Aurora Updates
Does Asset Allocation Work?

29 April 2014

Executive Summary

- Asset allocation is a key investor tool in the good management of large diversified portfolios. But what benefit can be extracted by asset allocation, particularly amongst traditional asset classes?
- Looking at the recent trends in markets of traditional asset classes, a number of themes are apparent:
    - Equity asset classes behave as one.
    - Corporate bonds, being another flavour of corporate risk, behave like equities.
    - Bonds are a diversifier, but their impact on typical portfolios is negligible.
    - The A$ behaves like a risk asset.
- While asset allocators may split traditional risk assets into a plethora of classes, traditional risk asset classes really behave as though there are two meaningful divisions. Yes, only two – 2, deux, zwei, due, 二, duo! Broadly, the two divisions align with a) equity risk and b) currency risk. Adding a practically risk-free asset such as cash, completes the span of traditional asset classes with just three assets.
- To meaningfully increase the breadth in portfolios, investors need to look hard at non-traditional asset classes and investments.
- The Aurora Fortitude Absolute Return Fund is one such investment that has delivered deep diversification benefits for the dominant equity risk with superior risk adjusted returns (Sharpe Ratio of approximately 1.2).

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Asset Allocation

Asset classes are convenient when constructing a diversified multi-asset portfolio:

1. Group assets and strategies into like groups so that the common drivers of return within the group explain the vast proportion of actual returns for the members.

2. Moreover, returns between the groups are weakly related.

3. Allocate money depending on market pricing and conditions to take advantage of expected differences between the returns of the groupings. Benefits accrue due to diversification – lower portfolio risk as the asset classes are weakly correlated.

Asset allocation is the largest determinant of return for diversified multi asset portfolios. Academic studies have found asset allocation accounts for 90% to 100% of diversified pension fund returns.[1]

To demonstrate the first premise, consider active Australian equity managers. The outright risk, or volatility of these managers is generally in line with the asset class benchmark risk of say 15% over the long term. Of importance here is the risk of these investments vs the benchmark, or tracking error, and for active Australian equity managers this is usually 1-5% depending upon the manager and their strategy. From these numbers alone it can be observed the vast bulk of the investments can be attributed to the benchmark risk and so logically it makes sense to consider the group as one. A fourth step in any investment program is select actual managers or investments within an asset class.

The purpose of this note is to investigate the second point to better understand how markets are behaving today. Are asset classes more or less related today than they have been in the past? If all assets move together then there is little point in spending time allocating between the assets.

For this analysis we shall restrict ourselves to the more common and easily investable assets: Australian equities, international developed markets equities, emerging market equities, international corporate bonds, international government bonds, Australian government bonds, Australian cash. Additionally, we consider an investment in US$ cash that gives an almost pure exposure to currency movements. US$ was chosen as the representative currency for overseas investments.[2]

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[1] See Brinson GP, LR Hood & GL Beebower, (1986), 'Determinants of Portfolio Performance', *Financial Analysts Journal*, 42(2), 39-44; Brinson GP, BD Singer & GL Beebower, (1991), 'Determinants of Portfolio Performance II: An Update', *Financial Analysts Journal*, 47(3), 40-48; and Ibbotson RG & PD Kaplan, (2000), 'Does Asset Allocation Policy Explain 40, 90, or 100 Percent of Performance?', *Financial Analysts Journal*, 56(1), 26-33.

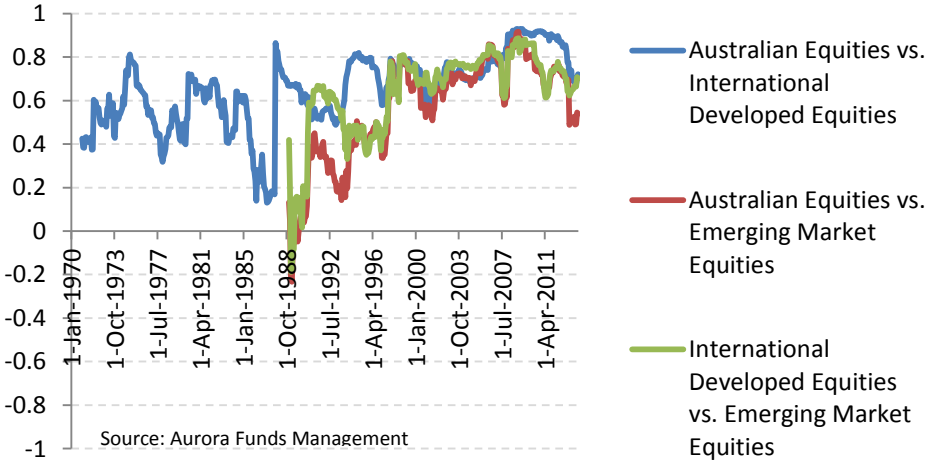
[2] For institutional investors, their selection of currency hedge ratio for equity investments is equivalent to investing in the fully hedged equity investment and an additional investment in US$ cash on an unhedged basis. In this way the contribution to risk from the equity investment decision and the currency hedge decision is explicit and better understood.

