FX for the long run?

Executive summary

We investigate the question of how the strategic currency hedge ratio should depend on the time horizon. Like all questions about the long term, it is impossible to be statistically confident of our answers, but we find some tentative evidence lower hedge ratios can make sense, particularly once hedging costs are considered. Moreover, we believe there are good economic arguments to hedge less in the long run.

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FX hedging basics

With some potential exceptions[1] we consider it to be a good idea to currency hedge global bonds. This almost always reduces risk significantly because currency volatility is usually high relative to bond volatility. However, results are no longer clear-cut when we look at risky assets such as equities. Equity returns are inherently more volatile, and currency movements often interact with them in complex ways rather than remaining independent.

From a short-term risk perspective, it can make sense to adopt low FX hedge ratios of equities from relatively safe-haven areas, where 'relative' means compared with your base currency. These currencies – such as the Swiss franc, Japanese yen and US dollar – tend to appreciate during periods of equity market selloffs, providing an offsetting effect. Conversely, it is theoretically optimal to apply higher hedge ratios for currencies from relatively risky regions, as they are more likely to depreciate during market downturns.

We use the word 'theoretically' because, in practice, hedging very risky emerging market (EM) currencies is rare. This is due to both the higher cost and practical difficulty of hedging EM exposures. Additionally, EM currencies are often expected to appreciate in real terms over time – a phenomenon explained by the Balassa-Samuelson effect[2].

Sterling sits between safe-haven and EM currencies, often viewed as moderately pro-risk. For UK-based equity investors, a balanced approach – implementing a partial hedge of currency exposures – can be a sensible compromise.

Inflation hedging and the time horizon

There are two aspects of the currency hedging debate that are sometimes overlooked. The first is inflation, because a common behavioural trap is to consider outcomes only in nominal terms, otherwise known as 'money illusion'. Higher inflation tends to be associated with weakening of the corresponding currency and so under-hedging can operate as a proxy inflation hedge. The second aspect is the time horizon – a hedging decision that makes sense in the short term might not make as much sense in the long term.

Some investors, such as young investors saving for retirement, have long-term inflation-linked objectives. How does their situation impact the hedge that makes most sense for them?

For strategic purposes, in this paper we've assumed no speculative motive for the FX hedging decision i.e. that the expected returns from FX hedging are zero and uncovered interest rate parity (UIP) holds[3]. In other words, we've neglected reasons to tilt your portfolio to capture tactical opportunities. Short-term positioning is important but can be considered relative to a strategic baseline that is our focus here. This assumption means our analysis can focus purely on risk reduction i.e. minimise the volatility of real returns.

1. Exceptions can include high-yield bonds (as they can be more equity-like) or local currency emerging market debt given expected real exchange rate appreciation of emerging market currencies.
2. It stems from a larger productivity growth gap between tradable and non-tradable sectors than advanced economies.
3. There is a potential interesting tension between UIP and a risk-based approach to assessing the expected return of a currency pair. UIP is often considered as sensible long-term assumption, despite CAPM-like arguments, due to an anchor to fundamentals. For example, the fact sterling (vs dollar) has a positive beta to equity doesn't mean we can reasonably expect it to strengthen against the dollar without bound.

