Currency carry strategies: unconventional weightings may improve performance and diversification

By James Ong

In brief

Currency carry portfolios have a history of generating attractive returns, but they can be highly correlated to other risky assets, such as stocks. Knowing that currency carry portfolio diversification can be improved through the addition of emerging market currencies, we examine how performance might be improved by strategically re-weighting emerging market and developed market currencies. Our objective is to build a currency carry portfolio that complements traditional asset allocations and improves risk-adjusted portfolio returns. We find that an unconventional weighting of emerging and developed market currencies within carry strategies can improve the attractiveness of currency carry portfolios.

As the popularity of factor investing increases, more investors have focused on the currency carry factor as a means of generating returns. Developed market carry portfolios are often diversified using emerging market currencies. But how can this fairly simple approach be optimized to improve risk-adjusted returns?

A currency carry portfolio seeks to generate return by buying higher yielding currencies and selling lower yielding currencies.

A currency carry portfolio seeks to generate return by buying higher yielding currencies and selling lower yielding currencies. The "carry" on a currency pair is determined by the difference between the short-dated interest rates of the two currencies. Since a carry investor typically buys and sells currencies against the US dollar, one of the two currencies is always the US dollar and the currency carry portfolio has no US dollar exposure.

Currency carry strategies are generally viewed as risk-seeking strategies. The academic literature has

pointed to their long-term positive expected return. Carry strategies also tend to be especially sensitive to growth risk – they tend to perform well when growth performs well and poorly when growth performs poorly. This growth sensitivity can mean that carry strategies end up correlated to other risky assets, such as equities, which are also growth-sensitive.

The most typical carry strategies include developed market currencies, while a smaller subset have included emerging market currencies. We seek to determine the effects of adding emerging market currencies to help reduce the correlation of currency carry strategies to risky assets and render them more complementary within portfolios.[1]

A comparison of three currency carry portfolios
To investigate the potential diversifying effects of adding emerging market currencies to a currency carry portfolio, we constructed three portfolios: a pure developed market portfolio, a pure emerging market portfolio and a combination of the two.

The pure developed market portfolio consists of a traditional G10 currency carry strategy with nine currency pairs (i.e each of the other nine currencies vs. the US dollar), where the portfolio is long the top three currency pairs, in terms of carry, and short the bottom three.[2]

The emerging market portfolio is based on a universe of 16 emerging market currencies vs. the US dollar, i.e. 16 currency pairs, where the strategy is long the top five currency pairs in terms of carry and short the bottom five.[3]

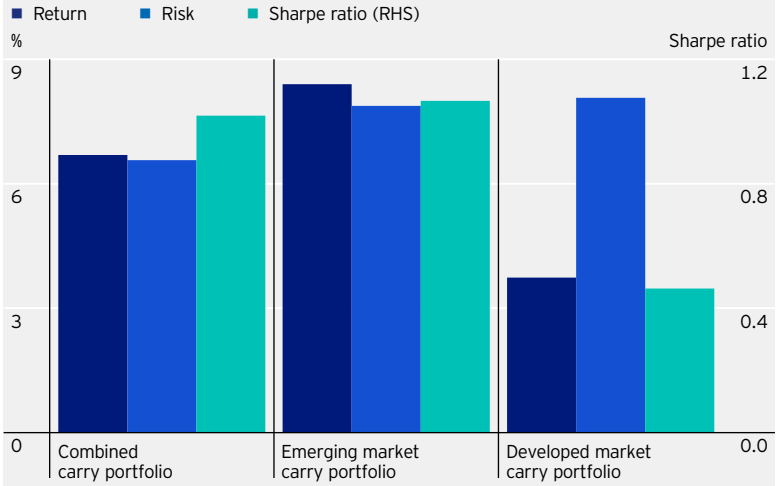
The third portfolio constructs a similar carry strategy from the combined universe of currencies, consisting of all 9+16=25 currencies vs. the US dollar. The combined portfolio is similarly long the top third of currency pairs from the combined universe, in terms of carry, and short the bottom third.

Figure 1 shows the performance of the three portfolios.

The pure developed and emerging market carry portfolios each generated positive excess returns over our selected timeframe. As expected, both portfolios had a high volatility. However, the Sharpe ratio of the emerging market carry portfolio was significantly higher compared to the developed market portfolio, signifying that the emerging market portfolio's return compensation was stronger for each unit of risk.

The combined portfolio also yielded positive excess returns over the period. However, its Sharpe ratio was slightly lower compared to the emerging market portfolio. This suggests that combining both currency universes did not produce an increase in risk-adjusted return, despite increased diversification. This may have to do with the fact that, in contrast to the pure emerging market portfolio, the combined portfolio was long emerging market currencies and short mostly developed market currencies (figure 2). This mismatch may have produced unexpected risk exposures, which had been neutralized through offsetting long and short positions in the pure portfolios.