Correlation Analysis

We study the co-movement of asset prices using correlation. With eight traditional asset classes and historic data since 1970, we draw a number of conclusions:

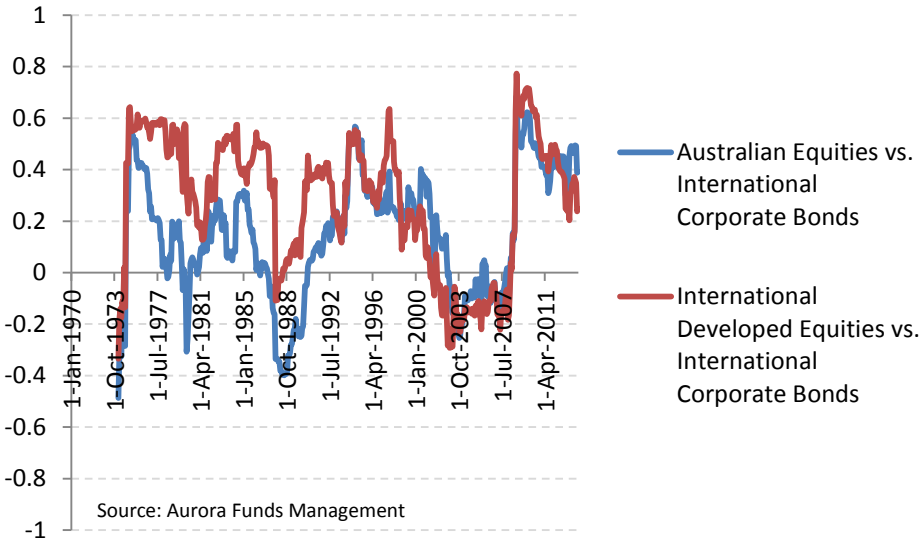
1. **Equity asset classes behave as one:** Correlation between equity classes has fallen in the short term from all time highs post the global financial crisis. See Figure 1 below.

Figure 1: Correlation between Equity Asset Classes



2. **Corporate bonds are another flavour of equities:** Despite being packaged as a bond, the common factor driving corporate bond prices is the equity factor. This is a reasonable conclusion as corporate bonds are merely higher in the corporate capital structure compared to equities. When corporate risk is repriced significantly, as it was in the global financial crisis, it is reasonable that both flavours of corporate risk are repriced. See Figure 2 below.

Figure 2: Correlation between Credit and Equity Asset Classes



3. **Bonds are a diversifier but it is only negligible:** Bonds (both international and domestic) have moved into the negative correlation zone after the global financial crisis -see Figure3 below. Bonds are a diversifier. However, the risk characteristics of government bonds is significantly lower than that of equities – see Figure 4 below. For most typical 70% equity / 30% bonds investors, the diversification benefits are negligible given the large exposure to equities and their high risk. A risk balanced portfolio would need to be 20% equity / 80% bonds.

