

Research paper

# Mitigating currency risk in global equity portfolios using FX futures



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# Introduction

Investors frequently look to international markets for diversification and better returns, and using futures contracts on foreign equity indices is a common and effective way to achieve this exposure. However, such investments are inherently exposed to currency risk. This means that the returns on these investments are determined not only by the performance of the equity index itself but also by fluctuations in the exchange rate between the investor's home currency and the index currency.

Profits and losses from a foreign-currency-denominated equity index futures position will differ from the index return once converted into the investor's home currency. For example, a U.S. investor holding EURO STOXX 50<sup>®</sup> futures will experience a decline in their investment performance if the euro weakens against the U.S.

dollar, and it will rise if the euro strengthens. Therefore, if the investor wants to isolate the performance of the equity index investment, the impact of these currency fluctuations needs to be minimized through hedging the FX exposure. This is achieved by using instruments such as FX futures to construct a currency overlay.

Eurex offers a comprehensive range of equity index futures, covering major benchmarks such as the DAX and EURO STOXX 50<sup>®</sup>, as well as regional and country specific MSCI indices with inherent exposures to various currencies. In the FX space, the product suite includes futures across a variety of currency pairs, including major European, Scandinavian, and emerging-market currencies. These centrally cleared products provide market participants with flexible and efficient tools for trading and hedging currency exposure.

# Methodology for hedging with FX futures

A structured approach is essential for implementing an effective currency hedge. The process can be broken down into four key steps:

- 1. Determine the total foreign-currency exposure:** The first step is to quantify the investment's total exposure to currency risk. In a fully funded example, this would be the total amount of foreign currency purchased.
- 2. Select the appropriate FX futures contract:** The chosen contract must correspond to the currency pair of the exposure. Directionality is also important; if the investor is long a foreign asset, they are usually exposed to the foreign currency. In this case, they want to sell the foreign currency through FX futures to hedge that exposure.
- 3. Calculate the hedge ratio and number of contracts:** The hedge ratio is determined by the investor's risk tolerance and the composition of the underlying index. For a full hedge, the ratio is 1. The number of futures contracts needed is calculated using the formula:  
$$\text{Number of Contracts} = (\text{Total FX Exposure} \times \text{Hedge Ratio}) / \text{FX Future Contract Size}.$$
- 4. Execute and manage the hedge:** The final step is to execute the FX futures trade. It is also important to consider ongoing management, such as rebalancing the hedge as the value of the equity investment fluctuates and rolling the futures contract forward as it approaches its expiration date.

# Case Study 1:

## Hedging a fully funded EURO STOXX 50<sup>®</sup> exposure for a U.S. investor

Imagine a U.S. investor converting USD 100 million into EUR 84.6 million on 22 September 2025, to invest in EURO STOXX 50<sup>®</sup> index ETFs.

• **Unhedged Scenario:** The investor purchased the EURO STOXX 50<sup>®</sup> at 5,442. On 12 November 2025, the index stood at 5,787, representing a **6.34%** gain in EUR. However, during this period, the EUR/USD exchange rate declined from 1.1815 to 1.1631. When converting the EUR 90.0 million back to USD, the investor's total return is only **4.68%**. The adverse movement in the exchange rate caused the investor to underperform the index. (Figure 1)

• **Hedged Scenario:** To mitigate this risk, the investor implements a currency overlay using Eurex FX Futures.

- **Exposure:** EUR 84.6 million
- **Action:** Sell 846 EUR/USD futures contracts (FCEU) with a contract size of EUR 100,000.
- **Result:** The futures position generates a gain of EUR 2.09 million (USD 2.43 million). This gain offsets the loss from the currency conversion. The total hedged return is **+7.12%**, which is much closer to the index's actual performance of **+6.34%**. (Figure 2)

**Figure 1: Investment returns from unhedged fully funded EURO STOXX 50<sup>®</sup> exposure for a U.S. investor. This table illustrates the differences in index performance from currency fluctuations.**

	22-Sep-2025	12-Nov-2025	Gain / Loss
EURO STOXX 50 <sup>®</sup> Index	5,442.00	5,787.00	6.34%
EUR/USD Spot Rate	1.1815	1.1631	-1.56%
Investment Value (EUR)	€ 84,638,172	€ 90,003,877	6.34%
Investment Value (USD)	\$100,000,000	\$104,683,510	4.68%

**Figure 2: Investment returns from a fully hedged, fully funded EURO STOXX 50<sup>®</sup> exposure for a U.S. investor. This table illustrates the effectiveness of using Eurex FX Futures in hedging currency fluctuations.**

	22-Sep-2025	12-Nov-2025	Gain / Loss
EURO STOXX 50 <sup>®</sup> Index	5,442.00	5,787.00	6.34%
EUR/USD Spot Rate	1.1815	1.1631	-1.56%
Investment Value (EUR)	€ 84,638,172	€ 90,003,877	6.34%
FX Futures Gain/Loss	-	€ 2,091,312	-
Investment Value (USD)	\$100,000,000	\$107,115,915	7.12%

# Case Study 2:

## Hedging MSCI World futures for a Euro-based investor

Currency risk complexity increases with indices composed of equities from multiple countries. The MSCI World Index, for example, contains stocks from 23 developed nations, creating several layers of currency exposure. For a German portfolio manager whose home currency is the euro, the primary exposure is to the U.S. dollar, as the most liquid MSCI World futures are priced in USD, and the index itself has an approximate 71% weighting in U.S. assets.