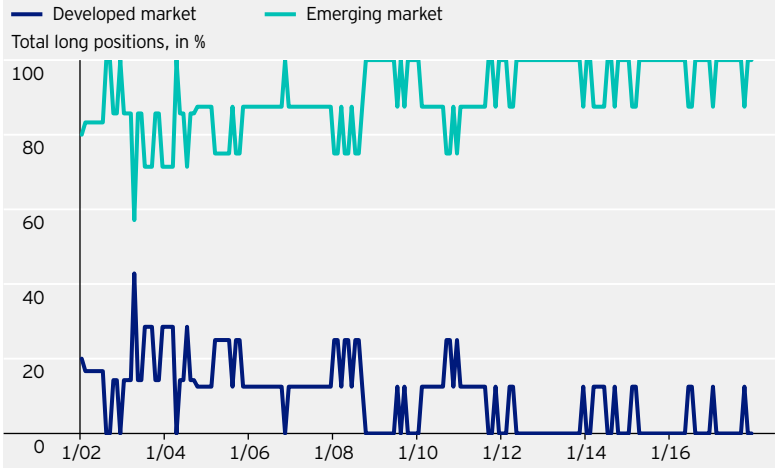
Figure 1
Risk and return across currency carry strategies



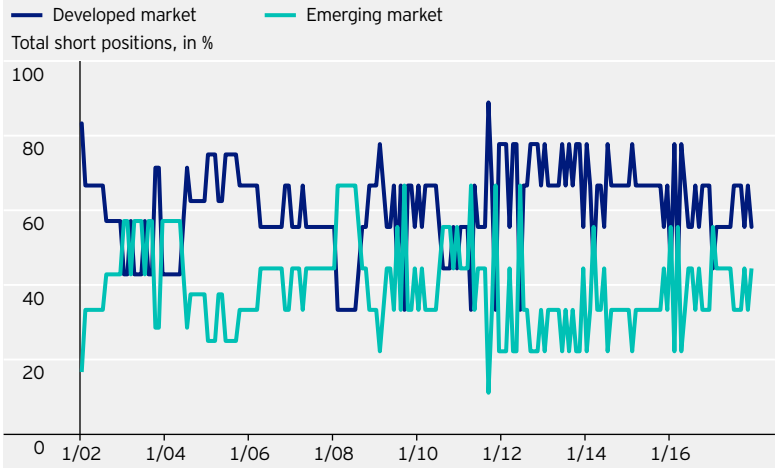
Source: Invesco. Data period: 1 January 2002 to 1 December 2017. Monthly rebalancing, equal weighting of the currency pairs with the highest and lowest carry, no transaction costs, base currency USD, annualized. Risk is defined as standard deviation of returns.
Past performance is not a guide to future returns.

Figure 2
Combined portfolio long and short positions

Long positions



Short positions



Source: Invesco. Data period: 1 January 2002 to 31 December 2017.

Role of the "growth factor" in combined portfolio performance

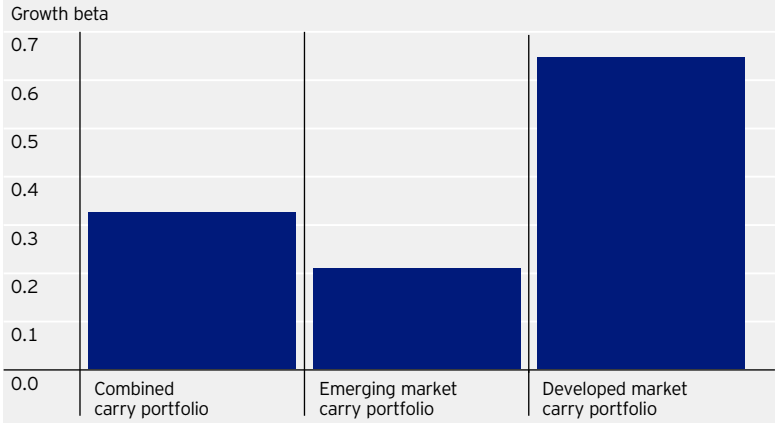
We now examine how the long and short legs of the combined portfolio behaved differently relative to the most important of our macro risk factors, the "growth factor". We chose the growth factor because we believe it is the most important driver of risky asset performance.

Our research shows that growth drives around 35% of risky asset class performance, including our carry strategies, which tend to perform best when growth exceeds expectations and worst when growth disappoints.

