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Getting a grip on FX

Insights on currency hedging and risk

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Currencies can boost returns – but they can also decimate portfolios if their risk is not carefully managed. Investors' ability to forecast foreign exchange (FX) movements is notoriously limited. Yet ignoring these moves is not an option. The question then: how best to handle them?

We brought together BlackRock experts to map out our methods of identifying and managing FX risks. We show how FX exposures can affect portfolio volatility, explain why we prefer hedging them in the medium to long term, and show where hedging may be most beneficial. We then detail our approach to taking FX risk in the short run, and explain why we view emerging market (EM) currencies differently.

Summary

Currencies can have material effects on portfolio volatility and returns, particularly for investments in fixed income. Currencies are complicated, and we believe that taking FX risk is not rewarded over the medium- to long-term investment horizons of most investors. We generally see FX as a portfolio risk that needs careful assessment and management, rather than as an opportunity to generate additional returns.

As a result, we advocate investors hedge most of their FX exposures in major developed markets (DMs). We favour fully hedging fixed income allocations and leaving a portion of equity holdings unhedged, especially for European investors. We give our preferred hedge ratios for standard portfolios, and explain why we favour permanent hedges over dynamically trying to maintain a set level of FX exposures.

We see some room for taking FX risk in the short term, keeping in mind this liquid, 24-hour market is often the first to respond to unexpected events. We outline what we see as key drivers of currency moves: policies affecting interest rate differentials, investor sentiment and other technical factors, valuations and economic fundamentals. We conclude that we currently have low conviction on most currencies.

We then discuss the state of a popular FX return strategy: the carry trade, which captures the yield differential between high- and low-yielding currencies. We explain how it has morphed into an EM trade and detail how we analyse EM currencies. Our conclusion: the carry trade has legs, albeit with rising risks. We use indices for our analyses throughout this publication; it is not possible to invest in an index.

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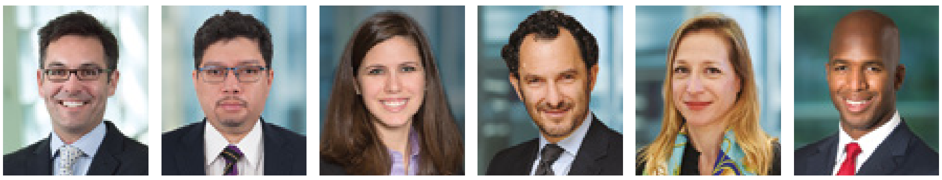

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To hedge or not to hedge

We detail our preferred hedging ratios for asset classes and standard portfolios, and lay out the case for permanently hedging most currency exposures in the medium to long term.

Former Federal Reserve Chairman Alan Greenspan used to say that forecasting currency outcomes was akin to guessing a coin flip – despite significant research and modelling efforts, including those of the Fed. While some are very successful at it, "so are coin-tossing contest winners," he quipped.

Trying to time currency swings is difficult, to say the least. The drivers that matter most for a given currency – from interest rate differentials and monetary policy to investment flows and investor sentiment – can change quickly. And currencies themselves can affect central bank policy, investment flows as well as company fundamentals.

Yet currency can make all the difference in returns in the short term. The ***Complicating returns*** chart shows how FX moves have affected eurozone and UK stock returns from a US dollar perspective since 2000. Some years were a boon, others saw gains dragged into negative territory.

Suppose investors take the currency risk off the table by hedging it? This would have been a plus for US investors from 2014 through 2016, as the chart shows, because a strong US dollar detracted from foreign asset returns.

This year has offered a mirror image due to the dollar's drop and euro's rise against many currencies. Hedging would have reduced returns on foreign holdings for US investors, whereas it would have boosted them for eurozone investors.

These differences between hedged and unhedged returns have historically tended to narrow in the very long run, and investors should not expect to be rewarded for holding currency risk over time. The focus should be on risk rather than on return for medium- to long-term currency strategies, in our view.

