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CURRENCY MANAGEMENT FOR AUSTRALIAN INVESTORS

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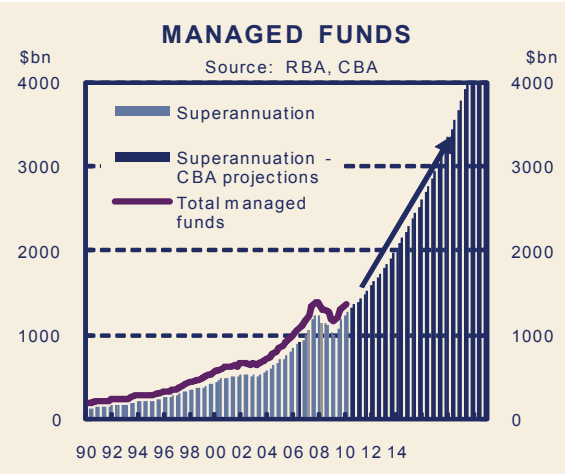
Given the size and future growth of the Australian superannuation market, with an average of up to 40 percent[1] of investors' portfolios offshore, currency risk is a significant issue for Australian investors and they need to consider the impact on any offshore investment exposure if unhedged. This research paper and presentation explore which asset classes should be hedged, looking at the optimal hedge ratio for international equities. Is there in fact one answer, or does it change over time? Does it differ depending on the investment time frame? As the Australian dollar tends to be a pro-cyclical currency, does some hedging make sense?

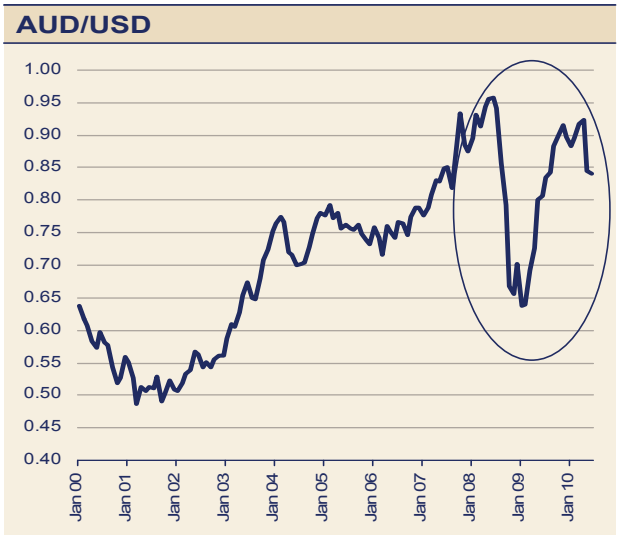
Due to the size of the Australian superannuation market, Australian investors have no choice but to invest both locally and offshore. When investors choose to diversify their portfolios by investing overseas, they face the issue of whether or not to hedge their foreign currency exposures. This is because where domestic assets provide solely an investment return; the return of owning overseas assets is influenced by currency movements. Therefore the potential for high volatility in the Australian dollar (AUD) can have a significant effect on portfolio balances, especially over shorter time frames. In fact, in 2008 the AUD dropped 37% against the USD in just a three month period, only to recover 50% within less than 12 months.

Chart 1: Projected growth of Australian superannuation market



Source: RBA, CBA

Chart 2: AUD vs USD
(Jan 2000 – 2010)



Source: Bloomberg

Some of the key issues analysed in this paper include:

- Investment into unhedged assets results in significant exposure to foreign exchange volatility.
- Currency may be a zero sum game over very long time horizons and may help to diversify total portfolio risk, however, short to medium term volatility (eg over three to five years) can be substantial and arguably should be actively managed rather than ignored.
- Arbitrary 50/50 hedge ratios are not necessarily the best option. Longer term studies suggest optimal hedge ratios closer to 40%. And indeed over rolling five year periods, analysis suggests optimal ratios of between 20% and 95% over the past 20 years.
- The AUD is pro-cyclical. This suggests that tactical overweight positions in global equities should be largely hedged.
- A combination of actively hedged and fully hedged portfolios may be the best strategy over the longer term.
- It is in the best interests of the Australian industry to identify and develop FX skills to manage these risks in the future.

The issue of currency hedging has always inspired vigorous debate, especially in light of the globalisation of portfolios. Those who favour currency hedging believe that it lowers portfolio risk and that the cost of hedging is inconsequential. Those who oppose currency hedging believe that it does not reduce risk sufficiently to justify its cost. Some opponents argue that currency exposure helps to diversify a portfolio, so that to hedge this exposure might increase risk rather than reduce risk.This debate on currency has been ongoing for many years. The conclusion of many papers is that currency hedging is a zero sum game over the long term2, in other words, currency is likely to have a negligible effect on overall investment returns, with losses and gains historically cancelling each other out. However, what is long term[2]? Most analysis looks at returns between hedged and unhedged returns over 20 and 30 year periods.