• **Unhedged Scenario:** An EU investor invests EUR 100 million in MSCI World futures on 22 September 2025. By 12 November 2025, the index has gained **2.16%** in USD terms. However, due to favorable EUR/USD exchange rate movements during this period, the return in their home currency is significantly higher at **4.01%**, nearly double the index return. Even though this outcome is positive, it highlights

the significant and unpredictable impact of currency fluctuations.

• **Hedged Scenario:** To achieve a return better aligned with the index's performance, the investor hedges the dominant USD exposure.

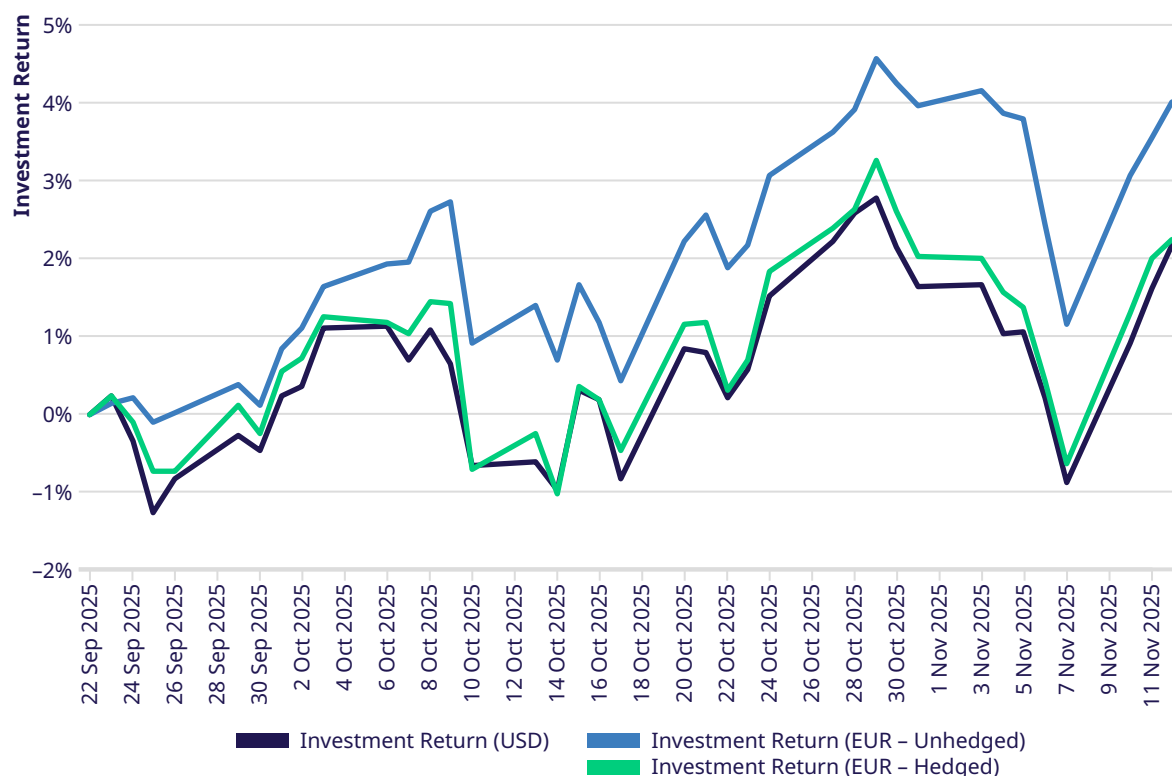
– **Exposure:** The USD exposure is approximately 71% of the portfolio (USD 71,000,000).

The investor decides to hedge this portion.

– **Action:** To hedge this USD exposure, the investor buys 710 EUR/USD futures contracts (FCEU).

– **Result:** The hedge results in a loss of EUR 1.76 million. When subtracted from the unhedged gain of EUR 4.01 million, the net hedged return is EUR 2.25 million, or **+2.25%**. This demonstrates that the currency overlay successfully neutralized the exchange rate's impact, bringing the investor's return much closer to the underlying index's return of **+2.16%**.

**Figure 3: This chart illustrates the performance of the underlying MSCI World Index in USD (dark blue line), the unhedged return in the investor's home currency of EUR (light blue line), and the hedged return in EUR (green line).**



# Conclusion

Investing in international equity index futures is an effective way to participate in global markets, but it also entails the inherent, often unpredictable challenge of currency risk. As the examples demonstrate, currency fluctuations can lead to a significant divergence between the return of an underlying foreign asset and the actual return realized by the investor in their home currency.

Using FX futures to create a currency overlay provides a robust, systematic solution to this problem. By hedging their foreign-currency exposure, investors can effectively neutralize the impact of exchange-rate volatility. This allows them to isolate the equity index's performance, ensuring that their investment outcomes are driven by their strategic asset allocation decisions rather than by incidental, and potentially negative, currency movements. This does require diligent management, but a well-executed hedging strategy is an indispensable component of prudent international portfolio management.

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