BIS

BIS Bulletin

No 123

Investment funds' de facto currency risk exposure

Inês Lindoso, Andreas Schrimpf, Vladyslav Sushko and Toma Tomov

22 April 2026

BIS Bulletins are written by staff members of the Bank for International Settlements, and from time to time by other economists, and are published by the Bank. The papers are on subjects of topical interest and are technical in character. The views expressed in this publication are those of the authors and do not necessarily reflect the views of the BIS or its member central banks. The authors are grateful to Gaston Gelos, Bryan Hardy, Ulf Lewrick, Ingomar Krohn and Stefan Avdjiev for comments, Ilaria Mattei and Luca Tondo for excellent research assistance, and to Danielle Ritzema for administrative support.

The editors of the BIS Bulletin series are Gaston Gelos and Frank Smets.

This publication is available on the BIS website (www.bis.org).

ISSN: 2708-0420 (online)
ISBN: 978-92-9259-948-5 (online)

Inês Lindoso
ines.fernandes_de_almeida_lindoso@ecb.europa.eu

Andreas Schrimpf
andreas.schrimpf@bis.org

Vladyslav Sushko
vladyslav.sushko@bis.org

Toma Tomov
toma.tomov@ecb.europa.eu

Investment funds' de facto currency risk exposure

Key takeaways

- *The sensitivity of fund returns to exchange rates, once underlying asset returns are accounted for, provides a measure of funds' exposure to currency risk, ie their de facto hedge ratio.*
- *Bond funds have high and stable hedge ratios, though with some sensitivity to hedging costs. Equity funds´ hedging is volatile and consistent with opportunistic currency speculation.*
- *In the run-up to April 2025, equity funds with low hedge ratios attracted most inflows and outperformed those with high hedge ratios, but this relation flipped following "Liberation Day".*

The topic of currency hedging has taken centre stage following major shifts in US trade policy and an unexpected depreciation of the US dollar in April 2025. The long-standing "dollar smile" – ie the historical inverse correlation of the US dollar with large equity market drawdowns – temporarily broke down following the US tariff announcements, exposing equity investors to unanticipated losses (Baudino et al (2025)). More recently, the broad dollar index barely rose following the outbreak of the conflict in the Middle East, in contrast to a strong appreciation in 2022 following the Russian invasion of Ukraine.

This Bulletin sheds light on how euro area investment funds manage their exposure to the dollar and how these practices have shifted over key recent episodes.[1] It uncovers notable differences between bond and equity funds' currency risk management. Bond funds tend to hedge close to 100% of their exposures, with limited variation in their de facto hedge ratios on a month-to-month basis. By contrast, hedge ratios of equity funds are usually much lower, but are also much more variable over time. The changes in their hedge ratios suggest that equity funds opportunistically seek speculative exposures to currency risk.

Investment funds' approach to currency risk hedging also helps explain the vehemence of the foreign exchange market moves during the April 2025 turbulence (Shin et al (2025); IMF (2025); Huang et al (2025)). Euro area equity funds entered April 2025 with large unhedged exposures to the US dollar, while bond funds maintained high and stable hedge ratios. Following the unexpected breakdown of the US dollar correlations during the equity market drawdown, equity funds rapidly increased their hedge ratios ex post, thus selling dollars in forward markets and likely amplifying the dollar's depreciation. Moreover, the April episode changed the relative attractiveness of equity funds, away from those taking on currency risk to those with higher hedge ratios, increasing structural dollar shorts in the market. Our indicative data capture only the tip of the iceberg of the investor and fund manager behaviour that contributed to the dollar weakening throughout the past year.

[1] Investment assets consist of US bonds and equities, but the investment fund shares are denominated in euros, and the funds are domiciled in the euro area. Around 11% on average are index tracking; the rest are active funds. Focusing on a single currency is informative, as Bräuer and Hau (2025) find that investment funds tend to hedge on a single-currency basis (a so-called "unitary hedge") rather than optimising the risk-return of their entire portfolio.

