



Triennial Central Bank Survey

OTC interest rate derivatives turnover in April 2022

Monetary and Economic Department

27 October 2022

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BIS Triennial Central Bank Survey 2022
Monetary and Economic Department
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Contents

| | |
|---|----|
| Notations..... | 2 |
| Abbreviations..... | 2 |
| 1. BIS Triennial Central Bank Survey..... | 3 |
| Highlights..... | 3 |
| 2. Turnover in OTC interest rate derivatives markets..... | 4 |
| Turnover by instrument..... | 5 |
| Market-facing vs non-market-facing trades..... | 5 |
| Turnover by currency..... | 6 |
| Turnover by counterparty..... | 7 |
| Geographic distribution of turnover..... | 7 |
| Annexes | |
| A Tables..... | 10 |
| B Explanatory notes..... | 15 |
| Participating authorities..... | 15 |
| Coverage..... | 16 |
| Turnover data..... | 16 |
| Instruments..... | 17 |
| Counterparties..... | 18 |
| Trading relationships..... | 18 |
| Currencies..... | 19 |
| Elimination of double-counting..... | 19 |

This publication presents the global results of the 2022 BIS Triennial Central Bank Survey of turnover in over-the-counter (OTC) interest rate derivatives markets. A separate publication presents the results of turnover in foreign exchange markets (www.bis.org/statistics/rpfx22.htm). Many participating authorities also publish their national results, links to which are available on the BIS website (www.bis.org/statistics/triennialrep/national.htm). The global results for a companion survey on amounts outstanding in OTC derivatives markets will be published in November 2022.

Data are subject to change. Revised data will be released concurrently with the *BIS Quarterly Review* in December 2022. The December 2022 *BIS Quarterly Review* will include several special feature articles that analyse the results of the 2022 Triennial Survey.

Notations

| | |
|----------|--------------------------------------|
| billion | thousand million |
| trillion | thousand billion |
| e | estimated |
| lhs | left-hand scale |
| rhs | right-hand scale |
| \$ | US dollar unless specified otherwise |
| ... | not available |
| . | not applicable |
| – | nil or negligible |

Differences in totals are due to rounding.

The term “country” as used in this publication also covers territorial entities that are not states as understood by international law and practice but for which data are separately and independently maintained.

Abbreviations

| | | | |
|-----|-----------------------------|-----|----------------------|
| AED | United Arab Emirates dirham | LTL | Lithuanian litas |
| ARS | Argentine peso | LVL | Latvian lats |
| AUD | Australian dollar | MXN | Mexican peso |
| BGN | Bulgarian lev | MYR | Malaysian ringgit |
| BHD | Bahraini dinar | NOK | Norwegian krone |
| BRL | Brazilian real | NZD | New Zealand dollar |
| CAD | Canadian dollar | OTH | All other currencies |
| CHF | Swiss franc | PEN | Peruvian sol |
| CLP | Chilean peso | PHP | Philippine peso |
| CNY | Chinese yuan (renminbi) | PLN | Polish zloty |
| COP | Colombian peso | RMB | renminbi; see CNY |
| CZK | Czech koruna | RON | Romanian leu |
| DKK | Danish krone | RUB | Russian rouble |
| EUR | euro | SAR | Saudi riyal |
| GBP | pound (sterling) | SEK | Swedish krona |
| HKD | Hong Kong dollar | SGD | Singapore dollar |
| HUF | Hungarian forint | THB | Thai baht |
| IDR | Indonesian rupiah | TRY | Turkish lira |
| ILS | Israeli new shekel | TWD | New Taiwan dollar |
| INR | Indian rupee | USD | US dollar |
| JPY | Japanese yen | ZAR | South African rand |
| KRW | Korean won | | |

1. BIS Triennial Central Bank Survey

The BIS Triennial Central Bank Survey is the most comprehensive source of information on the size and structure of global over-the-counter (OTC) markets in foreign exchange (FX) and interest rate derivatives. The Survey aims to increase the transparency of OTC markets, helping central banks and market participants monitor global financial markets, and to inform discussions on reforms to OTC markets.

Activity in FX markets has been surveyed every three years since 1986, and in OTC interest rate derivatives markets since 1995. The Triennial Survey is coordinated by the BIS under the auspices of the Markets Committee (for the FX part) and the Committee on the Global Financial System (for the interest rate derivatives part). It has been supported through the Data Gaps Initiative endorsed by the G20.

This statistical release covers the interest rate derivatives part of the Triennial Survey of turnover that took place in April 2022. Central banks and other authorities in 52 jurisdictions participated in the Survey (see page 15).¹ They collected data from more than 1,200 banks and other dealers and reported national aggregates to the BIS for inclusion in global aggregates. Turnover data are reported by the sales desks of reporting dealers, regardless of where a trade is executed, and on an unconsolidated basis, ie including trades between related entities that are part of the same group.

The data are subject to revision. The final turnover data, as well as several special features that analyse them, will be released with the *BIS Quarterly Review* in December 2022. A separate survey on outstanding amounts as of June 2022 will be published in November 2022.²

Highlights

- Turnover of OTC interest rate derivatives averaged \$5.2 trillion per day (“net-net basis”³) in April 2022, less than in April 2019 (\$6.4 trillion). The decline reflected mainly the reduced turnover of forward rate agreements (FRAs) following the transition from the use of Libor as a reference rate at end-2021. FRA turnover fell by 74% between Surveys, from \$1.9 trillion (30% of the global total) to \$0.5 trillion (10%). The turnover of interest rate swaps grew by 10% to \$4.5 trillion.
- Turnover of US dollar contracts amounted to \$2.3 trillion in April 2022, or 44% of global turnover. This share is down noticeably from 2019 and 2016, when dollar contracts accounted for roughly half of global turnover, and reflected the disproportionate impact of the Libor reform on USD FRAs (turnover fell by 98%). The dollar’s share in turnover of instruments *other than* FRAs (ie swaps, options and other products) rose between 2019 and 2022.
- Turnover of euro contracts reached \$1.8 trillion in April 2022, or 34% of global turnover (from 25% in 2019). Turnover in EUR swaps was \$1.3 trillion, up 38% since 2019. Similarly, turnover of EUR FRAs, which reference Euribor rates (not discontinued), reached \$421 billion, up 9% since 2019.
- Sales desks in the United Kingdom recorded the highest turnover, at \$2.6 trillion (“net-gross” basis), or 46% of global turnover (down from 51% in 2019). Turnover in USD swaps has partially shifted from the United Kingdom to the United States and Asian financial centres. Similarly, turnover in EUR swaps has shifted from the United Kingdom to the euro area.

¹ One jurisdiction has submitted partial data; final data will be published in the December BIS Quarterly Review.

² The BIS semiannual OTC derivatives statistics, which capture outstanding amounts, are compiled with data from 12 jurisdictions and cover more than 90% of global outstanding positions. Every three years, additional data from all jurisdictions participating in the Triennial Survey are included.

³ Figures on a “net-net” basis are corrected for local and cross-border inter-dealer double-counting. Figures on a “net-gross” basis are corrected for local inter-dealer double-counting only.