Table 1: Portfolio return – hedged vs unhedged (Jan 1990 – Jun 2010)

Annualised	Return	Volatility
100% hedged	4.3%	14.8%
Unhedged	5.4%	14.0%

Source: Aberdeen Asset Management, Bloomberg MSCI World (ex-Australia) in AUD hedged and unhedged

Even if investors are of the view that foreign exchange risk washes out over the long term, it is important to have the ability to reduce volatility of returns and reduce risk through some sort of currency hedging.

For Australian investors, a 50/50 hedge ratio reduces portfolio risk. See table below comparing 0% hedged, 50% hedged and 100% hedged international equity MSCI portfolio from January 1990 to June 2010.

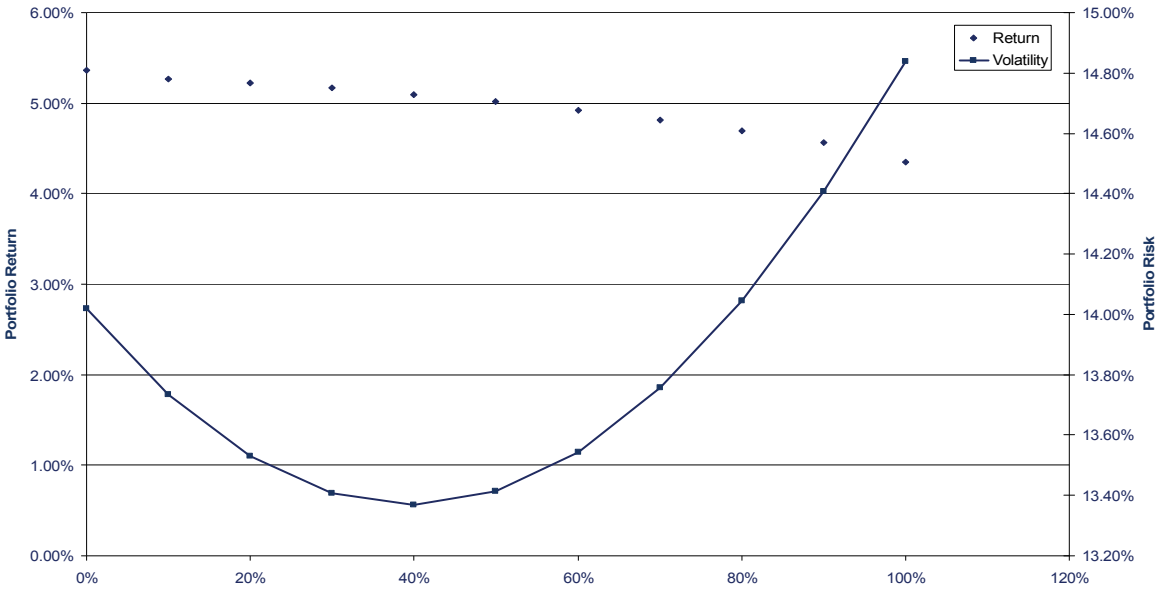
Table 2: Portfolio Risk and Return (Jan 1990 – Jun 2010)

Hedging Policy	0% Hedge ratio	50% Hedge Ratio	100% Hedge Ratio
Portfolio volatility (%pa)	14.02	13.41	14.84
Portfolio return (%pa)	5.36	5.02	4.35
Information ratio	0.38	0.37	0.29

Source: Aberdeen Asset Management, Bloomberg MSCI World (ex-Australia) in AUD hedged and unhedged

While Table 2 above suggests that a 50/50 hedge ratio is less volatile, it does not answer the question of what is the ultimate hedge ratio. A recent study by State Street using data from 1990 to June 2010 suggests that the optimal hedge ratio for Australian investors looking to reduce the risk of their international equity portfolio based on this 20 year period was 40%.[3]

Chart 3: Portfolio risk vs Hedge Ratio (Jan 1990 – Jun 2010)

