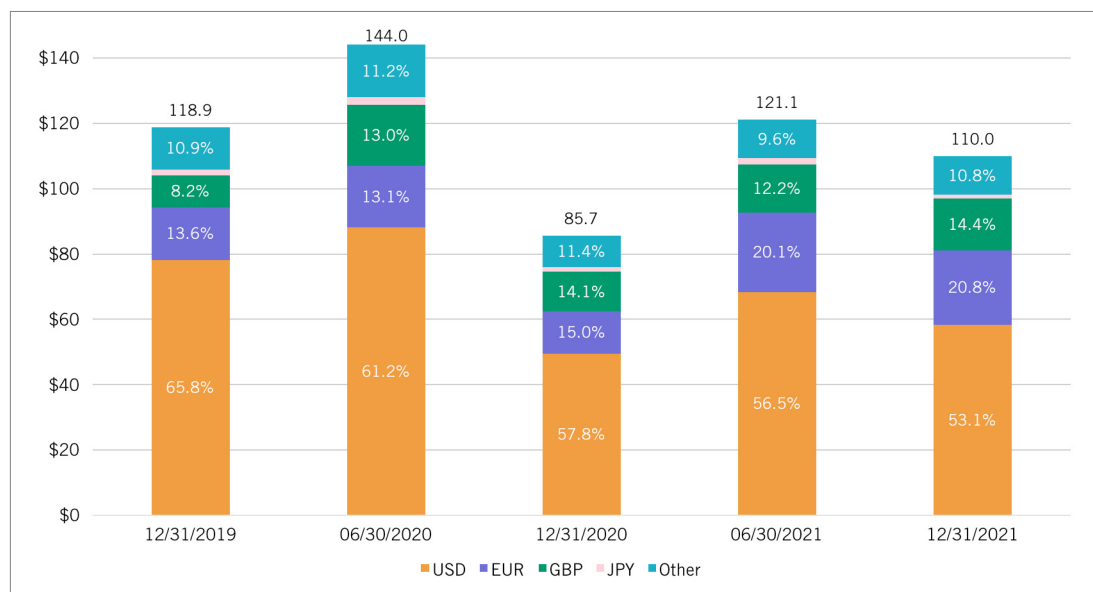
Chart 12: IRD Traded Notional Reported in the US (US\$ trillions)

Source: DTCC SDR

US dollar-denominated IRD traded notional totaled \$58.4 trillion in the second half of 2021, up by 17.7% compared to the second half of 2020 and down by 14.7% versus the first half of 2021. US dollar accounted for 53.1% of total IRD traded notional in the second half of 2021 (see Chart 13).

Euro-denominated IRD traded notional equaled \$22.8 trillion in the second half of 2021, up by 77.0% compared to the second half of 2020 and down by 6.3% compared to the first half of 2021. Euro-denominated transactions represented 20.8% of total IRD traded notional in the second half of 2021.

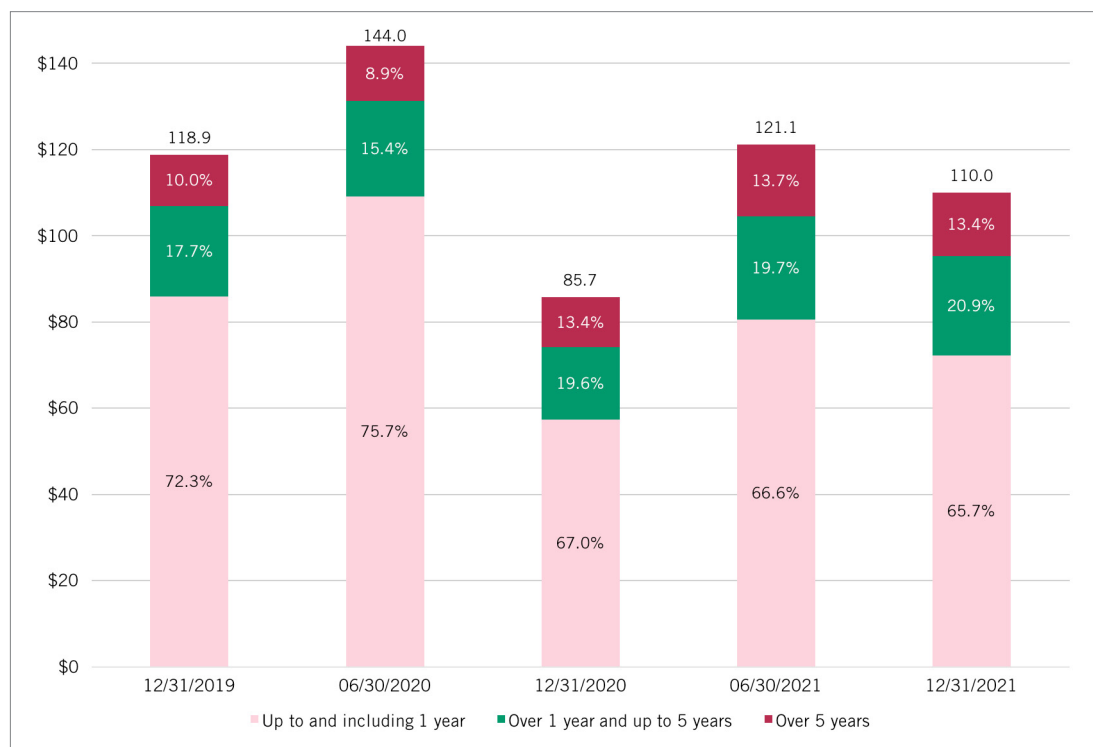
Sterling-denominated IRD traded notional totaled \$15.8 trillion in the second half of 2021, an increase of 30.9% versus the second half of 2020 and a rise of 7.6% compared to the first half of 2021. Sterling represented 14.4% of total IRD traded notional in the second half of 2021.

