Australian shares and the volatility of total returns

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It was only at the beginning of July 2015 that many market strategists/analysts proclaimed much of the negative news from Europe is firmly rooted in the past and that there is more potential for upside for markets.

What happened? The European share market subsequently declined -6.99% over the September quarter in local currency terms.

Around the same time many market strategists/analysts wrote global developed market equities should remain attractive during 2015.

What happened? Global equities fell -7.73% over the September quarter in local currency terms.

The commentary just continued to get better with many proclaiming, economic growth is gaining momentum and overall, they prefer risky assets such as equities, high yield credit and emerging market debt.

What happened? The Australian share market fell -6.48%, Emerging Markets declined -12.09%, China declined -22.74% and Emerging market debt declined -1.88% over the September quarter 2015.

By now, many of us are not surprised by the inaccurate market forecasts by these so-called experts – it's certainly not the first time and it will certainly not be the last time.

What should not surprise you is how your investment portfolio performed during this period of market volatility. If it does, then this paper should assist you going forward in understanding how your portfolio should perform in similar or worse situations.

Therefore, the aim of this paper is to determine the following: What drives the volatility of total returns of an investment portfolio?

The following discussion will focus on the following:

- Analysing a number of different diversified balanced investment funds and contributors to risk;
- How to address the concentration of risk in a balanced fund;
- Are their alternative growth assets available in financial markets?

Diversified balanced fund and risk contribution?

A diversified balanced fund is the most common structure for an accumulation phase investor with a long-time horizon, a moderate appetite for risk, reasonable capital growth aspirations and minimal liquidity requirements. Therefore, the following risk analysis will be based on three balanced portfolios with a typical allocation of 60% growth assets (e.g. Australian and International shares and Property A-Reits) and 40% defensive assets (International and Australian fixed interest and cash).

Balanced portfolios and risk contribution example:

The aim of this exercise is to determine the amount of risk (standard deviation) each asset class and underlying Australian investment contributes to the total risk (standard deviation) of Portfolio A, B and C.

The current strategic asset allocation benchmarks for balanced portfolios A, B and C are shown in table 1 below. The following has been assumed:

- The strategic asset allocation benchmarks for the defensive asset classes (Australian and International fixed interest and cash) remain the same for all portfolios.
- The strategic asset allocation benchmark for Australian shares increase by 10% for portfolio B and 20% for C. This is offset by a proportional decline in the portfolio's exposure to International shares and Australian Reits.

Table 1: Balanced portfolios: Strategic asset allocation benchmarks for each asset class

	Portfolio A Portfolio Weight (%)	Portfolio B Portfolio Weight (%)	Portfolio C Portfolio Weight (%)
Australian Shares	**28**	**38**	**48**
International Shares	25	17	9
Australian Reits	7	5	3
Australian Fixed Interest	20	20	20
International Fixed Interest	18	18	18
Cash	2	2	2
Growth Assets	**60**	**60**	**60**
Defensive Assets	**40**	**40**	**40**

Table 2 below shows the contribution to the volatility (standard deviation) of the portfolio's return from each asset class for portfolio A, B and C.

Table 2: Asset classes contribution to risk

	Portfolio A Risk Contribution Portfolio (%)	Portfolio B Risk Contribution Portfolio (%)	Portfolio C Risk Contribution Portfolio (%)
Australian Shares	**59.8**	**75.7**	**85.4**
International Shares	19.1	7.6	2.0
A-Reits	9.6	6.2	3.2
Australian Fixed Interest	2.2	1.9	1.6
International Fixed Interest	9.2	8.7	7.8
Cash	0.0	0.0	0.0

Table 3 below shows the contribution to the volatility (standard deviation) of the portfolio's return from each Australian Share investment for Portfolio A, B and C.

Table 3: Underlying Australian shares investments included in the balanced portfolios

	Portfolio A Risk Contribution Portfolio (%)	Portfolio B Risk Contribution Portfolio (%)	Portfolio C Risk Contribution Portfolio (%)
Telstra	5.4	7.8	7.9
C'wealth Bank of Aust.	14.7	18.8	21.2
Westpac	15.6	19.8	22.4
Rio Tinto	8.0	9.8	10.9
Sub-Total (Direct Aust. Shares)	**43.7**	**56.2**	**62.4**
BT Core Aust. Share Fund	8.8	11.1	12.7
Fidelity Aust. Equities Fund	7.3	8.4	10.3
Total	**59.8**	**75.7**	**85.4**

Findings

Asset class

Australian shares contribution to total risk is significant in absolute terms and relative to its weighting in the portfolio.

- In the case of portfolio A, almost 60% of the volatility of returns comes from Australian shares.
- In the case of portfolio B, 76% of the volatility of returns comes from Australian shares.
- In the case of portfolio C, 85% of the volatility of returns comes from Australian shares.

Underlying direct Australian shares

The four direct Australian shares in each portfolio (Telstra, Commonwealth Bank of Australia, Westpac and Rio Tinto) contribute significantly to the portfolio's volatility of returns. In the case of Portfolio C, 62% of the total portfolios risk originates from the 4 direct Australians shares.

Growth assets

Another interesting outcome of this analysis is that growth assets under all portfolio scenarios make up around 90% of the total portfolios risk. This is high and suggests the volatility of the portfolio's returns is highly susceptible to market down turns (e.g. GFC) and key risks such as sequencing and investment risk.