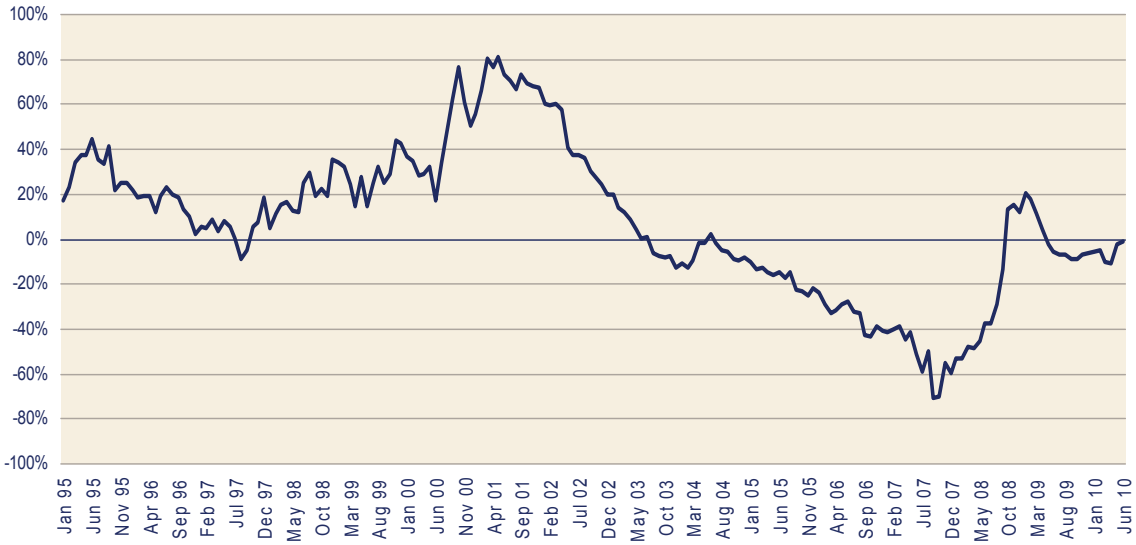


Source: Aberdeen Asset Management, Bloomberg MSCI World (ex-Australia) in AUD hedged and unhedged. Volatility (RHS) defined as annualised standard deviation. Return (LHS) defined as annualised return over period Jan 1990 – June 2010.

However the optimal hedging ratio may change depending on the investor's overall asset allocation. For example, the total percentage in foreign assets or the percentage of the portfolio exposed to Australian equities impacts the portfolio's total risk due to the correlation effect between different asset classes.

If an investor has such a long-term investment time horizon, then the amount of hedging may not be an issue. However it ignores what might happen along the way. Many investors perceive risk differently. They may care about the exposure to loss throughout their investment horizon and not just at its conclusion. Currency volatility can be painful for investors over the short and medium term, up to 10 years, and can compromise a portfolio's ability to meet underlying obligations, such as income and expenditure requirements. Unmanaged currency exposure can therefore represent an uncompensated risk, especially for investors with shorter-term investment horizons such as retirees or those about to retire.

Chart 4: Rolling 5-year return of Unhedged vs Hedged MSCI World Ex-Australia in AUD
(Jan 1990 – June 2010)



Source: Bloomberg and Aberdeen Asset Management. MSCI World Index (ex-Australia) Unhedged vs. Hedged to June 2010. Returns are over rolling 5 years, not annualised.

As can be seen from Chart 4 above, there can be quite a significant difference between the total return of a hedged and an unhedged international equity portfolio over a rolling five year period. This disparity in returns can lead to issues for those investors with a shorter to medium term investment horizon.

The recent volatility in the AUD appears to be inhibiting the amount that superannuation funds invest offshore according to a survey of attendees at the NAB Super Funds conference which took place in August 2009. The average volatility of the AUD versus the USD since 1985 has been 11.6 percent.[4] This volatility compares with equities, so investors concerned with equity risk must be equally concerned with currency risk. The questions are how to address this risk, and what are the options when it comes to currency hedging?

Table 3: Currency volatility vs AUD
(Jul 1990 – Jun 2010)

Currencies	Standard Deviation (%pa)	Exposure as % of portfolio
CAD	9.28	5.36
CHF	13.65	3.78
EUR	11.64	14.41
GBP	12.11	9.87
JPY	16.53	10.93
NOK	11.98	0.34
NZD	7.39	0.05
SEK	11.70	1.38
USD	11.60	53.87
Weighted Total	12.14	100.0

Source: State St Global Markets Portfolio Solutions. Annualised standard deviation vs AUD July 1990 -June 2010. Percentage of portfolio is based on MSCI World (Ex-Australia) Index as at June 2010.

Currency management options

Just like any asset classes, there are many ways to manage currency:

- **Unhedged:** this is where no currency hedging is implemented and all offshore portfolios are exposed to currency movement of the AUD vs other currencies. This strategy would be implemented where there is a belief that currency hedging increases the risk profile of returns and removes any correlation benefits within a diversified portfolio.

- **Protection/Passive strategy**: such as fully hedging, are used to reduce/eliminate risk of currency exposure. This is where underlying currency exposures within offshore portfolios are hedged back to client's local currency. Another form of passive hedging is where the underlying currency exposure is hedged back to the underlying benchmark currency exposure, to eliminate any additional currency risk through active stock selection.

- **Value-add (active strategies)**: used to enhance returns, currency positions are implemented in addition to underlying exposure within any offshore portfolios. There is also the option to short the local currency in order to add value if there is a belief that it will depreciate.

- **Risk reduction strategy**: similar to protection strategy in that it is used to reduce risk, but is active in its nature, aims to reduce risk and smooth profile of an unhedged exposure by adjusting the level of hedging and currency positions. Usually a maximum level of hedging is put in place to

ensure currency positions do not dominate the total return of the underlying offshore portfolio. Currency positions only relate to underlying exposures in offshore portfolios.

The strategies above can be implemented at the asset class level or at a total portfolio level, otherwise known as a currency overlay. With either option investors can choose to be fully hedged in order to remove any offshore currency exposure or partially hedged depending on the asset class and within asset classes.

Why do funds hedge their currency exposure?[5]

There are two types of risks investors look to mitigate through currency hedging:

1. **Income/yield or transaction risk:** this is the risk that arises when a receipt or payment is due in a foreign currency but the end payment is received in AUD. For example, the coupon payment from a US government bond. The risk is that by the time the investor receives the payment, the income generated offshore will be reduced when it is converted back into Australian dollars, if there is a rise in the Australian dollar exchange rate.

