Should investors avoid or seek out currency risk? How to resolve a long-standing puzzle

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Abstract

The question of how to manage currency risk in institutional portfolios has been controversial since the modern surge in global investing started to take root in the 1970s. Fund managers tend to hedge some or all of their embedded currency exposure, but few pursue currency returns separately with a specially designed currency investment plan. In this paper, we argue that institutional investors ought to hedge a larger portion, and logically all, of the currency exposure in their underlying assets and then make use of the resulting portfolio risk reduction to engage in purposeful currency investing designed to produce alpha and beta style returns that are largely uncorrelated with traditional risky assets.

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The Overlooked Asset Class

Over most of the last decade we have extensively investigated the theory and practice of currency investing.[1] Our research has developed empirical evidence on the risk and return of the most prominent styles of currency investing. We have measured the returns of individual currency managers as well as groups of managers and assessed their performance against conventional and more demanding benchmarks. And we have studied how different currency investment styles can impact the performance of a well-diversified portfolio of global stocks and bonds. At the heart of this research, there remains a fundamental question: "Does currency investment, whether in the form of style investing that seeks to earn beta returns or discretionary managers mandated to hunt for alpha, deserve to have a place in an institutional portfolio?"

The question is controversial. As a result and as we will elaborate, currency investing appears to be overlooked and has yet to establish itself as one of the essential asset classes for institutional investors. However, based on our research as well as others who have contributed to the literature, there is strong evidence to conclude that in most cases even a small allocation to

[1] See http://people.stern.nyu.edu/rlevich/research.html for more than dozen co-authored papers and essays including *A New Look at Currency Investing*, published in 2012 by the CFA Research Foundation. In *The Role of Currency in Institutional Portfolios* (2014, forthcoming) we have assembled a new set of studies by academics and market practitioners. Collectively, these studies offer a strong case supporting a greater role for currency in institutional portfolios.

currency investing could improve the overall performance of institutional investors.[2] At least three reasons support this conclusion.

First, various established currency trading strategies have tended to produce returns, which can be proxied by style or risk factors and have the nature of beta returns.[3] These returns tend to be imperfectly correlated with traditional equity market returns. Second, even if a more demanding expected return benchmark based on style factor returns is used, some currency managers produce alpha. Persistence of both alpha and beta style currency returns heightens the appeal of the currency asset class. And finally, the global currency market offers enormous liquidity and continued to function uninterrupted throughout the depths of the recent Global Financial Crisis. While a global recession may provoke a decline in all equity markets, currency values and returns depend on the relative performance of economies. And so, the opportunities for profitable currency investing are likely to persist throughout business cycles, and may even be enhanced by an economic shock that impacts only one economy or one region.

[2] It is important to stress early in this discussion that we use the term "currency investing" to mean taking on exposure to currency risk with the intent of earning a risk premium or excess return as distinct from holding currency risk that happens to be embedded in foreign stocks or bonds or other assets.

[3] Three basic trading strategies (carry, trend and value) and the volatility of the FX market explain the bulk of the returns generated by professional currency managers. The carry strategy is a bet that higher yielding currencies will not depreciate enough against low yielding currencies to outweigh the interest rate differential. Trend-following strategies and related technical trading strategies assume that patterns in the past data can be used to predict future currency movements. Value strategies involve buying undervalued currencies and selling overvalued currencies with "fair value" determined by macro-economic variables.

Two Basic Currency Investment Mandates

Institutional investors have a choice of two basic types of currency mandates commonly known as "Currency Overlay" and "Absolute Return." Either mandate can be implemented using passive or active investment strategies.

In currency overlay mandates, the investor already owns a portfolio of foreign debt or equity. The objective of the currency overlay is to reduce or possibly completely eliminate currency risk from the portfolio. The manager could follow a passive strategy by hedging a predefined fraction from zero to 100% of FX exposure in the underlying portfolio.[4] With an active currency overlay, the manager retains discretion to vary the size of the hedge. The manager may be opportunistic and decide not to hedge currencies expected to be strong and hedge larger fractions of currencies expected to be weak.

By comparison, in an absolute return mandate, the investor seeks to earn a positive return by taking on currency exposure subject to acceptable risk levels.[5] An absolute return currency mandate could be implemented with a passive investment style designed to follow predefined

[4] For example, if the portfolio held British shares valued at GBP 1,000,000 a full currency hedge would entail selling GBP 1,000,000 in the forward market for delivery in one-month and then rolling over the forward contract at maturity. This standard approach ignores the composition of the British equity portfolio and the currency exposure embedded in each of the underlying companies.

