

KEY TRENDS IN THE SIZE AND COMPOSITION OF OTC DERIVATIVES MARKETS IN THE SECOND HALF OF 2020

The latest data from the Bank for International Settlements (BIS) over-the-counter (OTC) derivatives statistics shows a significant increase in the gross market value and gross credit exposure of OTC derivatives during the second half of 2020, while notional outstanding remained relatively stable. The increase was driven by a surge in the gross market value of interest rate derivatives (IRD) and foreign exchange (FX) derivatives.

OTC derivatives notional outstanding at year-end 2020 increased by 4.2% compared to year-end 2019 and decreased by 4.1% compared to mid-year 2020. Some of this change reflects a seasonal pattern, under which notional outstanding tends to increase in the first half of the year and decrease in the second half.

The gross market value of OTC derivatives contracts at year-end 2020 was 36.1% higher compared to year-end 2019 and 1.9% higher compared to mid-year 2020. Gross credit exposure – gross market value after netting – increased by 42.6% compared to year-end 2019 and by 5.1% compared to mid-year 2020.

Market participants reduced their mark-to-market exposure by about 78.7% at year-end 2020 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.

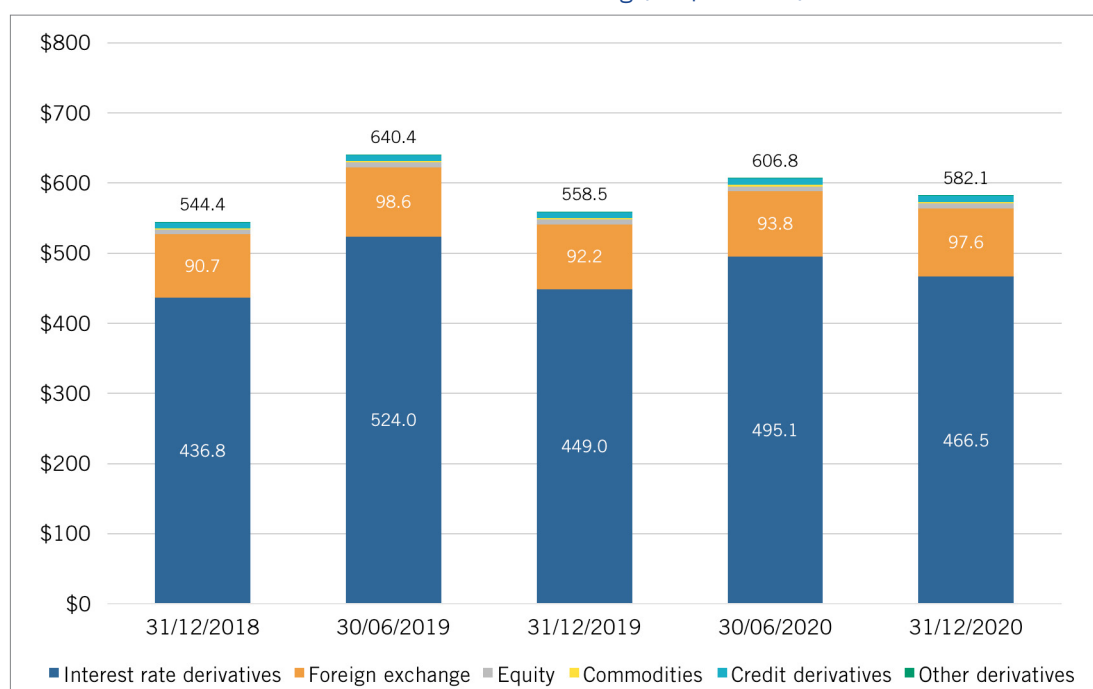
Market participants posted \$330.6 billion of initial margin (IM) for cleared IRD and single-name and index credit default swaps (CDS) at all major central counterparties (CCPs) at year-end 2020. The 20 largest market participants (phase-one firms) collected \$207.3 billion of IM for their non-cleared derivatives transactions.

KEY TRENDS

OTC derivatives notional outstanding was \$582.1 trillion at the end of December 2020, 4.2% higher compared to year-end 2019 and 4.1% lower compared to mid-year 2020^{1,2} (see Chart 1).

IRD increased by 3.9% to \$466.5 trillion at year-end 2020 compared to \$449.0 trillion at year-end 2019, while FX derivatives grew by 5.8% to \$97.6 trillion over the same period. Credit, equity and commodity derivatives totaled \$8.6 trillion, \$7.1 trillion and \$2.1 trillion, respectively.

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



Source: BIS OTC Derivatives Statistics

The gross market value of OTC derivatives totaled \$15.8 trillion at year-end 2020, 36.1% higher compared to year-end 2019 and 1.9% higher compared to mid-year 2020³ (see Chart 2). Gross market value totaled 2.7% of notional outstanding at year-end 2020 compared to 2.1% at year-end 2019.

The gross market value of IRD increased by 35.5% to \$11.3 trillion at the end of 2020 compared to \$8.4 trillion a year earlier. As noted in the BIS commentary, the significant increase in IRD gross market value was driven by central bank measures to support economic activity in response to the COVID-19 pandemic.

The gross market value of FX derivatives increased by 42.4% to \$3.2 trillion at year-end 2020 compared to \$2.2 trillion at year-end 2019. The increase was likely driven by the sizable US dollar depreciation against other major currencies, which led to more trading in FX derivatives as market participants rebalanced their portfolios. Unanticipated FX movements generated a gap between the market value on the reporting date and the market value prevailing at the inception of the contracts, therefore boosting the reported gross market value⁴.