Funds' de facto hedge ratios

Funds' exposure to currency risk can be inferred from the exchange rate sensitivity of their returns, after accounting for the portion of returns generated by the underlying assets. This approximation allows us to overcome the shortages of granular data on funds' use of currency derivatives. Intuitively, the returns on euro-denominated shares of funds investing in US assets will decrease if the dollar depreciates against the euro, unless the fund manager takes active steps to hedge the dollar exposure. Hence, as shown in the supplementary online appendix, de facto hedge ratios can be computed based on the sensitivity of individual fund returns to currency investments.[2]

Investment funds can be unhedged, partially hedged, fully hedged or over-hedged. A higher currency sensitivity implies hedge ratios closer to zero, ie currency risk left unhedged. Conversely, a lower sensitivity of returns implies hedge ratios closer to unity, or full hedging. Inverse sensitivity – where a fund's returns increase as the dollar declines – implies over-hedging of dollar exposures. Over-hedging in this context corresponds to a situation in which the fund takes an active approach to currency management, positioning itself to harvest currency risk premia as a source of additional returns (see eg Kroencke et al (2013)) by speculating on a decline in the value of the dollar.

Our empirical measurement of de facto hedge ratios draws on a large sample of funds – an average of 1,700 funds every week. We aggregate hedge ratios at the asset class level based on the weighted average of the hedge ratios of individual funds. The details on the methodology and underlying assumptions are described in the online appendix.

Bond versus equity funds' currency risk exposures

Currency risk exposures of bond funds and equity funds differ markedly.[3] De facto hedge ratios of bond funds are almost always higher and often close to a full hedge (Graph 1.A). Hedge ratios of equity funds are much lower than those of bond funds, but they are also more volatile, reflecting an opportunistic approach to currency risk management, as we discuss below. Hence, even though they are lower on average, equity funds' de facto hedge ratios can occasionally move to either extreme. Over the past 10 years, equity funds' hedge ratios have ranged between 0 and 1.6 (implying instances of 60% over-hedging).

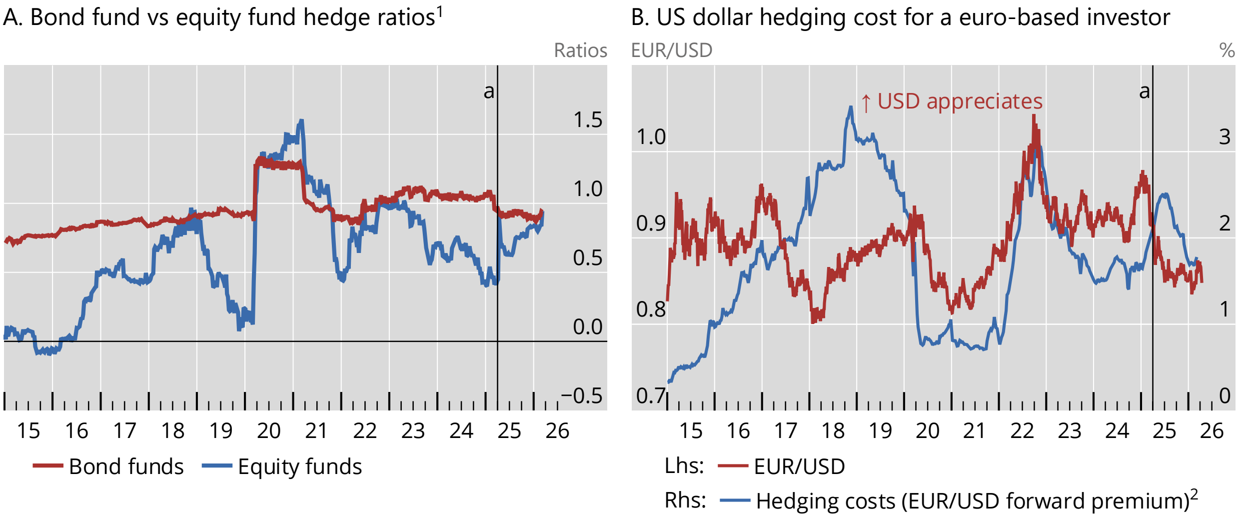
De facto hedge ratios of both bond and equity funds peaked during the Covid-19 market turbulence in March 2020. These steep increases in hedge ratios, to levels above one, may stem from both deliberate changes in funds' target hedge ratios and the mechanical effect of falling equity holdings relative to the value of existing hedges.[4]

[2] In this context, it is important to control carefully for the fluctuations in fund returns due to market-wide factors. The sensitivity of a fund's returns to exchange rates is therefore estimated using two-stage time series regressions. In the first stage, a fund's beta to underlying index returns is estimated in the spirit of the Capital Asset Pricing Model (CAPM). In the second stage, the residual from the first stage is regressed on foreign exchange returns.