Figure 3: Correlation between Government Bonds and Equity Asset Classes

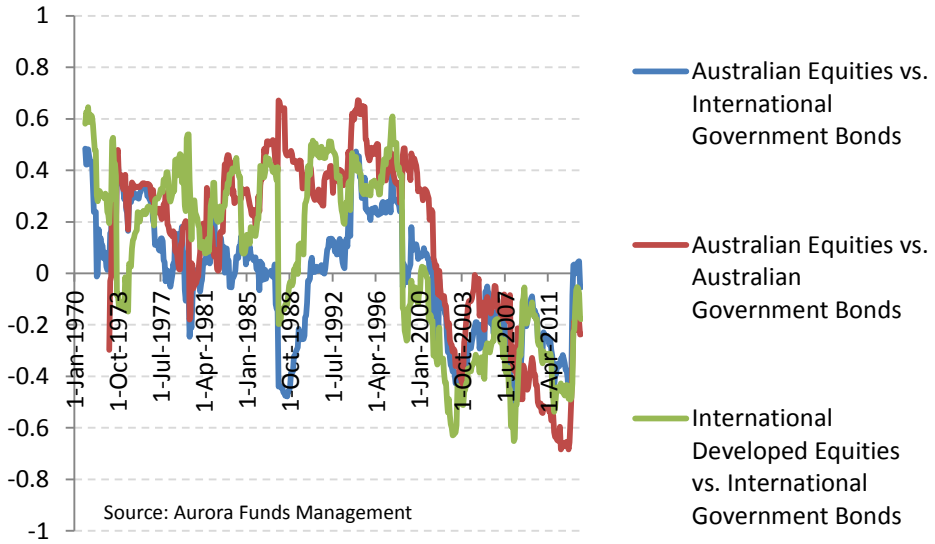
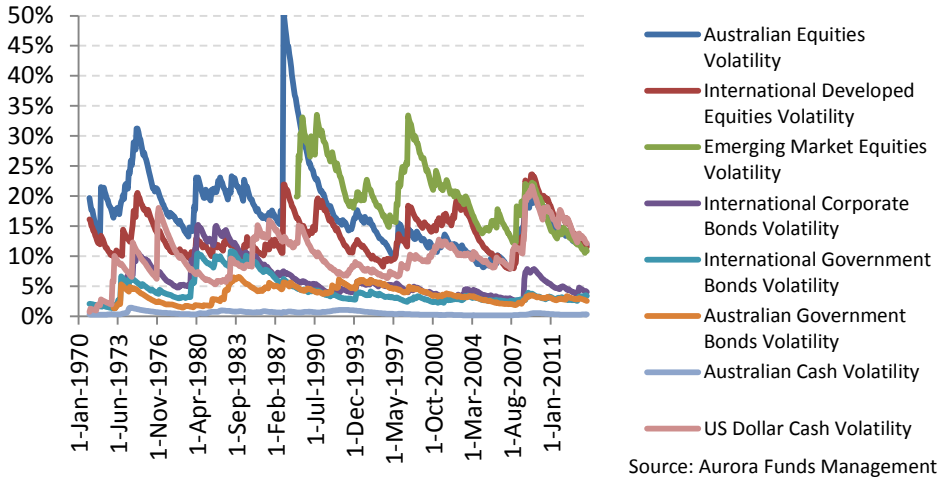
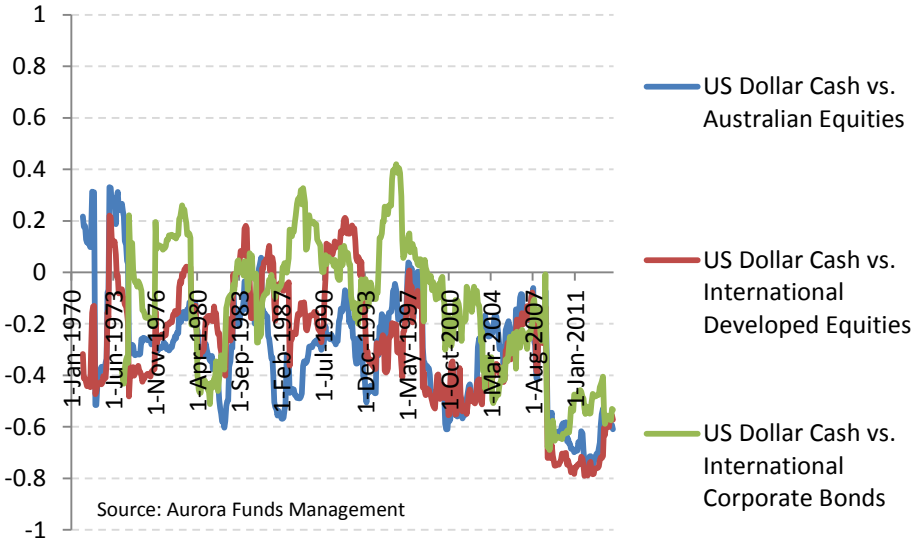


Figure 4: Volatility of Asset Classes



4. **The A$ behaves like a risk asset:** Investing away from A$ is the biggest diversification in any standard asset class portfolio of an A$ investor. This is because a) the risk level is comparable to that of equities, see Figure 4, and b) the correlation is negative, see Figure 5.

Figure 5: Correlation between US$ Cash and Equity Asset Classes



Number of Bets

As noted above, the high risk assets are highly correlated while the diversifying assets are of smaller risk. Despite studying 8 asset classes, the high correlation means that there are vastly fewer bets an investor can make. For example, buying equities in Australia, international developed markets or emerging markets is effectively the same bet because of the high correlations. When analysed over time, the 2 largest risk bets from our 8 asset classes account for approximately 95% of risk across all asset classes – Figure 6.