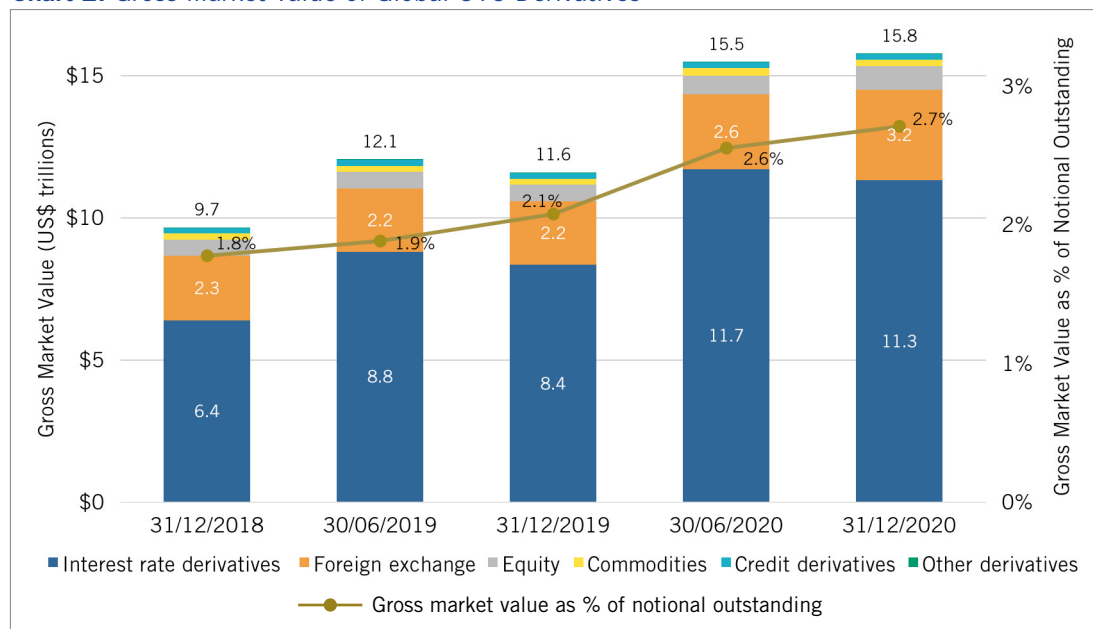
¹ BIS OTC Derivatives Statistics <https://www.bis.org/statistics/derstats.htm>

² This change reflects a seasonal pattern evident in the data since 2016. Notional amounts outstanding tends 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

⁴ BIS Statistical Release: OTC Derivatives at End-December 2020 https://www.bis.org/publ/otc_hy2105.pdf

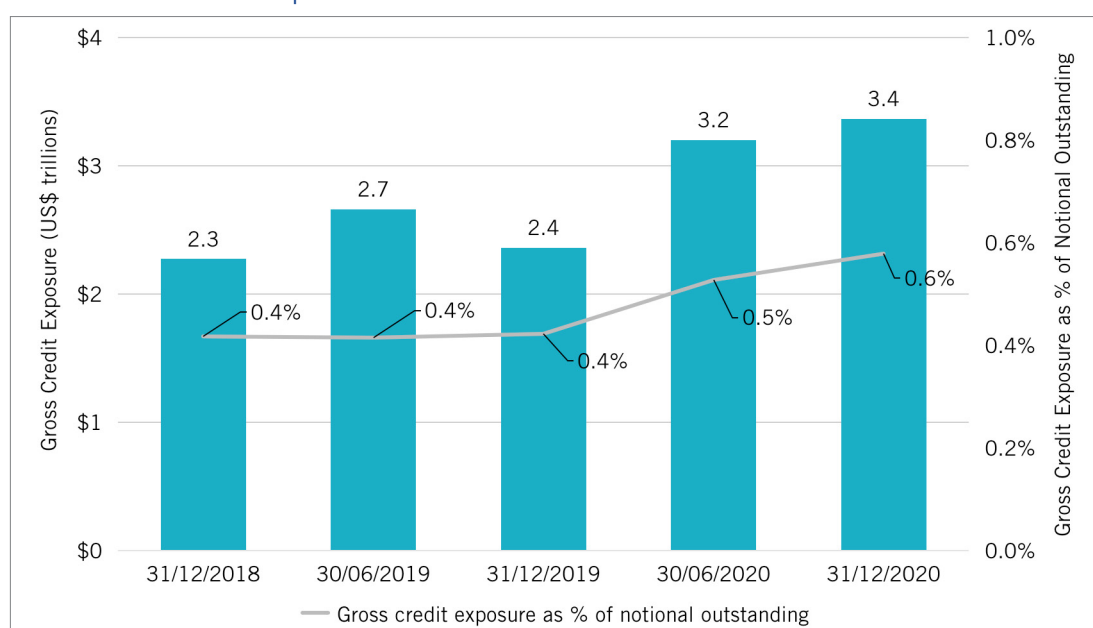
Chart 2: Gross Market Value of Global OTC Derivatives



Source: BIS OTC Derivatives Statistics

Gross credit exposure of OTC derivatives, which is a more accurate measure of counterparty credit risk, increased by 42.6% compared to year-end 2019 and by 5.1% versus mid-year 2020 (see Chart 3). It totaled \$3.4 trillion and accounted for 0.6% of notional outstanding at year-end 2020⁵.

Chart 3: Gross Credit Exposure of Global OTC Derivatives

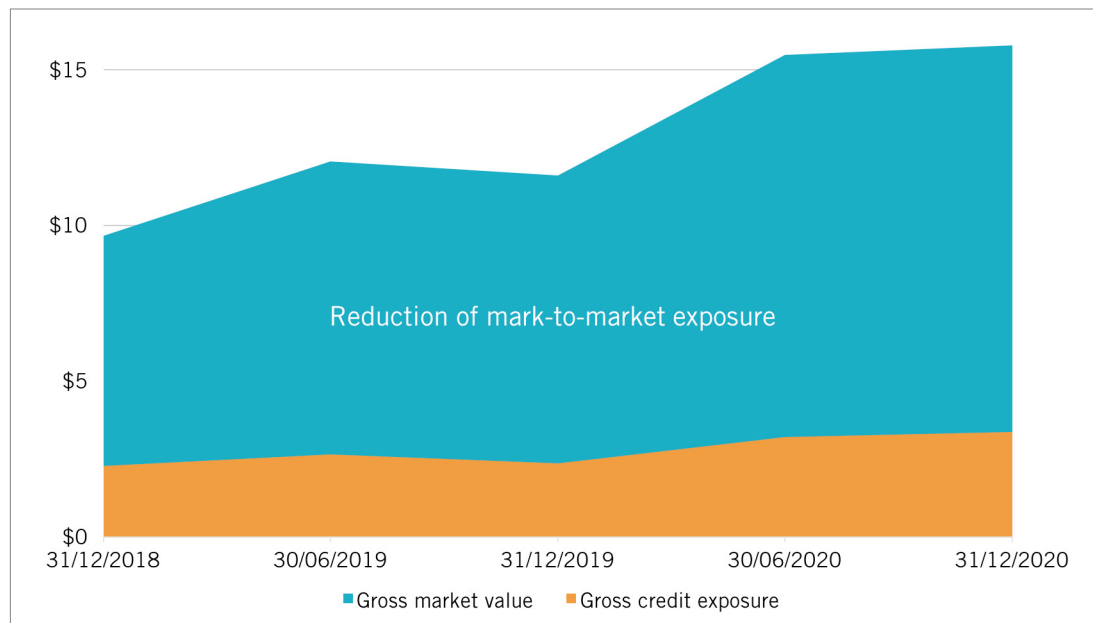


Source: BIS OTC Derivatives Statistics

Market participants reduced their mark-to-market exposure by 78.7% at year-end 2020 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.