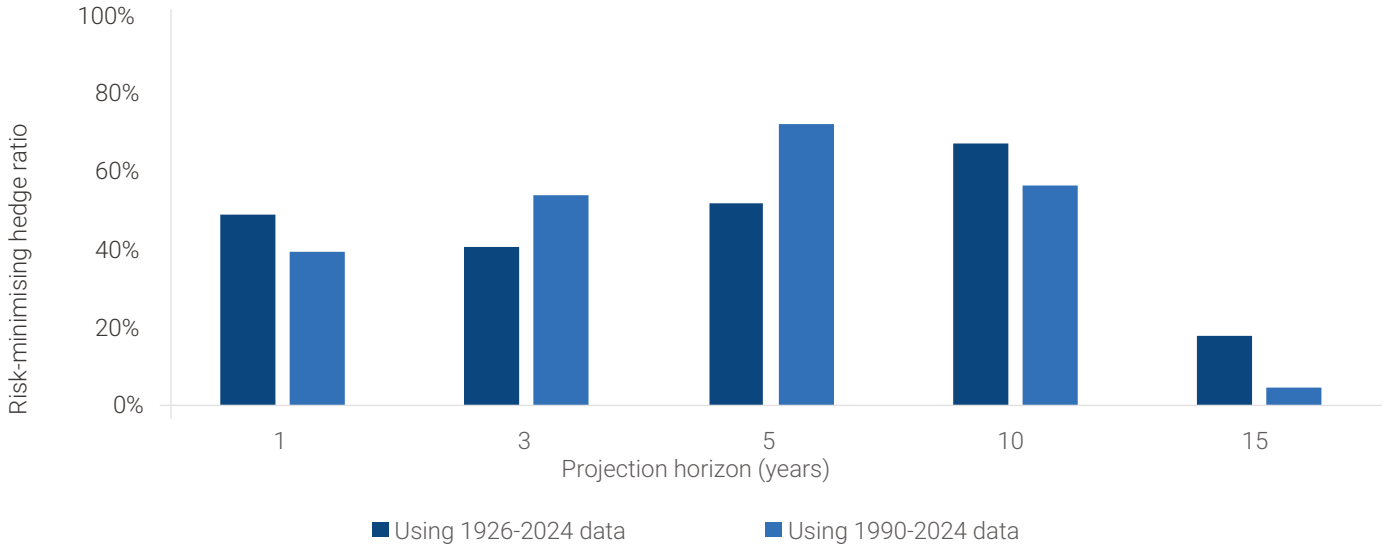
One approach is to examine historic returns. For the purposes of our analysis, we considered US equities held by a UK investor and studied real (i.e. inflation-adjusted) historic returns achieved over different horizons. We used data stretching back to 1926 (so almost 100 years) from a variety of sources. Unhedged returns were approximated using local currency returns combined with exchange rate movements. For hedged returns, we assumed rolling contracts were used, so the hedged return could be approximated by the local currency return plus the difference between UK and US cash returns. Returns were inflation-adjusted by stripping out increases in a UK consumer prices index.

Our results are shown in Figure 1.

For example, there are fewer than four non-overlapping decades since 1990. These data limitations, combined with high volatility of equity and FX returns, make it challenging to reach any firm conclusions empirically.

Kenneth Froot, a Harvard economist, published a paper[4] in 2019 in which he performed similar analysis, studying realised real returns on US stocks from the perspective of a UK investor. His study used a data sample spanning from 1802 to 1990. He was less cautious in his conclusion that long-term investors should hedge less, finding that "hedge ratios chosen to minimise long-run return variance are not only low, they also have no perceptible impact on return variance".

Figure 1: FX for the long run?
Historic analysis gives mixed results



Sources: Bank of England, Fama French database, Bloomberg, LGIM calculations. Data covers the period Jan 1926 to Sept 2024. Calculations are for US equity for a UK-based investor. Assumes zero hedging costs.

The variability of the results shown, with sensitivity to the historic period used and with hedge ratios going both up and down with the horizon, illustrate how difficult it can be to study the long term. In general, there's typically a compromise between the volume and relevance of data, and this problem is no exception. For example, the 1990s saw a steep increase in financial globalisation and international portfolio investment flows. As these are an important driver of exchange rate movements that's likely to persist, this could mean that using data before then is misleading. But if we restrict ourselves to only data from 1990 onwards this leaves us with relatively few independent data points with which to analyse 'long' horizons.