Interestingly, the emerging market carry portfolio was less sensitive to global GDP growth than the developed market carry portfolio (figure 3). This is surprising since volatile assets like emerging market currencies typically exhibit higher growth sensitivity. The unexpected result may be due to generally higher risk premia in emerging markets or the fact that emerging market growth has traditionally had lower correlation to growth in the rest of the world. In any case, emerging market carry's lower sensitivity to this factor has led to its better performance during periods of global growth stress.

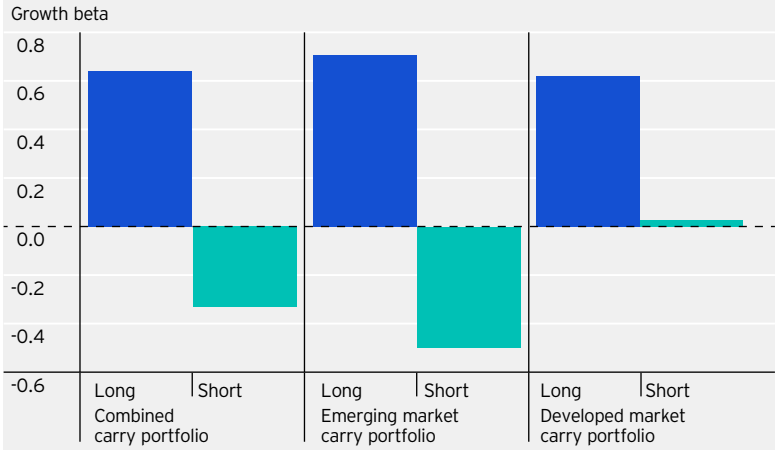
To make further sense of these results, we examined the growth sensitivity of the long and short legs of the pure emerging market and developed market portfolios (figure 4). We found that the growth risk of the emerging market long and short legs was broadly balanced, meaning that the performance of each leg was similarly affected by growth conditions. However, the growth risk of the pure developed market strategy was concentrated in the long leg of the portfolio. The short leg was much less sensitive to growth. This is important because this imbalance caused the developed market carry portfolio to demonstrate higher volatility and a lower Sharpe ratio than the emerging market portfolio – a somewhat surprising result since the developed market portfolio comprised less volatile assets.

Figure 3
Growth factor sensitivity of the three portfolios



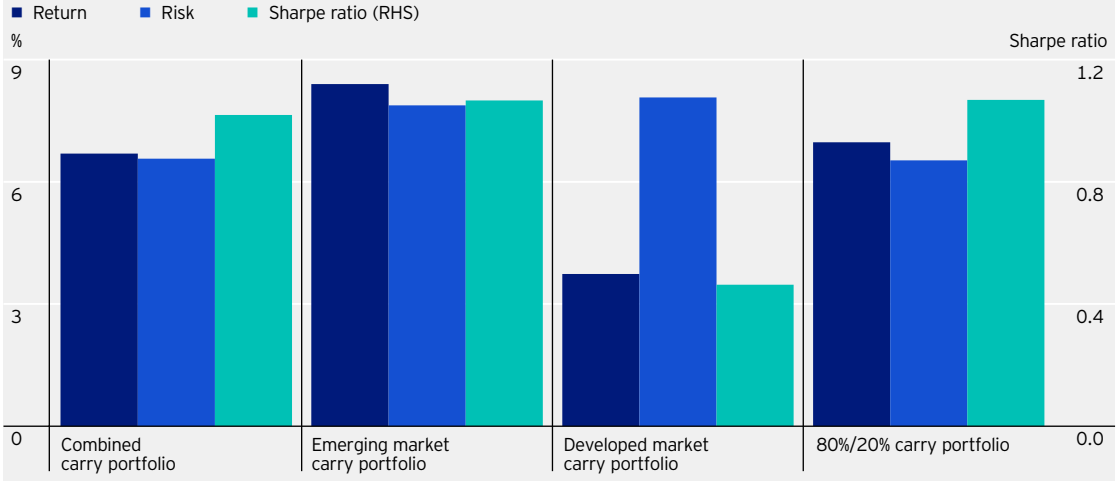
Source: Invesco. Data period: 1 January 2002 to 1 December 2017.

Figure 4
Growth factor sensitivity breakdown



Source: Invesco. Data period: 31 December 2001 to 31 December 2017.

Figure 5
Risk and return across currency carry strategies



Source: Invesco. Data period: 1 January 2002 to 1 December 2017. Monthly rebalancing, equal weighting of the currency pairs with the highest and lowest carry, no transaction costs, base currency USD.annualized. Risk is defined as standard deviation of returns.
Past performance is not a guide to future returns.

On the other hand, the balance of growth risk between the long and short legs of the pure emerging market strategy drove its overall lower sensitivity to growth risk, and therefore, a higher Sharpe ratio. Accordingly, when growth underperforms versus market expectations (negative growth risk), the developed market portfolio would be expected to underperform on a risk-adjusted basis.