⁵ Gross credit exposure adjusts gross market value for legally enforceable netting agreements, but not for collateral. See [BIS Glossary](#)

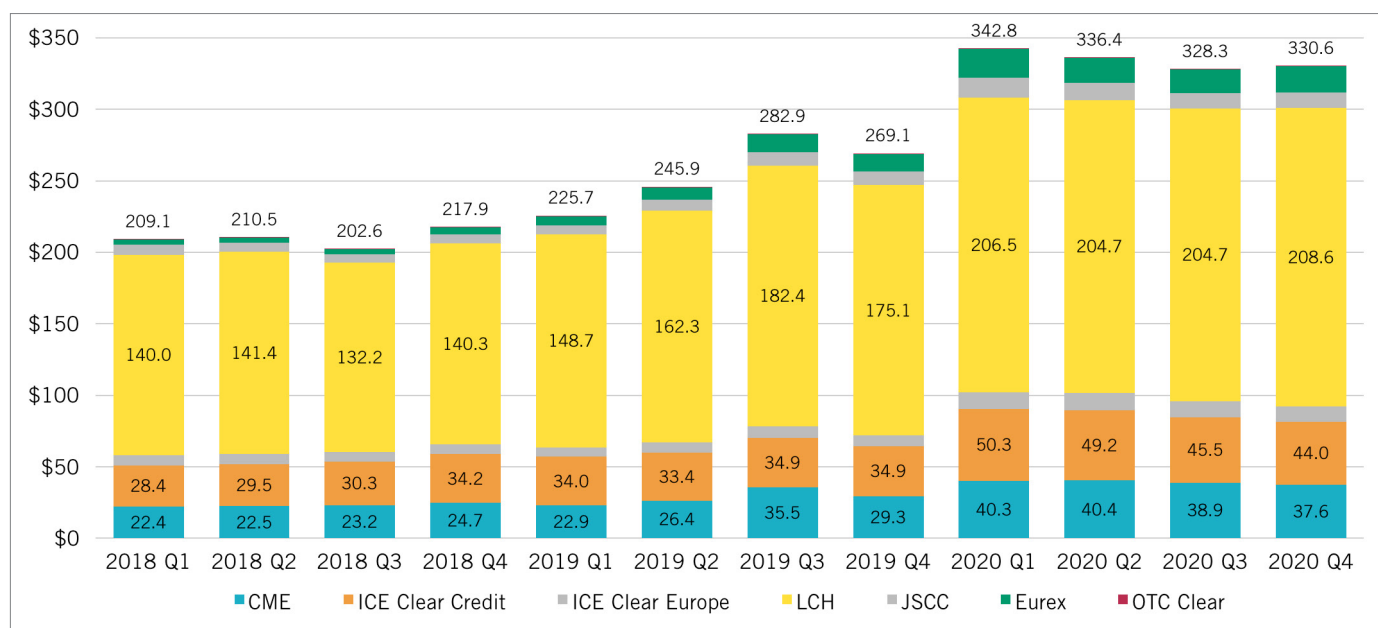
Chart 4: Reduction of Mark-to-market Exposure (US\$ trillions)



Source: BIS OTC Derivatives Statistics

Market participants posted \$330.6 billion of IM for cleared IRD and both single-name and index CDS at all major CCPs at year-end 2020^{6,7}. This represents an increase of 22.8% compared to \$269.2 billion at the end of 2019 (see Chart 5).

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



Source: CCP disclosure

⁶ All numbers are converted to US dollar based on the exchange rates at the end of each quarter: <https://www.x-rates.com/historical>

⁷ LCH includes LCH Ltd and LCH SA

The amount of collateral received and posted by market participants for non-cleared derivatives also increased in 2020. According to the latest ISDA Margin Survey, the 20 largest market participants (phase-one firms) collected \$207.3 billion of IM for their non-cleared derivatives transactions at year-end 2020⁸. This represents a 19.7% increase compared to the \$173.2 billion of IM that phase-one firms collected at the end of 2019⁹.

\$129.2 billion of IM collected by phase-one firms at year-end 2020 was required under global margin regulations¹⁰. \$78.1 billion of IM collected by phase-one firms was independent amount received from counterparties not currently in scope of the margin rules and/or for transactions that are not covered by the margin rules, including legacy transactions^{11,12} (see Table 1).

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

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

Source: ISDA Margin Survey

⁸ ISDA Margin Survey Year-End 2020 <https://www.isda.org/a/fgGTE/ISDA-Margin-Survey-Year-End-2020.pdf>

⁹ ISDA Margin Survey Year-End 2019 <https://www.isda.org/a/1F7TE/ISDA-Margin-Survey-Year-end-2019.pdf>

¹⁰ Regulatory IM is the amount of IM collected/posted by counterparties, including phase-one, phase-two, phase-three and phase-four firms, for non-cleared derivatives portfolios subject to regulatory IM agreements. It covers all collateral under the agreement and may include house independent amount (IA) under a greater-of margin approach

¹¹ IA is the amount of margin collected/posted by counterparties for legacy transactions executed prior to the implementation of margin rules, for transactions that are not subject to margin rules for non-cleared derivatives and/or posted in addition to regulatory IM

¹² Legacy transactions are trades entered prior to the regulatory IM compliance date. Counterparties, particularly dealer counterparties, commonly required IM to be posted to them for non-cleared derivatives trades