Froot also noted another key limitation of historic data, namely that monetary arrangements changed several times. Under the interwar gold standard (1925-1931) and the Bretton Woods system (1944-1971), sterling was pegged to the dollar. However, he argues that if anything that strengthens his case (and ours, given our analysis is similar). This is because in the short run the pegs dampen variability, but most economists believe that the nature of monetary arrangements should have no long-run effect on the real exchange rate.

4. Currency Hedging over Long Horizons | NBER, published in the Annals of Economics and Finance in 2019.

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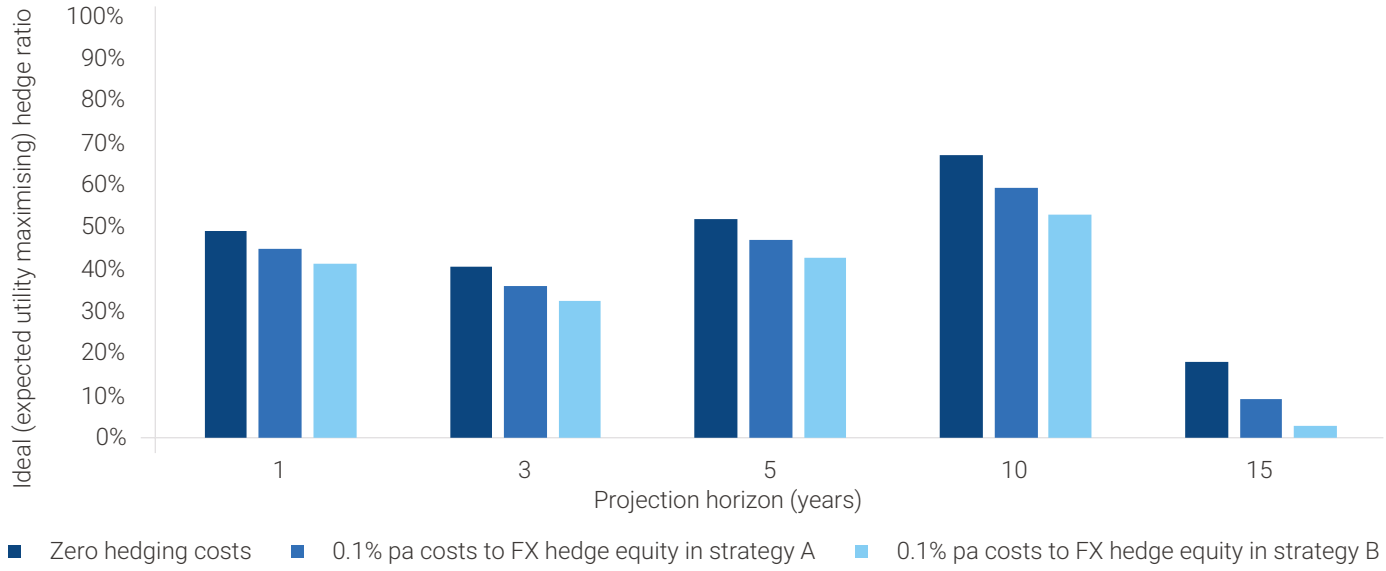
Costs

The inclusion of more recent data may make us pause before reaching the same judgment, as might research from Deutsche Bank that makes a long-term case for currency hedging[5] (but that notably neglected inflation). What is undeniable, however, is that hedging costs should be considered and these will always promote lower hedges. In Figure 2 we show the impact of a 0.1% pa cost of hedging[6] on our results for two different strategies:

- Strategy A is 50% US equity and 50% 'risk-free[7]
- Strategy B is 50% US equity and 50% UK property

Figure 2: Allowing for costs promotes lower hedges

Uses 1926-2024 data



Sources: Bank of England, Fama French database, Bloomberg, LGIM calculations. Data covers the period Jan 1926 to Sept 2024. Calculations are for US equity for a UK-based investor.

