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Global FX markets when hedging takes centre stage[1]

Turnover in global foreign exchange (FX) markets averaged $9.5 trillion per day in April 2025, a 27% increase from April 2022. Developments specific to April, namely heightened volatility and the dollar's depreciation following US tariff announcements, were linked to a surge in spot and forward trading as market participants managed currency risk. The preconditions set by global monetary policy tightening since 2022, which had raised hedging costs and left many investors underhedged, amplified these developments. In addition, interbank trading in FX swaps stagnated because of reduced liquidity management needs and fewer cross-currency arbitrage opportunities. Dealers largely relied on internal capital markets to manage risk and demonstrated greater capacity to internalise client trades than in previous years, supporting orderly market functioning in April.

JEL classification: C42, C82, F31, G12, G15.

The average daily turnover in over-the-counter (OTC) foreign exchange (FX) spot and derivatives transactions reached $9.5 trillion in April 2025, more than a quarter higher than in April 2022. This surge occurred amid heightened volatility following the US tariff announcements early in the month and against the backdrop of global monetary tightening that shaped market preconditions. Drawing on the 2025 BIS Triennial Central Bank Survey results, this article examines recent trends in FX trading volumes and market structure and how they set the stage for the April developments.[2]

Over the past three decades, average daily FX trading volumes have not only dwarfed daily global GDP and international trade but also expanded at a much faster pace. While global FX trading volumes were 12 times global GDP in 1992, they were 30 times that in 2025 (see Annex Table A.1). They were about 70 times the volume of global trade in 2025, roughly double the ratio in 1992. This rise in FX volumes reflects financial deepening and greater involvement of non-bank financial institutions

[1] The views expressed in this publication are those of the authors and not necessarily those of the BIS or its member central banks. We thank Alain Chaboud, Mikael Charoze, Mathias Drehmann, Gaston Gelos, Hinako Kijima, Patrick McGuire, Daniel Rees, Dagfinn Rime, Andreas Schrimpf, Hyun Song Shin, Frank Smets and Goetz von Peter for helpful comments. We are also grateful to Kana Sasamoto and Jhuvesh Sobrun for invaluable research assistance.

[2] Central banks and other authorities in 52 jurisdictions participated in the 2025 survey, collecting data from more than 1,100 banks and other dealers. See BIS (2025) for details on the preliminary survey results (www.bis.org/statistics/rpfx25_fx.htm), Chaboud et al (2023) for a primer on FX spot market structure, Ranaldo (2023) for information on FX swaps and currency swaps, and Avdjiev et al (2025), in this issue, for the concepts underlying the BIS derivatives statistics.

Key takeaways

- *Global FX turnover reached $9.5 trillion per day in April 2025, up 27% from April 2022, partly reflecting trading around the US tariff news and hedging of US dollar exposures.*
- *Financial customers turned to forwards and options, in addition to FX swaps, to hedge their US dollar exposures; by contrast, interbank FX swap trading stagnated while interbank forwards gained traction.*
- *Dealers relied more on intragroup trading to manage risk and matched a larger share of client trades internally than in previous years, thereby reducing the market impact of heightened client activity.*

(NBFIs) in FX markets (International Monetary Fund (2025)), as trading for financial motives has come to dominate trading for the purpose of goods and services exchange (Caballero et al (2022)).

Since the 2022 Triennial Survey, growth in FX volumes was primarily driven by reporting dealers' trading with financial customers. Both spot transactions and trading of forwards and options with these counterparties rose noticeably. These instruments can be used to adjust exposures to currency risk on existing positions or to speculate on future currency moves. The growth of FX swap turnover was mainly due to trading with institutional investors, reflecting their funding and hedging needs across currencies. Overall, however, FX swap trading has grown only modestly since 2022, reflecting a stagnation in interbank activity.[3]

Several forces shaped FX volumes in April 2025. Announcements of major shifts in US trade policy early in the month and an unexpected depreciation of the US dollar, including a sudden flip in the dollar's correlations with major asset classes, roiled markets. Market participants rushed to hedge existing dollar exposures against further dollar depreciation (Shin et al (2025); Shin (2025)). This boosted turnover of forwards and options. There were no signs of dollar funding strains. If anything, investors reduced their dollar exposures in April. Thus, banks had little need for funding via FX swaps, which is consistent with their subdued growth.

Medium-term forces set the preconditions that amplified the role of hedging in FX trading in April 2025. The need to adjust hedges of US dollar positions was especially acute since many investors entered the month with relatively low hedge ratios. This was in response to higher hedging costs, which rose with global monetary policy tightening from 2022 to 2023. These costs were underpinned by a rapid increase in short-term interest rates in the United States and a widening of interest rate differentials across regions.

In addition to hedging, some market participants reduced their US dollar asset holdings while others used the opportunity to speculate. Thus, portfolio rebalancing by some drove spot turnover higher. In turn, knock-on volatility and movements in exchange rates spurred speculative trading by hedge funds and momentum traders.

Despite volatile market conditions, dealers demonstrated a greater capacity to internalise trades than in previous years. By matching offsetting client trades on their own books, they reduced the need to hedge externally with other dealers, thereby minimising the market impact of customer flows. Furthermore, the growth rate of

[3] Interbank transactions disproportionately contribute to total turnover because of regular rollovers of short-term contracts in which their trading is concentrated.

intragroup turnover was higher than total inter-dealer turnover across all instruments, indicating the rising role of internal capital markets for managing currency risk.

A surge in FX volumes in April 2025

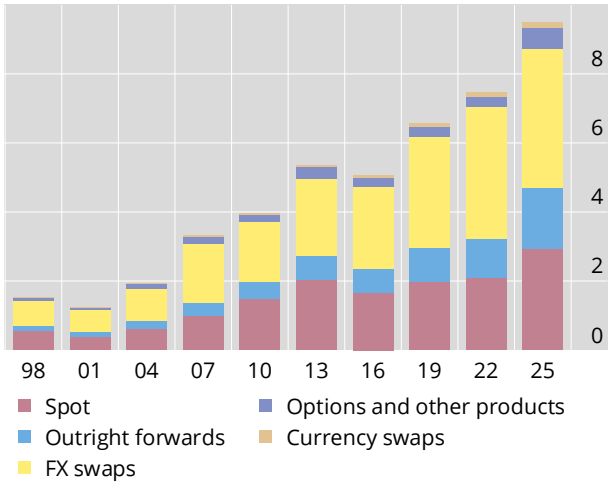
Global FX trading in April 2025 was at an all-time high, with average daily turnover of $9.5 trillion (Graph 1.A). Turnover exceeded trend growth in response to extraordinary events, namely elevated volatility and dollar depreciation following the US tariff announcements early in the month.

The tariff announcements' impact on trading activity in April appears to have been substantial, contributing an estimated $1.5 trillion to overall turnover (Graph 1.B). An imputed global FX turnover series (red line), derived from semiannual FX committee surveys, is used to gauge expected April activity without April-specific shocks: the prevailing trend from the October 2024 survey is extrapolated to April 2025 (red cross).[4] Actual turnover in April 2025 exceeded this benchmark and reached an all-time high, surpassing the previous imputed (unobserved) peak during the Covid-19 turbulence in March 2020 (vertical line).

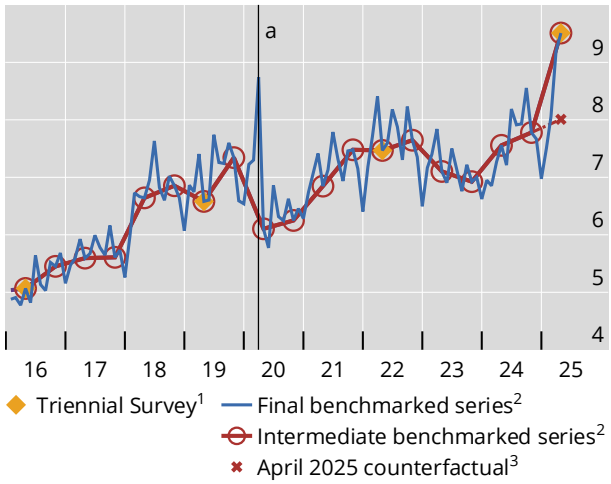
Global foreign exchange trading volumes hit new record

In trillions of US dollars — Graph 1

A. By instrument[1]



B. Imputed FX trading volumes



[a] Peak of Covid-19 turbulence (March 2020).

[1] Adjusted for local and cross-border inter-dealer double-counting, ie "net-net" basis; daily averages in April. [2] Benchmarking using the proportional Denton technique allows us to assess the evolution of FX trading volumes between Triennial Surveys. For a description, see Bech and Sobrun (2013). [3] Calculated by extrapolating the prevailing trend between the last two interim benchmarks, which are based on semiannual FX committee surveys between April and October 2024.

Sources: Bech and Sobrun (2013); CLS Group; semiannual FX committee surveys; BIS Triennial Central Bank Survey; authors' calculations.