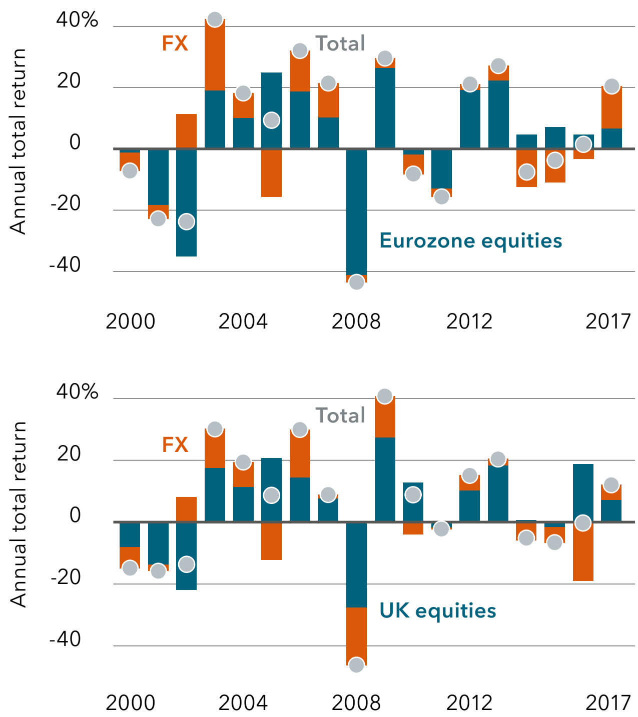
Currency risk is a fact of life. The magnitude of this risk is of particular importance to investors holding global portfolios. They are exposed to currency volatility that amplifies overall portfolio risk.

A portfolio's reference currency is the starting point for understanding FX risk. This is usually the currency profile of its cash flows. A UK pension scheme, for example, will likely be most concerned with currency fluctuations relative to the British pound. Currency exposure also pops up *within* assets. Equities, in particular, can have currency risk beyond the currency of denomination. Example: a US investor buying a eurozone exporter with 80% of sales to Latin America has both euro and EM currency exposures. Risk decomposition can reveal a portfolio's true FX exposure and help in designing a hedging program.

All this implies investors should consider their own risk tolerance, their portfolio's overall risk profile, and the costs and complexities of dynamically hedging FX exposures.

Complicating returns

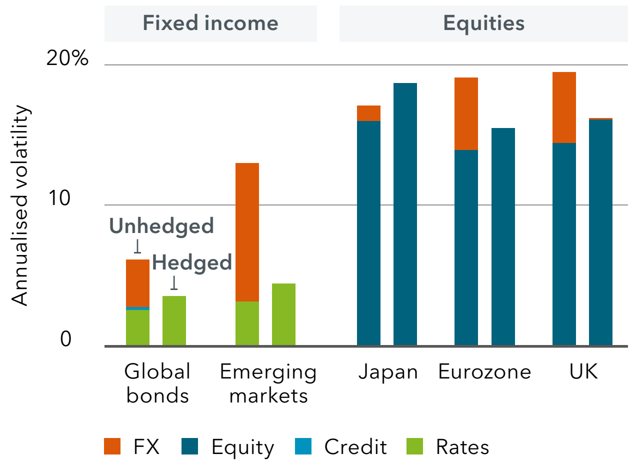
Eurozone and UK equity returns in USD, 2000-2017



Sources: BlackRock Investment Institute and BlackRock Client Solutions, with data from Bloomberg, August 2017. Note: the chart shows annual total equity returns of the Euro Stoxx 50 Index and FTSE 100 Index in US dollar terms. The currency impact on returns is shown in orange. 2017 data are through Aug. 31. Past performance is not indicative of future results.

Keeping a lid on volatility

Expected index volatility with and without FX hedging



Sources: BlackRock Investment Institute and BlackRock Client Solutions, with data from Aladdin, August 2017. Notes: the chart shows expected volatility based on current index weights and a constant-weighted 201 months of history. Volatility is broken down by contribution of the risk factors of the BlackRock Aladdin risk model. The hedged bars (the second bar for each asset class) show the impact that hedging all FX risk would have on risk levels from a US dollar perspective. Global bonds are represented by Bloomberg Barclays Global Aggregate Index; EM bonds by JP Morgan GBI-EM Index; Japan by Tokyo Stock Price Index (TOPIX); the eurozone by Euro Stoxx 50; and the UK by FTSE 100.

