

# Building better currency portfolios

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## Executive summary

Foreign currency embedded in international assets is typically the second biggest risk in U.S. institutional investor portfolios, but it is often unmanaged. In our first paper on currency, **The Cost of Not Hedging Foreign Currency**, we explained why the naïve construction of the embedded foreign currency portfolio makes it an uncompensated risk<sup>1</sup>. We believe managing currency may result in lower volatility, less severe drawdowns, return enhancement, and diversification. While hedging is an appropriate starting point, our preferred approach also incorporates currency beta, which we described in detail in our second paper on currency, **A Different Approach to Currency Investing**.

In this paper, we present our philosophy on managing currency and provide a framework for how investors can create a solution that fits their objectives. We believe that a currency portfolio with 1/3 unhedged, 1/3 hedged, and 1/3 currency beta is a balanced approach that may produce better long-term outcomes than the embedded portfolio, while also mitigating behavioral and implementation risks. Our framework for building currency portfolios is based on five key principles that will guide the structure of the paper:

1. Know what currency portfolio you own and its potential impact
2. Understand the tools available
3. Determine the objectives of your currency portfolio
4. Be mindful of the risks involved
5. Implement the strategic currency policy with a long-term timeframe

## Know what you own

U.S. institutional investors who do not manage currency end up owning the embedded currency portfolio. This currency portfolio is constructed based on the currencies in which foreign assets are priced and the weights of those assets, which can include equities, bonds, private market assets, real estate, etc. There are two fundamental issues with this currency portfolio: 1) the weights of the positions are naively determined by the weights of the foreign assets and 2) it is 100% short the U.S. dollar. In our first paper we went into detail about why these issues have led us to conclude that embedded currency is an uncompensated risk.

## Currency management tools

### Hedging

Hedging is the simplest form of currency management which removes the embedded currency exposure by taking offsetting positions in the forward market. Any losses (gains) from the embedded currency portfolio will be negated by the gains (losses) from the hedge<sup>2</sup>. More information on hedging can be found in our first paper, *The Cost of Not Hedging Foreign Currency*.

### Currency Beta

Currency beta is a tool an investor can use who wants to retain some currency exposure in their portfolio. Our second paper, *A Different Approach to Currency Investing*, was dedicated to currency beta because we believe it is a foundational element to building currency portfolios. Please refer to this paper for further detail.

### Active Currency Management

Active currency management is another tool that can be used to retain currency exposure. The main concept of active management is no different than in other areas of the portfolio – managers aim to add value through quantitative and fundamental market insights and risk management. There are good managers, there are bad managers, and costs are always an important consideration. We believe active currency managers should be treated similarly to managers in other assets classes in regard to the due diligence process.

























## Building better currency portfolios

The objectives of managing currency typically fall into three broad categories: risk reduction (both volatility and drawdowns), return enhancement, and diversification, which should all be considered at the total portfolio level. Determining which of these objectives to focus on is an important first step in building an appropriate currency portfolio. Currency management objectives will also need to be weighed against the potential risks that will be discussed in the following section. The two key questions that need to be answered are: what benefit does an investor hope will be provided by their currency portfolio? And are they comfortable with the

risks that need to be taken to accomplish the desired benefit? When answering these questions, it is important to remember that investors are likely not starting from scratch – they already own the embedded currency portfolio. Those that choose to keep this portfolio need to acknowledge the reasons for doing so and the risks involved.

To begin building a better currency portfolio, we must first determine what the desired characteristics of that portfolio are and the extent to which each tool contributes to them. For example, a simple hedging strategy will likely provide volatility reduction and downside protection, but it will also add liquidity and peer risks. Exhibit A presents a high-level qualitative assessment of four different currency portfolios in this framework.