[4] The imputed measure is constructed from semiannual FX turnover surveys of major local FX committees and monthly trading volumes computed by the Continuous Linked Settlement Group (CLS Group) – a specialised financial market infrastructure that settles FX transactions in major currency pairs. The methodology seeks to make the growth rates in the imputed series match those of the higher-frequency series as closely as possible, while ensuring that the imputed series matches the low-frequency series. See Bech (2012) and Bech and Sobrun (2013).

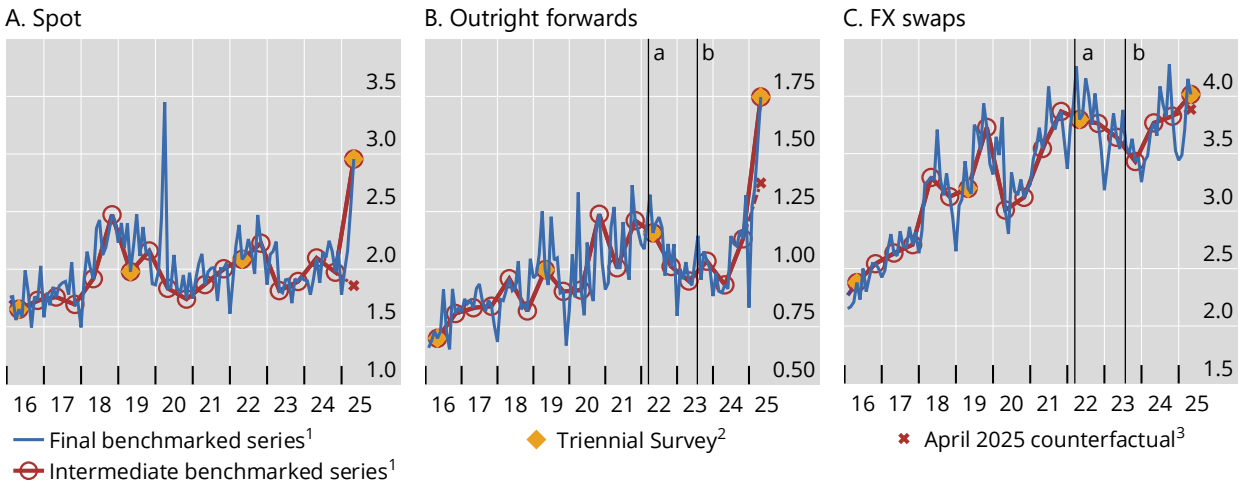
Heightened financial market volatility in April 2025 was associated with an uneven rise in FX trading activity across instruments. Compared with April 2022, spot and forward trading rose by 42% and 51%, respectively. Trading in options was up 108%. By contrast, trading growth in FX swaps, the most traded instrument, stagnated compared with the overall market, rising by only 6% (see Annex Table A.2).

The higher-frequency imputed series underscores the exceptional nature of April 2025. The rise in daily turnover in April was primarily due to an estimated $1.1 trillion spike in spot trading during that month (Graph 2.A). An extrapolation based on the prevailing trend suggests that, without the tariff effects, spot turnover would have been flat, or even lower, compared with April 2022. Similarly, roughly $400 billion of the $1.75 trillion daily turnover in forwards can be attributed to trading around the tariff announcements (Graph 2.B). By contrast, FX swap volumes were only slightly higher, by $130 billion, compared with the estimated trend (Graph 2.C).

The increase in FX trading was primarily driven by dealers' trading with financial customers, particularly institutional investors and non-reporting banks. Spot turnover with institutional investors has nearly doubled since 2022 (Graph 3), surpassing $440 billion in 2025. Meanwhile, non-reporting banks, which trade both on their own account and on behalf of institutional and corporate clients, saw spot and forward trading grow by 57% and 132%, respectively, each contributing an additional $200 billion to total turnover. Although growth in FX swap trading was more subdued overall, trading with institutional investors increased by 18%, to $349 billion. In addition, options turnover with these counterparties surged by more than 150%.

Imputed FX trading volumes by instrument show significant differences

In trillions of US dollars — Graph 2

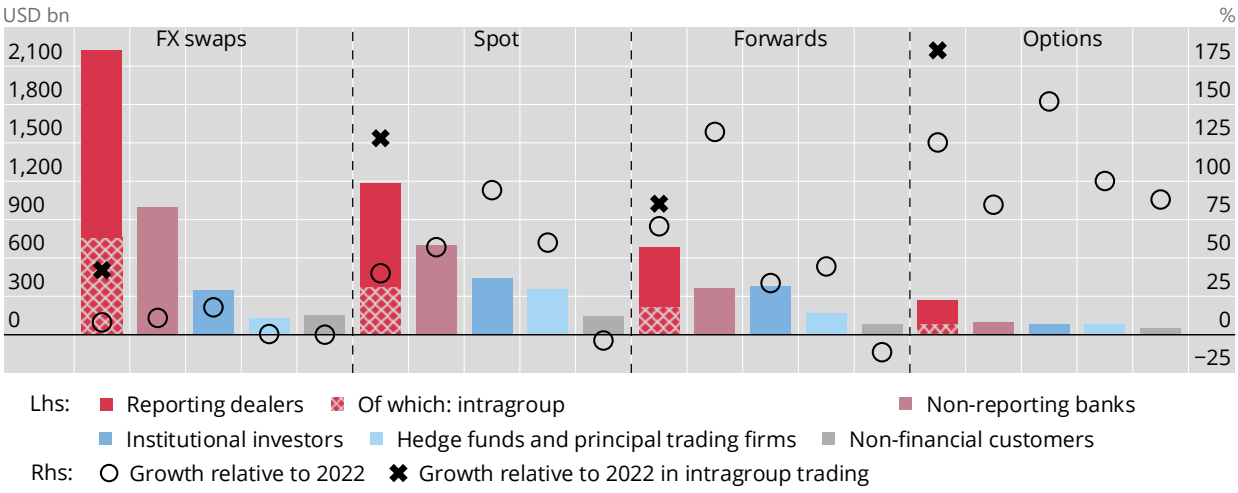


[a] First Fed funds rate hike (16 March 2022). [b] Latest Fed funds rate hike (26 July 2023).

[1] Benchmarking using the proportional Denton technique allows us to assess the evolution of FX trading volumes between Triennial Surveys. For a description, see Bech and Sobrun (2013). [2] Adjusted for local and cross-border inter-dealer double-counting, ie "net-net" basis; daily averages in April. [3] Calculated by extrapolating the prevailing trend between the last two interim benchmarks, which are based on semiannual FX committee surveys, between April and October 2024.

Sources: Bech and Sobrun (2013); CLS Group; semiannual FX committee surveys; BIS Triennial Central Bank Survey; authors' calculations.

FX volumes and turnover growth in April 2025, by instrument and counterparty[1] Graph 3



[1] Adjusted for local and cross-border inter-dealer double-counting, ie "net-net" basis. Intragroup trading is captured via related-party turnover in the survey; where related-party turnover was not reported, back-to-back trades (a subset of various related-party trades) were used.

Sources: BIS Triennial Central Bank Survey; authors' calculations.

Dealers largely managed risk arising from customer trades internally, without turning to external markets for hedging. Intragroup trading, whereby dealers shift risk across affiliates and trading desks within the same banking groups, increased much more than the overall inter-dealer trading (Graph 3, crosses vs circles). For example, intragroup trades in FX swaps rose 42% (cross), while external trading with other dealers contracted by 4% (not shown), resulting in the overall muted growth of 8% (circle). In spot and forwards, intragroup trades increased 128% and 85%, respectively, while overall trading with reporting dealers (dragged down by slower growth of external trades) rose by 40% and 71%. Such intragroup management of risk probably facilitated high internalisation ratios (Box A). Dealers continued to match a large amount of client trading volume internally instead of trading externally with other dealers (see Box B for a discussion of the FX execution landscape), thus minimising the overall market impact.[5]

Drivers of FX trading around the tariff news

Factors specific to April 2025 materially shaped the changes in FX trading between the 2022 and 2025 surveys. Although a shift in US trade policy was expected, the scale of the tariff news caught investors by surprise, prompting a broad reassessment of global portfolios and FX exposures. Responses diverged across countries: investors in some countries reduced their US dollar holdings, whereas others maintained exposures (International Monetary Fund (2025)). The historical relationship between the US dollar and risky assets reversed (Boissay and Huang (2025)), leading many to

[5] For example, banks also use ultra short-term (overnight) forward and FX swap positions for intragroup management of liquidity and currency mismatches (Drehmann and Sushko (2022)). More broadly, this speaks to the rising importance of internal capital markets in banking operations (Hardy et al (2024)) and in their OTC market transactions, such as repurchase agreements (Hermes et al (2025)).

hedge their dollar exposures for currency risk. These developments were amplified by relatively low hedge ratios going into April, reflecting high hedging costs that came with the rise in interest rates in 2022 and 2023.