Why hedge? With no clear return benefit over time, the key aim for many long-term investors is to reduce volatility.

Currency moves can greatly increase the volatility of portfolio holdings. This is particularly the case for low-yielding fixed income assets, as the green bars in the ***Keeping a lid on volatility*** chart show. FX swings can swamp bond portfolio income, especially when yields are historically low. It is a risk that cannot be ignored.

The impact is less for equities relative to overall risk – yet still large. Currency risk adds significantly to overall portfolio volatility in eurozone and UK equities. The exception: Japan, due to the yen's propensity to move in the opposite direction of the domestic stock market.

Hedging is complicated, so we analysed volatility at different levels of hedging for DM investors in the major currencies. This resulted in various risk-minimising hedge ratios for individual asset classes. See the ***In search of a hedge*** table.

We believe it is most effective for DM investors to fully hedge DM government bonds (the yen is an exception). Unhedged bond holdings can double annualised portfolio volatility, we find.

Counting the cost

The preferred hedge ratio in DM equities is just 60% for euro- and sterling-based investors, our analysis shows, while it is 70% for high yield and hard-currency EM debt holdings. In other words, taking some currency exposure in these asset classes results in some diversification benefit for euro- and sterling-based investors.

For US dollar-based investors, fully hedging FX exposure to individual asset classes lends the maximum risk reduction, we find.

Cost, however, is an important variable. Hedging costs can mount when dynamically adjusting portfolios to maintain a preferred ratio. These costs fall into three buckets:

1. Bid-ask spreads, or transaction costs. Our liquidity team finds transaction costs are minimal for large DM currencies but can be more meaningful in EMs.
2. Cost of carry. When interest rates are higher on the foreign currency than the base currency, the result is negative carry. This drags down returns.
3. Cross-currency basis. Foreign exchange transactions often are carried out in cross-currency swaps. These carry a premium known as the cross-currency basis. It can be especially pricey for less-liquid EM currencies.

In search of a hedge

Hypothetical FX hedge ratios for asset classes, 2017

Asset class	EUR	GBP	JPY	USD
DM government bonds	100%	100%	80–90%	100%
Investment grade credit	80–90%	100%	85–100%	100%
High yield and EM hard-currency bonds	70%	70%	90–100%	100%
DM equities	60%	60%	100%	100%

Sources: BlackRock Investment Institute and BlackRock Client Solutions, July 2017. Notes: the hypothetical hedge ratio shown for each asset class may lead to the lowest level of volatility at the aggregated portfolio level. The asset classes are represented by the Bank of America-Merrill Lynch Global Government Index, the Bank of America Merrill Lynch Global Corporate Index, the Bank of America-Merrill Lynch Global High Yield Index, the JP Morgan EMBI Global Diversified Index and the MSCI World Index. We exclude the domestic constituents from the indexes for each of the four base currency perspectives.

Finding balance

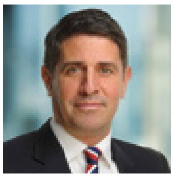
Hedging ratios for individual asset classes are only part of the puzzle. How should investors weigh the pros and cons of hedging a global multi-asset portfolio? A highly diversified portfolio may find some currency risk is offset through means other than hedging. Such portfolios can likely bear more FX exposure. But that diversification is still relatively small in the context of overall portfolio volatility, our research suggests.

We analysed the volatility of hypothetical global portfolios of 60% equities and 40% bonds (including government debt and credit) across major currencies at various levels of hedging. Our work shows that for a euro-based global portfolio, the preferred hedge ratio would be about 60%. This level achieves the lowest annualised portfolio volatility by reducing FX exposure without sacrificing some of the diversification benefits of currencies. See the ***Hedging balance*** chart.

At a hedge ratio of 40%, much of the FX risk is already reduced for the hypothetical euro-denominated portfolio, the chart shows. Yet as FX risk is taken out, a bigger share of the portfolio's total volatility is driven by equities. See the dark blue bars in the chart. Beyond a hedge ratio of 60%, overall risk starts to inch up again. Rate and credit risk contributions stay fairly steady, with rates providing some diversification benefit at each hedging level.