The investor in strategy B, assuming it represents their entire portfolio, implicitly has a higher risk appetite than the investor in strategy A. This encourages a lower FX hedge ratio on the equities held given the hedging costs.

Costs also have a larger impact on the optimal hedge over longer horizons. This is because the annualised real equity volatilities appear to be lower in the long run, as shown in Figure 3. Whilst not completely uncontroversial, this could be thanks to some degree of mean-reversion in real equity returns. This can mean you may be paying the same[8] but for less risk reduction in the long run, encouraging less hedging.

5. the-new-neutral-the-long-term-case-for-currency-hedging.pdf
6. For strategy A, the calculations involve maximising expected quadratic utility using a risk aversion parameter consistent with equity exposure that we estimate to be around 2.2. For strategy B, we adjusted this risk aversion downwards to reflect the more aggressive overall strategy.
7. This could be index-linked gilts for a long-term investor with real objectives.
8. There is an interesting discussion of this by the OSFI here: Evidence for Mean Reversion in Equity Prices

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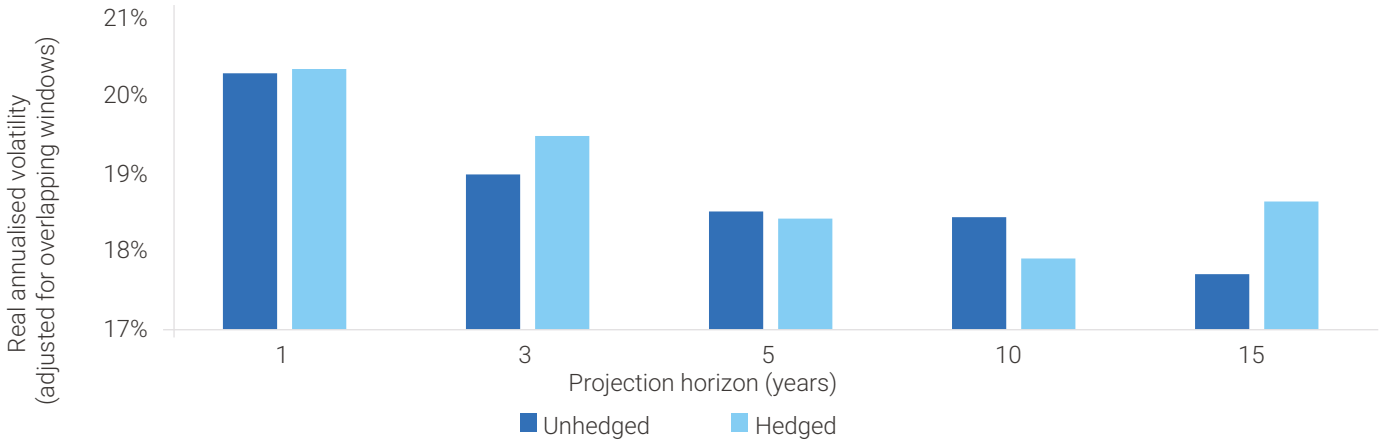
Figure 3: Inflation-adjusted volatilities tend to be lower over longer horizons



Sources: Bank of England, Fama French database, Bloomberg, LGIM calculations. Data covers the period Jan 1926 to Sept 2024. Calculations are for US equity for a UK-based investor.

Economic intuition

Fortunately, the result that lower hedges can make more sense over longer horizons is economically plausible, even though it is impossible to prove from data. This gives some comfort that we're not being 'fooled by randomness', an occupational hazard for financial analysts.

Purchasing Power Parity (PPP) says that real exchange rates ought to converge in the long run, rather than take purely random walks without any mean reversion. In other words, long-run real exchange rates don't move nearly as much as their short-term fluctuations might suggest. A light-hearted version of this is the economist magazine's Big Mac Index, which compares Big Mac prices across the world when converted to a common currency. PPP is far from perfect, but in the long run we should expect some reasonable bounds on how cheap or expensive buying a Big Mac on holiday could become relative to what it costs at home.