Despite these dynamics, there were no signs of dollar funding stress in April. If anything, following the tariff announcements some global investors pared back their US exposure through sales of US assets,[6] driving up FX spot turnover. More importantly, though, investors rushed to hedge their existing positions against US dollar depreciation, mainly using forwards and options. Intuitively, forwards offered a simple way to lock in exchange rates for future transactions, making them well suited for adjusting hedge ratios on existing exposures. Options trading also increased significantly across counterparty segments, as some options strategies can substitute for forwards to hedge future FX risk. Meanwhile, hedge fund trading in options doubled, also suggesting heightened speculative activity (see Graph 3).

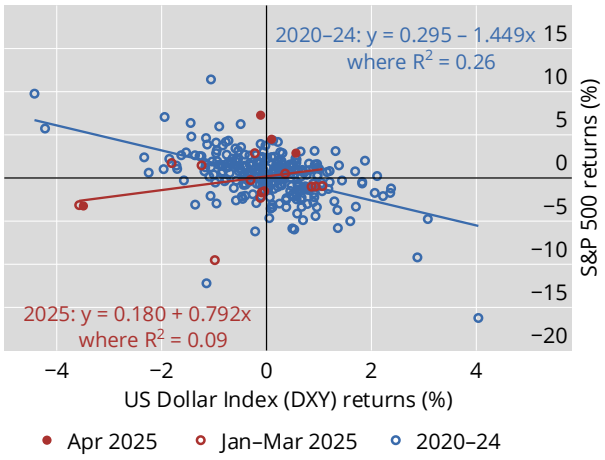
Some sophisticated investors could establish a forward position with a combination of more liquid instruments. For example, a spot dollar sale combined with a rolling FX swap can maintain a short dollar forward exposure. This approach was reportedly favoured by typical users of swaps, eg institutional investors, as seen in the 18% increase in FX swap turnover with these counterparties.

A breakdown in the dollar's correlation with risky assets also contributed to the rush to hedge dollar exposures. Historically, in times of market stress the dollar tended to appreciate when US equity markets fell – a response often referred to as "the dollar smile". This provided a natural hedge for dollar assets, leading many investors to leave large portions of dollar portfolios (especially equities) unhedged. In April 2025, however, this long-standing correlation broke down as the dollar depreciated sharply during the equity market selloff (Graph 4.A). This unexpected

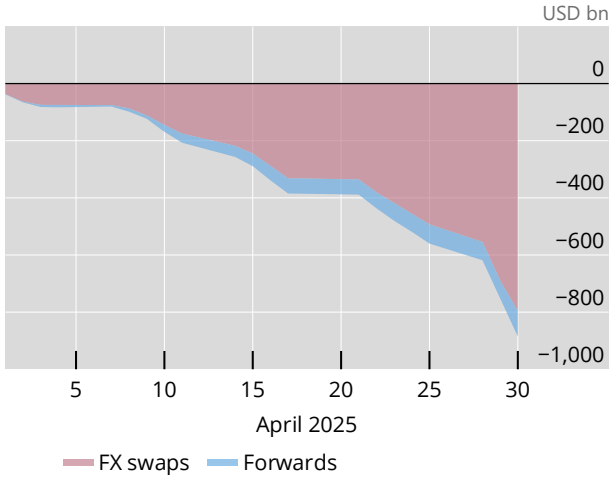
The flip in dollar-equities correlation and ex post hedging in April 2025

Graph 4

A. Correlation of the dollar with US equity returns



B. Cumulative net dollar purchases by non-US non-banks[1]



[1] Based on the difference between total daily dollar forward sales versus dollar purchases by non-US non-banks (mainly investment funds), cumulated through the month of April. CLS Group data.

Sources: Bloomberg; CLS Group; LSEG Datastream; BIS Triennial Central Bank Survey; authors' calculations.

[6] Boissay and Huang (2025) show that while some non-US investors sold significant volumes of US assets in April 2025, most of these flows reversed in May and June.

reversal caught equity investors off guard, prompting them to reduce or hedge their dollar exposures by selling dollars forward. This is clearly seen in third-party data, which show that non-US non-banks (mostly sophisticated investment funds) were persistent net dollar sellers via FX swaps and, to a lesser extent, outright forwards (Graph 4.B).[7]

Shifts in FX trading amid global monetary policy tightening

Despite the outsize impact of the April tariff announcements, other longer-term cyclical factors also contributed to turnover in the 2025 Triennial. Global monetary policy tightening in 2022–23, particularly in the United States, raised the costs of FX hedging, thus motivating investors to reduce hedging and shaping market conditions leading up to April 2025. In addition, over the same period, interbank FX swap trading stagnated while interbank forwards gained traction. The withdrawal of excess liquidity via quantitative tightening (QT) in major currencies and fewer cross-currency arbitrage opportunities probably contributed to subdued interbank FX swap turnover.

Reduced FX hedging amid higher hedging costs since 2022

The sharp rise in short-term interest rates since 2022 pushed up the costs of hedging dollar exposures. For non-US investors, these costs rise as the difference between short-term dollar interest rates and the equivalent rate in local currency widens.[8] Between January and December 2022, the annualised implied interest rate for a dollar borrower (ie hedger) via three-month FX swaps rose markedly for major currencies (Graph 5.A). For example, the forward premium increased from 0.7% to 3.5% for EURUSD, and from 0.3% to 5.5% for USDJPY. Furthermore, the dollar yield curve inverted with the rapid rise in short-term dollar rates. This reduced the expected returns on long-term dollar bonds on a hedged basis, making hedged investments even less attractive for fixed income investors.[9]

In response, many institutions with currency hedging mandates (eg life insurers and pension funds) significantly lowered their hedge ratios between 2022 and 2024.[10] For example, the Japanese life insurance sector reduced hedging rates from roughly 60% to 40% (Bank of Japan (2025)). Similarly, the ratios for Dutch pension funds fell from 30% to 25% and those of Danish insurers and pension funds fell from about 55% to 50% (De Nederlandsche Bank (2025); Danmarks Nationalbank (2025)),

[7] Based on outstanding data, less than half of outstanding outright forward and FX swaps globally settled through CLS Group. Most interbank trades but only a fraction of trades with non-bank counterparties, which use forwards more intensively, settle via CLS Group. Thus, while a reliable indicator for FX swaps, the figure understates US dollar forward sales by non-banks by a significant multiple (see Kloks et al (2023)).

[8] When hedging via FX swaps, investors exchange local currency for US dollars. The forward leg locks the future exchange rate and embeds the interest rate differential, which sets the hedging cost. In practice, hedging costs can differ from the interest rate differential by a small cross-currency basis (Du et al (2018)).

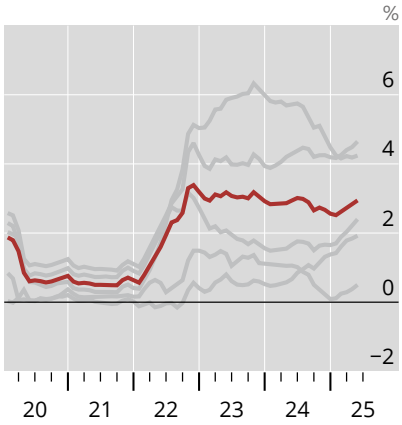
[9] Kubitza et al (2025) discuss how rollover risk affects investors' portfolio rebalancing activity; Nenova et al (2025) document the close relationship between FX derivatives and bond market conditions.

[10] FX hedge ratios among insurers are higher than those for pension funds or mutual funds (although pension fund hedging policies can differ markedly across jurisdictions) (Du and Huber (2024)).

Higher hedging costs are reflected in both quantities and prices

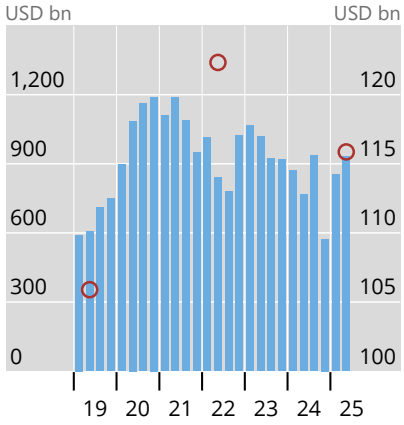
Graph 5

A. Hedging costs as measured by the USD forward premium[1]



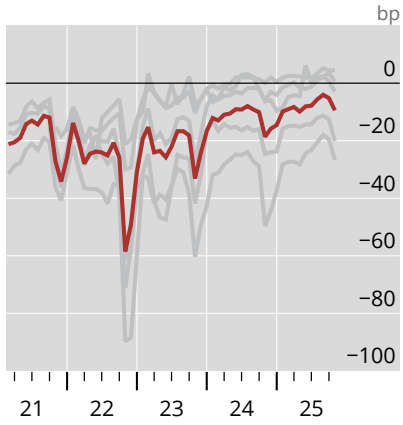
US dollar forward premium:
Turnover-weighted average
Individual currency pairs

B. Off-balance sheet net USD lending and longer-term FX swap turnover



Off-balance sheet net dollar lending to non-banks (lhs)[2]
USD longer-term FX swap turnover (rhs)[3]

C. USD premium in FX swaps, measured on a cross-currency basis[4]



Cross-currency basis:
Turnover-weighted average
Individual currency pairs

[1] Interest rate paid by USD borrowers in a three-month FX swap due to the difference between the spot and forward exchange rates (annualised); USD vs EUR, JPY, CHF, AUD and CAD. [2] Computed by combining US and euro area banking systems' on-balance sheet currency mismatches in BIS banking statistics with the banking systems' net FX swap and forward positions versus bank and versus non-bank counterparties in CLS Group data (under the assumption that banks' on-balance sheet currency mismatches are offset by off-balance sheet derivative positions; for methodology, see the online statistical annex, combining international banking statistics and CLS Group data in Kloks et al (2023)). [3] Net-net turnover; three-month tenors or higher, typically used for portfolio hedging, USD vs same currency pairs shown in panel A. [4] Deviations of three-month FX swap-implied US dollar rates from the actual interest rates; a negative value implies a dollar premium in FX swaps (ie the deviation of the forward premium from the interest rate differential in the two currencies); USD vs EUR, JPY, GBP, CHF and CAD.