"If you don't have a view on FX, just remove it. In the long term, FX exposure doesn't add any returns."

Alain Kerneis – Head of Strategy and Views, BlackRock Client Solutions

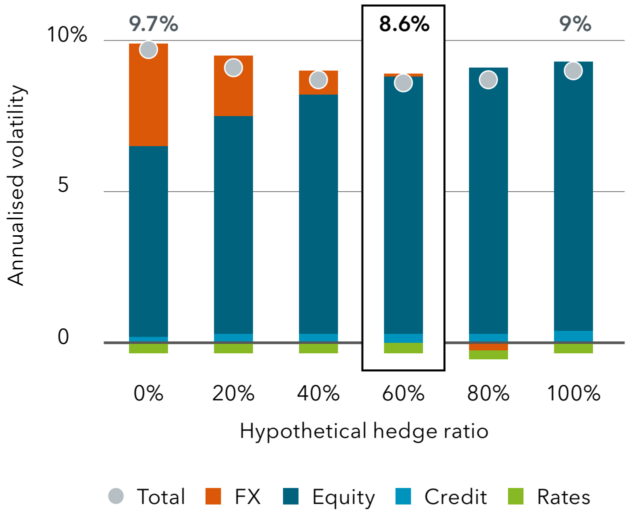


"Currency moves often surprise in both magnitude and timing. They can swamp what would otherwise have been a good investment idea. And extrapolating from recent trends is always a dangerous game."

Adam Ryan – Portfolio Manager, BlackRock Multi-Asset Strategies

Hedging balance

Hypothetical euro portfolio risk at different hedge ratios



Sources: BlackRock Investment Institute and BlackRock Client Solutions, with data from Aladdin®, August 2017. Notes: the bars show the expected volatility, using constant-weighted data over the past 195 months, of a hypothetical euro-denominated global portfolio over different hedge ratios. The portfolio allocates 60% to the MSCI AC World Index and 40% to the Barclays Global Aggregate Index. Volatility is broken down by contribution of the risk factors of the BlackRock Aladdin risk analytics tool.

Theory versus practice

For a sterling-based 60/40 hypothetical portfolio, the hedge ratio we found to reduce volatility most effectively was 70%–75%. For US dollar- and yen-based portfolios, it was nearer 100%. In theory, all this suggests that maintaining some currency risk helps reduce overall portfolio volatility. In practice, most investors may still opt to fully hedge DM exposures at all times:

1. We believe hedging can reduce portfolio volatility without a significant drag on returns over time. This argument is reflected in academic research such as the 1988 paper by Andre Perhold and Evan Schuman, "The Free Lunch in Currency Hedging."
2. The hypothetical hedge ratios we present are based on historical market conditions. These could change, especially as central banks exit long periods of extraordinary monetary easing. This could lead to shifting correlations between asset classes, for example. All the more reason to fully hedge FX risk in most cases, we believe.
3. Dynamic hedging may not be worth the costs and complexities for most investors.

Managing FX risk through crises

How does currency risk affect portfolios in times of crisis? We used the 60/40 global portfolio exercise to gauge the potential impact of episodes of market stress since 2000. We analysed 12-month windows around these events. The ***Crisis-induced volatility*** chart shows the annualised volatility of a global portfolio on a hedged versus unhedged basis around four such events as well as the averages for the crisis and non-crisis periods. Three conclusions jumped out at us:

1. FX moves added to already elevated portfolio volatility during periods of market strain. This was particularly the case during the 2008 global financial crisis. At times of stress, asset classes can become much more correlated, leading to overall higher portfolio volatility.
2. The FX component made up a much larger share of overall volatility in non-crisis periods.
3. FX exposure had some diversifying qualities, we find. Equity volatility became a slightly bigger contributor to risk in fully hedged portfolios. Overall, however, a hedged portfolio suffered much less volatility than the unhedged variety.