Seeking to achieve a better risk-adjusted result
The developed market short leg's low growth sensitivity means that it tends to perform well when other risky assets do poorly. This suggests that a long position in the short leg can be used to diversify the exposure of the overall carry portfolio.

To test this theory, we added a 20% long allocation of the developed market short leg to the emerging market carry strategy, creating a fourth portfolio consisting of an 80% emerging market long leg, a 20% developed market short leg and a 100% emerging market short leg. The fourth portfolio ("80%/20%" portfolio) had a similar risk-return profile compared to the pure emerging market carry portfolio (figure 5). However, its correlation to equities was reduced to nearly zero. We believe this unconventional weighting makes it more attractive than the original combined portfolio as an alternative allocation to a traditional investment portfolio.

Conclusion
We built a series of currency carry portfolios with the aim of improving upon the historical positive performance of the typical currency carry strategy. While standard currency carry strategies typically draw from the developed or emerging market universes of currencies, we proposed combining them to add diversification and create a portfolio with a better risk-return profile. However, while the Sharpe ratio of the combined portfolio was higher compared to the pure developed market portfolio, it was lower compared to the pure emerging market portfolio, despite the larger investment universe.

An analysis of the combined portfolio's performance showed that it was dragged down by exposure to a different risk, namely growth risk, compared to the pure developed or emerging market portfolios, in which this risk was offset. Taking advantage of this differentiation in sensitivity to growth, we found that unconventionally weighting developed and emerging market currencies in a fourth portfolio improved its attractiveness in terms of diversification against growth risk and, therefore, other risky assets. We believe this makes the unconventionally weighted currency carry portfolio a potentially valuable complement to a traditional asset allocation.

We believe this makes the unconventionally weighted currency carry portfolio a potentially valuable complement to a traditional asset allocation.

About the author

James Ong
Senior Macro Strategist and Derivative Portfolio Manager,
Invesco Fixed Income
James Ong contributes economic and market analysis to the macro research platform, in addition to leading the Invesco Fixed Income derivative strategy and overseeing derivatives held in Invesco Fixed Income portfolios.

Notes
1 Developed markets or economies can be defined by many different criteria. In general, however, they tend to be economically advanced with robust capital markets (highly liquid, large market capitalizations and extensive regulatory systems). Often, a developed economy will exhibit a lower growth trend than a developing or emerging economy, and lower prevailing interest rates. Emerging market economies tend to be characterized by lower per capita incomes and active efforts towards industrialization – hence higher growth and higher prevailing interest rates.
2 The G10 currencies are USD, EUR, JPY, GBP, AUD, NZD, CHF, CAD, SEK and NOK.
3 For our analysis, we use the following emerging market currencies: INR, MXN, SGD, ZAR, THB, CLP, TRY, RUB, HUF, PLN, KRW, IDR, ILS, BRL, RON, and MYR.

Important Information

This document has been prepared only for those persons to whom Invesco has provided it for informational purposes only. This document is not an offering of a financial product and is not intended for and should not be distributed to retail clients who are resident in jurisdiction where its distribution is not authorized or is unlawful. Circulation, disclosure, or dissemination of all or any part of this document to any person without the consent of Invesco is prohibited.

This document may contain statements that are not purely historical in nature but are "forward-looking statements", which are based on certain assumptions of future events. Forward-looking statements are based on information available on the date hereof, and Invesco does not assume any duty to update any forward-looking statement. Actual events may differ from those assumed. There can be no assurance that forward-looking statements, including any projected returns, will materialize or that actual market conditions and/or performance results will not be materially different or worse than those presented.

The information in this document has been prepared without taking into account any investor's investment objectives, financial situation or particular needs. Before acting on the information the investor should consider its appropriateness having regard to their investment objectives, financial situation and needs.

You should note that this information:

- may contain references to amounts which are not in local currencies;
- may contain financial information which is not prepared in accordance with the laws or practices of your country of residence;
- may not address risks associated with investment in foreign currency denominated investments; and
- does not address local tax issues.

All material presented is compiled from sources believed to be reliable and current, but accuracy cannot be guaranteed. Investment involves risk. Please review all financial material carefully before investing. The opinions expressed are based on current market conditions and are subject to change without notice. These opinions may differ from those of other Invesco investment professionals.

The distribution and offering of this document in certain jurisdictions may be restricted by law. Persons into whose possession this marketing material may come are required to inform themselves about and to comply with any relevant restrictions. This does not constitute an offer or solicitation by anyone in any jurisdiction in which such an offer is not authorised or to any person to whom it is unlawful to make such an offer or solicitation.