#### EXHIBIT A – FRAMEWORK FOR ASSESSING CURRENCY PORTFOLIOS

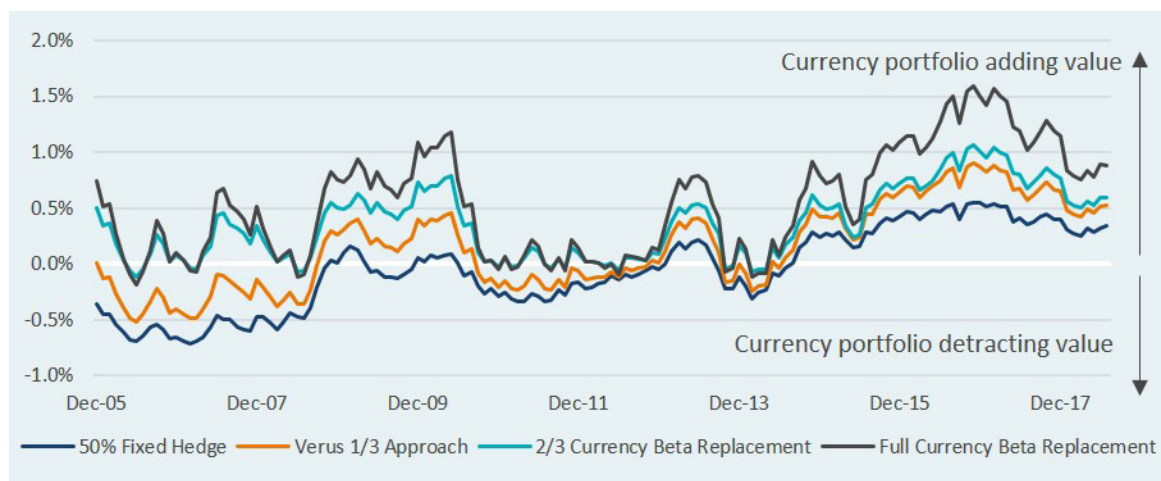
Characteristic	Unhedged	Hedged	Beta Replacement	1/3 Unhedged, 1/3 Hedged, 1/3 Beta
Behavioral Risks (i.e. peer, timing)				
Liquidity requirements				
Volatility reduction				
Downside protection				
Diversification				
Long-term return potential				

Our default currency portfolio balances risk reduction and return potential while also mitigating behavioral risks and liquidity requirements. This portfolio includes 1/3 unhedged exposure, 1/3 hedged, and 1/3 currency beta replacement. Each component plays a specific role in the overall portfolio: the unhedged exposure is designed to keep peer and liquidity risks manageable, the hedged exposure is designed to reduce volatility and add downside protection, and investment in currency beta is designed to potentially increase returns and diversify risk. We believe this is an appropriate starting point to building a currency portfolio, but we recognize that each investor will have unique needs and risk tolerances that may

require customization. For example, investors who are less concerned with peer risk may consider a greater allocation to currency beta or even active currency.

To give a better understanding of the potential outcomes of choosing a currency portfolio, we compared four different options against the embedded (unhedged) currency: a 50% fixed hedge, our default 1/3 approach, a 2/3 hedge and currency beta portfolio, and a full currency beta replacement portfolio. The analysis was conducted at the total portfolio level on a hypothetical 60/40 portfolio containing the MSCI ACWI Index and the Barclays U.S. Aggregate Index. Exhibit C displays the 5-year rolling excess performance relative to an unhedged portfolio for each currency strategy. Given currency beta's track record of positive returns, increasing its allocation has added the most value in the most time periods. The 1/3 approach added material value over the past five years, but it underperformed in the early to mid-2000s when the U.S. dollar depreciated, leading to strong performance in the embedded portfolio.