[5] A systematic approach, referred to as Dynamic Hedging, attempts to combine risk reduction with return enhancement by varying the hedge ratio for each foreign currency between zero and 100%. Such a constrained approach is typically sub-optimal, as neither risk-reduction not return-enhancement is achieved in an efficient way: tracking volatility can remain high due to large swings in the hedge ratio of key currencies, while return-enhancement is typically low due to the severely constrained and asymmetric use of currency opportunities. This type of approach used to be popular in the early days of currency management until it became clear that risk-reduction and return enhancement should be addressed and evaluated explicitly as distinct activities.

strategies for carry, trend and value. These passive strategies deliver beta returns. Alternatively, an absolute return mandate could be pursued with an active strategy whereby the manager exercises discretion in taking currency positions subject to a predefined target or maximum risk level. These active strategies deliver alpha returns.

In theory, a currency overlay with passive hedging will reduce the risk of the portfolio with little impact on the return.[6] Stated differently the expected long term return on hedged foreign assets is the same as the expected long term return on unhedged foreign assets. On the other hand, absolute return mandates have the potential to add value with little impact on the volatility as currency investment strategies are typically uncorrelated to traditional assets. Importantly, manager selection is crucial as some managers offer greater benefits than others with the average manager delivering zero value.[7]

Nevertheless, despite the growing numbers of empirical studies making the case for currency investing, currencies appear to be an underutilized asset class. Indeed, BarclayHedge estimates that AUM at specialized currency funds is roughly $20 billion as of Q1 2014 while Hedge Fund Research estimates AUM at all hedge funds is close to $2 trillion, indicating that professional

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[6] When the manager hedges, he effectively locks in a value of his foreign assets at today's one-month forward rate, F(t, 1 month). By not hedging, the manager will value his foreign assets at the spot rate one month in the future, S(t + 1 month). These values are identical when uncovered interest parity holds (the forward rate equals the expected value of the future spot rate). This implies that there is no expected opportunity cost from currency hedging, and so no impact on average returns. And because the forward rate is set near the middle of the range of possible realized future spot rates, $\sigma(F) < \sigma(S(t+1)$ meaning that the currency hedged portfolio has lower volatility.

[7] See Jones and Wermers (2011) for a recent survey of the literature on the value of active management. They show that the average manager does not outperform but that a significant minority of active managers do add value.

currency managers account for less than 1% of the hedge fund industry.[8] Of course, currency strategies are one of the various strategies used as a source of alpha by global macro hedge funds, as well as emerging market debt funds and global fixed income funds that may rely more on currency overlay rather than absolute return strategies. Nevertheless, the AUM estimates by BacrlayHedge highlight that Currency remains an underutilized asset class among institutional investors.

Why Investors Might Avoid Currency Markets and Currency Risk

A number of factors—some historical, some institutional, and others grounded in economic theory and policy making—help explain why currency investing is often viewed differently than equity or bond investing. The history of currency investing and market experience with fluctuating exchange rates are relatively brief compared with the much longer historical experience for equities and bonds. A shorter history means there is less familiarity and accumulated technical expertise in currency compared to other financial markets. Moreover, the number of freely floating currencies is limited and some emerging market currencies are subject to limited capital mobility and the possibility of capital controls which raises questions about the diversification potential within an FX-only portfolio.

On the institutional side, the foreign exchange market is not a place you can visit like the New York Stock Exchange or the Chicago Mercantile Exchange. Currency trades in an interbank market through many banks and trading rooms around the world. There are no set trading hours,

[8] For quarterly AUM at currency funds since 2006 see http://www.barclayhedge.com/research/indices/cta/mum/Currency_Traders.html

no centralized record of transactions, and no unique closing price as there is for a listed stock or futures contract. Currency markets lack significant regulatory oversight. Foreign exchange uses a different infrastructure for trading, it uses a different quotation system, it relies on different means of contracting using different platforms, and so institutions need a separate apparatus or infrastructure to deal in foreign exchange.