2. Turnover in OTC interest rate derivatives markets

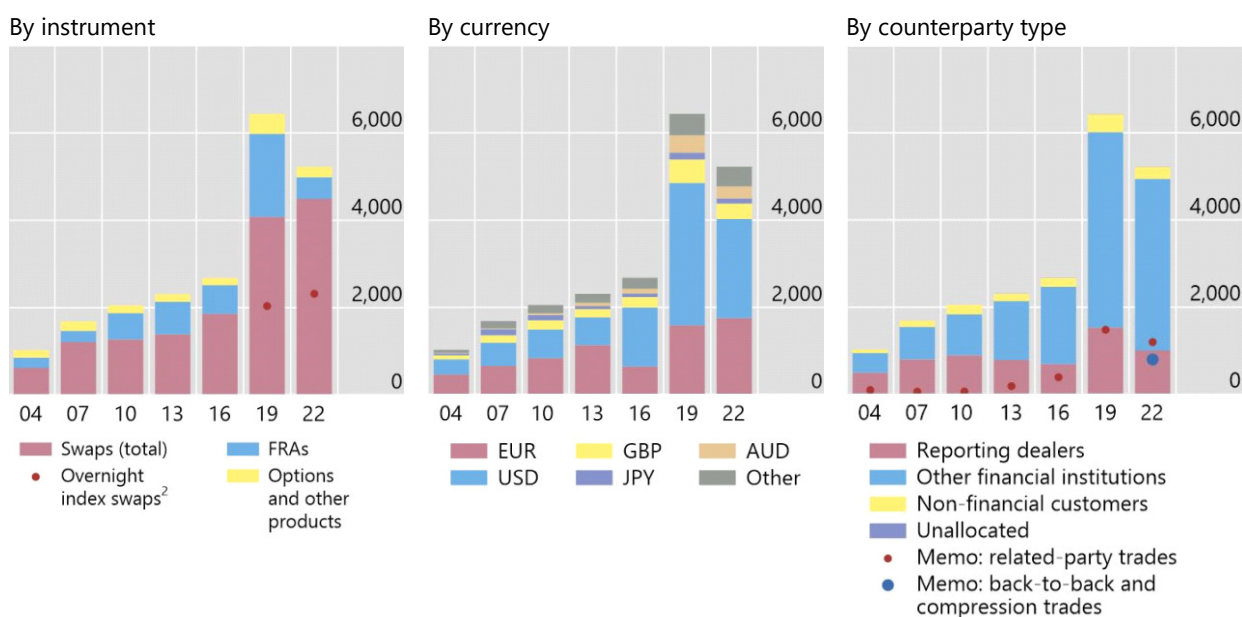
Turnover in single currency OTC interest rate derivatives averaged \$5.2 trillion per day in April 2022 (Graph 1 and Table 1). This was 19% lower than in the April 2019 Survey (\$6.4 trillion per day), although the present survey took place during a period of changing expectations about the path of future interest rates in major currencies, lingering Covid-19 related disruptions, and rising geopolitical tensions following the Russian invasion of Ukraine.⁴

The most significant factor contributing to the decline in turnover is the continuing shift away from Libor for major currencies. From January 2022, the publication of Libor for several key currencies ceased.⁵ This reform undercut the turnover of forward rate agreements (FRAs), which reference forward-looking rates such as Libor. It also affected the mix of instruments in global turnover (discussed in the next section), as well as the distribution of trading in particular currencies and in particular locations (discussed in the following sections). Changes in the reporting population had only a minor impact on the aggregate turnover figures.

Turnover of OTC interest rate derivatives

Net-net basis,¹ daily averages in April, in billions of US dollars

Graph 1



¹ Adjusted for local and cross-border inter-dealer double-counting. ² Overnight index swaps are included in total swap turnover. Data available only from 2019.

Source: BIS Triennial Central Bank Survey. For additional data by instrument, counterparty and currency, see Tables 1–4 on pages 10–14.

⁴ Turnover at sales desks in Russia, which accounted for less than 0.01% of total turnover in 2019, were not included in the 2022 Survey. At the same time, turnover in the Dubai International Financial Centre was included for the first time in 2022, yielding more complete coverage of turnover in the United Arab Emirates. Regarding methodology, some dealers revised their reporting of back-to-back trades between Surveys, leading to somewhat lower reported turnover figures in 2022. Exchange rate movements between 2019 and 2022 had a minor impact on aggregate turnover (Table 1).

⁵ Publication of 24 Libor settings, including the GBP, EUR, CHF and JPY Libor panels and the one-week and two-month USD Libor settings, ceased at end-2021. Certain key USD rates that support the rundown of legacy contracts will cease only at end-June 2023. (see [FSB Statement to Support Preparations for LIBOR Cessation](#)). There is currently no plan to discontinue Euribor rates, which are forward-looking interbank lending benchmark rates derived from European banks.

Turnover by instrument

As market participants shift from using Libor as a reference rate to overnight risk-free rates (RFR), their need to hedge interest rate risk is changing. Before this transition, swaps typically referenced Libor with maturities longer than one day (usually three-month or six-month Libor), and had floating leg payments fixed for a longer term than similar overnight index swaps (OIS) that reference overnight RFRs. As a result, the floating rate risk in a Libor swap (ie the “fixing risk”) is larger than in an OIS. To hedge that risk, market participants often used instruments such as FRAs. Thus, the transition from Libor to RFRs effectively reduced the hedging needs associated with Libor swaps.

The impact of the ongoing Libor transition is clearly evident in the 2022 Triennial Survey results.⁶ The most prominent change since the 2019 Survey was a virtual cessation of trading of FRAs that reference Libor. The daily turnover of FRAs had contributed \$1.9 trillion, or 30%, to the global total in the 2019 Survey, but only \$0.5 trillion (10%) in the 2022 Survey (Graph 1, left-hand panel, and Table 2).⁷ FRAs denominated in US dollars led this decline (as discussed below).

Given the lower floating rate risk in OIS compared with other swaps, the drop in FRA turnover in the 2022 Survey was not matched by an equivalent increase in turnover in other OTC instruments. Turnover in swaps (including OIS) grew to \$4.5 trillion per day in 2022 from \$4.1 trillion in 2019 (Graph 1, left-hand panel). Turnover of swaps denominated in euros expanded the most, reaching \$1.3 trillion per day in 2022, up 38% from April 2019. Swaps denominated in US dollars also grew, albeit by less (17%), to reach \$2.2 trillion per day in 2022, and may have reflected dealers replacing USD FRAs with these contracts.⁸ Turnover of swaps denominated in other currencies, mainly JPY, SEK and CAD, declined over this period. As a result, the share of EUR swaps in total swap turnover rose to 28% (from 22% in 2019), and that of USD swaps increased to 49% (from 46% in 2019).

Turnover of options and other interest rate products declined noticeably in the April 2022 Survey. At \$238 billion per day (or 5% of global turnover) in 2022, turnover of these contracts was roughly half of what it was in April 2019 (\$456 billion per day, or 7% of total turnover), but still greater than the values recorded in the 2016 (\$166 billion) and 2013 (\$174 billion) Surveys.

Market-facing vs non-market-facing trades

The 2022 Survey introduced new dimensions to more cleanly separate “market-facing trades”, ie deals with customers and other unrelated entities that contribute to price formation in the market. This was in response to the outsized growth in turnover in the 2019 Survey (Graph 1), when dealers in several reporting jurisdictions noted that “non-market-facing trades” contributed significantly to turnover. These include compression trades, whereby dealers optimise their portfolios by replacing existing contracts with new ones to reduce notional amounts while keeping net exposures unchanged; and “back-to-back” trades, which are deals that automatically follow trades with customers to shift risk across sales desks.⁹ In the 2022 Survey, these trades were for the first time separately reported as “of which” items without breakdowns by counterparty sector or currency.

⁶ See page 17 in Annex B for a description of the instruments captured in the Triennial Survey.

⁷ The outstanding notional amount of FRAs contracted sharply in the second half of 2021, as investors prepared for Libor benchmarks to be phased out at the year-end. See BIS, “OTC derivatives statistics at end-December 2021”, May 2022.

⁸ Similarly, dealers may have turned to exchange-traded derivatives (XTD) as a replacement for FRAs; turnover of XTD was notably higher in April 2022 than in April 2019 (Table 1).

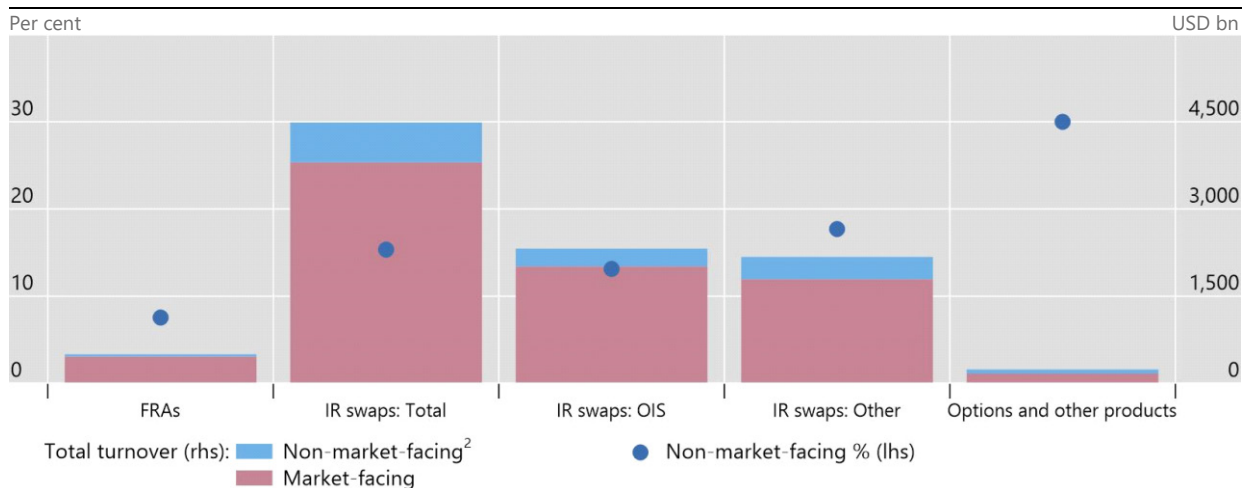
⁹ Back-to-back deals are linked deals where the liabilities, obligations and rights of the second deal are exactly the same as those of the original deal. They are normally conducted between affiliates of the same consolidated group to facilitate either internal risk management or internal bookkeeping. Back-to-back trades that involve other entities outside the group are also