Interest Rate Derivatives

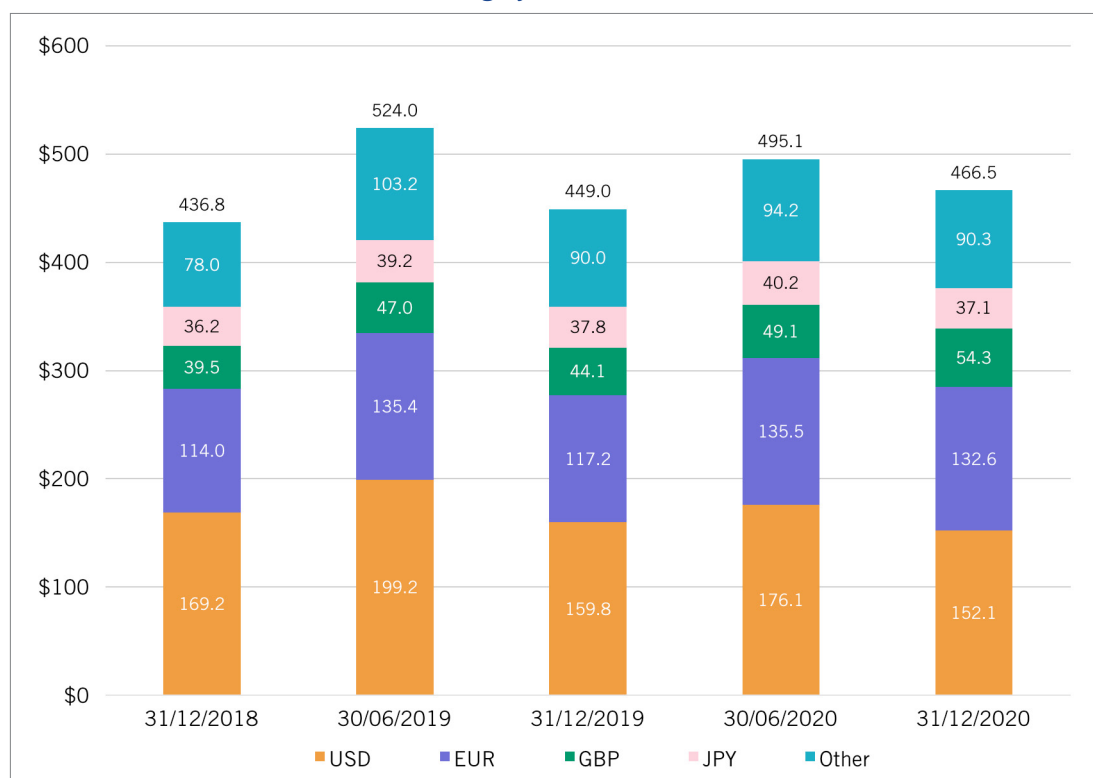
IRD notional outstanding equaled \$466.5 trillion and accounted for 80.1% of total notional outstanding at year-end 2020. IRD notional outstanding increased by 3.9% versus year-end 2019 and decreased by 5.8% compared to mid-year 2020, mirroring the growth of total derivatives notional.

US dollar-denominated IRD notional outstanding totaled \$152.1 trillion, a decrease of 4.8% versus year-end 2019 and a fall of 13.6% compared to mid-year 2020 (see Chart 6). US dollar-denominated IRD accounted for 32.6% of total IRD notional outstanding at year-end 2020 compared to 35.6% at year-end 2019.

Euro-denominated IRD notional outstanding totaled \$132.6 trillion at year-end 2020, up by 13.2% from year-end 2019 and down by 2.1% compared to mid-year 2020. Euro-denominated IRD comprised 28.4% of total IRD notional outstanding at year-end 2020.

Sterling-denominated IRD notional outstanding was \$54.3 trillion at the end of 2020, up by 23.0% compared to year-end 2019 and by 10.6% compared to mid-year 2020. It accounted for 11.6% of total IRD notional outstanding at year-end 2020 compared to 9.8% a year earlier.

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



Source: BIS OTC Derivatives Statistics

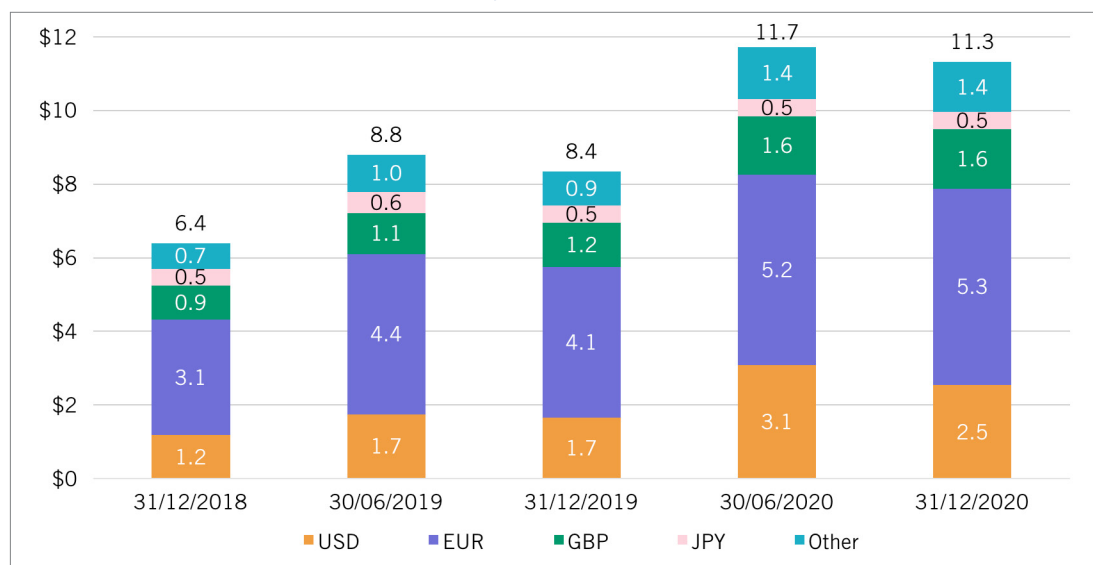
The gross market value of IRD totaled \$11.3 trillion and accounted for 71.7% of total gross market value at year-end 2020. IRD gross market value increased by 35.5% versus year-end 2019 and decreased by 3.4% compared to mid-year 2020.

US dollar-denominated IRD gross market value totaled \$2.5 trillion at year-end 2020, up by 53.5% compared to year-end 2019 and down by 17.6% compared to mid-year 2020 (see Chart 7). US dollar-denominated IRD accounted for 22.5% of total IRD gross market value at year-end 2020 compared to 19.8% at the end of 2019.

Euro-denominated IRD gross market value totaled \$5.3 trillion, an increase of 30.3% versus year-end 2019 and 3.2% compared to mid-year 2020. Euro-denominated IRD comprised 47.1% of total IRD gross market value at year-end 2020 compared to 49.0% at year-end 2019.

Sterling-denominated IRD gross market value totaled \$1.6 trillion, an increase of 36.0% compared to year-end 2019 and 2.7% versus mid-year 2020. It accounted for 14.3% of total IRD gross market value at year-end 2020.