On the theoretical side, currency values are notoriously difficult to model, more so than equities or bonds. As a result, currency valuation can be elusive. Economists have debated for years whether currencies move randomly or are predictable. And despite evidence to the contrary, reflected in part by the profitability of well-known currency strategies, many professionals still harbour the belief that currencies are not predictable. In addition, currencies are prone to central bank intervention and may be used as instruments of political and/or economic policy.

These aspects, reinforced by the fact that currency trades in its own market with its own institutions for clearing and settlement, help explain why currency has earned a reputation in some quarters as being a highly specialized area for currency professionals only. As a result, many institutional investors have avoided carving out an allocation for currency in their portfolios.

While the landscape of active currency management has changed dramatically over the last 25 years, following Black's (1989) seminal article on universal hedging investors have focused predominantly on hedging and less on using currencies as a source of alpha. In practice, currencies are often viewed as an unwanted by-product of international portfolio diversification.

Gauging the Impact of Currency Investing on Institutional Portfolios

In a recent study, we investigated the impact of both mandates on institutional portfolios and the empirical results are as expected.[9] Our research found that both absolute return and currency hedging mandates can have a positive impact on institutional investor portfolios.

Exhibit 1 illustrates the benefits of both types of mandates. Our benchmark is a typical institutional portfolio which holds 60% in equities (comprising 27.5% US, 25% non-US developed market, and 7.5% emerging market shares) and 40% in US bonds. Our benchmark further assumes a currency hedge ratio of 50% for the non-US developed equity part of the portfolio.[10] We evaluate this benchmark portfolio against three alternative portfolios (points *P1*, *P2* and *P3* in Exhibit 1) with some exposure to currency risk. Each of the alternative portfolios hedges 70% instead of 50% of its non-US Developed Equity part of the portfolio, which frees up risk budget to allocate to absolute return currency strategies.

As Exhibit 1 shows, passive hedging tends to reduce portfolio volatility with little impact on returns. By hedging more, i.e. 70% instead of 50%, portfolio risk declines from 10.71% to 10.46% with only an 8 basis point impact on returns, failing from 4.01% to 3.93% as shown by

[9] See Pojarliev, Levich and Kasarda (2014): "Currency Exposure and Investment Performance: The Good, the Bad and the Ugly", Working Paper. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2378987

[10] Given that managers face the choice of hedging 0% or 100% or any point in between, Strange (1998) argued that a 50% hedge ratio became the most popular choice. A currency manager is deemed to add value if the manager outperforms a naive strategy of hedging half the exposure, which is the position a manager would take if the manager had no expertise to determine whether a currency was rising or falling relative to its forward premium.

points *A* and *B.*[11] By comparison, absolute return mandates have the potential to increase the portfolio return with little impact on volatility. Point *P1* with a 10% allocation to currency style factors illustrates this effect. Comparing point *P1* with Point *P2* suggests that beta grazers delivered little additional return relative to the style factors, but provided better diversification benefits; the volatility of P1 is the lowest at 10.33%. Importantly, however, differentiating between managers who simply follow common currency investment strategies (beta grazers, as shown with point *P2*) and managers who show little correlation to the common strategies (alpha hunters, as shown with point *P3*) can be useful for manager selection.[12] Not surprisingly, alpha hunters offer greater benefits than beta grazers. What may seem startling, however, is that portfolios *P2* and *P3* each with a 10% allocation to active currency investment produced higher return and lower risk than the benchmark portfolio *A.*[13]

Conclusions and Implications for the Role of Currency in Investment Management

Without question, the marketplace for currencies is one of the largest in the world, offering liquidity and robust systems for trading, clearing and settlement of transactions sized for institutional investors. This is especially true among the largest developed country currencies

[11] A portfolio with "No Overlay", i.e. 0% hedge, would have had volatility of 11.38% and return of 4.17%.

[12] Investment theory today commonly separates the return of an investment into the contribution resulting from risk exposure (risk premium or beta) and one resulting from skill-based investing (alpha). This forms the basis for active and passive investing (indexing). Respectively, managers can be classified into beta grazers, whose returns can be tightly linked to risk factors and into alpha hunters, which exhibit no significant exposure to the risk factors. The terms alpha hunters and beta grazers were coined by Leibowitz (2005)

[13] The value added by the alpha hunters at 31 basis points might seem economically insignificant, but this is because the impact is calculated on the whole portfolio. On a stand-alone basis, the alpha hunters delivered 3.75% return annually with 2.40% volatility.