Breaking out these trades yields a more accurate measure of the turnover that leads to price formation, which is the relevant metric for gauging market depth in particular instruments. Non-market-facing trades, ie back-to-back and compression trades, contributed \$798 billion, or 15%, to global turnover across all instruments in April 2022 (Graph 1, right-hand panel, blue dot), but with different contributions across instruments (Graph 2). Such trades accounted for roughly 15% of turnover of swaps, and 8% for FRAs. By contrast, over 30% of the total turnover of options and other products is non-market-facing (although turnover of options is a small share of total turnover).

Total interest rate derivatives turnover, by instrument and type of trade

Net-net basis,¹ daily average in April, in billions of US dollars

Graph 2



¹ Adjusted for local and cross-border inter-dealer double-counting. ² Back-to-back and compression trades.

Source: BIS Triennial Central Bank Survey.

Turnover by currency

The transition from Libor and the subsequent contraction in FRA turnover contributed to relatively large shifts in the currency shares within the total turnover of interest rate derivatives. Turnover of FRAs denominated in US dollars, which typically reference Libor rates, had reached \$1.3 trillion in the 2019 Survey (66% of total FRA turnover). In the 2022 Survey, however, turnover averaged a mere \$26 billion (5% of total FRA turnover). By contrast, turnover of euro-denominated FRAs, most of which reference Euribor rates that continue to be published, expanded over this period to \$421 billion per day, or 85% of total FRA turnover (Table 4).

This asymmetrical impact of the Libor reform on FRAs denominated in US dollars led to a relatively sharp decline in the US dollar's share in total turnover. Whereas turnover in US dollar-denominated contracts accounted for roughly half of the global total in 2019 and 2016, its share fell to 44% in April 2022 (Graph 1, centre panel, and Table 3). At the same time, turnover in euro-denominated contracts amounted to \$1.8 trillion, or 34% of total turnover in 2022, up from 25% in 2019.

However, in the turnover of contracts *other than* FRAs, ie interest rate swaps (including OIS), options and other products, *both* the US dollar and the euro gained ground. Contracts denominated in US dollars accounted for 48% of total non-FRA turnover in April 2022, up from 44% in 2019. Similarly,

captured here, but not in related-party trades. For more background on compression trades, see A Schrimpf, "Outstanding OTC derivatives positions dwindle as compression gains further traction", *BIS Quarterly Review*, December 2015; and T Ehlers and E Eren, "The changing shape of interest rate derivatives markets", *BIS Quarterly Review*, December 2016.

the euro share in this total grew to 28%, up from 26% in 2019. Conversely, other currencies lost ground. Contracts denominated in the pound sterling fell to 7% from 8% of global non-FRA turnover; in Australian dollars to 6% from 9%. Japanese yen-denominated contracts fell to 2.5%.

Turning to currencies in emerging markets, Korean won-denominated contracts (all instruments) were the most actively traded, at \$48 billion per day in April 2022 (0.9% of total global turnover), up from \$27 billion in April 2019. This was followed by the Czech koruna, daily turnover of which increased materially to \$32 billion (0.6%) in 2022 from \$12 billion (0.2%) in 2019. Turnover in contracts denominated in Chinese renminbi fell slightly, to \$30 billion in 2022 from \$33 billion in 2019.

Turnover of contracts in other major Asian currencies remained relatively stable between Surveys. Turnover for the Indian rupee grew to \$23 billion per day (from \$17 billion in 2019), while that for the Singapore dollar was \$15 billion per day, unchanged from 2019. By contrast, turnover of Hong Kong dollar-denominated contracts fell to \$11 billion from \$18 billion in 2019.

In Latin American currencies, turnover diverged. Turnover in contracts denominated in Mexican peso fell slightly to \$22 billion in April 2022 (from \$23 billion in 2019), and that in Brazilian real fell to \$2 billion per day (from \$8 billion in 2019). By contrast, turnover in contracts denominated in Chilean peso rose from \$1 billion to \$4 billion, that in Colombian pesos from \$0.5 billion to \$1.7 billion, and that in Argentine pesos from \$0.02 billion to \$1.4 billion.

In some central and eastern European currencies, turnover also increased significantly. Daily turnover in contracts denominated in Polish zloty almost doubled, from \$8 billion in 2019 to \$15 billion in April 2022. For the Russian rouble, the figures in the 2022 Survey are far from complete, since turnover at sales desks in Russia is not included.¹⁰ That said, turnover in rouble contracts reported by dealers in other locations increased by 41%, to reach \$1.0 billion (“net-net” basis).

Turnover by counterparty

In each of the previous four Triennial Surveys, the share of trading among reporting dealers has fallen while trading with other financial institutions has been on the rise (Table 2). This trend continued in 2022, as turnover with other reporting dealers (Graph 1, right-hand panel) decreased more rapidly than deals with other counterparties.¹¹ As a result, the share of turnover with reporting dealers in global turnover fell to 19% in April 2022, down from 24% in 2019 and 44% in 2010 (Table 2). At the same time, the share of turnover with other financial institutions rose to 75% in 2022, up from 70% in 2019 and 46% in 2010. The share of deals with non-financial customers has been relatively stable in recent decades, accounting for 5% of global turnover in 2022, down slightly from 6% in 2019 and 11% in 2010.

Geographic distribution of turnover

The Libor reform also contributed to changes in the shares of locations where interest rate derivatives are traded. In 2019, dealers located in the United States and the United Kingdom reported more than 90% of the global turnover of FRAs. The massive contraction in USD FRA turnover in April 2022 thus

¹⁰ In the 2019 Survey, sales desks in Russia accounted for only 0.008% of global turnover in all currencies, but for 40% of the reported global total for contracts denominated in the rouble.

¹¹ The Libor reform and subsequent contraction in FRA turnover seems have contributed little to the overall shifts in counterparty shares. Turnover in FRAs consists disproportionately of trades with other financial institutions (70% in 2019), followed by trades with other reporting dealers (19%) and with non-financial customers (11%). Between the April 2019 and April 2022 Surveys, FRA turnover dropped by roughly 75% with other financial institutions and with reporting dealers, and by 50% with non-financial customers.

contributed disproportionately to declines in overall turnover in these two locations.¹² Sales desks in the United Kingdom again recorded the highest average daily turnover in April 2022 across all interest rate derivatives on a “net-gross” basis (Graph 3 and Table 5).¹³ However, their turnover of \$2.6 trillion accounted for 46% of the global “net-gross” total, down from 51% in 2019. Similarly, while the United States remained the second largest trading location in April 2022, with turnover of \$1.7 trillion per day, its share in the global “net-gross” total fell to 29% from 32% in 2019.

The Libor reform, however, does not fully explain the changes in these relative shares. Indeed, daily turnover in the United Kingdom in products *other than FRAs* also declined. At \$2.3 trillion in April 2022, trading there accounted for 43% of the global “net-gross” total, lower than in the 2019 Survey (52%) but comparable with the shares in earlier Surveys (which ranged from 35 to 48% between 2007 and 2016). USD-denominated contracts (excluding FRAs) reported by the United Kingdom declined by 18% from 2019, to \$581 billion per day in April 2022 (Graph 3, centre panel). This was more than offset by the larger turnover of these instruments in the United States, which grew by 21% to \$1.6 trillion per day. As a result, the United Kingdom’s share in the global “net-gross” total for these instruments dropped to 24% in 2022 from 33% in 2019. Still, this share remained higher than that in the previous surveys (which range between 9% to 19%).