Bringing it all together

The behaviour of portfolios in past crises underscores the advantage of hedging currency exposures. Every bit of reduced portfolio risk can go a long way, especially when asset markets become tightly correlated, as during these crisis periods. Cross-asset correlations have been unusually subdued over the past year, but correlations can change as central banks are moving towards policy normalisation at different speeds.

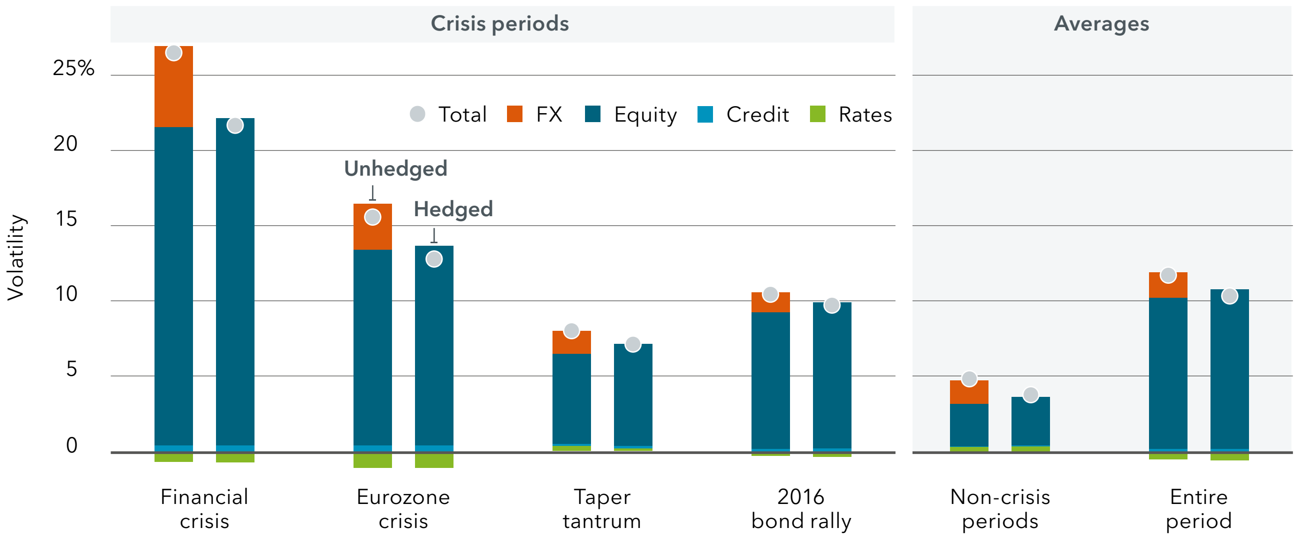
EM currencies are a different story. Here, FX exposure and carry (the income from interest rate differentials) are key sources of total return for local-rate portfolios. And hedging is often either impractical or prohibitively expensive. See ***pages 8–9*** for details.

Bottom line: we believe it makes sense for DM-based investors to consider fully hedging non-domestic DM holdings to help reduce overall portfolio volatility.

If investors have dedicated resources to dynamically hedge FX exposures, we favour fully hedging most fixed income allocations but leaving a portion of equity holdings unhedged, especially for European investors. We suggest leaving EM allocations unhedged for cost and other reasons.

Crisis-induced volatility

Risk of a hypothetical 60% equity/40% bond portfolio from a US dollar perspective, 2000–2017



Sources: BlackRock Investment Institute, BlackRock Client Solutions and Risk and Quantitative Analysis Group, with data from Aladdin, August 2017. Notes: the chart shows the annualised volatility of a hypothetical portfolio since 2000, using daily observations. We break down the contribution of the different risk factors of the BlackRock Aladdin risk analytics tool. The portfolio consists of 60% MSCI AC World Index and 40% Barclays Global Aggregate Index. Index. Each bar shows a risk decomposition of the 12 months preceding the following dates for each financial shock: the global financial crisis (12 months preceding 29 Aug. 2009), the eurozone sovereign debt crisis (1 July 2012), the taper tantrum (1 Dec. 2013), 2016 bond rally (30 Sept. 2016). The periods picked are meant to be snapshots of the events. The non-crisis periods exclude the four crisis periods shown.