while emerging market currencies are growing in volume and depth of financial products. Empirical evidence shows that various well-known currency strategies based on carry, trend-following, value, and volatility have been profitable over much of the last 30-40 years, although there is some evidence to suggest that profitability has been on the decline. Part of the decline in profitability may be related to the general decrease in currency volatility and compression of interest rates worldwide, in part the result of quantitative easing policies followed by several major central banks. The risks of currency investing in the recent environment should not be ignored.[14]

On the other hand, the decline in AUM managed by specialized currency funds could be interpreted as good news for currency managers.[15] Pastor et al. (2014) investigate the link between scale and skill and show strong evidence of decreasing returns at the industry level: As the size of the active mutual fund industry increases, a fund's ability to outperform passive benchmarks declines. This could be interpreted as good news for currency managers – as AUM in specialized currency funds has dropped, it could become easier for the survivors to generate alpha. As some contributors to our recent book (Pojarliev and Levich 2014) have noted, the experience of the last ten years and monetary policies since the Global Financial Crisis may be

[14] Two prominent, high-profile currency investment firms, each with long histories and substantial expertise in markets, closed their funds within the last 12 months. FX Concepts a currency focused hedge fund, announced in October 2013 that it was winding down operations due to client withdrawals and poor performance. The firm was founded in 1981 and assets under management hit $14 billion in 2007 before dwindling to below $1 billion in 2013. In January 2014, another hedge fund closely associated with currency investing (QFS Asset Management) announced it would cease operations citing difficult market conditions.

[15] BarclayHedge estimates that AUM in specialized currency funds is down by about 25% since 2011.

unusual outcomes and not a new normal. If so, excess returns from currency investing may return as countries manage their own national economies with less regard for other countries and the exchange rate. The results illustrated in Exhibit 1 suggest that the role of currencies in institutional portfolios could be addressed by the following steps.

Adopt higher strategic hedge ratios for foreign currency exposure in the underlying asset portfolio.

Currency risk is a significant component of overall risk for the typical institutional portfolio. The investor is not compensated for the volatility introduced into the portfolio though embedded currency exposure. This suggests that the currency hedge ratio should be set higher. Passive hedging frees up a risk budget which can be allocated to absolute return currency strategies.

Allocate the risk-reduction savings from increased passive hedging to an absolute return currency program.

Consider for example a US-based investor who is exposed to foreign currency exposure through investments in international equities. Over the last ten years, increasing the passive hedge from 0% to 70% would have reduced portfolio volatility by 3.69% (from 18.94% to 14.81%) with little impact on the overall return.[16] The 3.69% risk reduction can then be allocated to an absolute return currency program. A 3.69% risk allocation translates into 36.9% notional portfolio allocation with a 10% volatility target.

[16] These results are based on monthly data from April 2004 until March 2014 and using the MSCI All Country World Index (ACWI) ex US as proxy for international equities.

Choose the right managers whether beta grazers or alpha hunters.

Absolute return strategies can be pursued in a passive mode to earn beta style returns or in active mode to earn alpha. While we have highlighted a short list of generic currency investment strategies – carry, trend-following, value, and volatility – there are numerous ways to implement each one in either G-10 or emerging market currencies. Persistent, robust performance, low cost and small tracking errors are useful metrics for deciding among beta strategies. For investors seeking alpha, it is critical to differentiate between managers who simply follow common currency investment strategies and managers who show little correlation to the common strategies. The success of any absolute return currency program will at the end depend on the manager selection.

Our general prescription – that institutional investors hedge more of the embedded currency risk in their underlying assets, and instead take on exposure to currency risk separately in a dedicated and purposeful fashion designed to earn risk premiums – is not an entirely new idea. Stylized, theoretical international capital asset pricing models going back to Solnik (1974) argued that in equilibrium it would be optimal for investors to hold combinations of two portfolios: a risky portfolio of assets common to all investors, and a personalized hedge portfolio designed to reduce purchasing power risks as investors consume goods and services in different countries subject to different inflation risks.[17] More than 25 years ago, Perold and Schulman (1988) put this idea center stage and coined the phrase "the free lunch in currency hedging" to signify that