Sources: Bloomberg; CLS Group; BIS international banking statistics; BIS Triennial Central Bank Survey; authors' calculations.

while the equity hedge ratio of the Australian superannuation sector declined from close to 30% to 20% (Hauser (2025)).

This global contraction in FX hedging activity between 2022 and 2025 is evident in the evolution of dealer banks' FX derivatives positions and in pricing data. US and European banks' net outstanding off-balance sheet dollar lending to non-banks fell from about $1 trillion in 2021 to as low as $600 billion in late 2024 (Graph 5.B, bars), consistent with weaker demand for dollar hedging from non-bank customers. Data on turnover of FX swaps tell a similar story: turnover in tenors most often used for hedging (eg three-month or higher) and in currencies with high hedging costs contracted between 2022 and 2025 (Graph 5.B, circles). The monthly imputed series (see Graph 2) points to an overall decline in FX swap and forward trading volumes during the Federal Reserve's rate hiking phase (2022–23). Consistent with less demand for hedging dollar positions with FX swaps (see eg Borio et al (2016)), the cross-currency basis narrowed during this period (Graph 5.C).

Box A

Non-visible trading and FX liquidity conditions in April 2025

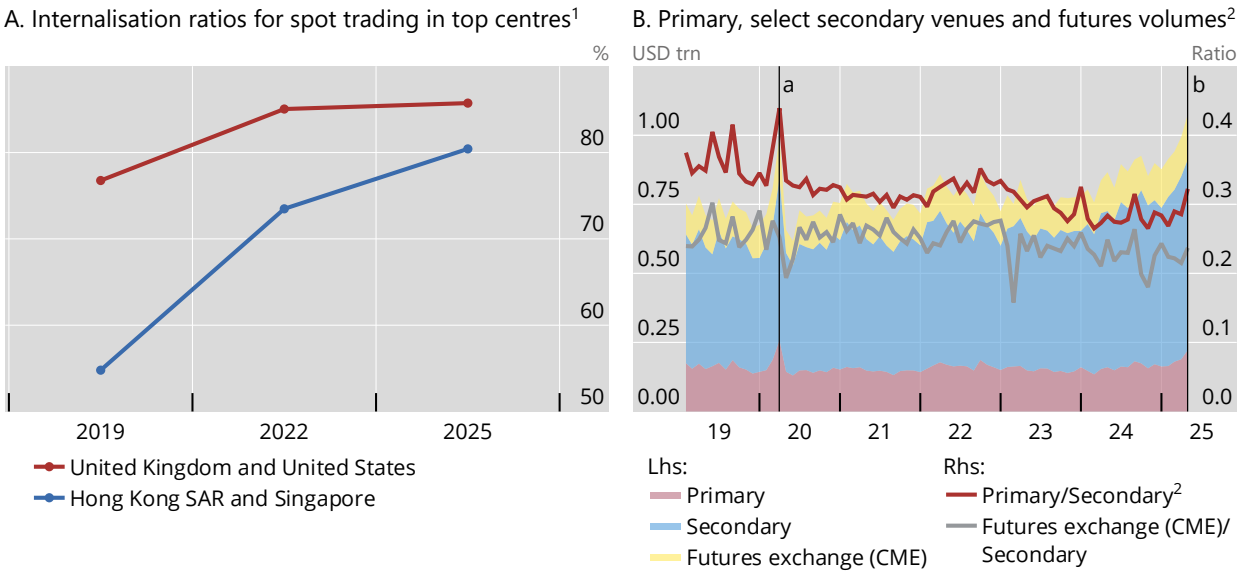
Ingomar Krohn, Andreas Schrimpf and Vladyslav Sushko ①

Despite the market turbulence in April 2025, there were no clear signs of liquidity impairment or market dysfunction. Large foreign exchange (FX) dealer banks were able to continue to match a large amount of client trading on their own books (a process known as internalisation), minimising the overall market impact. The fragmented FX trading landscape (detailed further in Box B) proved resilient overall, enabling participants to adapt strategies and access liquidity. While the decentralised nature of the FX market had raised concerns in the past about a potential "liquidity mirage", the market's very characteristics – such as private and bespoke trading – facilitated smooth functioning even during periods of market strain.

The non-visible part of the FX markets has shown greater growth in recent years, which may partly explain the fairly muted impact of the shock on market quality.② Despite heightened market volatility in April, dealers demonstrated greater capacity to internalise trades than in previous years, particularly in Asian financial centres (Graph A1.A). Internalisation ratios reached levels upwards of 80% across all currencies in major FX trading hubs (those for G10 currencies were even higher). High internalisation dampens the immediate price pressure from client trades, supporting steadier quotes and reducing information revelation to the market and thus reducing the aggregate price impact. It means less need for dealers to turn to external trading venues to hedge the imbalances in customer demand, a process sometimes referred to as inter-dealer "hot potato trading".③

FX dealers' internal matching of client flows dominated external hedging

Graph A1



[a] Covid-19 pandemic (March 2020). [b] US tariff announcements (April 2025).

[1] Percentage of customer trades matched across dealer's own book and not hedged externally; see BIS Triennial Survey 2025 reporting guidelines for details, at www.bis.org/statistics/triennialrep/2025survey_guidelinesturnover.pdf. [2] Primary venues: EBS and LSEG spot trades (as a proxy for respective central limit order book volumes); select secondary venues include 360T, Cboe FX (Hotspot), Euronext FX (Fastmatch), FXAll and FXSpotStream; futures refers to turnover in currency figures on the Chicago Mercantile Exchange (CME).

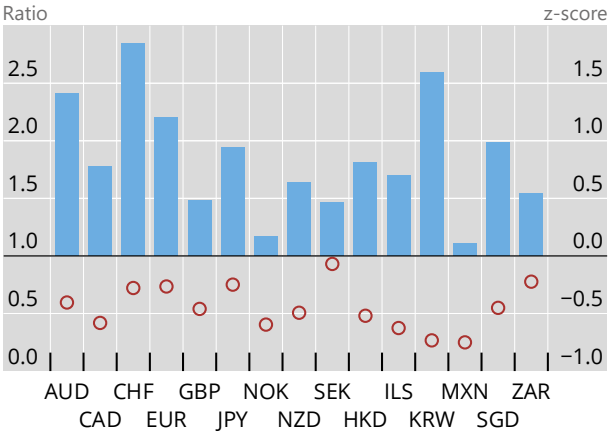
Sources: Cboe; CME; Deutsche Börse; Euronext; FXSpotStream; LSEG Workspace; authors' calculations.

While there was a pickup in such hedging via inter-dealer markets, it was relatively small, indicating that the market may have been strained but not stressed. In line with robust dealer internalisation, there was only a modest pickup in trading via inter-dealer electronic brokers, known as the "primary venues", where dealers turn to manage inventory imbalances in volatile markets (Graph A1.B).④

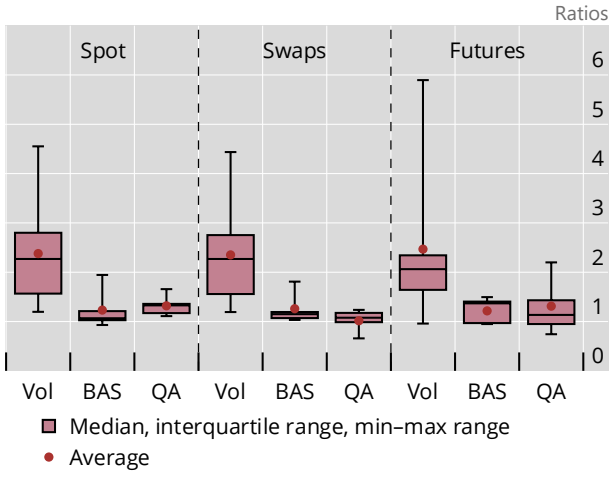
FX liquidity in April 2025 was robust across market segments

Graph A2

A. Price impact relative to previous volatile episode and abnormal trading volumes



B. Volatility and liquidity in OTC spot and derivatives trades compared with exchange traded futures[3]



BAS = bid-ask spread; OTC = over-the-counter; QA = quote activity; Vol = volatility.