2. **Capital value risk:** for an Australian investor, there is the risk that the capital value of the investment will fluctuate as a result of movements in the exchange rate, when converted back to AUD. For example the value of an investment in a US stock will fall if the Australian dollar rises relative to the USD in Australian dollar terms.

Currency hedging is more common in asset classes where the majority of their return is income. These asset classes also tend to be lower in volatility and, in order to keep volatility low, currency hedging is implemented to remove additional risks, in this case exchange rate risk. It is therefore common to see asset classes such as offshore fixed income fully hedged. For other asset classes, such as listed property and equities, the market is split on what approach to take on currency hedging.

What are the risks related to currency hedging?

While currency hedging may enhance an investor's return, a lot of investors shy away from hedging as they find it too complex and linked to many risks, some of which are listed below:

- Due to the fact that the Australian Taxation Office classifies gains or losses from currency as revenue, any realised gain or loss on currency hedging cannot be offset against gains or losses on underlying assets of a capital nature such as equities. Therefore currency gains may lead to additional taxable income for investors unless an investor has revenue/income losses to offset, while currency losses may be trapped if they exceed any income or revenue gains.
- Currency positions can only be implemented using derivatives which can be backed using cash, or other assets. If using cash to back currency hedging, this will reduce the amount that can be invested in the underlying asset class. If using the underlying assets to back the currency positions, these assets may need to be sold to meet any obligations owed to the counterparty on

the maturity/roll date of the derivative instrument, if the AUD has depreciated since the derivative position was implemented.

- Counterparty risk arises as the derivatives are purchased through a financial institution which acts as the counterparty providing the relevant exposure. As the exposure to the underlying currency position is through this counterparty, there is the risk that if the counterparty were to go out business, any unrealised profit owed, may not be paid in the event of default. This risk is similar with all derivative transactions. It is therefore important to diversify the exposure of derivative positions among many counterparties to reduce this risk.

What are the risks of not hedging?

The risk of not hedging is simple. Any rise in the AUD will decrease the value of investments not denominated in AUD. This can therefore decrease the value of an overall portfolio and increase risk.

The AUD and the recent experience

Over the last decade, international equities indices have been disappointing, however markets rallied strongly coming out of the global financial crisis, with returns from international equities (MSCI World (Ex-Australia) Index in local currency) of 43% for the one year to March 2010 when equities markets peaked. The problem for a lot of Australian investors is that they did not experience these returns as their exposure to international equities was unhedged. The reason is the AUD rose 46% versus the USD over this same time period, this meant that any local international equity returns were largely wiped out by this appreciation in the AUD. The MSCI World (ex-Australia) unhedged in AUD returned 15% over the year to March 2010.

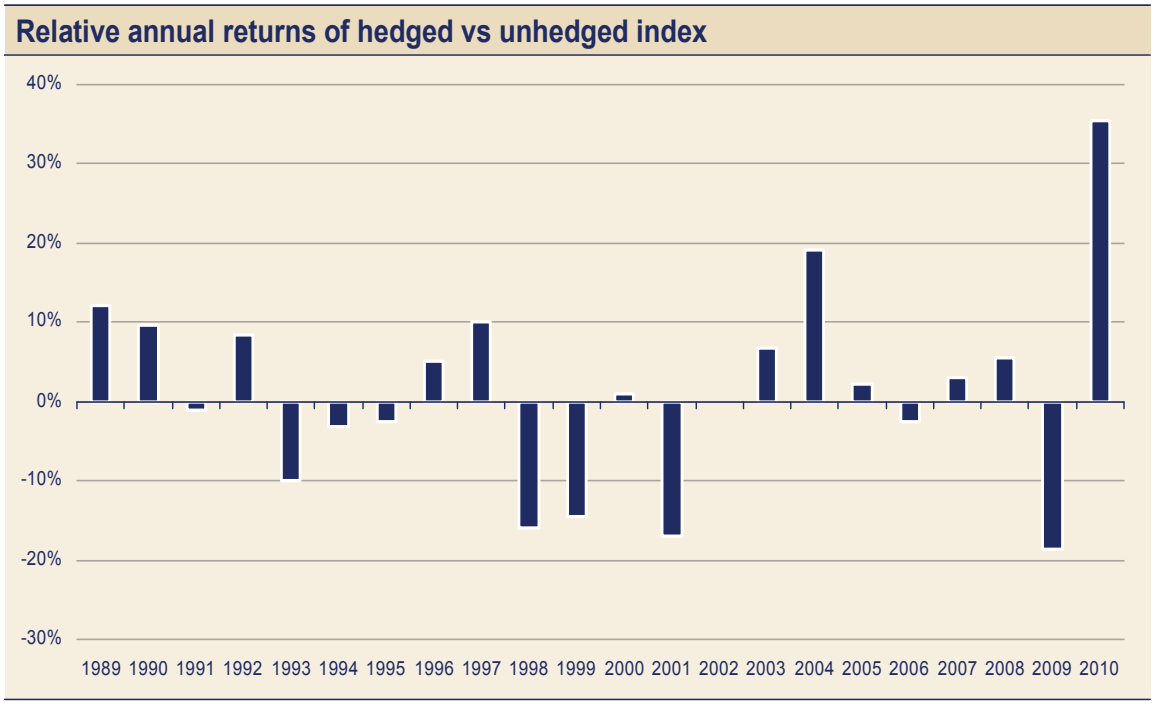
As shown in Table 4 below, the last two and a half years have been an extremely volatile period for equity markets and the AUD. In the year to February 2009, investors experienced significant draw downs in the value of their international equity portfolios, which was partially offset by the fall in the AUD. However when markets rebounded in the year to February 2010, the AUD appreciation eroded a large proportion of this return. The year to February 2010 was the worst period in the last 20 years to be unhedged. The year to June 2010 has been a relatively more stable period, however over this period hedged international equity returns have been double unhedged for Australian investors.