Keep calm and carry on

We see room for taking some FX risk in the short run, and show how to evaluate these opportunities. We then highlight the role of carry and our approach to EM currencies.

Currencies are quick to react to breaking news or political shake-ups, thanks in part to the global, 24-hour nature of FX markets. This was on display last year in the British pound's immediate reaction to the UK Brexit vote: the sharp decline priced in potential future economic pain.

To seize on these and other short-term opportunities to take FX risk or generate returns, we analyse what we see as four main drivers of currency moves: policy, technicals, valuations and fundamentals. An FX scorecard created by our Global Fundamental Fixed Income team illustrates this process. The scorecard compares 29 currencies on 21 metrics across the four categories:

1. **Policy views:** our views based on the interaction of monetary, fiscal and regulatory policies. We emphasise our outlook for interest rates and also factor in political risks.
2. **Technical analysis:** standard measures such as the relative strength index (RSI). We also use options market pricing and estimates of positioning as reversal signals to anticipate when markets may be getting too one-sided and could swing back.
3. **Valuations:** standardised scores of long-term fair value measures, including different models to assess an equilibrium exchange rate. We also score interest rate differentials, adjusted for volatility.
4. **Economic fundamentals:** estimates on a range of indicators, including growth and inflation, current and capital accounts, and terms of trade.

We tally up the scores and rank the currencies on a weekly basis. See the ***Keeping score*** chart. Our policy views and technical indicators tend to influence changes in the short run. The scorecard's overall scores and rankings are meant as a starting point. In practice, our portfolio managers tend to weigh different inputs differently at different times.

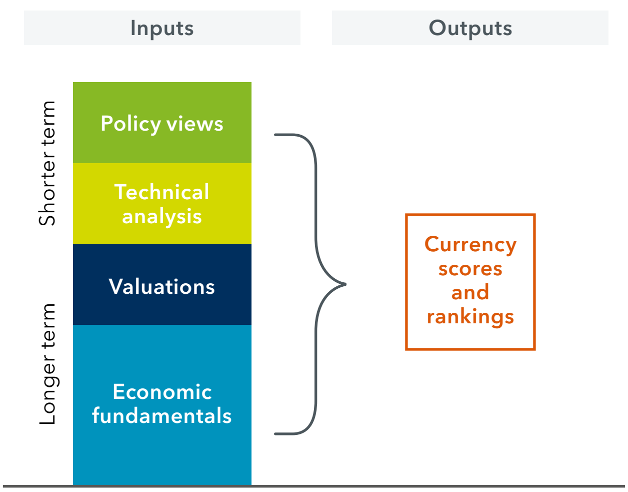
What is the scorecard telling us currently? Few currencies jump out as screaming buys or sells. Indeed, few of our investment teams have high-conviction currency views at this juncture.

The euro's run higher has turned a solid valuation score early in the year into a negative. We may lift the common currency's slightly negative policy score as the European Central Bank (ECB) slows its quantitative easing, but for now we are overall neutral. Our current US dollar score is neutral to negative. The dollar's valuation score has steadily improved throughout 2017 but is still negative. Our technical signals are also negative overall. These outweigh our modestly positive policy view.

Our strongest scores stray away from the majors. The Norwegian and Swedish currencies rank among the highest, mainly due to solid fundamentals and positive policy scores. Many EM currencies also score high, mostly because of high local interest rates. On the flipside, the Canadian dollar ranks among the weakest, with poor valuation scores swamping positive technical signals.

Keeping score

Components of BlackRock FX scorecard, 2017



Source: BlackRock Investment Institute, September 2017. For illustrative purposes.

Carry is key

Interest rate differentials matter a great deal in evaluating currencies – and show up in our FX scorecard's valuation and policy view categories. Carry, the income or cost for holding an asset, is a key facet. Any FX position will have positive or negative carry, depending on the difference in interest rates between the funding currency and the one being purchased. The carry trade has long been a mainstay of FX return strategies. The recipe: borrow in a low-yielding currency; buy currencies offering higher short-term rates; and pocket the difference.