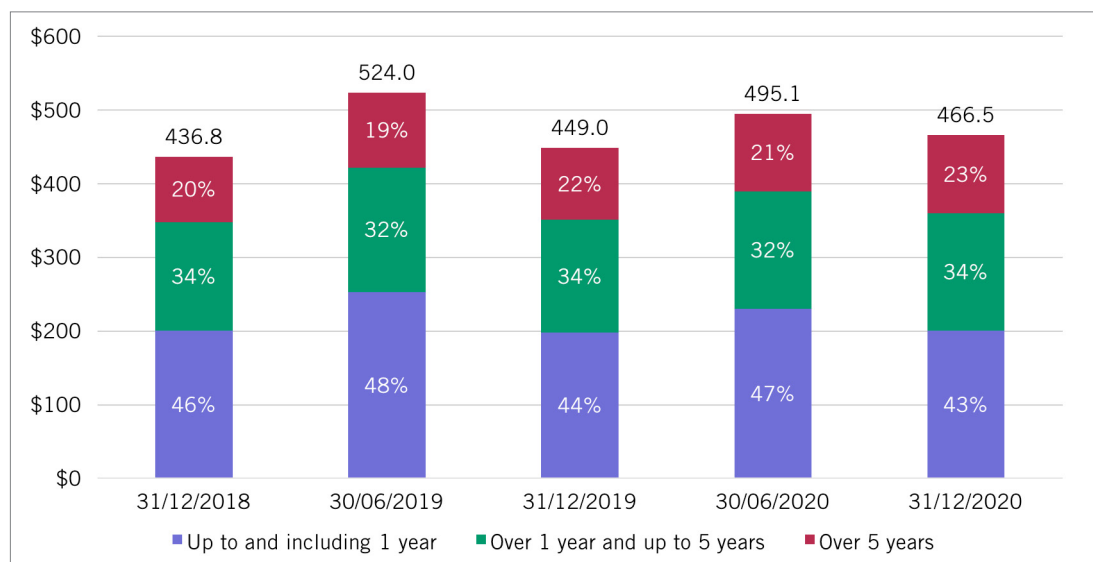
Chart 7: Global IRD Gross Market Value by Currencies (US\$ trillions)



Source: BIS OTC Derivatives Statistics

IRD contracts with a remaining maturity up to and including one year totaled \$200.6 trillion and accounted for 43.0% of total global IRD notional outstanding at year-end 2020 (see Chart 8). IRD notional outstanding with a remaining maturity over one year and up to five years equaled \$159.4 trillion (34.2% of total IRD notional outstanding) and contracts with a remaining maturity over five years totaled \$106.2 trillion (22.8% of total IRD notional outstanding).

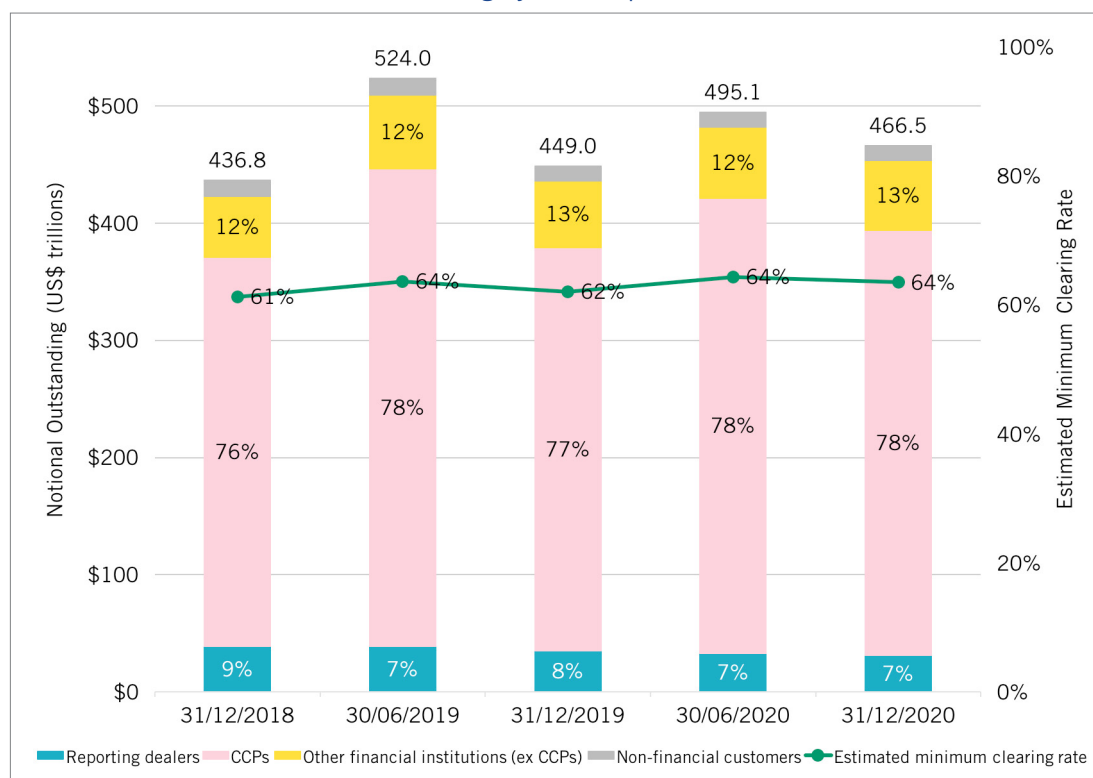
Chart 8: Global IRD Notional Outstanding by Remaining Maturity (US\$ trillions)



Source: BIS OTC Derivatives Statistics

The share of IRD notional with CCPs was 77.7% in the second half of 2020, totaling \$362.5 trillion. The estimated minimum clearing rate for IRD was 63.6% at year-end 2020¹³ (see Chart 9). In comparison, the share of IRD notional with CCPs was 76.6% and the estimated minimum clearing rate for IRD was 62.1% at year-end 2019.

Chart 9: Global IRD Notional Outstanding by Counterparties



Source: BIS OTC Derivatives Statistics

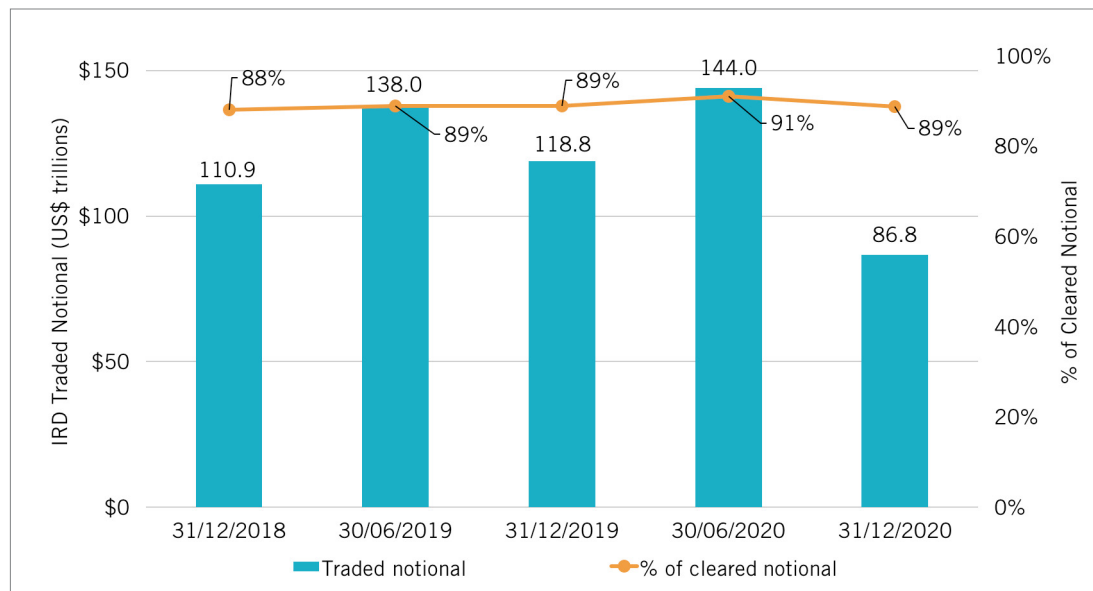
ISDA SwapsInfo data shows that trading in IRD products decreased by 27.0% during the second half of 2020 compared to the second half of 2019 and declined by 39.7% compared to the first half of 2020¹⁴.