A similar and more prominent trend is evident for instruments denominated in euros. Turnover (excluding FRAs) reported by the United Kingdom amounted to \$1 trillion in April 2022, down 18% from 2019 (Graph 3, lower panel). At the same time, turnover reported by dealers in euro area countries – particularly in Germany and France – more than tripled, from \$124 billion in 2019 to \$385 billion in 2022 (“net-gross” basis). Euro-denominated contracts (excluding FRAs) traded in euro area countries accounted for more than a quarter of the global total, the highest share since 2010.

Turnover in the major Asian financial centres – Hong Kong SAR and Singapore – diverged. Turnover (in all instruments) in Hong Kong SAR fell to \$321 billion per day in April 2022 (5.6% of the global total), from \$436 billion in 2019 (6%). By contrast, turnover in Singapore reached \$156 billion April 2022 (2.7% of the global total), up from \$116 billion (1.6%) in 2019.

Elsewhere, the growth in turnover since 2019 was mixed. Turnover in Australia increased to 2% of the global total in 2022, from 1.3% in 2019. And that in Japan fell to 0.9% of total turnover in 2022, down from 1% in 2019. The share of total turnover reported by dealers in Canada dropped slightly (to 1.3% from 1.7%).

Sales desks in EMEs continued to account for a small share of global interest rate derivatives turnover. Only China (0.2%), South Africa (0.2%), Korea (0.2%), India (0.1%), Mexico (0.1%), Bahrain (0.1%) and the United Arab Emirates (0.1%) reached global market shares of 0.1% or more.¹⁴

¹² Turnover of FRAs in the United States declined substantially despite the fact that several USD Libor fixings will continue to be published until 2023. This follows from supervisory guidance in the United States that encouraged “...banks to cease entering into new contracts that use USD LIBOR as a reference rate as soon as practicable and in any event by December 31, 2021.” ([Statement on LIBOR Transition – November 30, 2020 \(federalreserve.gov\)](#)).

¹³ “Net-gross” turnover is adjusted for inter-dealer trades within the same jurisdiction, but not for cross-border trades between dealers. All turnover numbers by trading location are reported on a “net-gross” basis.

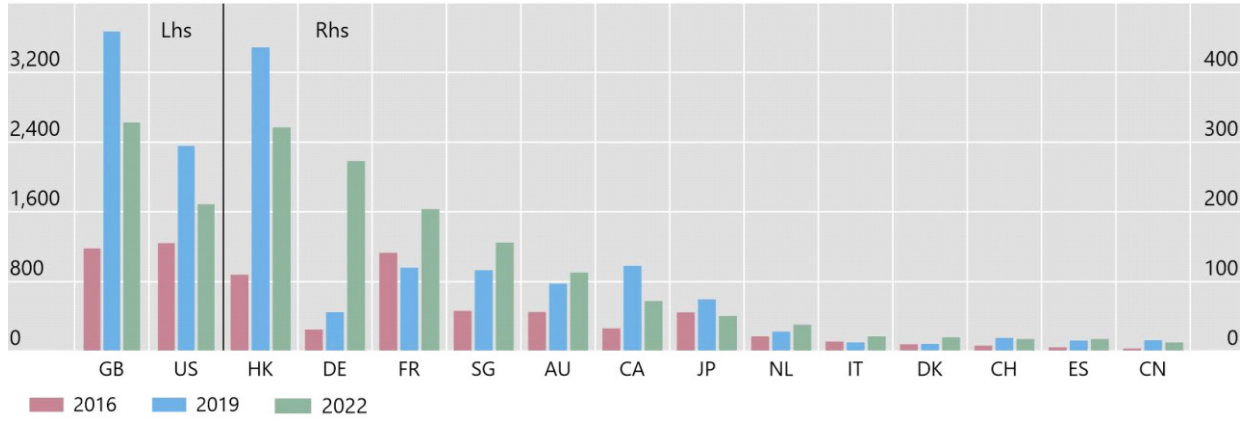
¹⁴ In 2022, both the Central Bank of the United Arab Emirates and the Dubai International Financial Centre reported data, while in 2019 only the central bank reported.

Turnover of OTC interest rate derivatives, by reporting location

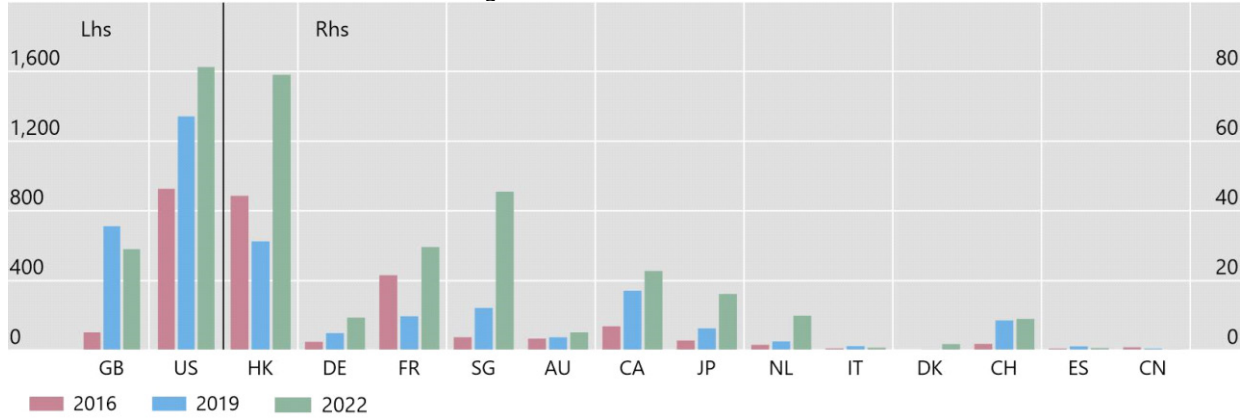
Net-gross basis,¹ daily average in April, in billions of US dollars

Graph 3

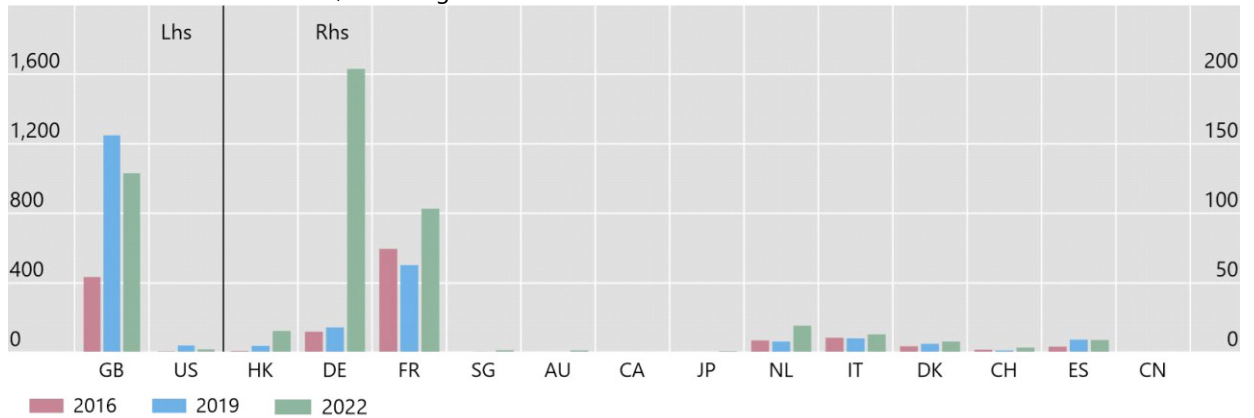
All instruments



US dollar-denominated instruments, excluding FRAs



Euro-denominated instruments, excluding FRAs



¹ Adjusted for local inter-dealer double-counting. Top 15 countries ranked by turnover (all currencies and instruments) in April 2022.

Source: BIS Triennial Central Bank Survey. For additional data by country, see Annex Table 5.