Chart 13: IRD Traded Notional Reported in the US by Currency (US\$ trillions)

Source: DTCC SDR

In the second half of 2021, contracts with a tenor up to and including one year comprised 65.7% of total IRD trading¹⁰. Contracts with a tenor over one year and up to five years accounted for 20.9% of total IRD traded notional, while contracts with a tenor over five years made up 13.4% (see Chart 14).

Chart 14: IRD Traded Notional Reported in the US by Tenor (US\$ trillions)



Source: DTCC SDR

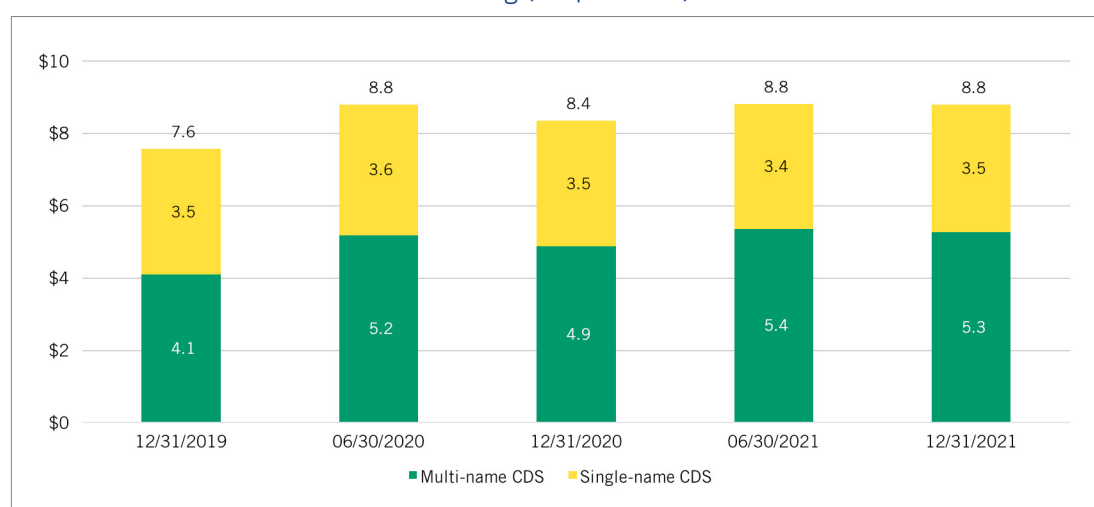
¹⁰ Tenor is calculated as the difference between the effective date and the end date

CREDIT DEFAULT SWAPS

CDS notional outstanding (including single-name and index CDS) increased by 5.3% to \$8.8 trillion at year-end 2021 versus year-end 2020, and remained almost unchanged compared to \$8.8 trillion at mid-year 2021 (see Chart 15).

Single-name CDS notional outstanding increased by 1.3% to \$3.5 trillion at year-end 2021 compared to year-end 2020, while multiple-name CDS notional outstanding increased by 8.1% to \$5.3 trillion at year-end 2021 versus \$4.9 trillion at year-end 2020.