The first bet is a blend of equities, and the second introduces currency risk.

Figure 6: Proportion of Total Risk in First Two Bets

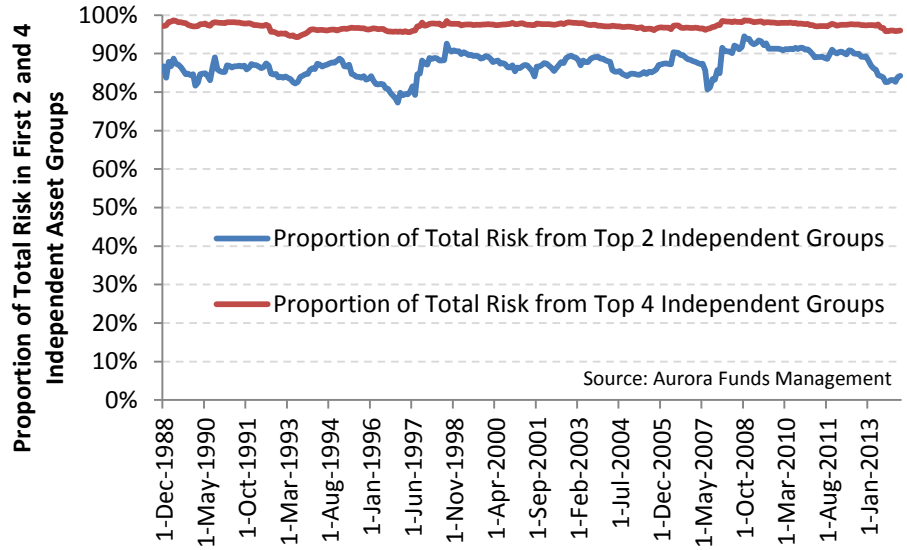
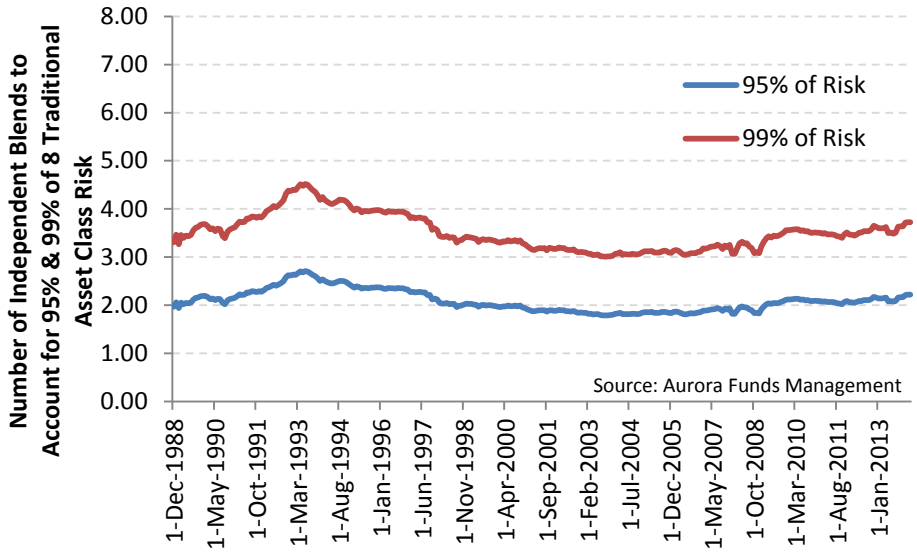


Figure 7 below shows that over the last 26 years asset allocators really have been able to make only 2 independent bets on their portfolio to account for 95% of the available risk opportunities. Dividing the available risk assets into more than 2 groups is simply a displacement activity.[3]

Figure 7: Number of Independent Bets to Account for 95% and 99% of the Available Risk from Eight Traditional Asset Classes