The FX carry trade can be both a return generator and a potential time bomb in a portfolio. Carry provides income and some cushion against depreciation of the target currencies. Appreciation of these currencies juices returns.

Yet a surging funding currency can wreak havoc. The 1998 and 2008 market upheavals were exacerbated by investors having to unwind their yen carry trades. This pushed the yen even higher – and punished higher-yielding currencies. Funding currencies such as the yen, US dollar and Swiss franc have often seen sharp gains when risk assets were taking a beating, leading to high correlations with risk-on/risk-off moves and equity returns in the post-crisis period.

Carry comeback

Performance of hypothetical carry trade, 2000-2017

Sources: BlackRock Investment Institute and BlackRock Global Tactical Asset Allocation team, with data from Bloomberg, August 2017. Notes: the chart shows the performance of a hypothetical carry trade basket based on 15 widely traded currencies: the US dollar, euro, Japanese yen, British pound, Australian dollar, Mexican peso, Swiss franc, Canadian dollar, Singapore dollar, Brazilian real, Polish zloty, Swedish crown, Indian rupee and South Korean won. The basket is long higher-yielding currencies and short currencies with lower interest rates. The basket is rebalanced each day to reflect changes in rates. The hypothetical position sizes are adjusted to target 1% annualised volatility. The analysis excludes transaction costs.

Morphed into EM trade

The carry trade has changed since its mid-2000s heydays and has become mostly focused on exploiting relatively high EM interest rates. What changed?

1. Uniformly low interest and growth rates across developed markets have created less opportunity for liquid, G10-focused carry trades. As a result, the long side of the carry trade is now dominated by EM currencies, apart from the still decent-yielding Australian and New Zealand dollars. That has current FX carry trades tied to broader EM trends, for better or for worse. EM carry trades suffered a one-two punch from the 2013 taper tantrum and 2014–2016 commodity slide, but now are benefiting from improving EM economic growth, more stable financial conditions and appreciating currencies.

2. The few remaining high-yielding currencies have similar and stable interest rate levels. This has helped power steady returns for EM-focused carry trades. Our hypothetical FX carry basket has posted its highest risk-adjusted returns since the financial crisis over the past 18 months. See the ***Carry comeback*** chart to the left. The stylised basket is risk constrained, so position sizes are automatically reduced when greater volatility strikes, limiting returns and losses.

The carry trade can work for a long time… until it stops working and causes a horrible drawdown. Risk management is key, in our view. Aligning the funding currency with a similar target currency may help reduce risk. For example, the Brazilian real is highly correlated with the Mexican peso. Both are economies with commodity exposure, though Mexico is more of an EM manufacturer. Funding long Brazilian real positions with pesos may lead to a less risky carry play.

Our usual rules of thumb for dealing with FX risks and opportunities do not apply in EM investing. Hedging is expensive, and taking currency risk is an integral part of many of our EM strategies. Our EM debt team, for example, currently hedges only about a quarter of its local-rate portfolio. And this is meant to insulate against the overall impact of a rising US dollar, rather than to express a bearish view on the hedged currencies.

Global-local interplay

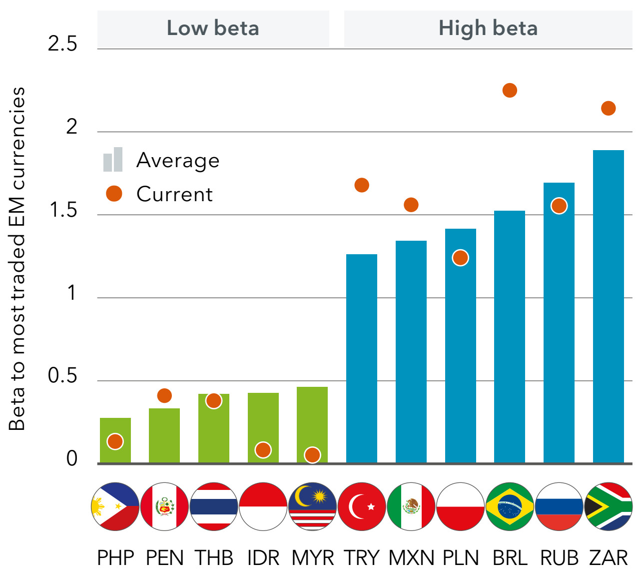
FX represents a significant part of an EM local-currency allocation's risk. EM rates and currencies often move in lockstep, but can also diverge. EM currency returns can be twice as volatile as those coming from local rates moves, we find. They historically have made up 60%–70% of total return volatility of a local rate portfolio, we find.

