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To hedge, or not to hedge: The currency dilemma

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“Prediction is very difficult, especially if it’s about the future”.

Niels Bohr, to whom this quote is attributed, was a Danish physicist, not a currency trader. Yet anyone observing currency markets can relate to this sentiment, especially investors with offshore assets, for whom the future direction of currencies is often of great interest.

This interest is understandable given that fluctuations in exchange rates have the potential to impact investment returns significantly. It is not surprising, therefore, that an overwhelming number of investors, 86% as reported in the 2013 BNZ FX Survey, view currency as an important issue for their respective funds.¹ Market data also support this, with the NZ dollar hedged global equities portfolio returning 12.3% p.a. for the three years to 30 September 2013, 6.3% p.a. above the return of its unhedged counterpart.^{2,3}

In this article we shall review the currency hedging strategies of New Zealand investors. We then detail why, in our view, the default, long-term, strategic approach for New Zealand investors should be to hedge all currency exposures. A return argument will then be used to add more strength to this default position. We conclude by signposting a framework for those investors who seek to take advantage of short-term opportunities that may occasionally arise in global currency markets.

CAN INVESTORS PROFIT FROM CURRENCY PREDICTION?

Chart 1 shows that over the past 27 years the value of the NZ dollar against the US dollar, a common proxy for the rest of the world, has fluctuated significantly. This indicates the potential for currency to impact an investor’s returns. With perfect foresight a New Zealand investor in the US equity market would have experienced extraordinarily high returns by hedging fully when the NZ dollar was in a trough and removing hedges when at a peak.

¹ Capturing the ‘currency effect’. 2013 BNZ FX Survey. There were 38 respondents to the survey representing total funds under management of almost NZ\$65 billion and included superannuation funds, fund managers, charitable trusts and insurers.

² Hedging, as we shall see later, removes the impact of currency fluctuation on investor returns.

³ As measured by the Russell Global Large Cap Net Index Hedged (12.3% p.a.) less unhedged (6.0% p.a.).

Chart 1: NZ dollar versus US dollar (1986—2013)



Yet our ability to identify these peaks and troughs is very limited. In the 1980s, Kenneth Rogoff of Harvard University showed that economic models fail to predict, or even explain, exchange rates, when used over a period other than the one used to calibrate the models. Revisiting his work in 2001, Rogoff concluded that:

“Explaining the yen, [US] dollar, and euro exchange rates is still a very difficult task, even ex-post.”⁴

Russell research supports this, noting that New Zealand economists have a very poor record of forecasting the NZ dollar, not just its level, but also its direction.⁵ This view is shared by New Zealand investors, with the 2013 BNZ FX Survey reporting that 76% of respondents are not convinced that it is possible to predict where the exchange rate will be in a year’s time. This is not surprising, given the size and liquidity of the currency markets and intense competition between traders.⁶

With this in mind, we suggest that in the absence of a well-defined governance framework investors should take great care when taking active positions in currency markets.

THE APPROACH OF NEW ZEALAND INVESTORS TO CURRENCY EFFECTS

Conventional wisdom is for global fixed interest exposures to be fully hedged. The case for hedging global fixed interest is made by the dramatic reduction in volatility that can be achieved from eliminating foreign currency exposure within a global fixed interest portfolio. This is because the volatility of global fixed interest returns is generally much lower than the volatility of exchange rate movements. Thus, the presence of currency risk in a global fixed interest portfolio causes total return volatility to increase sharply. Any bond return may therefore be more than offset by exchange rate movements.

The impact of hedging fixed interest portfolios can be seen in the volatility of returns on the Barclays Global Aggregate Index for the period from 1 January 1999 to 30 September 2013.⁷ The volatility of the hedged index was 2.7% while that of its unhedged counterpart was significantly higher at 11.7%. Chart 2 shows that fully hedging global fixed interest exposures is a view that has been accepted by New Zealand investors.