Annexes

A Tables

| | | |
|---------|--|----|
| Table 1 | OTC interest rate derivatives turnover by instrument..... | 10 |
| Table 2 | OTC interest rate derivatives turnover by instrument and counterparty..... | 11 |
| Table 3 | OTC interest rate derivatives turnover by currency..... | 12 |
| Table 4 | OTC interest rate derivatives turnover by instrument and currency | 13 |
| Table 5 | Geographical distribution of OTC interest rate derivatives turnover | 14 |

OTC interest rate derivatives turnover by instrument¹

"Net-net" basis,² daily averages in April in billions of US dollars

Table 1

| Instrument | 2010 | 2013 | 2016 | 2019* | 2022 |
|--|-------|-------|-------|-------|-------|
| Interest rate instruments | 2,054 | 2,311 | 2,677 | 6,439 | 5,226 |
| FRAs | 600 | 749 | 653 | 1,902 | 496 |
| Swaps | 1,272 | 1,388 | 1,859 | 4,080 | 4,491 |
| Overnight index swaps | ... | ... | ... | 2,036 | 2,317 |
| Other swaps | ... | ... | ... | 2,044 | 2,174 |
| Options and other products ³ | 182 | 174 | 166 | 456 | 238 |
| <i>Memo:</i> | | | | | |
| Turnover at April 2022 exchange rates ⁴ | 1,789 | 2,001 | 2,596 | 6,367 | 5,226 |
| Exchange-traded derivatives ⁵ | 7,693 | 4,698 | 5,066 | 7,752 | 8,523 |

¹ Single currency interest rate contracts only. ² Adjusted for local and cross-border inter-dealer double-counting (ie "net-net" basis). ³ The category "other interest rate products" covers highly leveraged transactions and/or trades whose notional amount is variable and where a decomposition into individual plain vanilla components was impractical or impossible. ⁴ Non-US dollar legs of foreign currency transactions were converted into original currency amounts at average exchange rates for April of each survey year and then reconverted into US dollar amounts at average April 2022 exchange rates. ⁵ Sources: Euromoney Tradedata; Futures Industry Association; The Options Clearing Corporation; BIS derivatives statistics. Foreign exchange futures and options traded worldwide. * Revised data.

OTC interest rate derivatives turnover by instrument and counterparty¹

"Net-net" basis,² daily averages in April in billions of US dollars

Table 2

| Instrument/counterparty | 2010 | | 2013 | | 2016 | | 2019* | | 2022 | |
|---|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|
| | Amount | % | Amount | % | Amount | % | Amount | % | Amount | % |
| Total | 2,054 | 100.0 | 2,311 | 100.0 | 2,677 | 100.0 | 6,439 | 100.0 | 5,226 | 100.0 |
| with reporting dealers | 896 | 43.6 | 786 | 34.0 | 693 | 25.9 | 1,531 | 23.8 | 1,003 | 19.2 |
| with other financial institutions | 937 | 45.6 | 1,352 | 58.5 | 1,772 | 66.2 | 4,487 | 69.7 | 3,943 | 75.4 |
| with non-financial customers | 221 | 10.7 | 169 | 7.3 | 210 | 7.8 | 416 | 6.5 | 276 | 5.3 |
| Local | 756 | 36.8 | 1,059 | 45.8 | 890 | 33.3 | 3,138 | 48.7 | 2,250 | 43.1 |
| Cross-border | 1,298 | 63.2 | 1,248 | 54.0 | 1,785 | 66.7 | 3,296 | 51.2 | 2,972 | 56.9 |
| FRA | 600 | 29.2 | 749 | 32.4 | 653 | 24.4 | 1,902 | 29.5 | 496 | 9.5 |
| with reporting dealers | 296 | 49.4 | 241 | 32.2 | 171 | 26.2 | 365 | 19.2 | 87 | 17.5 |
| with other financial institutions | 266 | 44.4 | 492 | 65.7 | 475 | 72.7 | 1,323 | 69.5 | 302 | 60.7 |
| with non-financial customers | 37 | 6.2 | 16 | 2.1 | 7 | 1.1 | 215 | 11.3 | 108 | 21.8 |
| Swaps | 1,272 | 61.9 | 1,388 | 60.0 | 1,859 | 69.4 | 4,080 | 63.4 | 4,491 | 85.9 |
| with reporting dealers | 535 | 42.1 | 473 | 34.1 | 461 | 24.8 | 884 | 21.7 | 861 | 19.2 |
| with other financial institutions | 585 | 46.0 | 775 | 55.8 | 1,204 | 64.8 | 3,001 | 73.5 | 3,467 | 77.2 |
| with non-financial customers | 153 | 12.1 | 139 | 10.0 | 194 | 10.4 | 195 | 4.8 | 163 | 3.6 |
| Options and other products ³ | 182 | 8.9 | 174 | 7.5 | 166 | 6.2 | 456 | 7.1 | 238 | 4.6 |
| with reporting dealers | 65 | 35.6 | 71 | 41.1 | 61 | 37.1 | 282 | 61.7 | 55 | 23.1 |
| with other financial institutions | 86 | 47.5 | 85 | 48.9 | 93 | 56.2 | 163 | 35.8 | 174 | 73.1 |
| with non-financial customers | 30 | 16.4 | 13 | 7.5 | 9 | 5.2 | 5 | 1.2 | 5 | 2.2 |

¹ Single currency interest rate contracts only. ² Adjusted for local and cross-border inter-dealer double-counting (ie "net-net" basis). ³ The category "other interest rate products" covers highly leveraged transactions and/or trades of which notional amounts are variable and where a decomposition into individual plain vanilla components was impractical or impossible. * Revised data.

OTC interest rate derivatives turnover by currency¹

"Net-net" basis,² daily averages in April in billions of US dollars

Table 3

| Currency | OTC turnover | | | | | | | | | | Memo: XTD turnover ³ | |
|----------|--------------|-------|--------|-------|--------|-------|--------|-------|--------|-------|---------------------------------|-------|
| | 2010 | | 2013 | | 2016 | | 2019* | | 2022 | | 2022 | |
| | Amount | % | Amount | % | Amount | % | Amount | % | Amount | % | Amount | % |
| Total | 2,054 | 100.0 | 2,311 | 100.0 | 2,677 | 100.0 | 6,439 | 100.0 | 5,226 | 100.0 | 8,523 | 100.0 |
| USD | 654 | 31.8 | 639 | 27.7 | 1,357 | 50.7 | 3,265 | 50.7 | 2,276 | 43.5 | 6,201 | 72.8 |
| EUR | 834 | 40.6 | 1,133 | 49.0 | 641 | 23.9 | 1,588 | 24.7 | 1,753 | 33.5 | 1,631 | 19.1 |
| GBP | 213 | 10.4 | 187 | 8.1 | 237 | 8.9 | 537 | 8.3 | 350 | 6.7 | 410 | 4.8 |
| AUD | 37 | 1.8 | 76 | 3.3 | 108 | 4.0 | 400 | 6.2 | 279 | 5.3 | 105 | 1.2 |
| JPY | 124 | 6.0 | 69 | 3.0 | 83 | 3.1 | 160 | 2.5 | 117 | 2.2 | 21 | 0.2 |
| CAD | 48 | 2.4 | 30 | 1.3 | 39 | 1.4 | 90 | 1.4 | 60 | 1.2 | 59 | 0.7 |
| NZD | 4 | 0.2 | 5 | 0.2 | 26 | 1.0 | 56 | 0.9 | 48 | 0.9 | 4 | 0.0 |
| KRW | 16 | 0.8 | 12 | 0.5 | 13 | 0.5 | 27 | 0.4 | 48 | 0.9 | 20 | 0.2 |
| CZK | 0 | 0.0 | 1 | 0.0 | 1 | 0.1 | 12 | 0.2 | 32 | 0.6 | ... | ... |
| CNY | 2 | 0.1 | 14 | 0.6 | 10 | 0.4 | 33 | 0.5 | 30 | 0.6 | 21 | 0.2 |
| ZAR | 5 | 0.3 | 16 | 0.7 | 16 | 0.6 | 25 | 0.4 | 27 | 0.5 | 1 | 0.0 |
| SEK | 20 | 1.0 | 36 | 1.6 | 19 | 0.7 | 61 | 0.9 | 25 | 0.5 | 1 | 0.0 |
| INR | 2 | 0.1 | 6 | 0.3 | 6 | 0.2 | 17 | 0.3 | 23 | 0.4 | 0 | 0.0 |
| MXN | 5 | 0.2 | 10 | 0.4 | 26 | 1.0 | 23 | 0.4 | 22 | 0.4 | 0 | 0.0 |
| NOK | 15 | 0.7 | 9 | 0.4 | 15 | 0.5 | 31 | 0.5 | 22 | 0.4 | ... | ... |
| CHF | 20 | 1.0 | 14 | 0.6 | 14 | 0.5 | 26 | 0.4 | 16 | 0.3 | 0 | 0.0 |
| SGD | 4 | 0.2 | 4 | 0.2 | 12 | 0.4 | 15 | 0.2 | 15 | 0.3 | ... | ... |
| PLN | 1 | 0.1 | 7 | 0.3 | 5 | 0.2 | 8 | 0.1 | 15 | 0.3 | ... | ... |
| HKD | 3 | 0.2 | 2 | 0.1 | 5 | 0.2 | 18 | 0.3 | 11 | 0.2 | ... | ... |
| THB | 1 | 0.1 | 3 | 0.1 | 2 | 0.1 | 6 | 0.1 | 5 | 0.1 | ... | ... |
| TWD | 1 | 0.1 | 1 | 0.0 | 2 | 0.1 | 4 | 0.1 | 4 | 0.1 | ... | ... |
| HUF | 0 | 0.0 | 2 | 0.1 | 8 | 0.3 | 8 | 0.1 | 4 | 0.1 | ... | ... |
| CLP | 0 | 0.0 | 1 | 0.1 | 4 | 0.2 | 1 | 0.0 | 4 | 0.1 | ... | ... |
| ILS | 0 | 0.0 | 2 | 0.1 | 1 | 0.0 | 2 | 0.0 | 4 | 0.1 | ... | ... |
| DKK | 2 | 0.1 | 4 | 0.2 | 2 | 0.1 | 3 | 0.0 | 3 | 0.1 | 0 | 0.0 |
| MYR | 0 | 0.0 | 2 | 0.1 | 3 | 0.1 | 2 | 0.0 | 2 | 0.0 | ... | ... |
| BRL | 3 | 0.1 | 16 | 0.7 | 7 | 0.2 | 8 | 0.1 | 2 | 0.0 | 50 | 0.6 |
| COP | 0 | 0.0 | 0 | 0.0 | 1 | 0.1 | 1 | 0.0 | 2 | 0.0 | ... | ... |
| ARS | ... | ... | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 |
| BGN | ... | ... | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | ... | ... |
| RUB | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 1 | 0.0 | ... | ... |
| SAR | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 1 | 0.0 | 1 | 0.0 | ... | ... |
| TRY | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| AED | ... | ... | ... | ... | ... | ... | 1 | 0.0 | 0 | 0.0 | ... | ... |
| PEN | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | ... | ... |
| RON | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | ... | ... |
| IDR | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | ... | ... |
| PHP | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | ... | ... |
| BHD | ... | ... | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | ... | ... | ... | ... |
| OTH | 36 | 1.8 | 8 | 0.3 | 14 | 0.5 | 11 | 0.2 | 21 | 0.4 | ... | ... |