[3] Mutual funds' hedging policies can differ from those of institutional investors, such as insurance companies and pension funds (see Du and Huber (2024)).

[4] The persistence of the Covid-related market valuation impact on the de facto hedge ratios shown is due to the relatively long (52-week) rolling windows used in the estimation.

Hedge ratios of bond and equity funds, and hedging costs Graph 1



[a] "Liberation Day" (2 April 2025).

[1] Weighted averages based on an unbalanced panel of approximately 3,400 over a 10-year period; fund-level hedge ratios estimated using 52-week rolling windows. [2] Three-month FX swap-implied interest rate of borrowing US dollar versus the euro, annualised.

Sources: CFTC; Bloomberg; LSEG Lipper; authors' calculations.

The drivers of hedge ratio adjustments also differ between bond and equity funds. While hedge ratios of bond funds are quite stable around one, they are known to also adjust on the margin to changes in the cost of hedging and a stronger dollar. This is because foreign exchange (FX) hedging costs are linked to interest rates in the respective currencies[5] and thus have a direct and immediate impact on the returns of fixed income investors (Nenova et al (2025)). Relatedly, a strong US dollar translates into market losses on short forward dollar positions. Therefore, during the 2022–24 period, foreign investors faced combined headwinds from both high hedging costs due to the wide interest rate differential with the United States and margin calls on short dollar positions due to the strong dollar (Graph 1.B).

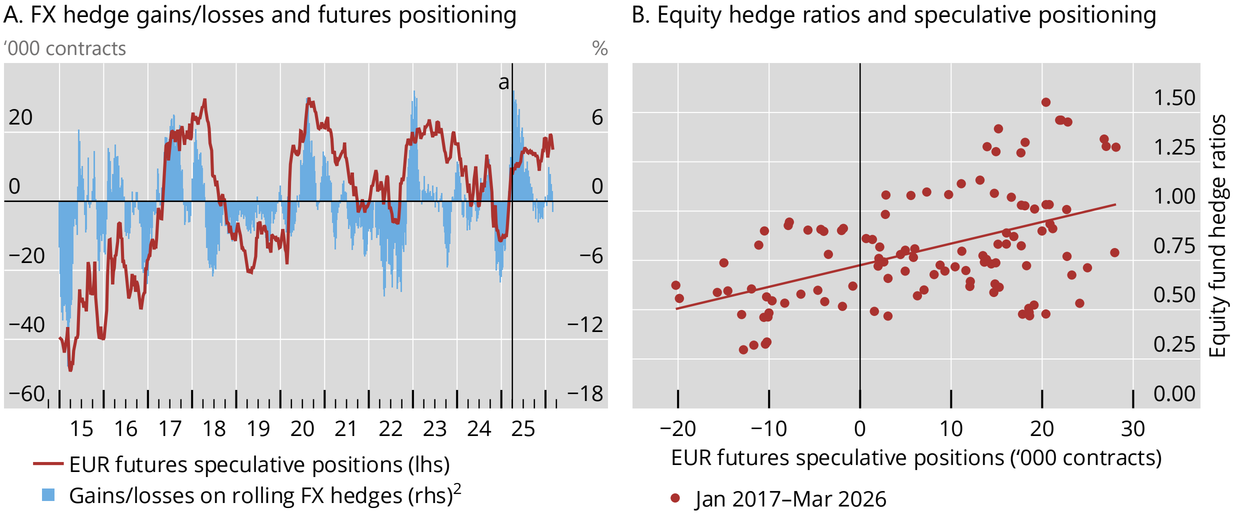
Hedging decisions of equity fund managers involve a significant discretionary and speculative element. This aligns with the idea that portfolio managers actively form views on the future direction of exchange rates, as part of an active strategy of the FX overlay of their portfolios (Jorion (1994); Kroencke et al (2013)). This is also in line with other recent work that finds that equity mutual fund managers often use derivatives to add currency risk to their portfolios rather than to reduce it (Opie and Riddiough (2025); Chen and Zhou (2025)).