Chart 15: Global CDS Notional Outstanding (US\$ trillions)

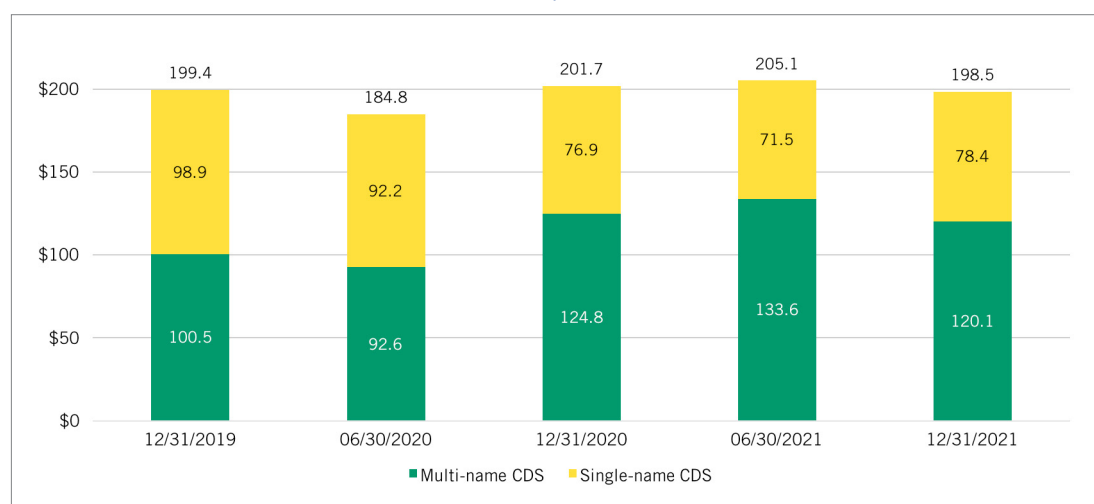


Source: BIS OTC Derivatives Statistics

CDS gross market value was \$198.5 billion at year-end 2021, down by 1.6% from \$201.7 billion at year-end 2020 and a decline of 3.2% versus \$205.1 billion at mid-year 2021 (see Chart 16).

Single-name CDS gross market value increased to \$78.4 billion at year-end 2021, up by 1.9% compared to \$76.9 billion at year-end 2020. Multiple-name CDS notional fell by 3.7% to \$120.1 billion at year-end 2021 versus \$124.8 billion at year-end 2020.

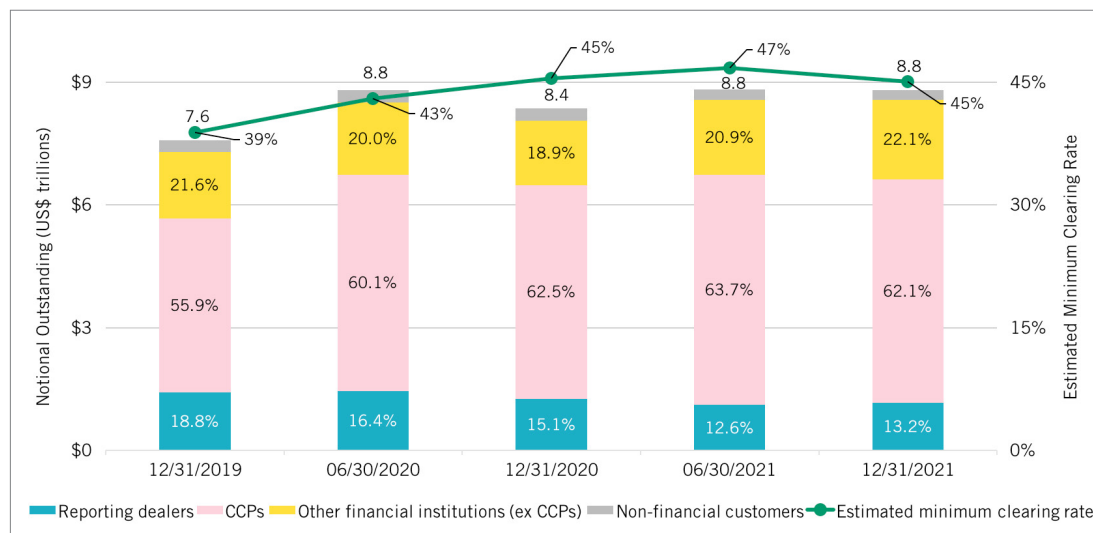
Chart 16: Global CDS Gross Market Value (US\$ billions)



Source: BIS OTC Derivatives Statistics

The share of CDS notional outstanding cleared by CCPs was 62.1% in the second half of 2021, totaling \$5.5 trillion (Chart 17). The estimated minimum clearing rate for CDS contracts decreased to 45.0%¹¹.