Addressing the concentrated risks

It seems that the obvious question is how to limit the concentration of portfolio risks? In short, we need to diversify the sources of returns. In particular we need to reduce the equity weighting (particularly Australian shares) in favour of other 'growth' assets that offer similar returns but are less correlated and be smarter in the way we construct the underlying investments.

Lack of diversification benefits – Portfolio A

The Australian shares component of portfolio A introduces limited diversification benefits. Further, research carried out by Logical showed that over the last three years the BT Core Australian Share Fund, Telstra, Commonwealth Bank of Australia, Westpac and the Fidelity Australian Equities fund have exhibited a high correlation with Portfolio A.

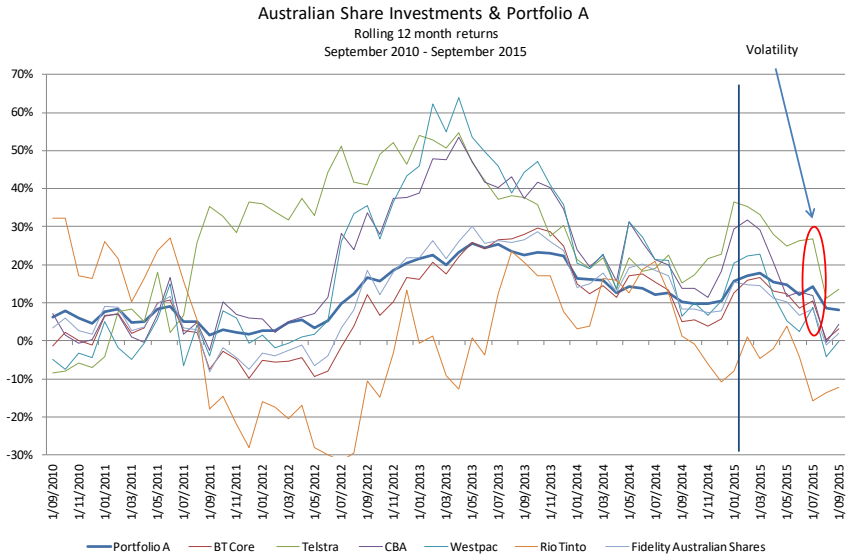
(Note: correlation is a measure of potential diversification. A correlation of 1 indicates asset prices move completely in line with each other and -1 indicates an inverse relationship in price movement).

The table below compares the correlations between Portfolio A and the underlying Australian investments in portfolio A. These investments (direct Australian shares and unlisted managed funds) do not provide substantial diversification benefits with the total portfolio or other individual Australian investments.

For example, the BT Core Australian Share Fund has a high positive correlation of 0.90 with Portfolio A. If we exclude Rio Tinto, all investments have a high correlation of above 0.80 with Portfolio A. This is a similar trend when comparing each Australian investment.

	Portfolio A	BT Core Aust. Share Fund	Telstra	C'wealth Bank of Aust.	Westpac	Rio Tinto
Portfolio A						
BT Core Aust. Share Fund	**0.90**					
Telstra	**0.82**	0.78				
C'wealth Bank of Aust.	**0.81**	0.81	0.79			
Westpac	**0.84**	0.89	0.77	0.90		
Rio Tinto	**0.47**	0.55	0.29	0.30	0.33	
Fidelity Aust. Equities	**0.91**	0.98	0.82	0.81	0.90	0.53

The chart below graphically displays this lack of diversification in portfolio A. The chart shows the rolling 12-month total returns of the Australian share investments in portfolio A and the rolling 12-month total returns of portfolio A between September 2010 and September 2015. For example, the portfolio's rolling 12-month total returns began falling in March 2015 this was matched closely by a fall in most of the underlying Australian investments. In other words, the portfolio's volatility of total returns and performance will be primarily driven by the volatility of the Australian shares component of the portfolio.



What growth assets are less correlated and have better diversification benefits?

Strategic asset class

1. This approach involves switching into other assets that offer comparable expected returns to existing assets (e.g. Australian shares) but have better correlation benefits and lower exposure to some of the key risks faced by the existing assets (e.g. economic, inflation, etc).
2. Switching into alternative assets may address some of these issues. Research carried out by Logical showed that over the last three years hedged funds such as momentum/CTA strategies provided low to negative correlations with many of the other investments in portfolio A.
3. Alternative assets should provide a reduction in the portfolio risk without adversely affecting the portfolio returns or may conversely increase the overall return of the portfolio for the same degree of risk.

Security selection

1. Reduce exposure or remove investments that are highly correlated to other investments in the portfolio.
2. Ensure you are not overweight in investments that track the performance (highly correlated) of the Australian share market.
3. Don't over diversify your asset class, especially Australian shares, sacrificing return for risk.

Conclusion

It must be recognised that your exposure to Australian shares will have a disproportional impact on the volatility of your portfolio's returns (especially the greater the exposure). Typically, Australian shares are a large proportion of a balanced portfolio and therefore will contribute significantly to the volatility of the returns of a portfolio. It is also likely that Australian retail investors will hold a large proportion of their Australian share portfolio in a handful of direct Australian shares. The analysis above suggests this bias in the Australian share portfolio results in risk concentration and lack of diversification. Therefore, the balanced funds performance and variability of that performance is highly dependent on a handful of Australian shares. In order to reduce this risk concentration or lack of diversification we need to reduce the allocation to Australian shares in favour of assets that offer similar returns but are less correlated and be smarter in the way we construct the underlying investments. If diversified portfolios are constructed based only on total return objectives and not inclusive of risk then it will likely leave the portfolio highly susceptible to volatility and market downturns, especially falls in the Australian share market.