If the UK experiences much higher inflation than in the US, for example, PPP says we expect sterling to depreciate relative to the dollar. Unfortunately, this means on your US holiday a Big Mac doesn't work out any cheaper for you than its inflated price at home. However, it also means FX exposure can work as a partial inflation hedge, as it may gain from domestic inflation relative to that abroad. A simple example (with purely illustrative numbers) of this is shown in Figure 4.

Here we only actually need relative PPP - a weaker condition - that says that changes in exchange rates should eventually offset the price effects of any inflation differential.

Crucially, relative PPP is a long-term theme so you must be patient and will never work perfectly[9]. Whilst there is evidence relative PPP holds in the long run (see the appendix), and it makes economic sense, convergence is slow and short-run deviations are large and volatile.

The essential story is that in the short run, the difference between FX hedging and not FX hedging is dominated by changes in real exchange rates. But in the long run relative PPP implies relatively small moves in real exchange rates. Indeed, if the foreign asset is already 'naturally' FX hedged in the long run thanks to relative PPP, then applying an 'artificial' financial hedge on top may add to long-term risk. For example, if there is an initial shock appreciation of sterling relative to the dollar, resulting in a negative return, then relative PPP says we should naturally be compensated for this by relatively low UK inflation in the long run. But if we have a financial hedge as well, this will have risen in value – investors who care about long-term inflation-adjusted outcomes may be over-hedged[10].

There are grounds for caution when using relative PPP as an argument for lower FX hedges. FX exposure will only ever hedge domestic-specific inflation, given that global inflation should weaken all currencies equally. We also need to allow for the interaction of FX exposure with the underlying asset, which is why our analysis looked at hedged and unhedged real equity returns, as opposed to real FX returns in isolation.

On balance, however, we believe there is a reasonable case for hedging less FX exposure over longer horizons, particularly when costs are taken into consideration.

9. See for example 'The Purchasing Power Parity Puzzle,' K Rogoff, Journal of Economic Literature, 1996. If PPP holds you expect annualised real exchange rate volatility to be lower over long horizons.
10. To some extent this may be offset by changes in inflation levels becoming embedded in interest rate differentials of the rolling FX hedge. However, this doesn't apply to inflation surprises relative to expectations.