[1] Z-score is based on a comparison of average aggregate CLS Group volumes in April 2025 with those in the preceding year, April 2024 to March 2025. The Amihud measure is computed as the ratio of the absolute value of daily returns to the corresponding trading volume. The figure compares the Amihud measure in April 2025 with the corresponding measure during the onset of the Covid-19 outbreak in March 2020. [2] Normalised trading volumes (z-scores) in April 2025 compared with the January–March 2025 period. [3] Volatility, bid-ask spreads and quote activity for spot and swaps are calculated using data from LSEG Tick History, while market metrics for FX futures are derived from CME data. Ratios refer to the median market metrics in April 2025 relative to the median during January to March 2025.

Sources: CME; CLS Group Data; LSEG DataScope; authors' calculations.

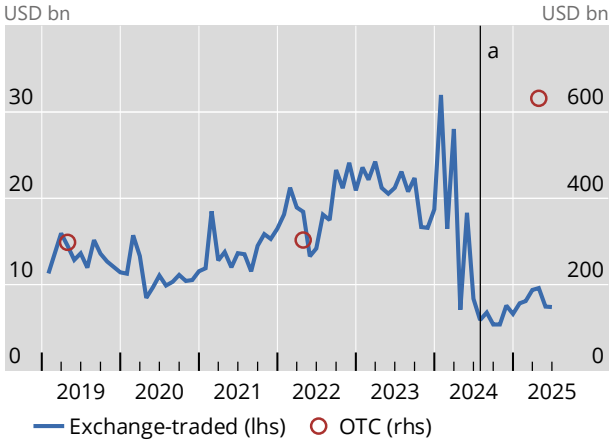
Despite the surge in overall trading demand, liquidity conditions remained resilient. Spot trading volumes across currencies rose notably in April compared with the preceding three months (Graph A2.A). Yet, unlike previous periods of turbulence, there were no signs of market distress. A comparison of price impact measures in April 2025 with the onset of the Covid-19 pandemic in March 2020 indicates that liquidity conditions remained resilient, with notably lower estimates of the price impact.

Liquidity conditions held up across different segments of the FX market. Based on intraday data, Graph A2.B shows the cross-currency distribution of the ratios of volatility, bid-ask spreads and quote activity during April 2025 compared with the preceding quarter (a reading of 1 means no change). While volatility increased notably in dealer-customer segments for both OTC spot and FX swaps and for exchange-traded FX futures, liquidity, as measured by bid-ask spreads, remained rather resilient in these segments. This suggests that concerns about "phantom liquidity" – where liquidity appears available but vanishes when market participants rush to execute trades – did not materialise.

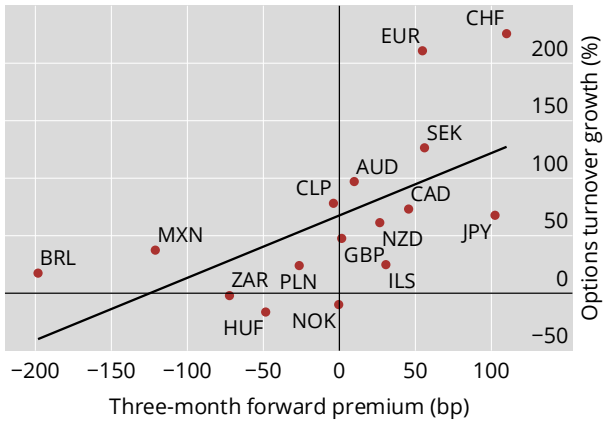
① The views expressed in this publication are those of the authors and not necessarily those of the BIS or its member central banks. ② M Butz and R Oomen, "Internalisation by electronic FX spot dealers", *Quantitative Finance*, vol 19, no 1, 2019, pp 35–56. ③ R Lyons, "A simultaneous trade model of the foreign exchange hot potato", *Journal of International Economics*, vol 42, no 3–4, 1997, pp 275–98. ④ A Chaboud, D Rime and V Sushko, "The foreign exchange market", in R Gürkaynak and J Wright, (eds), *Research Handbook of Financial Markets*, 2023, pp 253–75.

Higher hedging costs with FX forward transactions boosted hedging with options Graph 6

A. Exchange-traded and OTC options turnover



B. A shift towards options with higher hedging costs[1]



OTC = BIS over-the-counter options; "net-net" basis.

[a] Carry trade unwinding (August 2024).

[1] Options turnover is measured by the growth rate between 2022 and 2025, while hedging costs are approximated using the three-month forward premium.

Sources: Bloomberg; BIS exchange-traded derivatives statistics; BIS Triennial Central Bank Survey; authors' calculations.

With higher hedging costs for FX swaps and forwards, some market participants turned to options as a hedging tool.[11] Turnover in exchange-traded currency options increased in 2022–23, from less than $15 billion to almost $25 billion per day (Graph 6.A). Moreover, turnover in OTC currency options more than doubled between 2022 and 2025, from $303 billion to $634 billion (after remaining virtually unchanged between 2019 and 2022). Options turnover increased the most for the currencies where the costs of hedging via forwards rose (Graph 6.B), suggesting that investors substituted options for forwards.[12] While options trading in emerging market economy (EME) currencies followed this general pattern, they fell on the opposite end of the spectrum, as a number of EMEs, particularly in Latin America, raised interest rates higher and ahead of the United States (see Box C for a discussion on the evolution of EME currency trading).

Interbank FX swaps stagnated while forwards rose

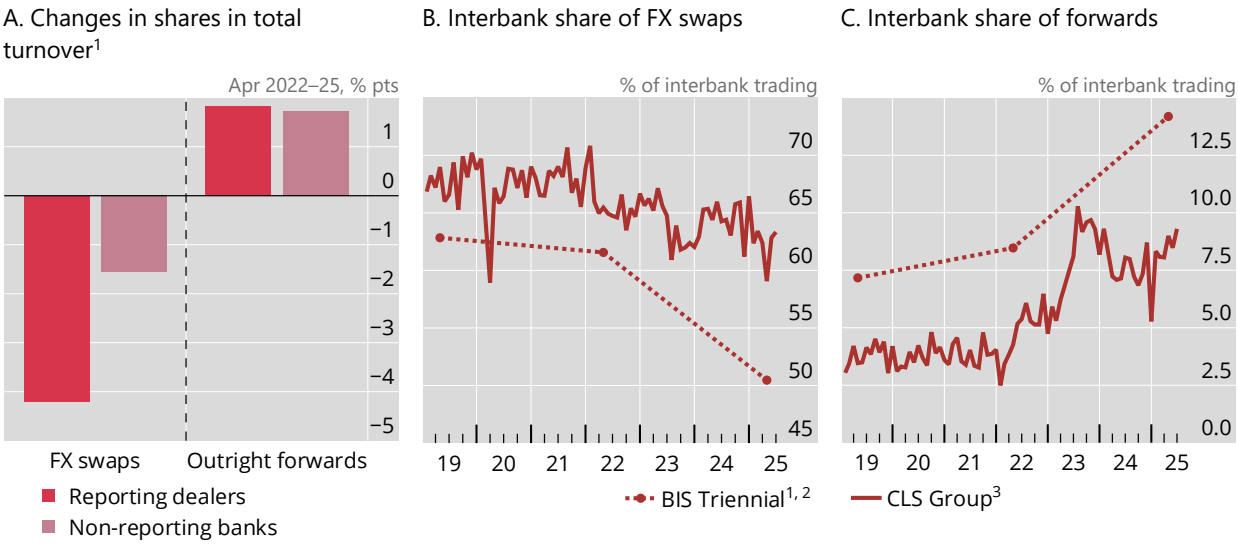
In the interbank segment, turnover of FX swaps grew little relative to 2022, whereas that of forwards gained importance (Graph 7.A). Monthly data from CLS Group reveal that these shifts started in 2022, coinciding with the onset of monetary policy tightening by major central banks (Graphs 7.B and 7.C). The shifts may have reflected factors related to liquidity management, arbitrage and hedging of customer trades.

[11] Options are more attractive than forwards when interest rate differentials are wide and FX volatility low. In these periods, participants may use option spread strategies, which economise on hedging costs. A basic example is a collar – buying an out-of-money put and selling an out-of-money call.

[12] While options hedge future cash flows and returns, investors still need swaps to fund initial investments. When purchasing foreign assets such as bonds, they often use FX swaps or currency swaps to exchange their domestic currency for foreign currency in order to fund the investment.

Shifts in interbank FX derivatives trading

Graph 7



[1] Adjusted for local and cross-border inter-dealer double-counting, ie "net-net" basis; daily averages. [2] For currency pairs that settle via CLS Group. [3] Monthly average of daily data.

Sources: CLS Group; BIS Triennial Central Bank Survey; authors' calculations.