How to deal with this? We take our EM debt team's approach as a case study. The team uses some of the drivers we describe on ***page 7*** but emphasises the interplay between global forces (think Fed policy and US yields) and local factors such as government changes. Both can be fast-moving, cyclical or structural in nature.

Global forces provide overall direction for EM FX, in the team's view, whereas local factors often explain relative performance. Different currencies show different sensitivities to these factors, and these can vary over time. For example, the Brazilian real, Russian ruble and South African rand have often seen sharper moves than a broad EM currency basket since the financial crisis. See the blue bars in the ***Different sensitivities*** chart below. Other currencies, including the Thai baht and the Philippine peso, have been less sensitive. See the chart's green bars.

Different sensitivities

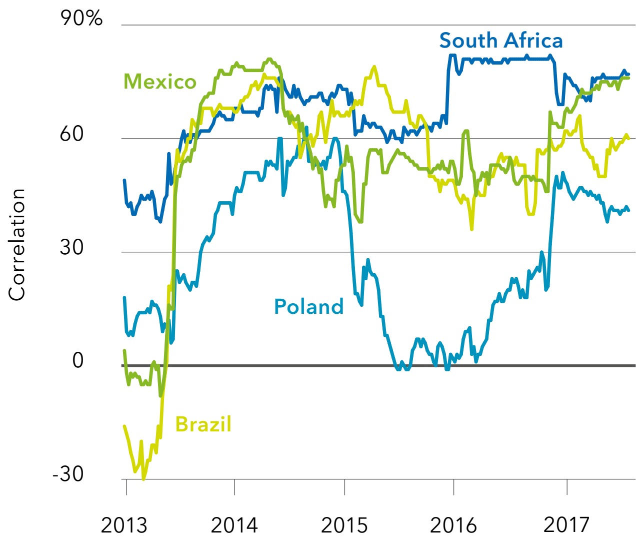
Individual EM FX beta, 2010-2017



Sources: BlackRock Investment Institute, with data from Thomson Reuters, August 2017. Notes: the chart shows the beta of the individual EM currencies relative to the group average. The full group of currencies also includes CLP, RON, CZK and HUF. These make up the most-traded EM FX currency pairs.

Searching for a connection

EM local rate and FX correlations, 2013-2017



Sources: BlackRock Investment Institute and BlackRock EM Debt team, with data from JP Morgan and Bloomberg, August 2017. Notes: the chart shows the one-year rolling correlation of the JP Morgan GBI-EM Index as a proxy for EM local yields, and the currency performance of each country. The correlations are based on weekly returns.

The recent history of the real and rand shows how currency and rates drivers can shift. EM currencies sank during the 2013 taper tantrum. Correlations with rates jumped in tandem, as shown in the ***Searching for a connection*** chart above. Brazil and South Africa had to raise rates to prevent further currency falls and unbridled inflation, and correlations between currencies and rates remained high. Mexico and Poland had room to ease, and experienced a breakdown in correlations.

The currencies of Russia and Brazil also show how local and global factors dominate at different times. The ruble suffered when oil prices collapsed in 2014. The real had its comeuppance in 2015 amid a slowing economy and political upheaval. They then recovered as a group starting in 2016 as global forces such as a recovery in commodity prices and a weakening US dollar took centre stage.

What is in store now? We see many EM currencies and the carry trade supported by steady global expansion. Risks are commodity price declines and potential Fed or ECB missteps in normalising policy, especially after EM currencies rallied and spreads tightened. We like currencies tied to Europe's improving growth prospects, and are cautious towards selected commodity producers.

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