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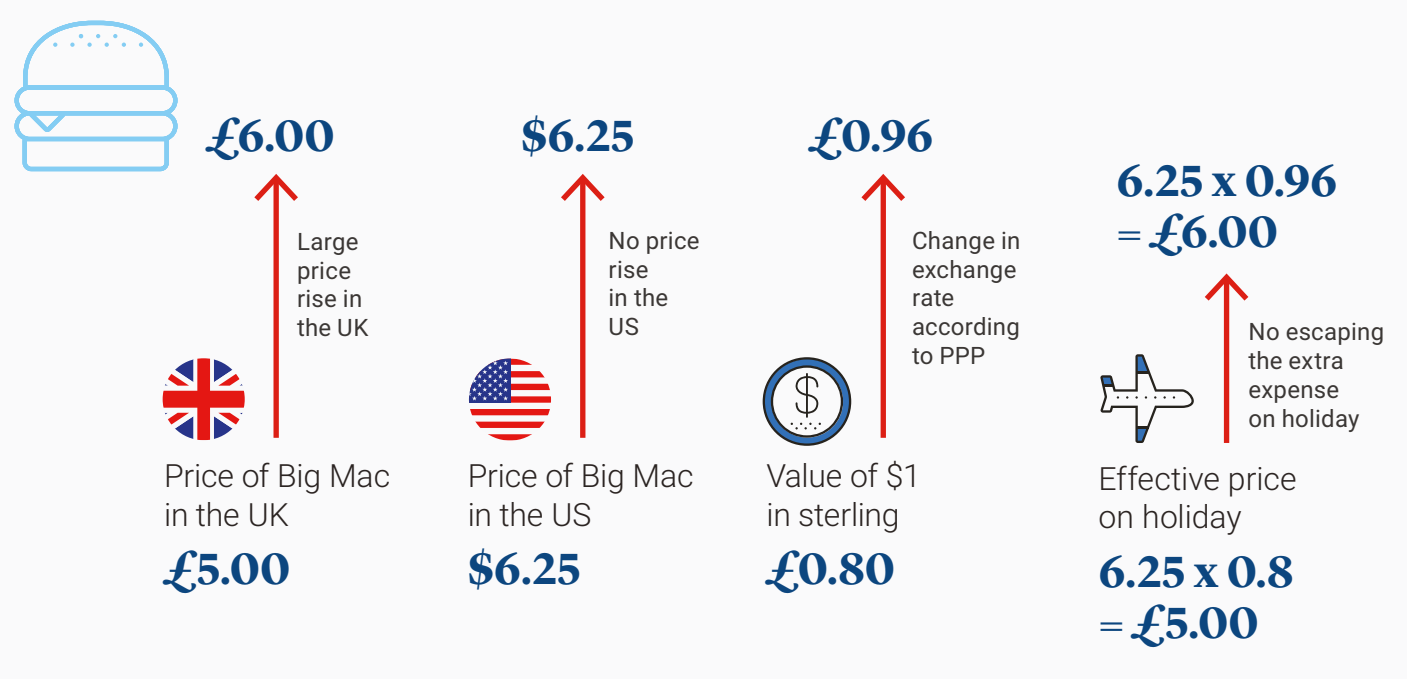
Figure 4: The Big Mac Index and PPP

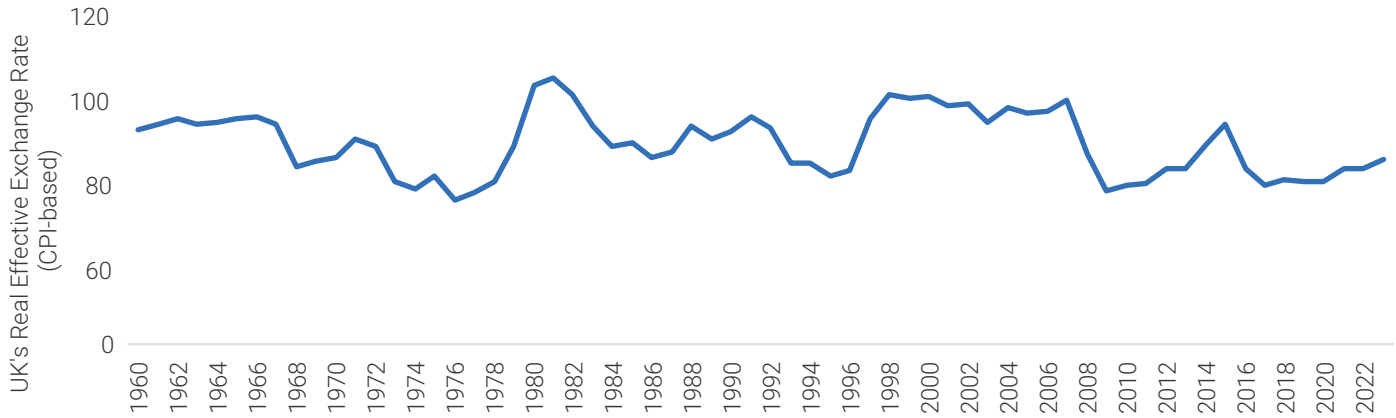


Sources: LGIM. For illustrative purposes only.

Appendix – some evidence for PPP

Figure 5 shows that the UK's real effective exchange rate[11] (REER) has changed remarkably little over the past 63 years despite plenty of short-term volatility. Of course this is just one country. In Figure 6 we look at realised changes since 1960 (or as far back as available) in REER values across many countries. We find their values tend to fall somewhere between a 'Perfect PPP' hypothesis where real exchange rate moves are zero, and a 'random walk' hypothesis for REER values in line with geometric Brownian motion.