Table 4: A comparison of AUD and international equities hedged vs unhedged

	1 yr to Feb 2009	1 yr to Feb 2010	1 yr to Jun 2010
AUD	-31%	40%	4%
MSCI in local currency	-45%	43%	9%
MSCI Unhedged in AUD	-22%	10%	6%
MSCI hedged in AUD	-45%	45%	12%

Source: Bloomberg and Aberdeen Asset Management

Chart 5: A comparison of AUD and international equities hedged vs unhedged
(Feb 1989 – Feb 2010)



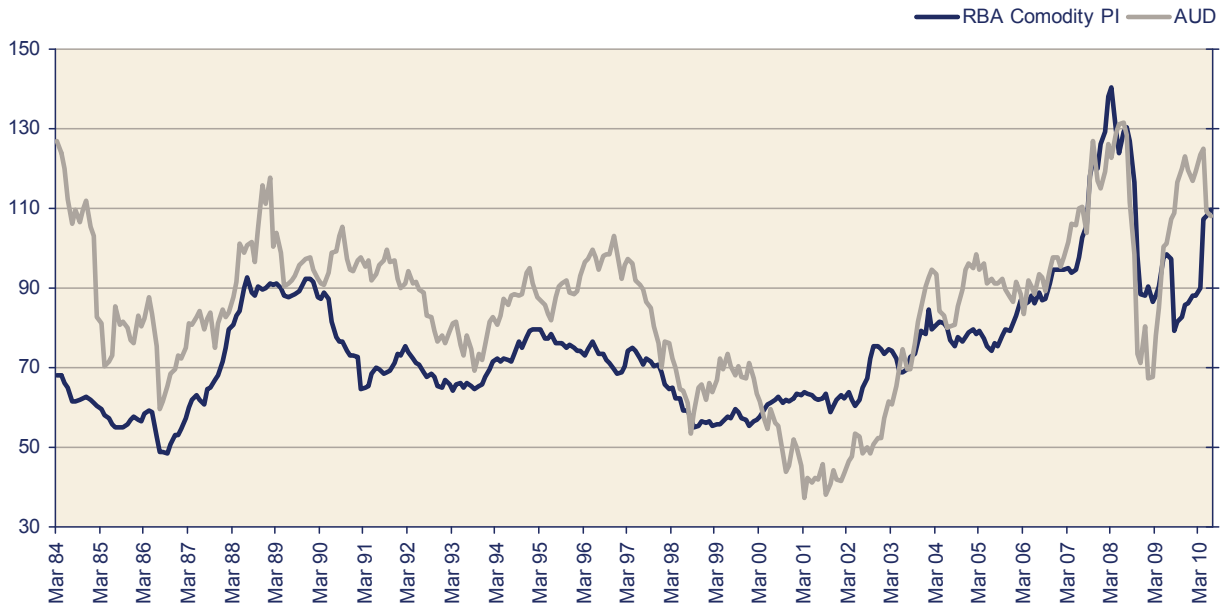
Source: Bloomberg and Aberdeen Asset Management. MSCI World (Ex-Australia) Index

Understanding what drives the AUD

It is important to understand what drives the AUD in order to fully understand what happened during 2008 to 2010 and why this has such a large influence on the return of a hedged versus unhedged international equity portfolio. It is also important to distinguish whether the return of an international equity portfolio is being influence by equity markets and companies' performance or the movement in the AUD. Within an unhedged strategy, it is likely to be both, and at certain time during the economic cycle the movement in AUD is likely to dominate the performance of any unhedged offshore equity investment.

As stated previously, the AUD is a volatile currency - in fact as volatile as equities themselves. So what are the main drivers of movements in the AUD?