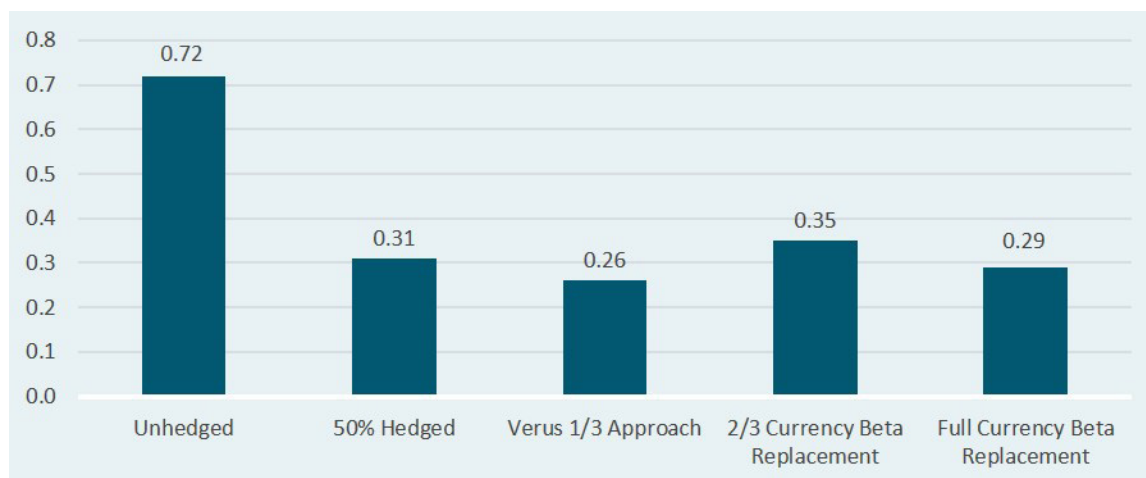
#### EXHIBIT B – 5-YEAR ROLLING EXCESS RETURNS



Source: Verus, Morningstar, as of 7/31/18

From a risk perspective, it is important to look at currency's contribution to total portfolio volatility, which takes correlations into consideration. A typical argument for keeping unhedged exposure is that it provides diversification at the total portfolio level which mitigates its risk contribution. However, in the period examined, this has not been the case. Exhibit C shows that unhedged exposure has added 72 basis points to the annualized standard deviation of a 60/40 portfolio. In comparison, the 1/3 approach to building a currency portfolio added only 26 basis points to overall portfolio risk during the same period. Exhibit D displays currency risk contribution on a 5-year rolling basis.

## EXHIBIT C – CURRENCY RISK CONTRIBUTION TO A 60/40 PORTFOLIO



Source: Verus, MPI, 1/31/01-7/31/18

## EXHIBIT D – 5-YEAR ROLLING CURRENCY RISK CONTRIBUTION TO A 60/40 PORTFOLIO



Source: Verus, MPI, as of 7/31/18

The investment risk and return profiles of each currency portfolio need to be weighed against other risks added to the portfolio, such as liquidity and peer risks. A more proactive currency portfolio will increase these risks relative to the embedded currency, which is one of the primary reasons we suggest keeping a small portion of unhedged exposure in our default currency portfolio. Exhibit E presents an analysis on the monthly cash flows generated from each portfolio. The Verus 1/3 approach has historically generated a mean monthly cash flow of 0.1% of the international asset portfolio with a monthly standard deviation of 0.7%, indicating the typical monthly cash flow has been less than +/- 1%.

# EXHIBIT E – MONTHLY CASH FLOW ANALYSIS (JAN 2001 – JUNE 2018)

Currency Portfolio	Min	Average	Max	Standard Deviation
50% Fixed Hedge <sup>3</sup>	-1.1%	0.0%	1.1%	0.5%
Verus 1/3 Approach	-2.3%	0.1%	2.4%	0.7%
2/3 Currency Beta Replacement	-3.3%	0.2%	3.4%	1.0%
Full Currency Beta Replacement	-4.9%	0.2%	5.1%	1.6%

Source: Record Currency Management, Verus

Lastly, we can look at tracking error to quantify how different a portfolio with currency management has been relative to a 60/40 portfolio with unhedged currency. As mentioned above, tracking error only quantifies how different one portfolio is from a benchmark – it does not provide insight into whether this difference is good or bad. As shown in Exhibit F, the Verus 1/3 approach has had a modest 1.0-1.5% annualized tracking error relative to an unhedged portfolio over 3-year rolling windows. The full currency beta replacement strategy has added material tracking error to an unhedged portfolio, particularly during the financial crisis. However, much of this was caused by the currency beta portfolio experiencing only moderate negative performance when the embedded portfolio suffered a severe drawdown.