IRD traded notional totaled \$86.8 trillion in the second half of 2020 compared to \$118.8 trillion in the second half of 2019 and \$144.0 trillion in the first half of 2020 (see Chart 10).

The clearing rate in the US has been fluctuating between 88% and 91% since year-end 2018. In the second half of 2020, about 89% of IRD traded notional was cleared.

¹³ 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 '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

¹⁴ Based on the data from the Depository Trust and Clearing Corporation (DTCC) and Bloomberg swap data repositories (SDRs). This data covers only transactions required to be disclosed under US regulations. See ISDA SwapsInfo website www.swapsinfo.org

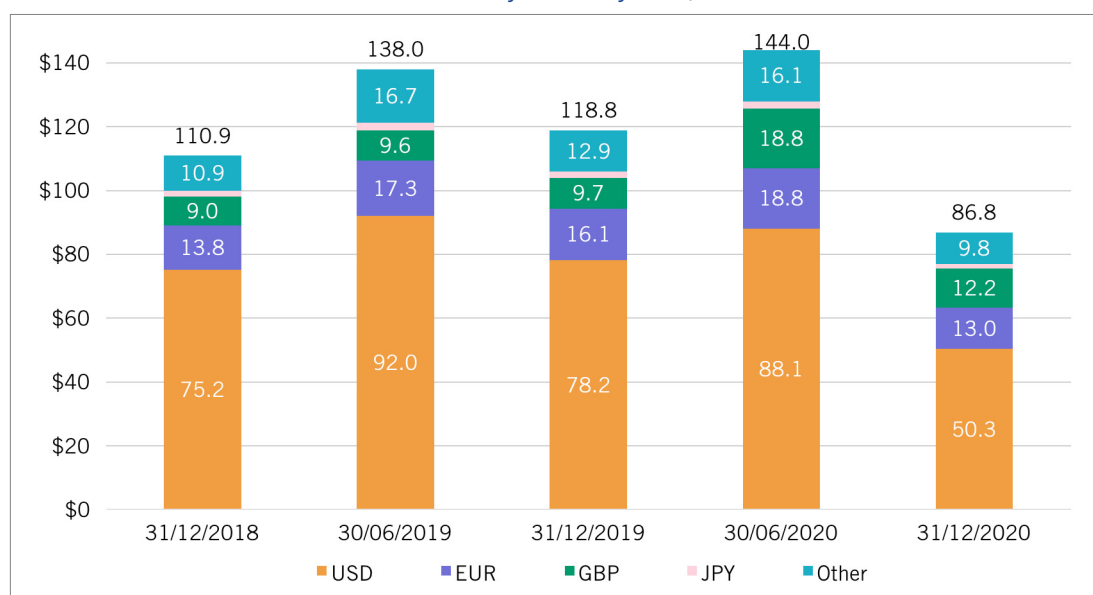
Chart 10: IRD Traded Notional and Percentage of Cleared Notional in the US

Source: DTCC and Bloomberg SDRs

US dollar-denominated IRD traded notional totaled \$50.3 trillion in the second half of 2020, down by 35.6% compared to the second half of 2019 and by 42.9% compared to the first half of 2020 (see Chart 11). It accounted for 58.0% of total IRD traded notional in the second half of 2020.

Euro-denominated IRD traded notional totaled \$13.0 trillion in the second half of 2020, down by 19.1% compared to the second half of 2019 and by 30.6% compared to the first half of 2020. It represented 15.0% of total IRD traded notional in the second half of 2020.

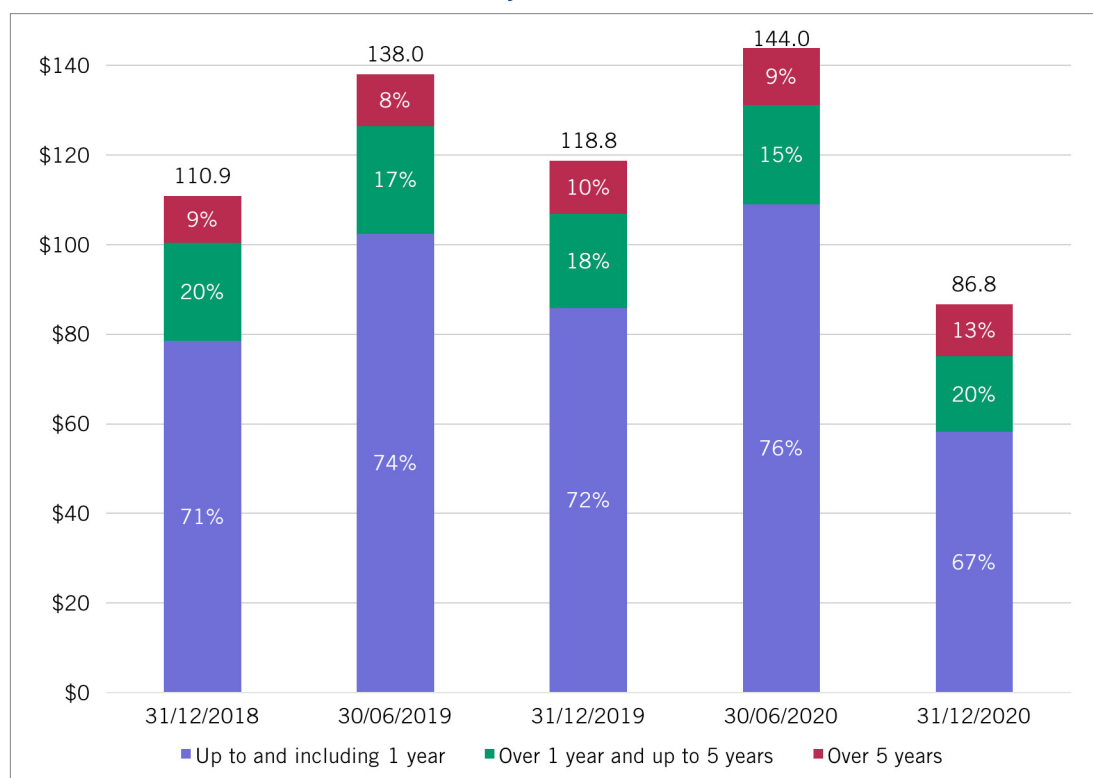
Sterling-denominated IRD traded notional totaled \$12.2 trillion in the second half of 2020, up by 25.6% versus the second half of 2019 and down by 35.0% compared to the first half of 2020. It represented 14.1% of total IRD traded notional in the second half of 2020.