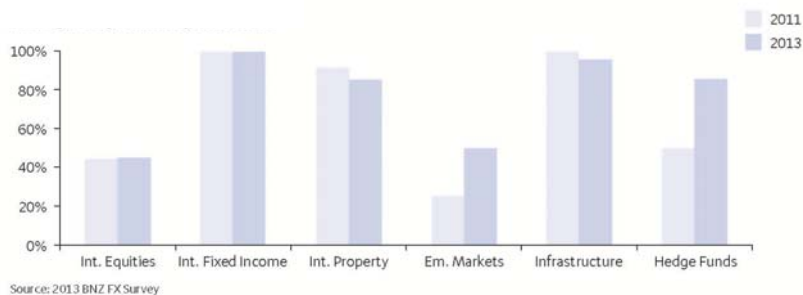
⁴ See Rogoff (2001).

⁵ See Darby (2009).

⁶ The NZ dollar is the 10th most traded currency on the world’s foreign exchange markets, according to a 2013 survey by the Bank for International Settlements.

⁷ This index is the typical benchmark for global fixed interest portfolios. Its inception date was 1 January 1999.

Chart 2: Average hedge ratio by asset class



In contrast, Chart 2 also shows that the average investor adopts a hedge ratio below 100% for all other global asset classes. Further, our observation is that many New Zealand investors employ hedge ratios on global equity exposures of around 50%.

The popularity of a 50% hedge ratio may very well be due to the behavioural biases of investors, in particular *regret aversion*. A regret-averse investor will prefer to be “half right” most of the time than 100% wrong some of the time.

Interestingly, regret influences even the most seemingly rational investors including the father of modern portfolio theory, Harry Markowitz, who once said:

“I should have computed the historical covariance of the asset classes and drawn an efficient frontier. Instead I visualized my grief if the stock market went way up and I wasn’t in it – or if it went way down and I was completely in it. My intention was to minimize my future regret, so I split my [pension scheme] contributions 50/50 between bonds and equities.”⁸

While the influence of behavioural biases on investors cannot be ignored, we consider that a currency hedging strategy should be the product of an objective and dispassionate review of the evidence. We shall now attempt such an exercise.

THE DEFAULT HEDGE RATIO IS 100%

New Zealanders investing offshore are typically seeking an improvement in their risk/return profile through the diversification benefits of investing in markets such as the US equity market or the UK bond market. The exposure to the risks and returns of these markets is the intended exposure of the investor.

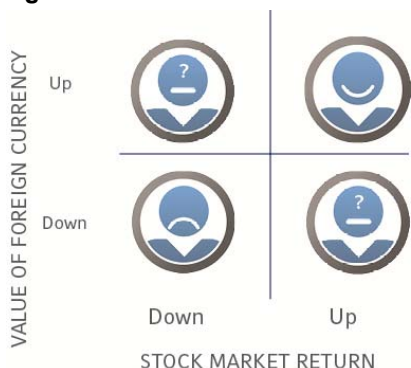
There is, however, another quite different exposure when investing offshore: currency effects. To illustrate, when a foreign currency appreciates relative to the NZ dollar, then, all else equal, the value of a New Zealand investor’s overseas portfolio rises. This exposure is typically an unintended or at least secondary by-product of investing offshore.

The effect of co-mingling these two quite different exposures (one intended and one unintended) into one single measure means that an investor may not get the pure exposure to the underlying market that they originally sought.

Figure 1 depicts the interaction between these two sources and the outcome for a New Zealand investor. When an overseas market rises (falls) and its associated currency also rises (falls) in value, then the outcome is unambiguously good (bad) for the New Zealand investor. However, the outcome is not so clear when the underlying market and its associated currency move in opposite directions. For example, it is not immediately clear whether positive returns from the US stock market will be sufficient to offset the losses incurred if the US dollar were to depreciate relative to the NZ dollar.

⁸ As quoted in Zweig (1998).