Figure 5: The UK's real effective exchange rate has been range bound over the past 63 years



Source: European think tank Bruegel's database of real effective exchange rates for 178 countries since 1960.

11. A measure of a country's currency value relative to a basket of other currencies, adjusted for differences in relative price levels.

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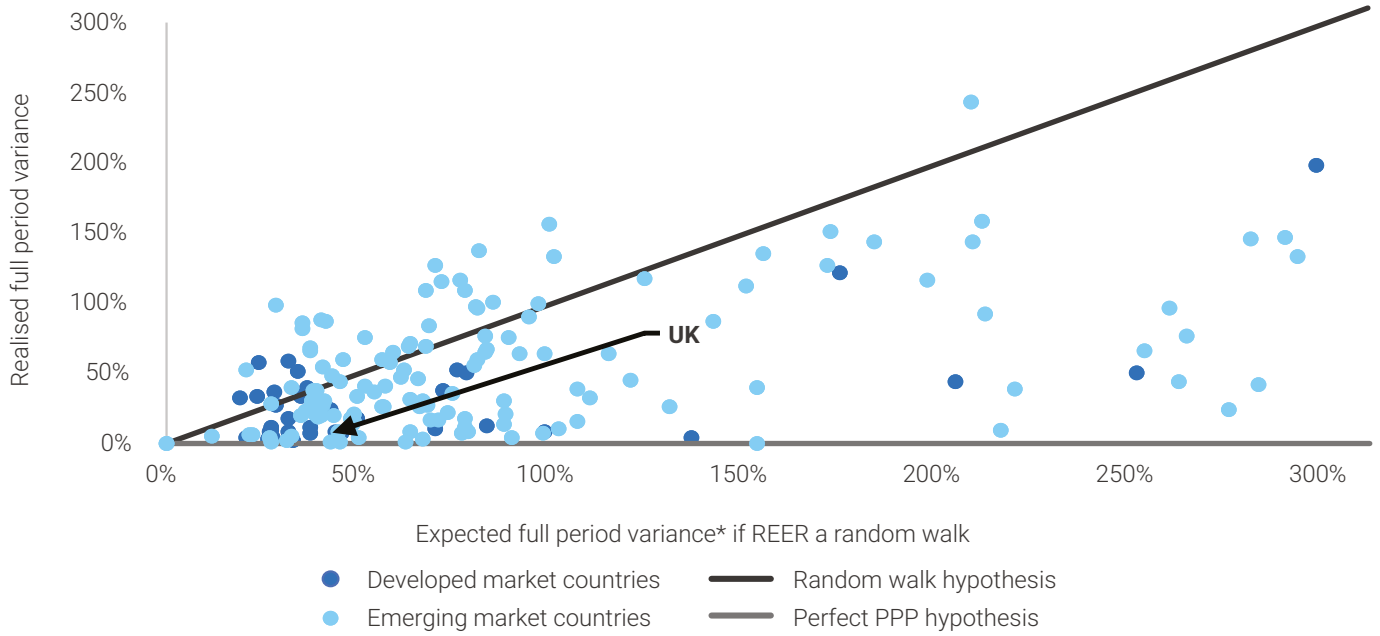
Figure 6: Long-term realised changes in real effective exchange rates tend to lie between a random walk and perfect PPP



* Calculated as the variance of annual log real exchange movements multiplied by the length of the historic period.
Source: LGIM calculations and European think tank Bruegel's database of real effective exchange rates for 178 countries since 1960. For illustration we restricted the scales to only show variances below 300%. This effectively excludes some countries such as Lithuania that have transitioned from a developing to developed economies. Realised full period variance is the square of the log change.

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