Chart 11: IRD Traded Notional in the US by Currency (US\$ trillions)

Source: DTCC and Bloomberg SDRs

In the second half of 2020, 67.1% of total IRD trading was in contracts with a tenor up to and including one year¹⁵. Contracts with a tenor over one year and up to five years accounted for 19.5% of total IRD traded notional, while contracts with a tenor over five years totaled 13.4% (see Chart 12).

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



Source: DTCC and Bloomberg SDRs

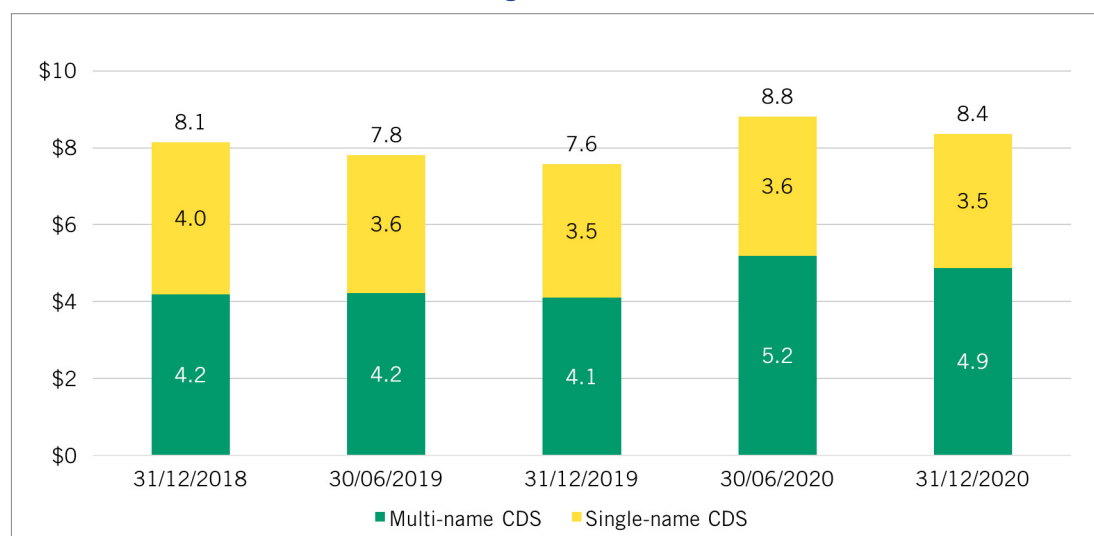
¹⁵ Tenor is calculated as the difference between the effective date and the end date

Credit Default Swaps

According to the BIS data, CDS notional outstanding (including single name and index CDS) increased to \$8.4 trillion at year-end 2020, up by 10.3% from \$7.6 trillion at year-end 2019. It was down by 5.1% compared to \$8.8 trillion at mid-year 2020 (see Chart 13).

Single-name CDS notional remained almost unchanged at \$3.5 trillion, while multiple-name CDS notional increased by 19.0% to \$4.9 trillion versus \$4.1 trillion at year-end 2019.

Chart 13: Global CDS Notional Outstanding (US\$ trillions)

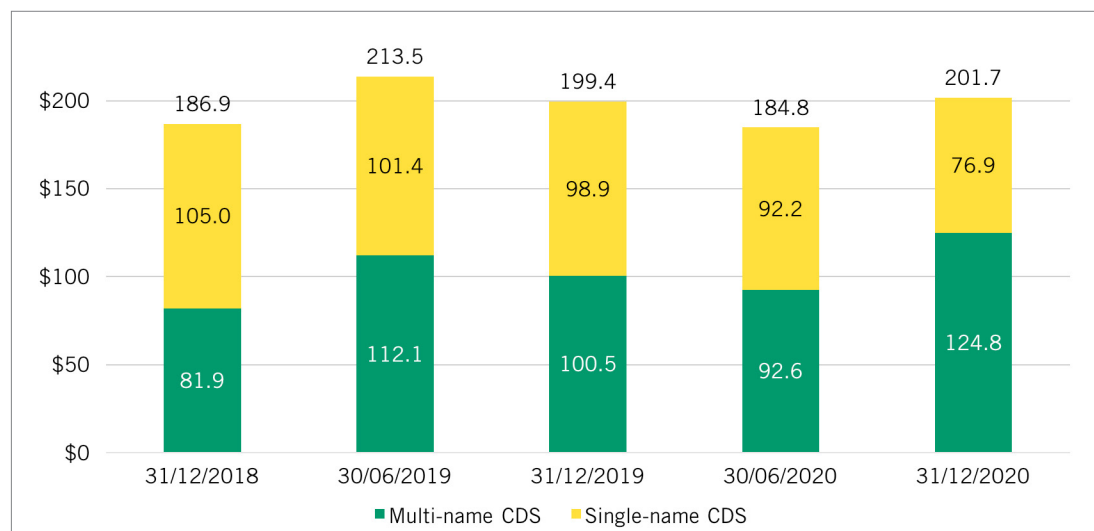


Source: BIS OTC Derivatives Statistics

The gross market value of CDS increased to \$201.7 billion at year-end 2020, up by 1.2% from \$199.4 billion at year-end 2019 and by 9.2% from \$184.8 billion at mid-year 2020 (see Chart 14).

Single-name CDS gross market value decreased to \$76.9 billion at year-end 2020, down by 22.2% compared to \$98.9 billion at year-end 2019. Multiple-name CDS gross market value increased by 24.1% to \$124.8 billion at year-end 2020 compared to \$100.5 billion at year-end 2019.