Figure 1: Return drivers when investing overseas



Currency hedging can be seen as an attempt to remove the uncertainties that currency movements introduce into an overseas portfolio. The result is that the foreign currency exposures of a fully-hedged investor are largely eliminated. The investor is instead left with exposures to the underlying local markets.

For this reason Russell considers the default position for an investor should be to hedge all overseas currency exposure fully. Only after the implications of any currency exposure have been reviewed by an investor within a well-defined governance framework, should currency exposure be introduced (if at all).

It is also worthwhile recognising that, while we consider that currency exposure typically introduces more risk into a portfolio, not every form of risk carries an extra reward. For example, one might suppose that an investor in the United States ought to require a return premium before choosing to invest in the US dollar. However, that same logic would lead to the conclusion that a New Zealand investor should also require a return premium before choosing to invest in the US dollar. It cannot be true both ways: the exchange of assets between the two investors cannot generate expected positive returns for both, even though it can introduce additional risk for both. So currency risk cannot carry an expected reward for all investors.

In addition to the default hedging recommendation, Russell considers that there are two additional reasons for fully hedging overseas currency exposures. These reasons are based on the nature of the liabilities of most New Zealand investors and a return premium that is available to investors who hedge their portfolios. We shall now review these two rationales.

LIABILITY-DRIVEN HEDGE RATIOS

During the 16th Century the School of Salamanca proposed a simple theory, “the law of one price”, which holds that the price of an internationally traded good should be the same anywhere in the world once that price is expressed in a common currency.⁹ Or using its modern-day derivative, the theory of purchasing power parity (PPP), exchange rates between currencies will adjust in the long run so that their purchasing power is the same in each of the two countries.

The implication of PPP for investors is that currency exposures do not need to be hedged, for it is the investor’s purchasing power (what the investor can buy with their assets) that is relevant. Exchange rates will simply move up and down to ensure constant purchasing power. Therefore, investors should not be concerned about exchange rate movements because their foreign currency holdings will buy exactly the same goods and services as if they held all their investments in their own country and received the same return. PPP, at least theoretically, ensures investors’ currency exposures are naturally hedged.

⁹ Based in the Spanish town of Salamanca, this school was the birthplace of economic theory.

For example, assume a New Zealand investor has an investment portfolio denominated in a basket of foreign currencies. If the dollar appreciates then all else being equal the value of that investor's portfolio in NZ dollar terms would decline. However, under PPP the price of goods in NZ dollar terms will also decline as the NZ dollar appreciates.¹⁰ So while you will have fewer NZ dollars, the NZ dollar price of goods will also be lower. Your purchasing power will be unchanged.

There is one problem with the concept of this natural hedge: consistent with the theory of PPP, there is no empirical evidence in support of PPP over the short term. Since the 1970s this lack of evidence has been the subject of much debate.¹¹ The current consensus view is that while PPP may hold over the long run, over the short run it does not. This has important implications for investors with NZ dollar liabilities (financial commitments) that must be met today or in the near future. Such investors will be unable to wait for the long run to arrive and for the natural PPP hedge to take effect.

The following investors can all be shown to have NZ dollar liabilities:

- Non-profit investors—the expectations and expenditures of their beneficiaries are in NZ dollar terms.
- Defined benefit superannuation schemes—they have NZ dollar cash flow obligations.
- Defined contribution superannuation schemes—they manage the funds of retirees whose lifestyles will be funded, in general, with NZ dollars.
- Homeowners—the largest liability of many New Zealanders is a NZ-dollar mortgage. Any currency effect on overseas investments is likely to increase the insolvency risk of a homeowner, all else being equal.

Foreign currency exposure in overseas investments therefore creates a potential currency mismatch between assets and liabilities. We consider that New Zealand investors with NZ dollar liabilities should adopt a 100% hedge ratio as their default strategy. To the extent that liabilities are denominated in other currencies, an argument could be made for reducing the hedge ratio.