Role of Hedge Funds

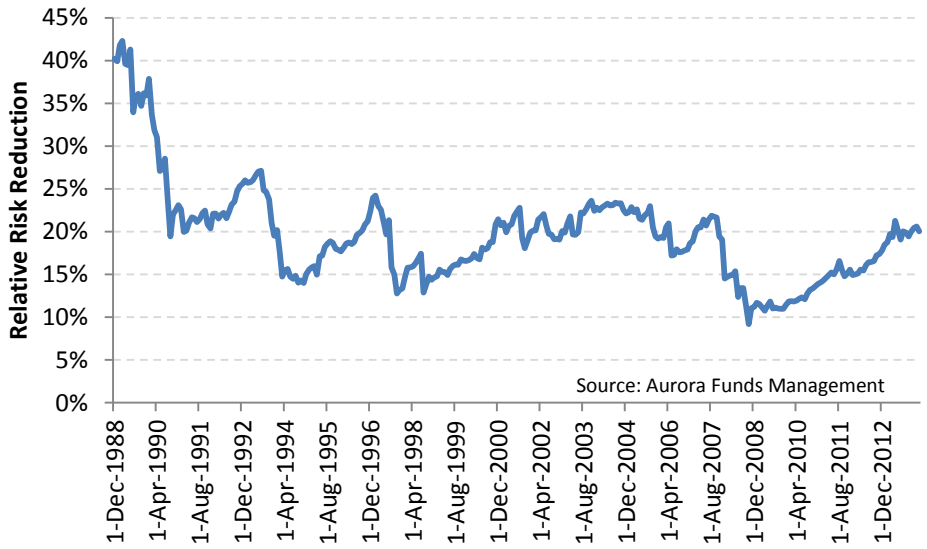
This study has used only eight traditional asset classes. This study demonstrates amply that splitting equities into Australian, international and emerging markets is of little tangible benefit. There is little diversification benefit. In Figure 8 we quantify the diversification benefit for a typical 70% equity / 30% bonds Australian investor. Diversification, or the benefit of investing in weakly correlated assets, only reduces the risk of a typical 70/30 Australian investor by one fifth. Not very much really.

Adding more traditional asset classes will have negligible impact on the conclusion of this study. Assets such as small cap equities, private equity[4] and high yield debt are again different flavours of equity risk. Assets such as direct property are low risk and are also impacted by significant falls in equity prices.

[3] Technically, the 'independent asset groups' or bets relate to the eigenvectors of the covariance matrix with the charts showing the relative magnitudes of the corresponding eigenvalues.

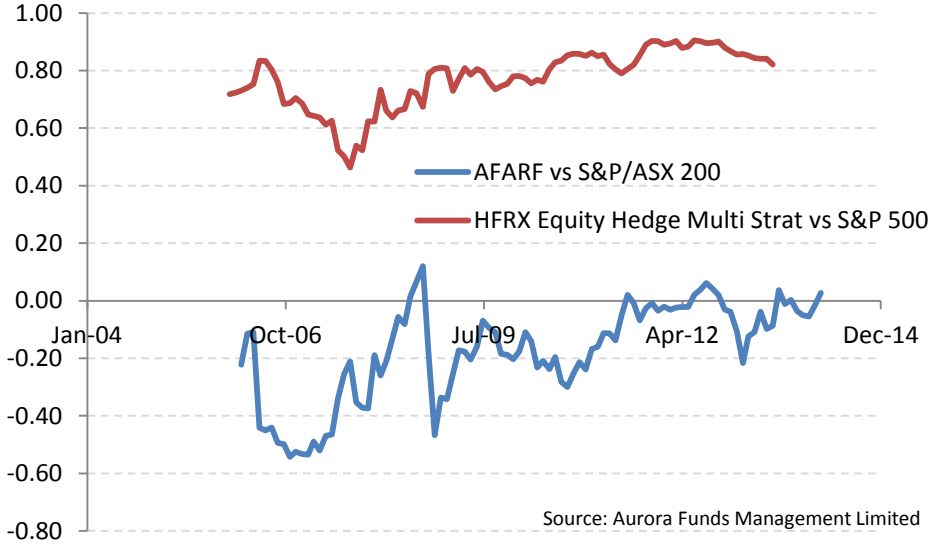
[4] Correcting for the artificial appraisal based nature of valuations.

Figure 8: Diversification Available for 70/30 Australian Investor using Traditional Assets



All is not lost. Other avenues are open to asset owners looking for genuine deep diversifying assets. Examples include insurance linked assets and some forms of hedge funds. Figure 9 below shows the Aurora Fortitude Absolute Return Fund is a deep diversifier for equity risk and so should be considered by any investor looking to benefit from the 'free lunch' of diversification in a new breed of portfolio. This figure also shows the peer group represented by the HFRX sub index merely delivers equity risk – of little benefit for those looking for diversification away from the dominant equity risk.

Figure 9: Hedge Funds as a Diversifier of Equity Risk



Note

The Aurora Fortitude Absolute Return Fund (ARSN 145 894 800, APIR Code AFM0005AU) has been issued by Aurora Funds Management Limited.

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