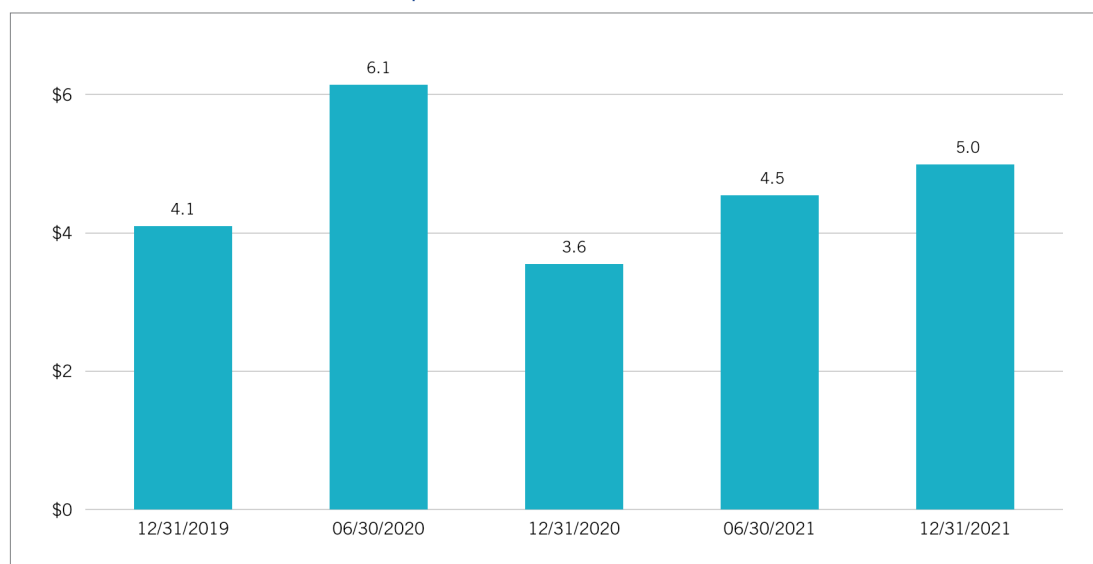
Chart 17: Global CDS Notional Outstanding by Counterparties (US\$ trillions)



Source: BIS OTC Derivatives Statistics

In the US, CDS traded notional increased by 38.8% during the second half of 2021 compared to the second half of 2020 and rose by 10.4% versus the first half of 2021¹². CDS traded notional was \$5.0 trillion in the second half of 2021 compared to \$3.6 trillion in the second half of 2020 and \$4.5 trillion in the first half of 2021 (see Chart 18).

Chart 18: CDS Traded Notional Reported in the US (US\$ trillions)



Source: DTCC SDR

¹¹ The estimated minimum clearing rate adjusts for potential double counting of interdealer trades novated to CCPs. It is calculated as $(CCP / 2) / (1 - (CCP / 2))$, where the CCP represents the share of notional amounts outstanding that dealers report against CCPs. The true clearing rate is likely to be higher as many trades will be initiated with CCPs

¹² Based on the data from the DTCC SDR. This data covers only transactions required to be disclosed under Commodity Futures Trading Commission regulations. Credit derivatives mostly comprise CDS indices, but also include CDS index tranches, credit swaptions, exotic products, total return swaps and an insignificant amount of single-name CDS



ISDA has published other recent research papers:

- ***ISDA Margin Survey Year-End 2021***

www.isda.org/a/TwVgE/ISDA-Margin-Survey-Year-End-2021.pdf

- ***Transition to RFRs Review: First Quarter of 2022***

www.isda.org/a/OkVgE/Transition-to-RFRs-Review-First-Quarter-of-2022.pdf

- ***SwapsInfo First Quarter of 2022 Review***

www.isda.org/a/BiWgE/SwapsInfo-First-Quarter-of-2022-Review-Full-Report.pdf

For questions on ISDA Research, please contact:

Olga Roman

Head of Research

International Swaps and Derivatives Association, Inc. (ISDA)

Office: 212-901-6017

oroman@isda.org

ABOUT ISDA

Since 1985, ISDA has worked to make the global derivatives markets safer and more efficient. Today, ISDA has over 980 member institutions from 78 countries. These members comprise a broad range of derivatives market participants, including corporations, investment managers, government and supranational entities, insurance companies, energy and commodities firms, and international and regional banks. In

addition to market participants, members also include key components of the derivatives market infrastructure, such as exchanges, intermediaries, clearing houses and repositories, as well as law firms, accounting firms and other service providers. Information about ISDA and its activities is available on the Association's website: www.isda.org. Follow us on [Twitter](#), [LinkedIn](#), [Facebook](#) and [YouTube](#).