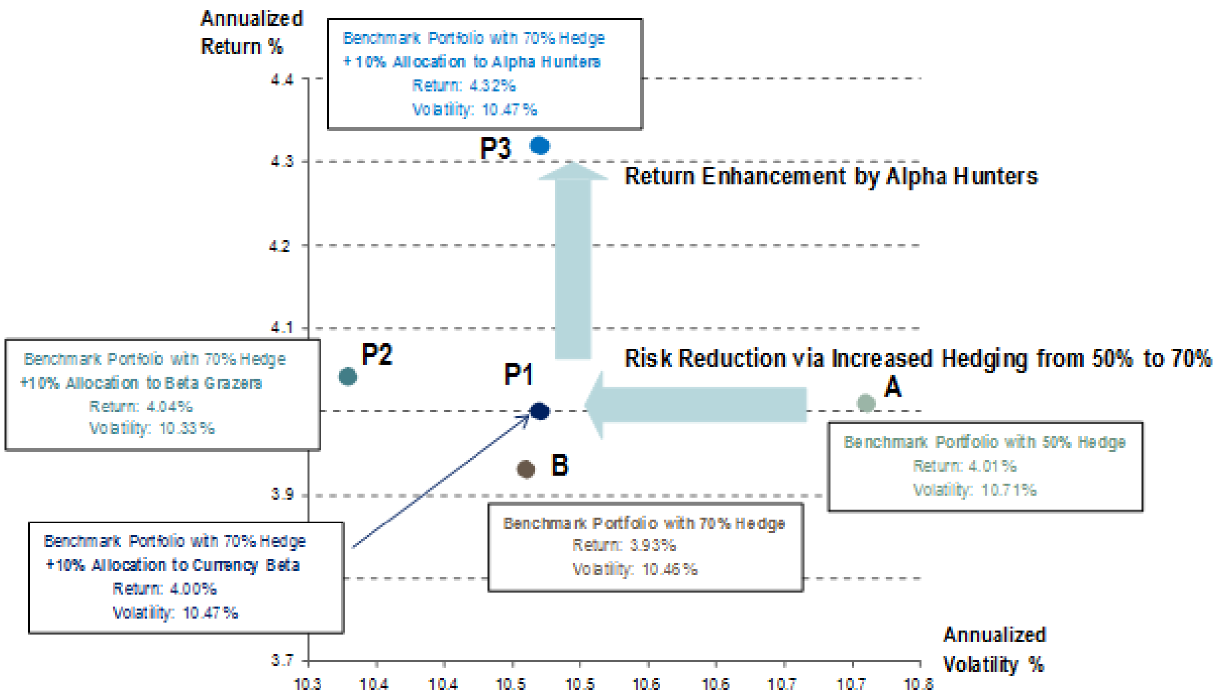
[17] See Solnik (1993), pp. 25-30 for an early discussion of international capital asset pricing and the role of currency risk hedging in global portfolios. See Brusa, Ramadorai, and Verdelhan (2014) for an updated discussion and other references.

currency hedging should be the norm, unless managers have skill in forecasting exchange rates to time their hedging.[18] The new idea our research supports is that currency investing belongs in a separate bucket, not only as a means to hedge inflation risks (the currency overlay) but as a distinct set of strategies designed to earn risk premiums (the absolute return strategy) that are largely uncorrelated with traditional risky assets.

While there are logical explanations for why institutional investors may have overlooked or avoided currency investments in the past, it seems clear that adding currency to the menu of suitable asset classes could enhance overall performance going forward.

[18] Perold and Schulman (1988) explain that "The key to our argument is that, from the perspective of long-run policy, investors should think of currency hedging as having zero expected return. Therein lies the free lunch: on average, currency hedging gives you substantial risk reduction at no loss of expected return."

Exhibit 1: Impact of Currency Management



Source: Pojarliev, Levich and Kasarda (2014) "*The Impact of Currency Exposure on Institutional Investment Performance: The Good, the Bad and the Ugly*", http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2378987

Note: Benchmark Portfolio: 27.5% MSCI US Index as proxy for US Equity, 25% MSCI World ex US Index as proxy for Non US Developed Equity, 7.5% MSCI EM Index as proxy for Emerging Equity and 40% Barclays Aggregate US Index as proxy for US Bonds. Only the Non US Developed Equity part is 50% Hedged. Time Period: January 2006 to March 2013.
**Currency Beta Portfolio: Equal-weighted exposure of three naïve currency indices. Beta Grazers Portfolio: Equal allocation to the top 3 managers with the highest R Square to FX beta. Alpha Hunters Portfolio: Equal exposure to the top 3 managers with the highest alpha estimate.

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