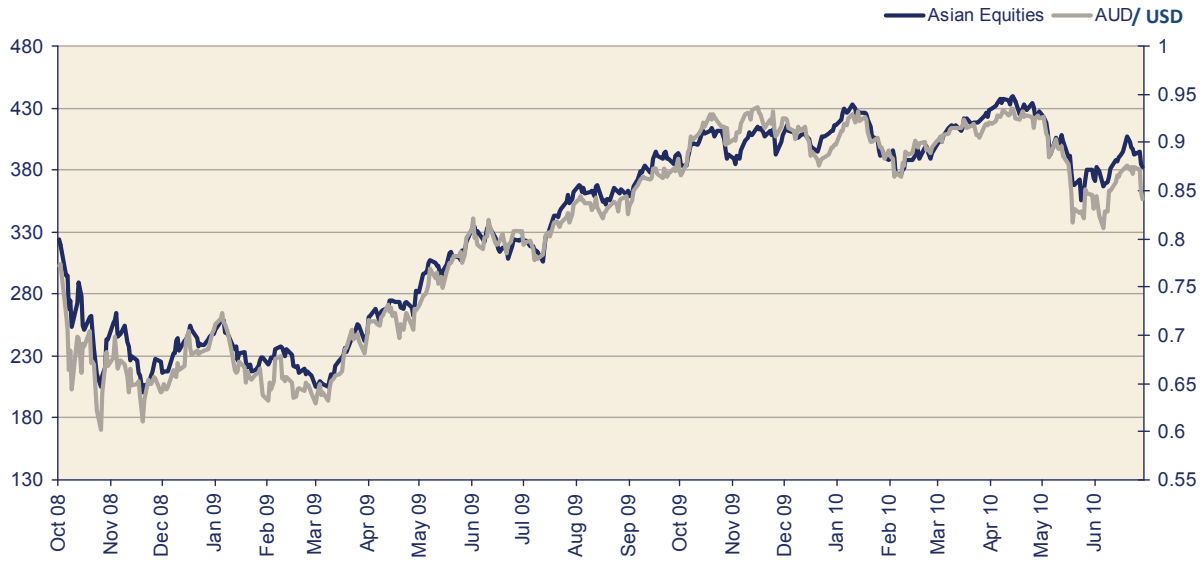
Chart 6: Commodities vs the AUD
(Mar 1984 – Mar 2010)



Source: Bloomberg and Reserve Bank of Australia

Australia is a commodity economy, and therefore the AUD tends to move in line with commodity prices. As the prices and demand for commodities increase, so does the AUD. However this relationship is not perfectly correlated, as can be seen see in Chart 6 above, there have been times where the relationship has broken down. Most recently in the latter half of 2009 and early 2010, where the AUD increase outpaced that of commodity prices. This can be partly explained by the recent RBA monetary policy tightening which has resulted in Australian interest rates almost 4% above those in other Western nations. The large interest rate differential led to an increased demand in the AUD.

Chart 7: Asian Equities vs the Australian Dollar
(Oct 2008 – Jun 2010)



Source: Bloomberg

More recently the AUD has been highly correlated with the direction of global equity markets, particularly Asian equity markets. It may be that many global institutional investors have been using the AUD as a proxy for the Asian growth story and rather than buying equities directly they have been buying the AUD. If this relationship were to continue, one could argue that any overweight position in global equities (based on anticipated future growth) should be fully hedged for Australian investors. Hedging enables investors to capitalise on the total return of such an investment as an unhedged exposure would simply negate the overweight position. Of course a reduction in global growth may imply a reduction in international equity exposure and hence a reduction in currency hedging.

The high correlation between the AUD and these metrics means that the volatility of the Australian dollar and its unique drivers makes it difficult to manage currency risk for Australian investors. Below are some simple rules of thumb:

When to consider hedging:
- Rising global industrial production / rising commodity prices
- Asian growth remains sound
- RBA tightening / interest rate differentials favour Australia
- Falling US dollar
- Positive risk sentiment

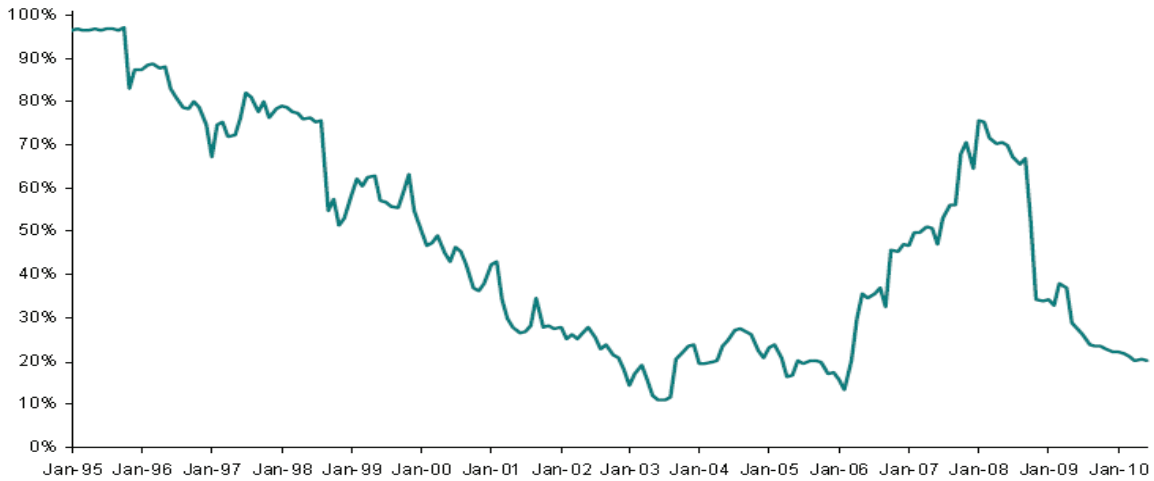
When to reduce levels of hedging:

- When most / all of the above is priced-in
- Any periods of risk aversion (eg rising levels of market volatility / uncertainty)
- Peak in regional growth / concerns for potential economic weakness
- Mature phases of regional / global monetary tightening
- AUD rates fall below global rates

What does this mean for the optimal hedge ratio when it comes to international equities? A recent study by State Street[6] shows the optimal hedge ratio based on the MSCI World (Ex-Australia) Index. The study looks at what would have been the optimal percentage of an international equity portfolio to hedge against the AUD over the previous five year period. As can be seen from Chart 8 below, the amount of hedging considered optimal changed significantly over each period tested. The optimal hedging ratio suggests a high of 95% hedged in the early 1990s down to only 10% to 20% at the turn of century and ranging anywhere from 15% to 80% over the last retrospective five year rolling periods between 2006 to 2009.

With such a change in the optimal hedge ratio, what is the best solution for Australian investors when looking to invest offshore?

Chart 8: Overall optimal Hedge Ratios over rolling 5-year periods
(Jan 1995 – 2010)



Source: Source: State St Global Markets Portfolio Solutions. Optimal Percentage Hedged for previous 5 years rolling Jan 1995 to 2010, using MSCI World (Ex-Australia) Index

The solution

While there may not be a clear answer as to what the optimal hedge ratio may be, due to it being influenced by a number of factors such as total portfolio exposure and investment time frame, the one answer that is clear is that investors should address currency risk and understand the options available.

It is imperative for investors to address currency risk especially if their investment time horizon is less than 10 years. In order to deal with the volatility of the AUD, one should use a combination of hedged and unhedged strategies in asset classes of a capital nature such as international equities. In order to take advantage of volatile swings in the AUD one should use an actively hedged strategy among the combination of options. The recent analysis by State Street supports this view, showing that the optimal hedge ratio changes over time. Also with an actively hedged strategy, managed by an investment firm with a proven track record, it is possible to take advantage of movements in the AUD at certain points in the economic cycle as they occur, rather than the risk of ill timing and incurring transaction costs if one were to attempt to move money between a purely unhedged and fully hedged strategy.

The industry needs to treat currency as it would any other asset class and understand the options available. Once it understands the options and those most appropriate for investors, it should review currency managers on their skill; focussing on efficient implementation particularly for a passive approach and their ability to reduce risk or add value for an active manager. It is imperative that the industry embraces currency as an important part of portfolio construction, especially as the industry grows and is forced to increase its exposure offshore.

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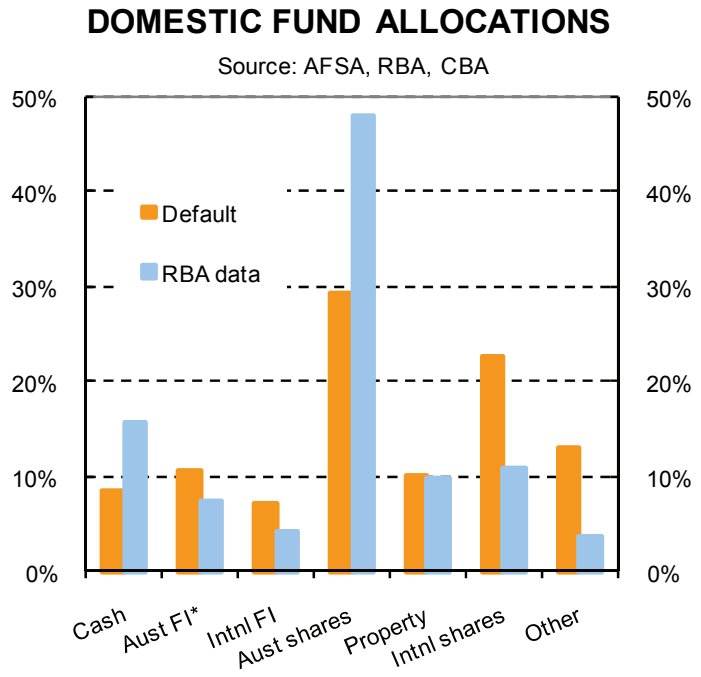
Average allocation to international assets in Australian portfolios. Up to 40% assumes 22% in international equities, one third of 10% property exposure at 3%, 7% international fixed income, and half of the 12% "other" exposure at 6%. Data below is default balance fund as defined by ASFA as at April 2009. RBA data is actual allocation of all Australian Funds as at March 2010.