¹ Single currency interest rate contracts only. ² Adjusted for local and cross-border inter-dealer double-counting (ie "net-net" basis). ³ Exchange-traded derivatives. See separate BIS statistics. * Revised data.

OTC interest rate derivatives turnover by instrument and currency¹

"Net-net" basis,² daily averages in April in billions of US dollars

Table 4

| Instrument/currency | 2010 | 2013 | 2016 | 2019* | 2022 |
|---|-------|-------|-------|-------|-------|
| Total | 2,054 | 2,311 | 2,677 | 6,439 | 5,226 |
| USD | 654 | 639 | 1,357 | 3,265 | 2,276 |
| EUR | 834 | 1,133 | 641 | 1,588 | 1,753 |
| GBP | 213 | 187 | 237 | 537 | 350 |
| AUD | 37 | 76 | 108 | 400 | 279 |
| JPY | 124 | 69 | 83 | 160 | 117 |
| CAD | 48 | 30 | 39 | 90 | 60 |
| NZD | 4 | 5 | 26 | 56 | 48 |
| KRW | 16 | 12 | 13 | 27 | 48 |
| CZK | 0 | 1 | 1 | 12 | 32 |
| CNY | 2 | 14 | 10 | 33 | 30 |
| OTH | 121 | 145 | 162 | 272 | 234 |
| FRAs | 600 | 749 | 653 | 1,902 | 496 |
| EUR | 202 | 395 | 170 | 387 | 421 |
| USD | 282 | 193 | 341 | 1,263 | 26 |
| SEK | 10 | 19 | 10 | 29 | 12 |
| NOK | 7 | 7 | 4 | 8 | 9 |
| CZK | 0 | 0 | 0 | 6 | 9 |
| PLN | 1 | 5 | 2 | 2 | 5 |
| ZAR | 4 | 11 | 12 | 8 | 3 |
| AUD | 8 | 11 | 2 | 0 | 2 |
| HUF | 0 | 2 | 4 | 5 | 2 |
| ILS | 0 | 1 | 0 | 1 | 1 |
| OTH | 87 | 105 | 107 | 192 | 8 |
| Swaps | 1,272 | 1,388 | 1,859 | 4,080 | 4,491 |
| USD | 302 | 356 | 898 | 1,862 | 2,183 |
| EUR | 561 | 684 | 445 | 917 | 1,267 |
| GBP | 141 | 92 | 138 | 357 | 341 |
| AUD | 28 | 63 | 105 | 397 | 277 |
| CAD | 38 | 27 | 38 | 89 | 60 |
| JPY | 114 | 59 | 76 | 148 | 49 |
| NZD | 3 | 3 | 26 | 56 | 47 |
| KRW | 15 | 11 | 12 | 26 | 32 |
| CNY | 1 | 14 | 10 | 31 | 29 |
| ZAR | 1 | 4 | 3 | 16 | 24 |
| OTH | 68 | 73 | 108 | 181 | 183 |
| Options and other products ⁴ | 182 | 174 | 166 | 456 | 238 |
| JPY | 8 | 10 | 7 | 10 | 68 |
| USD | 70 | 89 | 117 | 140 | 67 |
| EUR | 70 | 54 | 26 | 283 | 65 |
| KRW | 1 | 1 | 1 | 1 | 15 |
| GBP | 19 | 7 | 8 | 7 | 10 |
| SEK | 4 | 2 | 1 | 1 | 2 |
| AUD | 1 | 2 | 2 | 2 | 1 |
| TWD | 0 | 0 | 0 | 0 | 1 |
| RUB | ... | 0 | 0 | 0 | 1 |
| CZK | 0 | 0 | 0 | 0 | 1 |
| OTH | 9 | 9 | 4 | 12 | 7 |

¹ Single currency interest rate contracts by instrument, top 10 currencies. ² Adjusted for local and cross-border inter-dealer double-counting (ie "net-net" basis). ³ Turnover for years prior to 2013 may be underestimated owing to incomplete reporting in previous surveys for CNY, NOK, NZD. Methodological changes in the 2013 survey ensured more complete coverage of activity in emerging market economy and other currencies. ⁴ The category "other products" covers highly leveraged transactions and/or trades of which notional amounts are variable and where a decomposition into individual plain vanilla components was impractical or impossible. * Revised data.

Geographical distribution of OTC interest rate derivatives turnover¹

"Net-gross" basis,² daily averages in April in billions of US dollars and percentages