A 100% HEDGE RATIO PROVIDES A RETURN PREMIUM

For almost 10 years, Russell has recommended that New Zealand investors fully hedge overseas equities exposures due to the presence of a premium,¹² often referred to as the exchange risk premium. To reveal the source of this premium one has to understand the mechanics of the instruments used to hedge currency effects, forward contracts.¹³

Forward contracts are priced to reflect differences in the interest rates of the corresponding currencies. Economic theory suggests that currencies with the higher interest rates will tend to depreciate (lose value) against currencies with lower interest rates, thereby offsetting the initial return advantage provided by the higher interest rate.¹⁴

Nevertheless, research has shown that the subsequent depreciation (if any) of currencies with higher interest rates generally fails to offset this interest rate differential for certain currencies, including the NZ dollar. This leaves an additional return (or premium) to investors who enter into forward contracts for currencies with high interest rates.¹⁵ This result is known as a “carry trade” and its persistence continues to puzzle researchers.

¹⁰ In economic terminology the decline in prices is called price deflation.

¹¹ See Taylor and Taylor (2004).

¹² See Ansley (2004). The exchange risk premium is the expected single-period gain from hedging with a forward contract relative to an unhedged position. It is equal to the interest rate differential less the change in spot rates. In expectation, the change in spot rates is zero.

¹³ For an overview of the mechanics of hedging see Johnson (2013).

¹⁴ This is known as the theory of covered interest rate parity.

¹⁵ For example, see Fama (1984).

This is the reason the NZ dollar is known as a carry-trade currency. Since the act of hedging involves purchasing forward contracts on the NZ dollar, the New Zealand investor is able to participate in the carry trade and earn premiums equal to the interest rate differential between New Zealand and overseas. Expressed differently, hedging is equivalent to borrowing cash overseas (at a low rate of interest), buying NZ dollars and depositing the money in a New Zealand bank (at a high rate of interest).

The impact of this interest rate differential on equity returns to a hedged investor is clear from historical data. From 1 January 1988 to 30 September 2013 the hedged MSCI World Index outperformed the unhedged index by 3.6% on average.¹⁶ 2.9% of this outperformance was due to the interest rate differential. The remaining 0.7% was due to the net appreciation of the NZ dollar over this period. Using more recent data, the three years to 30 September 2013, we see that, while the interest rate differential endures, it has declined to 1.6% p.a.

While the premium has recently declined, it nevertheless appears to persist, lending strength to the position that the default hedging strategy should be 100%. We note that while an unhedged investor may gain from a currency moving in their favour, the price they will pay will be this foregone interest rate differential.

But is this premium a risk-free return or simply compensation for some unknown risk? Researchers have struggled to provide an explanation but a number of theories have been suggested. The premium may compensate for consumption risk, liquidity risk, country size, or financial catastrophe risk.¹⁷ This latter theory appears plausible and empirical evidence lends some support. That is, like insurance, a carry trade participant, such as a Japanese investor who places money in a New Zealand bank, will earn a higher interest rate each year. However, on rare occasions, such as during a financial catastrophe when there is a “flight to safety”, they will experience a significant loss on the currency offsetting the benefits from the higher interest rates. A recent working paper extends research on the carry trade across asset classes and finds periods, often coinciding with global recessions, when carry strategies across asset classes do poorly.¹⁸

CURRENCY AS AN ADDITIONAL SOURCE OF DIVERSIFICATION

It is possible that the volatility of an equities portfolio can be reduced through the introduction of currency exposures. This is particularly the case when a currency can be expected to move to offset the downside risk of foreign equity markets in certain situations. To illustrate, if global equity markets were to decline, then while an unhedged New Zealand investor would experience a loss, that loss may be partially offset by currency gains should overseas currencies increase in value.