** Aust FI includes loans & placements*

Source: ASFA, RBA, CBA

2. **Kritzman, M. "The Optimal Currency Hedging Policy With Biased Forward Rates," Journal of Portfolio Management, Summer 1993.**
The issue of currency hedging has inspired vigorous debate recently, especially in light of the globalization of institutional portfolios and turmoil in the European currency markets. This article describes how to determine the optimal currency hedging policy, which I define as the policy that yields the greatest amount of satisfaction consistent with the investor's willingness to sacrifice expected return in order to reduce risk. The solution is not universal, nor is it fixed. It depends on considerations that are specific to the investor, and it varies with changes in interest rates and other factors.

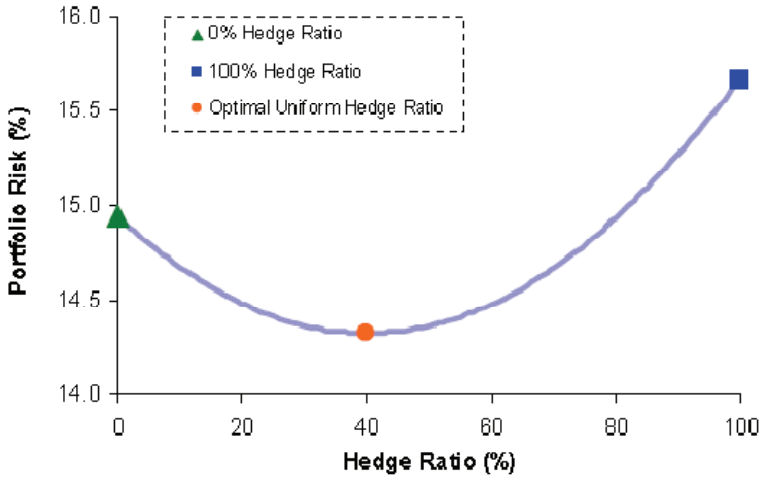
Kritzman, M. "Currency Hedging and the Risk of Loss," The Journal of Alternative Investments, Winter 2000.
The most commonly cited argument against currency hedging is the assertion that foreign exchange risk washes out over the long run. Of course, the fact that the pound depreciated from $7.39 during

the mid 19th century to $1.40 at the beginning of the 21st century provides a stunning counterexample. But even if we accept the view that foreign exchange risk washes out over long horizons, it does not necessarily follow that we should ignore the volatility introduced by currency exposure. It depends critically on how we perceive risk. This article begins by reviewing currency arithmetic and shows explicitly how exchange rate fluctuations affect a foreign asset's risk. It also contains a derivation of the minimum risk and optimal exposures to currency forward contracts. The second section presents two alternative approaches for measuring risk of loss, and it shows the effect of currency exposure on these two measures of risk of loss.

Zenith Investment Partners International Equity Review 2009: Key Issues - To Hedge or Not to Hedge

Wealth Foundations International Shares: To hedge or not to hedge?

3. State ST Global Markets Portfolio Solutions Currency Hedging Analysis by State Street Associates July 2010



Source: State St Global Markets Portfolio Solutions. Portfolio risk defined as annualised standard deviation over the period Jan 1990 – June 2010. The chart above plots the "Optimal Uniform Hedge Ratio" for the portfolio. This solution is the risk-minimising hedge ratio, given a constraint that each currency is hedge in the same proportion. The data is based on the MSCI World (Ex-Australia) Total Return Index Hedged and Unhedged.

4. Investment and Technology October 2009 Cover Story: The Great Currency Debate

5. AMP Capital Insights November 2008: Why Hedge Foreign Currency

6. State Street Global Markets Portfolio Solutions – Optimal Hedge Ration Analysis: International Equity Portfolios by State St Associates July 2010.

A study looking at historical currency-specific optimal hedge ratios for an Australian investor fully invested in foreign equities based on MSCI World (Ex-Australia) Total Return Index. At each point in time, starting in January 1995, we use the previous 5 years of data to compute the optimal hedge ratios. This methodology is commonly referred to as a "rolling-window" back test.

At each point in time beginning from Jan 1995, we obtain the previous 5 years of data as well as the current exposure of MSCI World Ex-Australia to compute optimal currency-specific hedge ratios. Currency exposures are derived from the value weights of the index constituents. We take into account the following changes to the index constituents:

- MSCI South African Gold Mines is excluded on 1 March 1995
- MSCI Portugal is included on 1 December 1997
- MSCI Malaysia is excluded on 30 September 1998
- MSCI Greece is included on 1 June 2001
- MSCI Israel is included on 27 May 2010
- The Euro became an official currency on 1 January 1999. We use the Deutsche Mark as a proxy from Euro zone returns prior to 1999.

The optimal hedge ratio is the total portfolio hedge ratio. It does not assume equal hedges per currency exposure; it uses optimal currency-specific hedge ratios rather than an optimal uniform hedge ratio. The hedging policy that minimises total portfolio risk depends on the volatilities of the currencies as well as their correlations with the underlying asset and with each other, and it is seldom uniform across all currencies. Therefore, all results focus on currency-specific hedge ratios. For the analysis, we use data, namely from July 1990 to June 2010.

Acknowledgments
Aberdeen thanks State St Global Markets Portfolio Solutions for their work on optimal hedge ratios.

Disclaimer