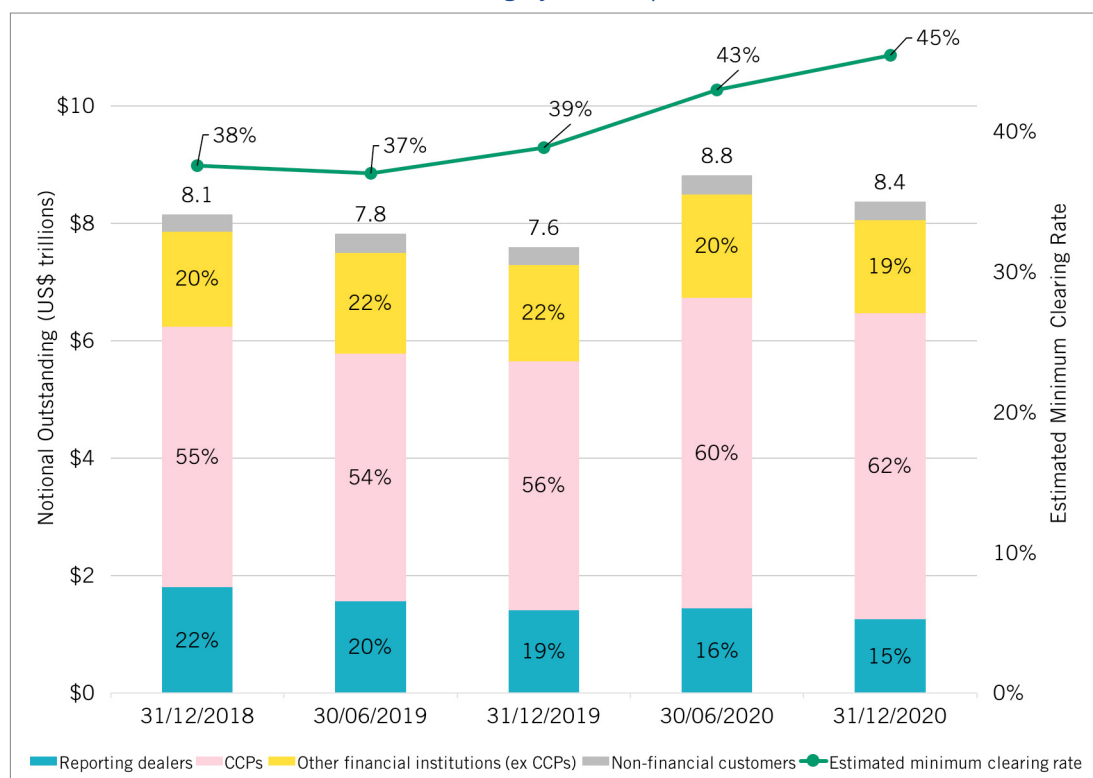
Chart 14: Global CDS Gross Market Value (US\$ billions)



Source: BIS OTC Derivatives Statistics

The share of CDS notional outstanding with CCPs increased to 62.5% in the second half of 2020 and totaled \$5.2 trillion (Chart 15). The estimated minimum clearing rate for CDS contracts increased to 45.4%¹⁶. In comparison, the share of CDS notional with CCPs was 55.9% at year-end 2019, with an estimated minimum clearing rate for CDS contracts of 38.8%.

Chart 15: Global CDS Notional Outstanding by Counterparties



Source: BIS OTC Derivatives Statistics

In the US, CDS traded notional decreased by 12.9% during the second half of 2020 compared to the second half of 2019 and declined by 41.8% compared to the first half of 2020¹⁷.

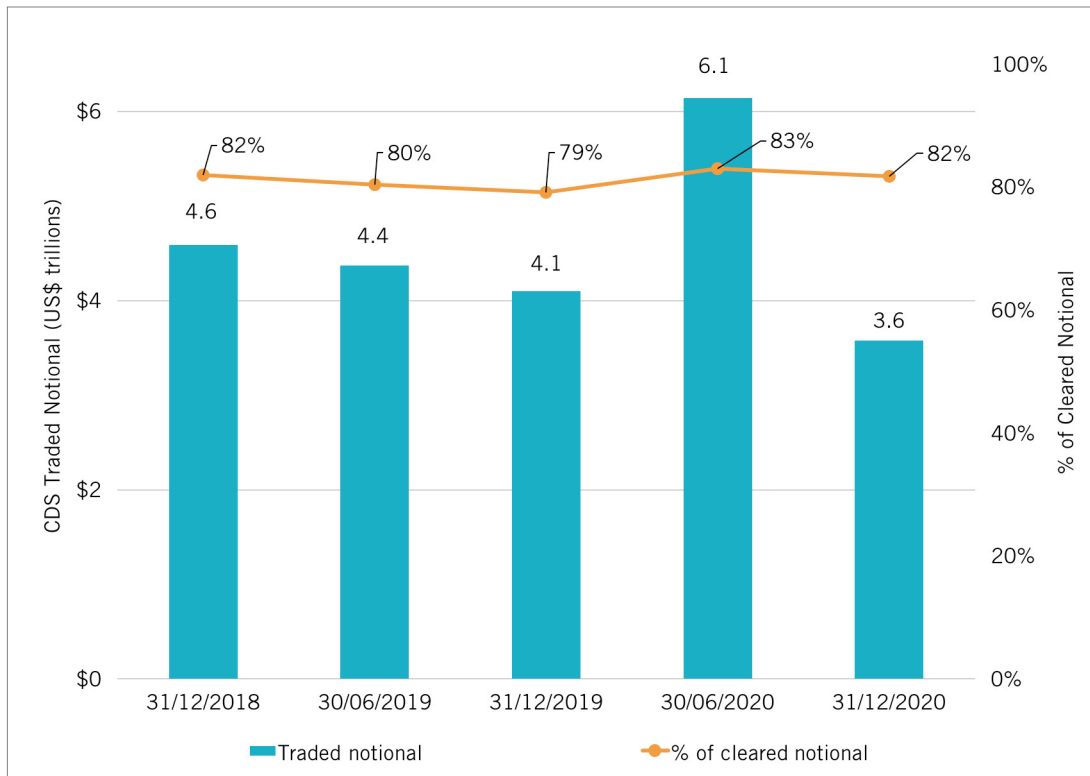
CDS traded notional in the US totaled \$3.6 trillion in the second half of 2020 compared to \$4.1 trillion in the second half of 2019 and \$6.1 trillion in the first half of 2020 (see Chart 16).

In the second half of 2020, 81.8% of CDS traded notional was cleared compared to 79.1% in the second half of 2019.

¹⁶ 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 '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.

¹⁷ Based on the data from the DTCC and Bloomberg SDRs. This data covers only transactions required to be disclosed under US 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.

Chart 16: CDS Traded Notional and Percentage of Cleared Notional in the US



Source: DTCC and Bloomberg SDRs



ISDA has published other recent research papers:

- ***SwapsInfo First Quarter of 2021 Review, May 2021***

<https://www.isda.org/a/PMzTE/SwapsInfo-First-Quarter-of-2021-Review-Full-Report.pdf>

- ***ISDA Margin Survey Year-End 2020, April 2021***

<https://www.isda.org/a/fgGTE/ISDA-Margin-Survey-Year-End-2020.pdf>

- ***Adoption of RFRs: Major Developments in 2021, April 2021***

<https://www.isda.org/a/MzFTE/Adoption-of-RFRs-Major-Developments-in-2021.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

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