Table 5

| Country | 2010 | | 2013 | | 2016 | | 2019* | | 2022 | |
|-----------------------------------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|
| | Amount | % | Amount | % | Amount | % | Amount | % | Amount | % |
| Argentina | ... | ... | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | ... | ... |
| Australia | 41 | 1.5 | 66 | 2.4 | 56 | 1.9 | 97 | 1.3 | 113 | 2.0 |
| Austria | 5 | 0.2 | 1 | 0.0 | 1 | 0.0 | 1 | 0.0 | 2 | 0.0 |
| Bahrain | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 6 | 0.1 |
| Belgium | 10 | 0.4 | 9 | 0.3 | 17 | 0.5 | 12 | 0.2 | 7 | 0.1 |
| Brazil | 7 | 0.3 | 4 | 0.1 | 1 | 0.0 | 2 | 0.0 | 2 | 0.0 |
| Bulgaria | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Canada | 42 | 1.6 | 34 | 1.3 | 33 | 1.1 | 123 | 1.7 | 72 | 1.3 |
| Chile | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 1 | 0.0 |
| China | 2 | 0.1 | 13 | 0.5 | 4 | 0.1 | 16 | 0.2 | 13 | 0.2 |
| Chinese Taipei | 2 | 0.1 | 1 | 0.0 | 1 | 0.0 | 1 | 0.0 | 2 | 0.0 |
| Colombia | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| Czechia | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 0.0 | 0 | 0.0 |
| Denmark | 16 | 0.6 | 59 | 2.2 | 10 | 0.3 | 10 | 0.1 | 20 | 0.3 |
| Estonia | 0 | 0.0 | 0 | 0.0 | ... | ... | ... | ... | ... | ... |
| Finland | 1 | 0.1 | 2 | 0.1 | 2 | 0.1 | 4 | 0.1 | 8 | 0.1 |
| France | 193 | 7.3 | 146 | 5.4 | 141 | 4.6 | 120 | 1.7 | 204 | 3.5 |
| Germany | 48 | 1.8 | 101 | 3.8 | 31 | 1.0 | 56 | 0.8 | 273 | 4.7 |
| Greece | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| Hong Kong SAR | 18 | 0.7 | 28 | 1.0 | 110 | 3.6 | 436 | 6.0 | 321 | 5.6 |
| Hungary | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| India | 3 | 0.1 | 3 | 0.1 | 2 | 0.1 | 5 | 0.1 | 8 | 0.1 |
| Indonesia | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Ireland | 7 | 0.3 | 3 | 0.1 | 1 | 0.0 | 7 | 0.1 | ... | ... |
| Israel | ... | ... | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 |
| Italy | 27 | 1.0 | 24 | 0.9 | 14 | 0.5 | 13 | 0.2 | 21 | 0.4 |
| Japan | 90 | 3.4 | 67 | 2.5 | 56 | 1.8 | 75 | 1.0 | 51 | 0.9 |
| Korea | 11 | 0.4 | 8 | 0.3 | 7 | 0.2 | 9 | 0.1 | 11 | 0.2 |
| Latvia | ... | ... | ... | ... | ... | ... | 0 | 0.0 | 0 | 0.0 |
| Lithuania | 0 | 0.0 | ... | ... | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Luxembourg | 2 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| Malaysia | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Mexico | 1 | 0.1 | 2 | 0.1 | 1 | 0.0 | 2 | 0.0 | 6 | 0.1 |
| Netherlands | 61 | 2.3 | 29 | 1.1 | 22 | 0.7 | 28 | 0.4 | 38 | 0.7 |
| New Zealand | 2 | 0.1 | 3 | 0.1 | 5 | 0.2 | 16 | 0.2 | 9 | 0.2 |
| Norway | 12 | 0.5 | 6 | 0.2 | 4 | 0.1 | 6 | 0.1 | 6 | 0.1 |
| Peru | 0 | 0.0 | 0 | 0.0 | ... | ... | 0 | 0.0 | 0 | 0.0 |
| Philippines | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | ... | ... |
| Poland | 2 | 0.1 | 3 | 0.1 | 1 | 0.0 | 2 | 0.0 | 2 | 0.0 |
| Portugal | 1 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Romania | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | ... | ... |
| Russia | ... | ... | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | ... | ... |
| Saudi Arabia | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Singapore | 35 | 1.3 | 37 | 1.4 | 58 | 1.9 | 116 | 1.6 | 156 | 2.7 |
| Slovakia | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Slovenia | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| South Africa | 6 | 0.2 | 11 | 0.4 | 9 | 0.3 | 14 | 0.2 | 12 | 0.2 |
| Spain | 31 | 1.2 | 14 | 0.5 | 6 | 0.2 | 15 | 0.2 | 17 | 0.3 |
| Sweden | 18 | 0.7 | 17 | 0.6 | 14 | 0.5 | 9 | 0.1 | 6 | 0.1 |
| Switzerland | 75 | 2.8 | 33 | 1.2 | 8 | 0.3 | 19 | 0.3 | 18 | 0.3 |
| Thailand | 1 | 0.0 | 1 | 0.0 | 0 | 0.0 | 1 | 0.0 | 1 | 0.0 |
| Turkey | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| United Arab Emirates ³ | ... | ... | ... | ... | ... | ... | 3 | 0.0 | 4 | 0.1 |
| United Kingdom | 1,235 | 46.6 | 1,348 | 49.9 | 1,180 | 38.8 | 3,670 | 50.6 | 2,626 | 45.5 |
| United States | 642 | 24.2 | 628 | 23.2 | 1,241 | 40.8 | 2,356 | 32.5 | 1,689 | 29.3 |
| Total | 2,649 | 100.0 | 2,702 | 100.0 | 3,039 | 100.0 | 7,251 | 100.0 | 5,769 | 100.0 |

¹ Single currency interest rate contracts only. Data may differ from national survey data owing to differences in aggregation procedures and rounding. Data for the Netherlands are not fully comparable over time due to reporting improvements in 2013. The 2019 data for Switzerland are not fully comparable with past periods due to reporting improvements in 2019. ² Adjusted for local inter-dealer double-counting (ie "net-gross" basis). ³ The UAE aggregates in 2022 incorporate data from the Dubai International Financial Centre. * Revised data.

B Explanatory notes

The methodology and structure of the interest rate derivatives turnover part of the 2022 Triennial Central Bank Survey are aligned with those from 2019. The 2022 Survey was expanded to break out non-market-facing trades, namely back-to-back trades and compression trades. Reporting was more comprehensive in some jurisdictions than in 2019 and thus the completeness and quality of data improved in the 2022 Survey.

Participating authorities

Central banks and other authorities in 52 jurisdictions participated in the 2022 Triennial Survey. The Dubai International Financial Centre participated for the first time.

| | | | |
|-----------------------|--|-----------------------------|--|
| Argentina | Central Bank of Argentina | Latvia | Bank of Latvia |
| Australia | Reserve Bank of Australia | Lithuania | Bank of Lithuania |
| Austria | Central Bank of the Republic of Austria | Luxembourg | Central Bank of Luxembourg |
| Bahrain | Central Bank of Bahrain | Malaysia | Central Bank of Malaysia |
| Belgium | National Bank of Belgium | Mexico | Bank of Mexico |
| Brazil | Central Bank of Brazil | Netherlands | Netherlands Bank |
| Bulgaria | Bulgarian National Bank | New Zealand | Reserve Bank of New Zealand |
| Canada | Bank of Canada | Norway | Central Bank of Norway |
| Chile | Central Bank of Chile | Peru | Central Reserve Bank of Peru |
| China | People's Bank of China State Administration of Foreign Exchange | Philippines | Bangko Sentral ng Pilipinas |
| Chinese Taipei | Central Bank of the Republic of China (Taiwan) | Poland | Narodowy Bank Polski |
| Colombia | Central Bank of Colombia | Portugal | Banco de Portugal |
| Czechia | Czech National Bank | Romania | National Bank of Romania |
| Denmark | Danmarks Nationalbank | Saudi Arabia | Saudi Central Bank |
| Finland | Bank of Finland | Singapore | Monetary Authority of Singapore |
| France | Bank of France | Slovakia | National Bank of Slovakia |
| Germany | Deutsche Bundesbank | South Africa | South African Reserve Bank |
| Greece | Bank of Greece | Spain | Bank of Spain |
| Hong Kong SAR | Hong Kong Monetary Authority | Sweden | Sveriges Riksbank Statistics Sweden |
| Hungary | Magyar Nemzeti Bank | Switzerland | Swiss National Bank |
| India | Reserve Bank of India | Thailand | Bank of Thailand |
| Indonesia | Bank Indonesia | Turkey | Central Bank of the Republic of Türkiye |
| Ireland | Central Bank of Ireland | United Kingdom | Bank of England |
| Israel | Bank of Israel | United States | Federal Reserve Bank of New York |
| Italy | Bank of Italy | United Arab Emirates | Central Bank of the United Arab Emirates |
| Japan | Bank of Japan | | |
| Korea | Bank of Korea | | Dubai International Financial Centre |

Coverage

The Triennial Survey of OTC interest rate derivatives turnover covers contracts related to an interest-bearing financial instrument whose cash flows are determined by referencing interest rates or another interest rate contract, eg an option on a futures contract to purchase a Treasury bill. This category is restricted to those deals where all the legs are exposed to only one currency's interest rate. Thus, it excludes contracts involving the exchange of one or more foreign currencies, eg cross-currency swaps, and other contracts whose predominant risk characteristic is foreign exchange risk, which are to be reported as foreign exchange contracts.

The basis for reporting was in principle the location of the sales desk of any trade, even if deals entered into in different locations were booked in a central location. Thus, transactions concluded by offices located abroad were not reported by the country of location of the head office, but by that of the office abroad (insofar as the latter was a reporting institution in another reporting country). Where no sales desk was involved in a deal, the trading desk was used to determine the location of deals.

The survey collected turnover data for both proprietary and commissioned business of the reporting institutions. "Commissioned business" refers to reporting institutions' transactions as a result of deals as an agent or trustee in their own name, but on behalf of third parties, such as customers or other entities.

