Understanding the 'hedge return': The impact of currency hedging in foreign bonds

Research brief

January 2015

Currency exposure can introduce significant risk to an international bond allocation; hedging that risk can reduce volatility. But hedging currency produces a return – positive or negative – that is distinct from currency return and the return of an investment's underlying bonds.

This brief summarises Vanguard research that finds that a return from hedging tends to contribute far less to an international bond return than unhedged foreign currency would contribute.[1]

Vanguard urges international bond investors to be aware of the impact of hedging and to focus on international bonds' diversification benefits for a balanced, low-cost portfolio.

How the hedge return works

Bonds issued and traded within a country (domestic bonds) represent just a small portion of the world's fixed income securities, so investors looking to diversify may choose international bonds. But resulting exposure to foreign currency volatility can overwhelm diversification benefits.

By hedging that currency risk, bond investors can reduce a portfolio's volatility over time. However, investors may not be aware of the potential effect on longer-term returns of the hedging activity itself.

Currency hedging often involves the use of contracts that effectively "lock in" an exchange rate, eliminating the volatility of currency movements from a portfolio. By locking in an exchange rate, investors are now exposed to the return from hedging.

No matter how the currency moves, the investor will receive (or pay) the difference between the "forward" rate reflected in the contract and the "spot" rate, the exchange rate in force when the hedge was initiated.

This "hedge return" is part of the investor's total return, and it effectively replaces the currency return that an investor would otherwise receive.

1 Thomas, Charles; Bosse, Paul, July 2014. Understanding the 'hedge return': The impact of currency hedging in foreign bonds. The Vanguard Group, Inc.

Figure 1	Hedge return can be either positive or negative

Spot exchange rates, forward exchange rates, and implied return of hedging for a US investor: as at 30 June 2014

	Australian dollar	Canadian dollar	Euro	Japanese yen	Swiss franc	UK pound
Spot price in US dollars	$0.943850	$0.938835	$1.369150	$0.009871	$1.127650	$1.709840
1-month forward price in US dollars	$0.941560	$0.938060	$1.369320	$0.009874	$1.127968	$1.709420
Annualised "hedge return" of hedging to US dollars	–2.87%	–0.99%	0.15%	0.30%	0.34%	–0.29%

Sources: Vanguard calculations, based on data from Thomson Reuters.

Because hedging is typically implemented over shorter time horizons, the relevant interest rates for hedging are short-term rates. As these rates shift across markets, the impact of the hedge return will also shift. **Figure 1** demonstrates that the hedge return can make either positive or negative contributions to an investor's total return.

Impact of the hedge return: To hedge or not to hedge

Reducing volatility is a goal of hedging international bonds. As **Figure 2** shows, the hedge return itself has been less volatile over time than foreign currency return. The figure demonstrates that a foreign investor can never access only the underlying international bond returns in local terms; an additional return component – the currency return or the hedge return – will always exist.

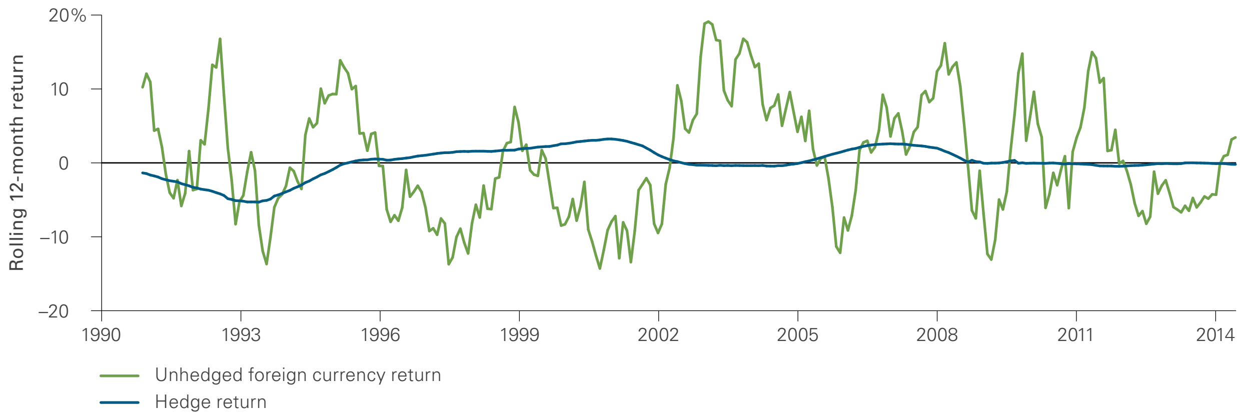
Because most major countries have low short-term interest rates (as at 30 June 2014), the hedge return is near zero from a US investor's perspective. But the past suggests that the hedge return will again become a factor in total return when interest rates normalise.