First, the different pace of QT, which accompanied monetary policy tightening,[13] altered liquidity conditions across currency areas, in many cases, reducing banks' incentives to shift liquidity across currencies. This dampened turnover in short-maturity swaps used for liquidity management – ie tenors of one week or less (Graph 8.A). Because these swaps are rolled over frequently and account for the bulk of FX swap turnover, their stagnation weighed disproportionately on overall FX swap growth.

Second, and related, the narrower cross-currency basis, in large part due to the aforementioned weaker funding demand via FX swaps (see Graph 5), probably reduced banks' activity in cross-currency basis trades. This includes both less funding and less arbitrage activity on their own books and a reduced need to offload client positions via interbank FX swaps.

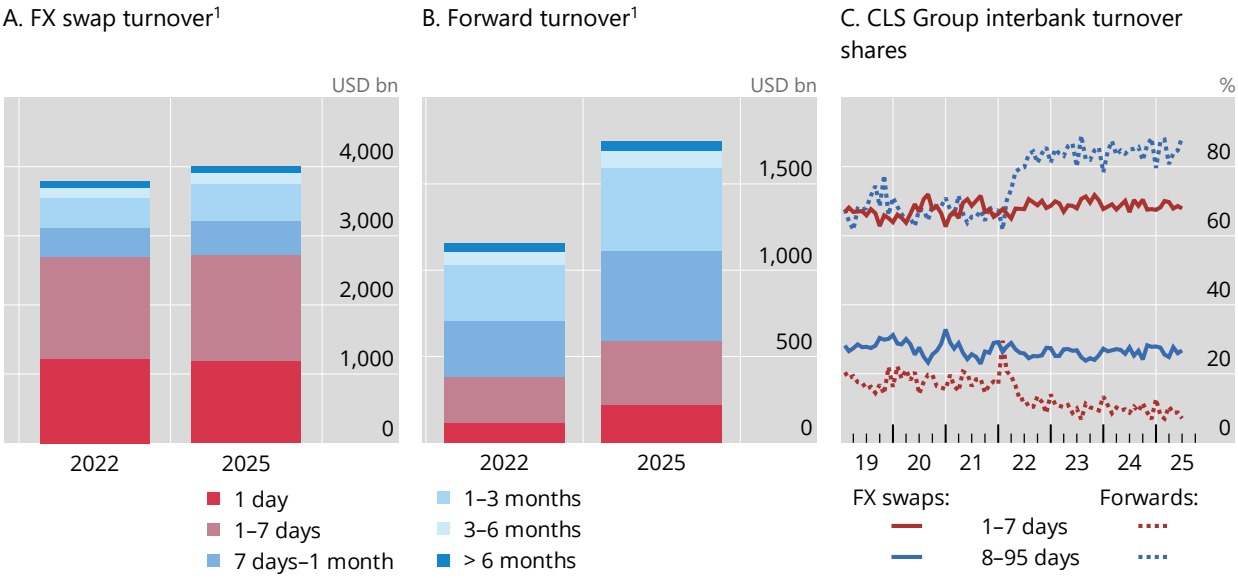
Third, banks may have turned to forwards in the inter-dealer segment to hedge some positions with clients. Instead of rolling over short-maturity swaps to hedge longer-dated client exposures, banks could enter longer-dated forward positions directly. This substitution helps explain both the stagnation in very short-dated swap turnover and the expansion of forward turnover in longer-term buckets (eg one week to three months) (Graph 8.B). CLS Group data confirm this expansion since 2022 (Graph 8.C).[14] [15]

[13] The Federal Reserve reintroduced QT in June 2022, while the ECB and the Bank of Japan began QT in March 2023 and March 2024, respectively.

[14] Trading of forwards has also been facilitated by inter-dealer electronic brokers beginning to onboard this instrument. For example, the share of forwards traded via electronic brokers in London doubled, from 14% to 28%, between 2022 and 2025, according to the London FX committee survey.

[15] The shifts in monetary policy also affected the composition of interest rate derivatives turnover, with greater trading of interest rate futures in one-month and similar tenors (Ehlers and Todorov (2025), in this issue).

Short-dated swaps stagnated due to shifts in interbank trading Graph 8



[1] Adjusted for local and cross-border inter-dealer double-counting, ie "net-net" basis; daily averages in April.

Sources: CLS Group; BIS Triennial Central Bank Survey; authors' calculations.

Conclusion

Global FX trading volumes reached a new high in April 2025, with average daily turnover of $9.5 trillion. Estimates based on higher-frequency benchmarks suggest that more than $1.5 trillion of this turnover resulted from a trading surge following US tariff announcements and sudden dollar depreciation. Investors' relatively low hedge ratios going into April, reflecting higher hedging costs since 2022, amplified this surge.

The FX market appeared to act as a shock absorber during the turbulence in April 2025. Many market participants adjusted to higher perceived risks in their dollar investments via FX derivatives rather than resorting to sales of underlying assets. They increased their currency hedge ratios and sold dollars forward using FX derivatives to counteract the risk of any further depreciation.

Despite volatile market conditions, dealers demonstrated an even greater capacity to internalise client trades than in previous years. High internalisation was probably supported by the internal capital markets of banking groups, with intragroup trading increasing significantly across all instruments. Such non-visible intermediation reduced the impact of client trades on the market and probably contributed to resilient market functioning during the volatile conditions in April 2025.[16]

[16] See International Monetary Fund (2025) for a dedicated analysis of the risk and resilience of the global FX market, as well as an analysis of trading around the April 2025 events.

Box B

The FX trade execution landscape through the prism of the 2025 BIS Triennial Survey

Ingomar Krohn, Andreas Schrimpf and Vladyslav Sushko ①

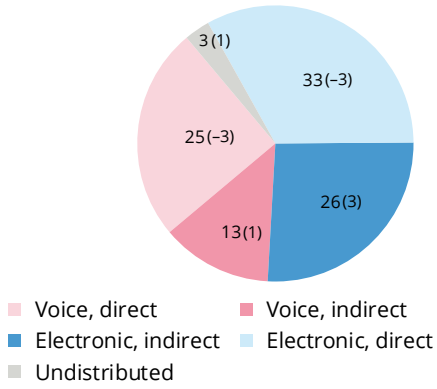
The foreign exchange (FX) market has a unique structure, distinct from other major asset classes.② It has by and large evolved organically based on market participants' needs and technological advancements, with less regulatory oversight than other key markets. Unlike equities or futures contracts, which are traded on centralised exchanges, spot and most FX derivatives transact over the counter (OTC), with dealers acting as intermediaries. Compared with other OTC markets, such as bond markets, the FX market is more liquid and diverse and features more electronic trading and a broader range of trading venues. It is thus decentralised and fragmented. Moreover, much of the trading is "invisible" to the market, since it takes place directly between customers and dealers, with dealers matching more than 80% of customer trades within their own internal liquidity pools via so-called "internalisation" (see Box A).

FX trades can be executed directly with dealers or indirectly through a range of venues. These include anonymous central limit order books (CLOBs) and disclosed, quote-driven platforms where participants submit and respond to requests for quotes (RFQs). Venues serve different counterparty segments, from inter-dealer-only markets to platforms open to both dealers and customers. In addition, many dealer-owned (often single-dealer) platforms facilitate customer flow. Execution may be by voice or fully electronic.

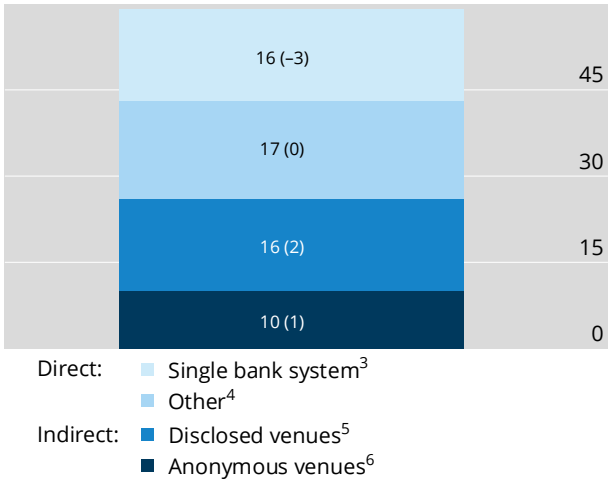
Trade execution methods in April 2025[1]

As a percentage of global turnover — Graph B1

A. Execution methods[2]



B. Electronic execution methods[2]



[1] In brackets: change in percentage points since the 2022 Triennial Survey. [2] Direct: trades not intermediated by a third party. Indirect: trades intermediated by a third party – either a voice broker or a third-party electronic platform. [3] Single bank trading systems (eg Barclays BARX, Citi Velocity, Deutsche Bank Autobahn and UBS Neo). [4] Other direct electronic trading systems (eg direct electronic price streams). [5] Multibank dealing systems that facilitate trading on a disclosed basis or that allow for liquidity partitioning using customised tags (eg 360T, EBS Direct, Currenex FXTrades, Fastmatch, FXall OrderBook and Hotspot Link). [6] Electronic trading platforms geared to non-disclosed trading; these include the primary central limit order books (CLOBs), namely LSEG Matching and EBS, as well as limit order books from LMAX and Currenex.