Our analysis shows that the volatility of hedged equities from 1 January 1988 to 30 September 2013 was 14.3% while that of unhedged equities was only marginally lower at 14.2%. To the extent that volatility measures risk, the risk profile of an overseas equities portfolio appears to be largely independent of the investor’s hedging policy, at least over this time period. Therefore, at first sight, there is little support for the idea that currency provides any form of meaningful diversification.¹⁹

Nevertheless, we cannot ignore the possibility that there may be certain extreme circumstances, such as was the case during the global financial crisis, when an exposure to foreign currencies may provide some form of downside protection. While most of the time foreign currency exposure has no meaningful impact on portfolio volatility, in certain, isolated occasions, movements in the NZ dollar have cushioned investors from sharp falls in equity markets. For investors focused on short-term risk in

¹⁶ January 1988 is the date from which this index data became available.

¹⁷ See Lustig and Verdelhan (2007) for a consumption explanation; Brunnermeier, Nagel, and Pedersen (2008) for a liquidity explanation; Hassan (2011) for a country size explanation; Brunnermeier, et al. (2008) and Burnside, Eichenbaum, Kleshchelski, and Rebelo (2011) for a financial catastrophe risk explanation.

¹⁸ See Kojien, Moskowitz, Pedersen and Vrugt (2013).

¹⁹ While there was little difference in the volatilities of a hedged and an unhedged portfolio, the volatility of a portfolio with a hedge ratio of 50% was marginally lower (by approximately 1.0%).

'crisis scenarios' the benefits of this downside protection may be worth the cost.²⁰ For most investors, however, such events are simply short term-noise and their significance rapidly fades over longer measurement periods.

CAN CURRENCY PROVIDE AN OPPORTUNITY TO ADD VALUE?

We saw in Chart 1 that the current valuation of the NZ dollar against the US dollar is relatively high by historic standards. Notwithstanding the reasons already provided for hedging currency exposures fully, there remains a natural inclination to reduce hedging on overseas equities when the NZ dollar is high. This is because a decline in the NZ dollar's value might be seen as a more probable scenario than a rise.²¹

However, we caution against taking such an approach. If the NZ dollar falls sharply and you are fully hedged, you will not have incurred a loss; you will have just missed an opportunity and suffered some short-term regret. And reducing your hedge is only one potential opportunity among many available to New Zealand investors. As with any investment, the right way to separate these opportunities is to look at the rewards (expected returns), risks (volatility and downside), and potential for portfolio diversification (correlations with other asset classes) and do so within a well-defined governance framework.

For investors who wish to move away from our default recommendation, Russell has created a framework premised on the idea that currency has its own special characteristics. We call this framework "Conscious Currency". It reflects our view that altering hedge ratios is an inefficient, untargeted, and unsophisticated way of taking on currency exposures. The vital step in this framework involves identifying a benchmark for the global currency market and then using this to measure performance of currency exposures from a total portfolio perspective.²²

CONCLUSION

We have established that the default strategy for New Zealand investors should be to hedge fully all currency exposures. There are three key reasons for this position:

1. Hedging provides the investor with a pure exposure to the risks and returns of the underlying markets. This is the exposure that is typically intended by the investor.
2. The liabilities of most New Zealand investors are, for the most part, denominated in NZ dollars. Foreign currency exposure in overseas investments creates a potential currency mismatch between assets and liabilities.
3. There is a premium for hedging equal to the interest rate differential between New Zealand and offshore. We expect this premium to endure providing an additional return to hedged investors.

A strategic hedge ratio lower than 100% might be appropriate if an investor has some liabilities denominated in other currencies. It may also be appropriate if an investor places special value on the potential short-term downside protection that currency exposures may offer in times of extreme market stress.

Even then, the introduction of currency exposures into a portfolio should only occur within a well-defined governance framework. In the absence of such a framework, we continue to recommend that long-term investors adopt the default strategy of fully hedging all currency exposures.

²⁰ The cost being the hedging premium forgone plus the impact from a potential currency mismatch between assets and liabilities.

²¹ We note that the decline in the value must be by more than the hedging premium before the investor is better off.

²² See Toner and Fjelstad (2013).

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