Effectively, the hedge return has tended to push international bond returns closer to an investor's domestic market return. As a result, long-term returns of international bonds, when accounting for currency hedging, become more local in character. You can see this result in **Figure 3**.

Previous Vanguard research has demonstrated that investors might expect a similar result when remaining unhedged over the long run.2 This suggests that the long-run return impact of the hedge return and currency return may be similar,

Figure 2	Hedge return has varied over time, but has been less volatile than results of owning foreign currency

Rolling 12-month return contribution of hedging and foreign currency in an international bond portfolio for a US investor: 1990 through 30 June 2014

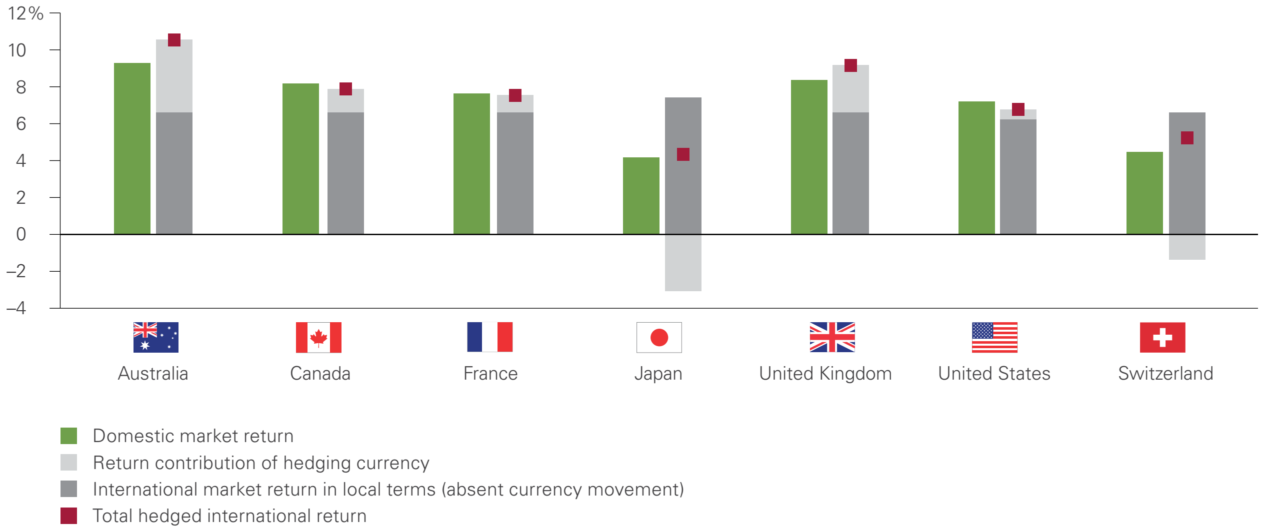


Notes: "Hedge return" is defined here as the currency return for the Barclays Global Aggregate ex-USD index, hedged to US dollars. "Unhedged foreign currency return" is defined here as the currency return for the Barclays Global Aggregate ex-USD index, unhedged, in US dollars.

Sources: Vanguard calculations, based on data from Barclays.