Turnover data

Turnover data provide a measure of market activity, and can also be seen as a rough proxy for market liquidity. Turnover is defined as the gross value of all new deals entered into during a given period, and is measured in terms of the nominal or notional amount of the contracts. No distinction was made between sales and purchases (eg a purchase of \$5 million and a sale of \$7 million would amount to a gross turnover of \$12 million). The gross amount of each transaction was recorded once, and netting arrangements and offsets were ignored.

OTC derivatives transactions that are centrally cleared via central counterparties (CCPs) were reported on a pre-novation basis (ie with the original execution counterpart as counterparty). Any post-trade transaction records that arise from central clearing via CCPs (eg through novation) were not reported as additional transactions.

As in the previous Surveys, turnover data were collected over a one-month period, the month of April, in order to reduce the likelihood of very short-term variations in activity contaminating the data. The data collected for the survey reflected all transactions entered into during the calendar month of April 2022, regardless of whether delivery or settlement was made during that month. In order to allow comparison across countries, daily averages of turnover were computed by dividing aggregate monthly turnover for the country in question by the number of days in April on which the foreign exchange and derivatives markets in that country were open.

Transactions are reported to the BIS in US dollar equivalents, with non-dollar amounts generally converted into US dollars using the exchange rate prevailing on the trade date.

Instruments

The Triennial Survey of interest rate derivatives turnover covers forward rate agreements, interest rate swaps and interest rate options. The instruments are defined and categorised as follows.

| | |
|---------------------------------------|---|
| forward rate agreements (FRAs) | Interest rate forward contracts in which the rate to be paid or received on a specific obligation for a set period of time, beginning at some time in the future, is determined at contract initiation. |
| swaps | Agreements to exchange periodic payments related to interest rates on a single currency; can be fixed for floating, or floating for floating based on different indices. This group includes those swaps whose notional principal is amortised according to a fixed schedule independent of interest rates. |
| overnight index swaps (OIS) | Contracts to exchange periodic payments related to interest rates on a single currency, fixed for floating where the periodic floating payment is based on a designated overnight rate or overnight index rate. |
| other swaps | Contracts to exchange periodic payments related to interest rates on a single currency; can be fixed for floating, or floating for floating based on different indices. This group excludes OIS. It includes those swaps whose notional principal is amortised according to a fixed schedule independent of interest rates. |
| OTC options | <p>Option contracts that give the right to pay or receive a specific interest rate on a predetermined principal for a set period of time.</p> <p>OTC options include:</p> <ul style="list-style-type: none"> • The interest rate cap: an OTC option that pays the difference between a floating interest rate and the cap rate. • The interest rate floor: an OTC option that pays the difference between the floor rate and a floating interest rate. • The interest rate collar: a combination of cap and floor. • The interest rate corridor: (i) a combination of two caps, one purchased by a borrower at a set strike and the other sold by the borrower at a higher strike to, in effect, offset part of the premium of the first cap; (ii) a collar on a swap created with two swaptions, the structure and participation interval being determined by the strikes and types of the swaptions; (iii) a digital knockout option with two barriers bracketing the current level of a long-term interest rate. • The interest rate swaption: an OTC option to enter into an interest rate swap contract, purchasing the right to pay or receive a certain fixed rate. • The interest rate warrant: an OTC option; long-dated (over one year) interest rate option. |
| other products | Other derivative products are instruments where decomposition into individual plain vanilla instruments such as FRAs, swaps or options is impractical or impossible. An example of "other" products is instruments with leveraged payoffs and/or those whose notional principal varies as a function of interest rates, such as swaps based on Libor squared or index-amortising rate swaps. |

Counterparties

Reporting institutions were requested to provide for each instrument a breakdown of contracts by counterparty as follows: reporting dealers, other financial institutions and non-financial customers, with separate information on local and cross-border transactions. The distinction between local and cross-border was determined according to the location of the counterparty and not its nationality.

| | |
|-------------------------------------|--|
| reporting dealers | <p>Financial institutions that participate as reporters in the Triennial Survey.</p> <p>These are mainly large commercial and investment banks and securities houses that (i) participate in the inter-dealer market and/or (ii) have an active business with large customers, such as large corporate firms, governments and non-reporting financial institutions; in other words, reporting dealers are institutions that actively buy and sell currency and OTC derivatives both for their own account and/or in meeting customer demand.</p> <p>In practice, reporting dealers are often those institutions that actively or regularly deal through electronic platforms, such as EBS or Reuters dealing facilities.</p> <p>This category also includes the branches and subsidiaries of institutions operating in multiple locations that do not have a trading desk but do have a sales desk in those locations that conduct active business with large customers.</p> <p>The identification of transactions with reporting dealers allows the BIS to adjust for double-counting in inter-dealer trades.</p> |
| other financial institutions | <p>Financial institutions that are not classified as “reporting dealers” in the survey.</p> <p>These are typically regarded as foreign exchange and interest rate derivatives market end users. They mainly cover all other financial institutions, such as smaller commercial banks, investment banks and securities houses, and mutual funds, pension funds, hedge funds, currency funds, money market funds, building societies, leasing companies, insurance companies, other financial subsidiaries of corporate firms and central banks.</p> |
| non-financial customers | <p>Any counterparty other than those described above, ie mainly non-financial end users, such as corporations and non-financial government entities. May also include private individuals who directly transact with reporting dealers for investment purposes, either on the online retail trading platforms operated by the reporting dealers or by other means (eg giving trading instructions by phone).</p> |

Trading relationships

As in previous surveys, reporting dealers were requested to identify how much of their OTC interest rate derivatives turnover was attributed to certain categories of transactions.

| | |
|-----------------------------|---|
| related-party trades | <p>Transactions between desks and offices, transactions with branches and subsidiaries, and transactions between affiliated firms. These trades are included regardless of whether the counterparty is resident in the same country as the reporting dealer or in another country. Back-to-back trades that involve the transfer of risk from the sales desk to another affiliate are included. However, trades conducted as back-to-back deals and trades to facilitate internal bookkeeping and internal risk management within the same sales desk (ie reporting dealer) are excluded.</p> |
| back-to-back trades | <p>Back-to-back deals are linked deals where the liabilities, obligations and rights of the second deal are exactly the same as those of the original deal. They are normally conducted between affiliates of the same consolidated group to facilitate either internal risk management or internal bookkeeping (and, as such, are included in related-party trades).</p> |

| | |
|---------------------------|---|
| compression trades | Compression is a process of replacing multiple offsetting derivatives contracts with fewer deals of the same net risk to reduce the notional value of the portfolio. It can be carried out between two or more counterparties (bilateral and multilateral compression, respectively). |
|---------------------------|---|

Currencies

For turnover of single currency interest rate contracts, the following breakdown of currencies was requested: AED, ARS, AUD, BGN, BHD, BRL, CAD, CHF, CLP, CNY, COP, CZK, DKK, EUR, GBP, HKD, HUF, IDR, ILS, INR, JPY, KRW, MXN, MYR, NOK, NZD, PEN, PHP, PLN, RON, RUB, SAR, SEK, SGD, THB, TRY, TWD, USD, ZAR and other.

Transactions conducted in a special unit of account adjusted to inflation (such as CLF, COU and MXV) were treated as having been executed in the main currency (respectively, CLP, COP and MXN). Transactions in offshore renminbi (CNH) are included in CNY.

Elimination of double-counting

Double-counting arises because transactions between two reporting entities are recorded by each of them, ie twice. In order to derive meaningful measures of overall market size, it is therefore necessary to halve the data on transactions between reporting dealers. To permit this, reporters are asked to distinguish deals contracted with other reporters (dealers).

The following methods of adjustment were applied: data on local deals with other reporters were first divided by two, and this figure was subtracted from total gross data to arrive at "net-gross" figures, ie business net of local inter-dealer double-counting. In a second step, data on cross-border deals with other reporters were also divided by two, and this figure was subtracted from total "net-gross" data to obtain the "net-net" figures, ie business net of local and cross-border inter-dealer double-counting.

| Gross turnover | Minus | = Net-gross turnover | Minus | = Net-net turnover |
|--|---|--|--|---|
| Not adjusted for inter-dealer double-counting (ie "gross-gross" basis) | half of the turnover with local reporting dealers | Adjusted for local inter-dealer double-counting (ie "net-gross" basis) | half of the turnover with reporting dealers abroad | Adjusted for local and cross-border inter-dealer double-counting (ie "net-net" basis) |