To examine this, it is worth comparing equity funds' hedge ratio evolution with indicators of currency speculation. The latter is often inferred from net currency futures positions of non-commercial traders (ie those without an underlying hedging need) on the Chicago Mercantile Exchange. The realised returns from currency speculation with currency forwards and futures, in turn, can be proxied with market gains or losses on these positions. For example, a short US dollar (long euro) position in a forward pays off if the dollar depreciates more than the forward exchange rate in the contract. Speculative positioning in futures tends to line up with market gains on such positions, based on gains or losses of rolling three-month forward positions. In other words, speculators in currency futures were positioned net short euro (long

[5] The FX hedging cost is equal to the interest rate implied by the difference between the forward and the spot exchange rate. Investors cover foreign currency risk by selling that currency in the forward market. For example, if the spot USD/EUR exchange rate is 1.0 and the one-year forward exchange rate is 1.02, then the annual cost of hedging equals 2%. This forward premium or discount is equal to the interest rate differential in the two currencies – a condition known as covered interest parity (CIP) – plus or minus a small spread called the currency basis.

dollar) when it was ex post profitable to do so, and vice versa (Graph 2.A, both series negative or falling or both series positive or rising).

Currency speculation and de facto hedge ratios of equity funds[1] Graph 2



[a] "Liberation Day" (2 April 2025).

[1] The data consist of an unbalanced panel of a weekly sample of approximately 3,400 funds over a 10-year period. [2] Percentage of market gains/losses on a short US dollar position in the far leg of a three-month EUR/USD FX swap.

Sources: CFTC; Bloomberg; LSEG Lipper; authors' calculations.

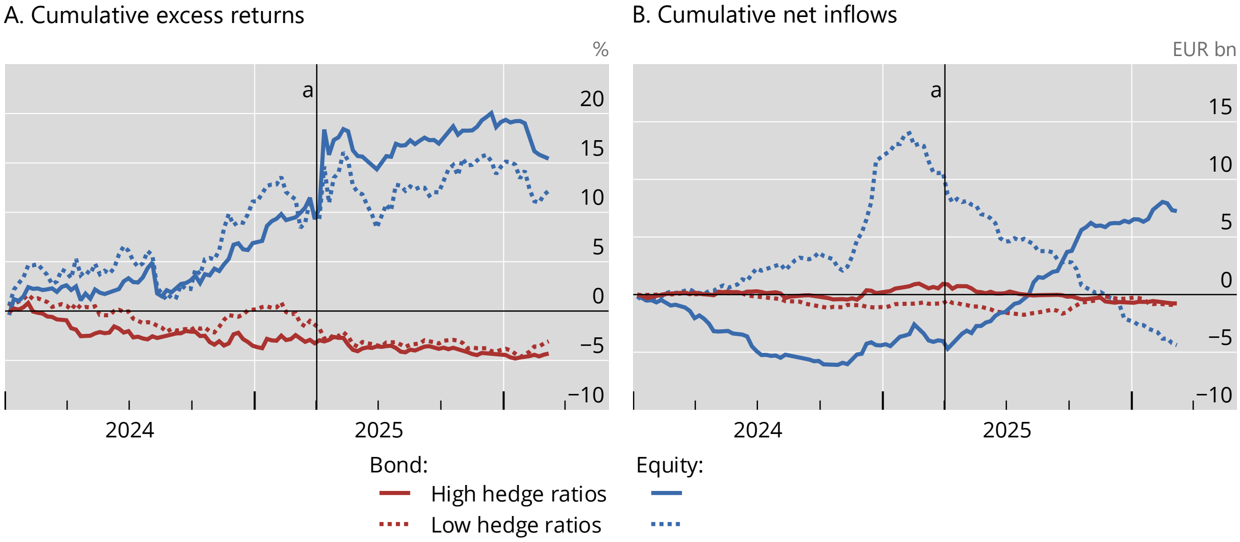
The proxies of speculators' views on the exchange rate tend to line up with equity funds' exposure to currency risk. Equity funds' de facto hedge ratios for US dollar exposure appear most depressed when speculators are positioned net short euro (net long US dollar) in futures (Graph 2.B). In other words, when speculators are betting on dollar appreciation, equity fund managers minimise their short dollar forward positions. Conversely, when speculators are positioned net long euro (net short US dollar), so as to benefit from an appreciation of the euro vis-à-vis the dollar, equity funds' hedge ratios are highest. At times of large speculative euro long positioning, equity fund managers tend to over-hedge significantly, indicating large open short dollar positions. The close co-movement between hedge ratios and speculative currency positioning provides further evidence regarding the speculative nature of hedge ratio adjustments by equity funds.