# EXHIBIT F – 3-YEAR ROLLING TRACKING ERROR TO AN UNHEDGED 60/40 PORTFOLIO



Source: Morningstar, MPI, as of 7/31/18

Exhibit G summarizes how the Verus 1/3 currency portfolio has performed relative to other strategies on a standalone basis, when added to an international developed equity portfolio, and when added at the total portfolio level.



## EXHIBIT G – HISTORICAL OUTCOMES (JAN 2001 – JUN 2018)

	Annualized Return	Annualized Volatility	Return/Risk	Tracking Error to Unhedged	Max Drawdown
<b>Standalone Currency<sup>4</sup></b>					
Embedded Currency (Unhedged)	0.6%	7.3%	0.1	0.0%	-26.5%
Currency Beta	3.1%	4.3%	0.7	8.8%	-6.1%
Verus 1/3 Approach	1.3%	2.7%	0.5	5.2%	-7.4%
<b>Intl Developed Equity<sup>5</sup></b>					
Unhedged	4.2%	16.6%	0.3	0.0%	-56.7%
Hedged	3.8%	14.1%	0.3	7.3%	-50.4%
Currency Beta Replacement	5.5%	12.2%	0.4	10.1%	-37.3%
Verus 1/3 Approach	5.0%	15.0%	0.3	5.2%	-52.7%
<b>60/40 Portfolio<sup>6</sup></b>					
Unhedged	5.6%	9.1%	0.6	0.0%	-35.0%
Hedged	5.4%	8.5%	0.6	1.5%	-33.3%
Currency Beta Replacement	6.1%	8.8%	0.7	1.8%	-33.4%
Verus 1/3 Approach	5.7%	8.8%	0.6	1.1%	-33.9%

Focusing on the international equity portfolio, we can see that the 1/3 approach to currency has in fact added to returns and reduced volatility and drawdowns. This has also been the case at the total portfolio level – returns increased by 13 basis points per year<sup>7</sup> and volatility was dampened by a net 36 basis points relative to the unhedged portfolio. It is unusual that an investment both increases overall portfolio return while reducing overall portfolio risk, which is representative of this solution's value proposition. The benefits may seem minor, but keep in mind it is difficult to move the needle at the total portfolio when making changes to only one component of the portfolio. Also consider that reducing risk from an uncompensated source (embedded currency) frees up a portion of the risk budget that can be reallocated. In this example, a portfolio that started as a 60/40 and included the 1/3 currency portfolio could have increased the equity allocation to 63% and kept the same level of overall volatility.

## Risk considerations

Managing currency introduces unique risks to the portfolio. The types and magnitudes of these risks will vary based on the management tools employed and the unique situation of each investor. Understanding the impact that these risks may have should be an important part of the decision-making process.

### Peer Risk

Most institutional investors rank their portfolio performance against a universe of comparable portfolios on a regular basis. Thus, peer risk results when a portfolio is constructed differently than peer portfolios. Given that few U.S. institutional investors manage currency, it is reasonable to assume that moving away from unhedged currency exposure will add peer risk. The magnitude of peer risk will depend on how proactive currency

is managed. For example, investing in currency beta will add more peer risk than a static hedge (see Exhibits F and G). A key point to remember is that tracking error only indicates how different two portfolios are – it says nothing about whether this difference is good or bad. Also, this is not representative of tracking error relative to the policy index because currency management should ideally be incorporated as part of the strategic asset allocation process. Investors who are highly concerned with peer risk may want to consider starting with a less proactive currency portfolio, but they should also consider the opportunity costs of retaining exposure to the embedded portfolio.