Sources: BIS Triennial Central Bank Survey; authors' calculations.

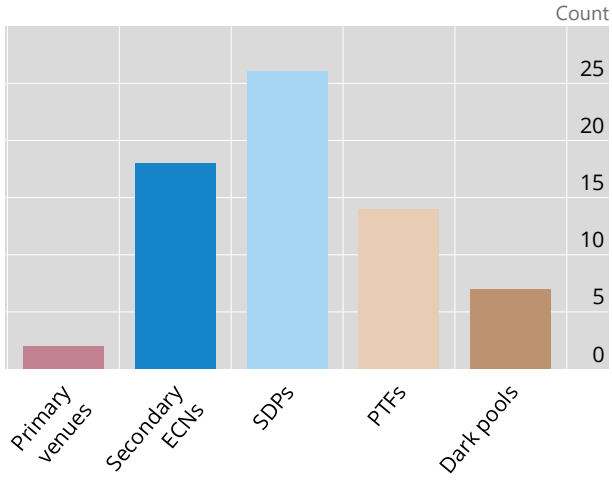
The latest snapshot of the microstructure of trading was taken during April 2025, a month marked by a spike in volatility and trading activity around the US tariff announcements. The data show that market participants continued use all modes of trading, with electronic trading accounting for 59% (Graph B1.A), a share virtually unchanged since the previous Triennial Survey. Within the electronic segment, there was some shift

towards indirect (ie brokered) forms of trading, as more participants sought access to multiple providers at once, both via platforms where the identities are disclosed and where they remain anonymous (Graph B1.B). At the same time, voice methods remained vital, allowing participants to execute larger spot trades while minimising market impact or to transact in FX derivatives at bespoke contract terms.

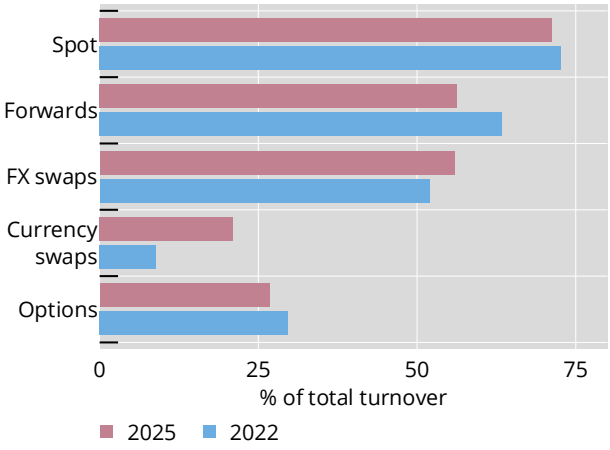
Electronic trade execution landscape across liquidity sources and instruments

Graph B2

A. Liquidity sources by type[1]



B. Share of electronic trade execution by instrument



[1] As of October 2025. Primary venues: CME EBS Market and LSEG Matching. Secondary electronic communication networks (ECNs): a variety of anonymous and disclosed multi-dealer platforms; SDP: proprietary single-dealer platforms of FX dealer banks; PTFs: principal trading firms; dark pools: electronic venues where information about traders' orders is not revealed to other participants.

Sources: ION Group MarketFactory; authors' calculations.

Different execution methods cater to the trading needs of various market participants, and trading is characterised by a large degree of fragmentation. Customers who turn to indirect disclosed electronic trading could, in theory, transact on over 15 multi-dealer platforms (Graph B2.A). On such venues, customers send dealers RFQs or connect to executable streaming prices from multiple liquidity providers. This enables them to effectively "shop" for liquidity or best execution while spreading trades across venues to minimise market impact. Customers also continue to rely on direct electronic trade execution methods and single-dealer platforms (SDPs). In addition to dealers, customers can connect to over a dozen non-bank liquidity providers, so-called principal trading firms (PTFs).③ While this variety of options might suggest market fragmentation, liquidity aggregators – tools that consolidate access to multiple trading venues and providers – help to overcome this issue, enhance transparency and enable smoother market functioning.④

Electronic trading, entrenched for a long time in spot and non-deliverable forwards, has been recently making inroads in lagging segments, notably outright forwards and swaps (Graph B2.B). In fact, inter-dealer electronic brokers are beginning to onboard more forwards, allowing for anonymous inter-dealer trading via CLOBs. Similarly, as customers trade more FX swaps via electronic RFQs or even streaming platforms, demand from an electronic inter-dealer environment yields market reference prices. The challenge for trading forwards and FX swaps in an anonymous electronic environment is that, unlike with spot trading, these trades leave counterparties with future exposures to each other. Currently, platform providers are developing various solutions to address counterparty credit risk in a (pre-trade) anonymous trading environment. Hence, over the next three years, one may anticipate notable shifts in the electronic trading landscape of FX swaps and forwards, amid progress in inter-dealer electronic risk-sharing in these instruments.

① The views expressed in this publication are those of the authors and not necessarily those of the BIS or its member central banks. ② See also A Schrimpf and V Sushko, "FX trade execution: complex and highly fragmented", *BIS Quarterly Review*, December 2019, pp 39–51. ③ High-frequency trading by PTFs also plays a crucial role in price discovery inter-dealer electronic brokers; see W Huang, P O'Neill, A Ranaldo and S Yu, "HFT and dealer banks: liquidity and price discovery in FX trading", *Swiss Finance Institute Research Paper*, no 23-48, June 2023. ④ R Oomen), "Execution in an aggregator", *Quantitative Finance*, vol 17, no 3, 2017, pp 383–404.

Box C

Renminbi propels the growth of EME currency trading

Philip Wooldridge ①

Emerging market currencies' collective share of global foreign exchange (FX) turnover rose to a new high of 29% in April 2025. This compares with 26% in April 2022 and less than 10% in the 2000s (Graph C1.A). Trading in the currencies of emerging market economies (EMEs) averaged $2.8 trillion per day in April 2025 – $2.7 trillion in over-the-counter markets covered by the BIS Triennial Central Bank Survey plus $0.1 trillion on exchanges.

The rise in EME currencies' global share was propelled largely by trading in the Chinese renminbi (CNY) and Hong Kong dollar (HKD). CNY was by far the most traded EME currency, accounting for 8.8% of global turnover in April 2025 (Graph C1.A). This was up from 7.0% in April 2022 and cemented the CNY's status as the fifth most traded currency overall. Indeed, in April 2025 USD/CNY surpassed USD/GBP as the third most traded currency pair, behind only USD/EUR and USD/JPY. HKD was the next most traded EME currency at 3.8% of global turnover, up from 2.5% in April 2022, followed by the Singapore dollar (SGD) at 2.4% and the Indian rupee (INR) at 1.9%.

Exchange rate volatility made an important contribution to the increase in CNY and HKD turnover in April 2025. Like for other major currencies, high volatility boosted inter-dealer activity as well as intermediation by principal trading firms (PTFs) and positioning by hedge funds. PTFs' and hedge funds' share of overall activity in CNY rose to 8%, in line with the global average, and in HKD their share climbed to 11%.

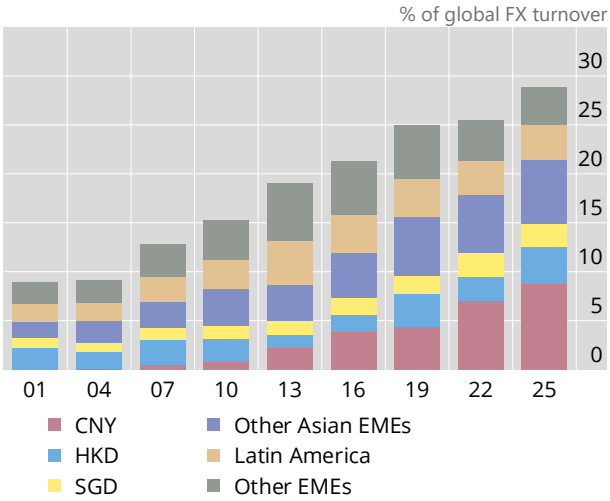
Alongside such cyclical factors, the trend increase in CNY activity was supported by the currency's growing use for trade and investment. For example, CNY-denominated cross-border bank credit to borrowers in Asian EMEs has been rising steadily since 2021. That said, USD continues to be the dominant vehicle currency for FX transactions involving CNY: as much as 96% of all CNY transactions were against USD in April 2025. Also, relative to economic activity, FX trading in CNY remains much lower than that in other major currencies, though it is rising quickly (Graph C1.B).

Aside from CNY and HKD, most other EME currencies saw relatively modest increases in trading volumes. Indeed, the upward trend in FX turnover as a share of GDP plateaued, with turnover relative to economic activity in the median EME unchanged between April 2022 and April 2025 (Graph C1.B).