Dissecting April 2025 events

In April 2025, announcements of major shifts in US trade policy and an unexpected depreciation of the US dollar roiled the FX market. Feedback from market participants and subsequent analysis indicated that, faced with simultaneous losses on their equity holdings and a sliding US dollar, non-US investors rushed to hedge their US dollar currency exposures, further amplifying the dollar depreciation.

Our results indicate that, within euro area investment funds, the ex post hedging of US dollar exposures was driven by equity funds, not bond funds. In April 2025, the de facto hedge ratio of equity funds jumped from about 0.5 to almost a full hedge, before retracting somewhat (see Graph 1).

Shifting return and flow dynamics according to funds' currency risk exposure[1] Graph 3



[a] "Liberation Day" (2 April 2025).

[1] Funds classified as "hedged" ("unhedged") were above (below) the sample median within the respective asset class.

Sources: LSEG Lipper; authors' calculations.

In the run-up to April 2025, equity funds with low hedge ratios outperformed those with high hedge ratios and attracted the most inflows, but this relation flipped following the "Liberation Day" shock. Until early 2025, cumulative excess returns (relative to their benchmarks) of equity funds with low hedge ratios far exceeded those of equity funds with high hedge ratios (Graph 3.A). This outperformance likely reflected the positive implicit carry and realised currency returns from being in a long US dollar position. Going into 2025, equity funds with low hedge ratios thus also attracted significant net inflows from investors (Graph 3.B). By contrast, equity funds with higher hedge ratios experienced net outflows, possibly due to the erosion of their returns by dollar hedging costs. These dynamics abruptly reversed in early 2025, especially after April. Since then, hedged equity funds outperformed unhedged ones and, thanks to their lower US dollar exposure, benefited both in terms of higher returns and increased investor inflows.

The April 2025 market turbulence illustrated that currency hedging policies are crucial to understand market dynamics in stress episodes. Seemingly myopic and reactive return-chasing behaviour of equity fund investors and managers left them vulnerable to simultaneous losses on their US dollar and equity exposures. Their higher excess returns from leaving currency risk unhedged were predicated on continued dollar strength and expectations that the dollar would appreciate if equity markets were to fall sharply. However, the opposite happened following the 2 April "Liberation Day" announcement. At the same time, fund managers reacted to higher perceived risks in their dollar exposures by rushing to hedge 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. Investors, too, adjusted their behaviour by divesting from equity funds with low hedge ratios towards those with high hedge ratios.

References

Baudino, P A, M Grothe, M Habib, A-S Manu, P McQuade, M Ricci, E Siciliano, T Tomov, L Tondo L and G Watfe (2025): "What safe haven after the April US tariff announcement? Implications for euro area financial stability", *ECB Financial Stability Review*, Special Feature A, November.

Bräuer, L and H Hau (2025): "Fund-level FX hedging redux", *ESRB Working Paper Series*, no 148.

Chen, N and H Zhou (2025): "Managing emerging market currency risk", available at SSRN.

Du, W and A Huber (2024): "Dollar asset holdings and hedging around the globe," *NBER Working Papers,* no 32453, May.

Huang, W, I Krohn and V Sushko (2025): "Global FX markets when hedging takes centre stage", *BIS Quarterly Review*, December.

International Monetary Fund (IMF) (2025): "Risk and resilience in the global foreign exchange market", *Global Financial Stability Report,* chapter 2, October.

Jorion, P (1994): "Currency hedging and the returns to international diversification", *Financial Analysts Journal*, vol 50, no 3, pp 73–78.

Kroencke, T, F Schindler and A Schrimpf (2013): "International diversification benefits with foreign exchange investment styles", *Review of Finance*, vol 18, no 5.

Nenova, T, A Schrimpf and H S Shin (2025): "Global portfolio investment and FX derivatives", *BIS Working Papers*, no 1273, June.

Opie, W and S Riddiough (2025): "On the use of currency forwards: evidence from international equity mutual funds", available at SSRN.

Shin, H S, P Wooldridge and D Xia (2025): "US dollar's slide in April 2025: the role of FX hedging," *BIS Bulletin*, no 105, June.