### **Timing Risk**

All investments have timing risk – the risk of entering or exiting an investment at the wrong time. While we believe that managing currency using any of the tools described above (or a combination of those tools) will result in better long-term outcomes than the unhedged currency portfolio, there will be periods in which this is not the case. This underperformance will occur during periods when the embedded currency portfolio generates positive returns as the U.S. dollar depreciates. When unprepared, investors may be quick to cut the cord on currency management altogether. We think there are two important things investors should remember about these inevitable periods of underperformance: 1) a sizeable benefit from currency management is risk reduction, which can allow investors to take compensated risks in other areas of the portfolio and 2) while there may be tactical elements within a currency policy, it is fundamentally a long-term strategic decision. Setting expectations and establishing a currency policy as a strategic component of the total portfolio construction process can help mitigate timing risk.

### **Risk from FX Forwards**

The industry standard instrument for managing currency is FX forward contracts, which are agreements to exchange one currency for another at a future date for a predetermined price. The forward price is completely determined by the interest rate differential between the two currencies and this pricing mechanism is enforced by arbitrage (the technical term for this is covered interest rate parity). In addition to adding complexity to the portfolio, FX forward contracts create liquidity risk. While there is typically no capital required up front, short-term (1-3 months) FX forward contracts need to be closed and reopened prior to expiration to maintain the desired exposures – a process known as “rolling the contracts”. When a forward contract is closed it locks in a gain or loss on the position, which results in a cash inflow (gain) or outflow (loss). Although these cash flows tend to be small relative to the total exposure, investors will need to have liquidity available and maintain the required operational infrastructure. FX forward contracts also introduce counterparty credit risk since they are over-the-counter derivatives that are not guaranteed by an exchange. Counterparties are typically large, creditworthy financial institutions. The primary strategy for mitigating credit risk is to use multiple counterparties and limit the exposure to any one counterparty. Currency managers generally have a well-established process to assess the credit risk of each individual counterparty.



## Conclusion

U.S. institutional investors commonly own an embedded currency portfolio that we believe is an uncompensated risk. We believe this provides an opportunity to build better currency portfolios that may improve total portfolio outcomes. When approaching this process, an investor should clearly identify their objectives of owning a currency portfolio and the risks involved. Once this has been decided, an appropriate currency portfolio can be built using hedging, currency beta, and/or active currency management. Much like total portfolio construction, these decisions should be made at a strategic level with a long-term timeframe in mind. Our default currency portfolio is made up of 1/3 unhedged exposure, 1/3 hedged, and 1/3 currency beta replacement. We believe this is a balanced approach that may increase returns and reduce volatility while also mitigating behavioral risks and liquidity requirements. This portfolio can be thought of as a neutral starting point to currency management – we recognize that unique circumstances will sometimes require customization to meet individual client needs. In an upcoming research piece, we will take a deep dive into the actual process of building this type of currency exposure by presenting a case study on a real institutional portfolio.

## Notes & Disclosures

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1. This paper will build on concepts introduced in our first two papers on currency, which can be downloaded at [verusinvestments.com/insights](https://verusinvestments.com/insights). We recommend reviewing these prior to reading this paper.
2. When hedging currency embedded in active strategies, managers typically hedge benchmark currency exposures, which creates some basis risk. It is rare to hedge actual exposures because the extra cost to obtain holdings information generally outweighs any possible benefits and it could cancel out intended active currency bets.
3. The fixed hedge cash flows are calculated using a laddered strategy with 6 6-month positions with one of six maturing each month courtesy of Record Currency Management.
4. Includes only the currency exposure for each strategy. The embedded currency exposure is based on the MSCI EAFE Index. Currency beta is represented by the Russell Conscious Currency Index. The Verus 1/3 Approach includes 1/3 unhedged, 1/3 hedged, and 1/3 currency beta replacement.
5. Includes both the currency exposure for each strategy and international developed equity (MSCI EAFE)
6. Includes the currency exposure for each strategy and a 60/40 portfolio based on the MSCI ACWI Index and the BBgBarc U.S. Aggregate Index. The size of the currency exposure is based on the weight of international developed equity at the total portfolio level.
7. This analysis does not include manager fees for hedging or currency beta. The Verus 1/3 approach would result in an estimated 2 basis point fee drag at the total portfolio level, assuming a 15 basis point fee on total notional currency exposure.

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