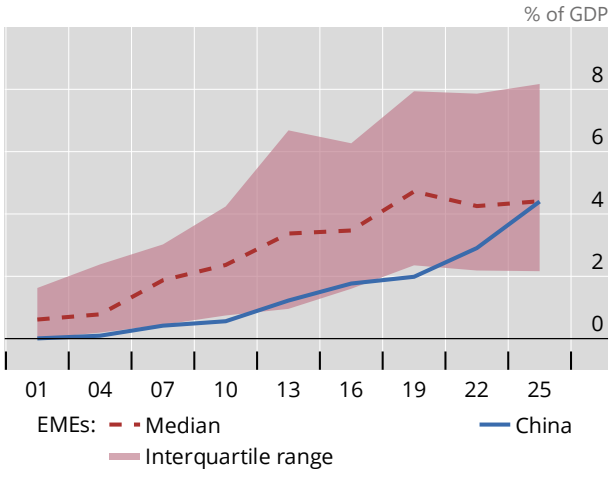
Growth of EME currency trading[1]

Graph C1

A. CNY and HKD drove the increase in EME currencies' share of global FX turnover



B. The trend increase in FX turnover as a share of EMEs' GDP has recently plateaued



[1] Global average daily spot and derivatives trading in over-the-counter markets ("net-net" basis) as well as on exchanges, in the month of April.

Sources: IMF, *World Economic Outlook*; Futures & Options World; Futures Industry Association; Options Clearing Corporation; BIS derivatives statistics; BIS Triennial Central Bank Survey; author's calculations.

This moderation in growth went hand in hand with a stabilisation in the share of international trading. Trading with non-residents had increased rapidly in the 2000s and 2010s, propelling the overall growth of FX activity in EME currencies (Graph C2.A). In recent years, however, the international share of trading has not changed much for the majority of EME currencies.

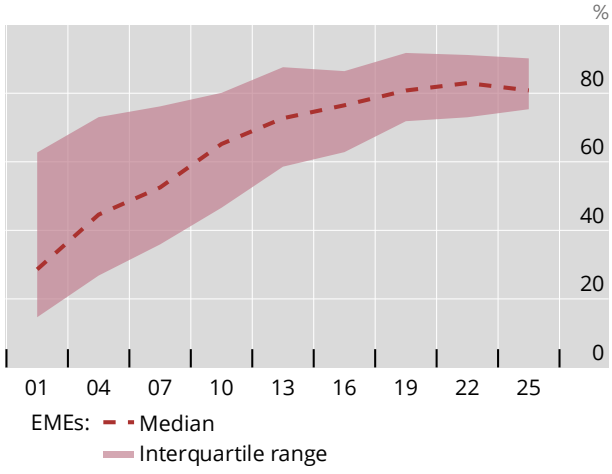
This steadying in the pace of internationalisation was explained in part by the faster growth of spot trading compared with derivatives trading. Among EME currencies, a larger share of spot trading than of derivatives trading takes place onshore – with residents of the currency area. For many years the growth of derivatives trading had outpaced spot trading, but between April 2022 and April 2025 spot trading grew faster. Exchange rate movements in April 2025 prompted EME and other non-US investors to hedge a larger proportion of their USD assets, which boosted activity in spot markets.

For all but a handful of currencies, FX derivatives trade mainly in offshore markets, beyond the reach of FX and capital controls that apply to transactions onshore (y-axis in Graph C2.B). Notable exceptions include the currencies of global financial centres, like HKD, SGD and the United Arab Emirates dirham (AED).

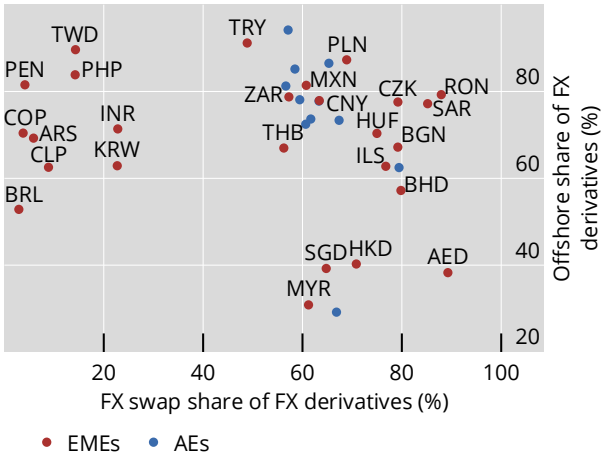
Geography of EME currency trading

Graph C2

A. International trading (with non-residents of the currency area) has stabilised as a share of overall trading in EME currencies[1]



B. FX derivatives trade mainly offshore and, for deliverable currencies, mainly in the form of FX swaps[2]



[1] Spot and derivatives trading in OTC markets ("net-net" basis) in the month of April. [2] Average daily turnover in April 2025, including FX futures and options traded on exchanges. Trading on exchanges located within the currency area is categorised as onshore trading.

Sources: Futures & Options World; Futures Industry Association; Options Clearing Corporation; BIS derivatives statistics; BIS Triennial Central Bank Survey; author's calculations.

Where controls restrict a currency's deliverability abroad, trading fragments between onshore and offshore markets, thereby depressing market liquidity. Fragmentation is most noticeable in the instruments traded. For deliverable currencies, FX swaps are used by residents and non-residents alike to fund and hedge foreign investments; accordingly, FX swaps account for the largest share of derivatives trading (x-axis in Graph C2.B). In contrast, for non-deliverable currencies, such as the Colombian peso (COP), INR and Korean won (KRW), trading concentrates in non-deliverable forward contracts (NDFs). While authorities in some economies permit such contracts to trade onshore, NDFs overwhelmingly trade offshore between non-residents.

Even though the Brazilian real (BRL) and Malaysian ringgit (MYR) are non-deliverable currencies, a relatively low share of FX derivatives denominated in these currencies trade offshore (y-axis in Graph C2.B). BRL is unusual because futures traded on the Sao Paulo exchange account for a sizeable proportion of FX derivatives trading, in contrast to other currencies where futures trading is negligible. Importantly, there are few restrictions on non-resident participation in BRL futures, which helps to concentrate liquidity onshore. Similarly in Malaysia, FX controls are relatively liberal for non-residents, which reduces the cost of transacting MYR onshore.

① The views expressed in this publication are those of the author and not necessarily those of the BIS or its member central banks.

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Annex A

Global FX market turnover, 1989–2025

Net-net basis,[1] daily averages — Table A.1

	1989	1992	1995	1998	2001	2004	2007	2010	2013	2016	2019	2022	2025
	(a) Volumes (in USD billion)												
All instruments	539	817	1,182	1,527	1,239	1,934	3,324	3,973	5,357	5,066	6,581	7,468	9,510
Spot total	305	394	494	568	386	631	1,005	1,489	2,047	1,652	1,979	2,085	2,952
Growth, all		52%	45%	29%	–19%	56%	72%	20%	35%	–5%	30%	13%	27%
	(b) Ratios												
All instruments/GDP[2]	10	12	14	17	13	16	21	22	25	24	27	27	30
All instruments/Trade[3]	32	39	42	51	36	38	43	47	52	58	63	54	72
Spot/GDP[2]	6	6	6	6	4	5	6	8	10	8	8	7	9
Spot/Trade[3]	18	19	18	19	11	12	13	18	20	19	19	15	22

[1] Adjusted for local and cross-border double-counting. Turnover and absolute change rounded. Undistributed volumes omitted from the table. [2] GDP refers to world GDP expressed in 2024 current prices. [3] Trade represents the aggregate value of global exports and imports.

Sources: IMF, *World Economic Outlook*; IMF International Trade in Goods (IMTS); BIS Triennial Central Bank Survey; authors' calculations.

Global FX market turnover in April 2025, by counterparty and instruments

Net-net basis,[1] daily averages in April 2025 Table A.2

	Turnover in 2025	2022–25 change	2022–25 change	Contribution to 2022–25 change	Share in 2025 turnover	Change in share
	USD billion		In per cent			
Global FX market	9,510	2,043	27%	100%	100%	
By counterparty						
Reporting dealers	4,443	948	27%	46%	47%	0%
Other financial institutions	4,627	1,081	30%	53%	49%	1%
Of which:						
Non-reporting banks	2,195	599	38%	29%	23%	2%
Institutional investors	1,261	416	49%	20%	13%	2%
Hedge funds and PTFs	760	246	48%	12%	8%	1%
Official sector institutions	138	41	42%	2%	1%	0%
Other non-bank financials[2]	273	–221	-45%	–11%	3%	–4%
Non-financial customers	441	14	3%	1%	5%	–1%
By instrument						
Spot	2,952	866	42%	42%	31%	3%
Outright forwards	1,747	590	51%	29%	18%	3%
FX swaps	4015	218	6%	11%	42%	–9%
Currency swaps	164	40	33%	2%	2%	0%
Options	632	328	108%	16%	7%	3%

[1] Adjusted for local and cross-border double-counting. Turnover and absolute change rounded. Undistributed volumes omitted from the table. [2] This category can include various other financial counterparties, such as securities firms, financial arms of corporates, and retail aggregators. See glossary for abbreviations.

Sources: BIS Triennial Central Bank Survey; authors' calculations.