Figure 3 Hedging has tended to equalise long-term returns between an investor's domestic and international market

Returns of domestic and international bond markets from perspective of investors in the stated country, 1985–2013



Notes: "Domestic market return" is defined here as each country's respective component of the Citigroup World Government Bond Index, with returns measured in that country's curren "International market return in local terms (absent currency movement)" is defined as the Citigroup World Government Bond Index (excluding the stated country), measured in local terms "Return contribution of hedging currency" is the difference in return between the international index measured in hedged terms versus local terms. We used France as a proxy for euro-a investors, because of a lack of history for the broad monetary area.

Sources: Vanguard calculations, based on data from Citigroup.

meaning investors should focus on short-term volatility in deciding between hedged or unhedged exposure.

Should the hedge return affect the decision to diversify?

But since currency hedging brings long-term international bond returns in line with local bond returns, some might ask why they should bother with international bond diversification. Because for shorter and intermediate horizons, the differences between bond markets can be significant, leading to a diversification benefit.

Figure 4 shows that the primary factor affecting the shortterm volatility of a hedged international bond investment is the price movement of the underlying bonds themselves, driven by the interest rate movement in the international markets.

The figure doesn't show the volatility of currency return for unhedged investors, because, at 7.9%, it's outside the illustration's scale. But the figure does show that the hedge return is a limited component of volatility, and so has limited impact on the diversification potential of international bonds.

The hedge return and yield to maturity

On a long-term basis, the yield to maturity of a domestic bond allocation serves as a reasonable guide for predicting total return of the investment. We demonstrate this in the full research paper by comparing the initial yield of US bond investments with the return realised over the following five years.

For hedged international bonds, however, the predictability of the initial yield is reduced, from about 85% to just 59%.

This leads us to conclude that initial yield is a less useful metric for a hedged international bond portfolio than it is for domestic bonds, because of the impact of the hedge return over time.

Reduce focus on yield; keep focus on diversification

The research underlying this brief highlights four observations about the effect of hedging on returns:

- Hedging international bonds doesn't produce a bond fund without currency return. But it greatly reduces the impact that currency has on the investment.

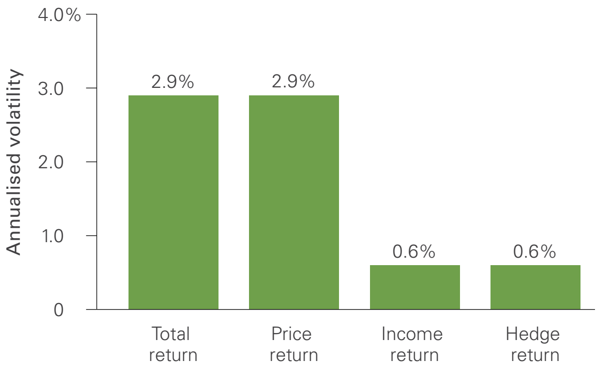
- Over the short term, the effect on return from hedging has tended to be much less than the effect on return from unhedged foreign currency.
- The relative volatility of the hedge return has been small compared with the price movement of international bonds, meaning that the diversification benefits of international bonds shouldn't be weakened by hedging.
- Over the medium to long term, hedging has the effect of adjusting for market fundamentals, mainly differences in interest rates and inflation. This has tended to equalise returns across markets and has detracted from the usefulness of yield to maturity as a long-term return predictor.

Based on these observations, Vanguard urges investors to be aware of the impact that hedging can have on international bond portfolios. It's likely that a reduced focus on the yield of a hedged international portfolio is warranted.

Also of note: Comparisons between yields across domestic and international markets aren't valid, and we discourage the use of yield differentials in setting bond allocations. Rather, investors should focus on the diversification benefits that international bonds can bring to a balanced, low-cost portfolio.

Figure 4 Small relative volatility of hedge return is unlikely to affect diversification potential

Annualised volatility of monthly return components of hedged international bonds for US investors, 1990–2013



Note: Figure displays the annualised volatility of monthly return components for the Barclays Global Aggregate ex-USD index, hedged to US dollars.

Sources: Vanguard calculations, based on data from Barclays.

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