portfolio construction forum

Are you hanging your clients' aspirations on 6 stocks?

Olivia Engel | State Street Global Advisors | August 2014

Investors hold a portfolio of Australian shares for their role in generating strong total returns, and the preference is to achieve these returns with a "smooth ride". However, contrary to this aspiration, the most common approach is to invest within tight relative constraints of the benchmark, suggesting the benchmark represents the best risk-adjusted opportunities. The top six stocks of the ASX – four banks, a miner and a telecommunications company – represent 45% of total market capitalisation and just under half of the risk of the Australian equity market[1]. A 4% tracking error constrained manager, for example, must hold in the vicinity of 15-20% of these stocks even if they do not like them. This paper examines whether this is responsible investing.

Considering the allocation of equities within the average Australian investor's balanced fund, and the very large home bias investors typically have within their equities allocation – what impact do these six stocks have on an investor's return outcomes? This research paper broadly discusses:

- Concentration risk and its impact on investors' portfolios;
- The range of outcomes investors may achieve with managed funds depending on the mandate design; and,
- Linking investor objectives with equity portfolio management for an alternative approach.

HOW CONCENTRATED IS THE AUSTRALIAN EQUITY MARKET?

Stock concentration

The largest six companies of the ASX 300 make up 43% by weight and 48% by contribution to total risk of the S&P/ASX 300 Index[2] (Figure 1).

Also refer to the associated Due Diligence Forum Presentation in the Conference 2014 Resources Kit.

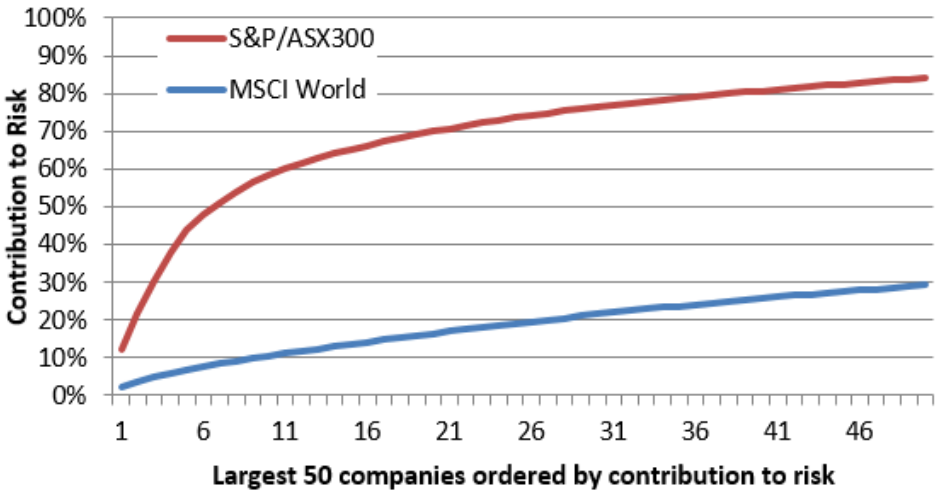
Figure 1: S&P/ASX 300 Index – stock characteristics

Stock	ASX 300 Index weight (%)	Contribution to Total Risk (%)	Revenue sourced from Australia (%)	Predicted Beta	Premium/Discount to 7 year avg P/E valuation (%)
BHP Billiton	8.5	12.0	7	1.4	26
Commonwealth Bank	9.6	9.9	87	1.0	24
Westpac	7.8	8.6	88	1.1	18
ANZ	6.7	7.3	67	1.1	13
National Australia Bank	5.7	6.1	80	1.1	21
Telstra	4.8	3.9	93	0.8	37

Sources: Axioma, Bloomberg. As at 30 June 2014. Predicted Beta uses the Axioma MH Fundamental method.

The largest 10 companies contribute around 60% of the risk for the Australian market – compared to the largest 10 companies in the world only contributing 10% of the risk of the global market (Figure 2).

Figure 2: Cumulative contribution to total risk by stock (S&P/ASX 300 Index vs MSCI World Index)

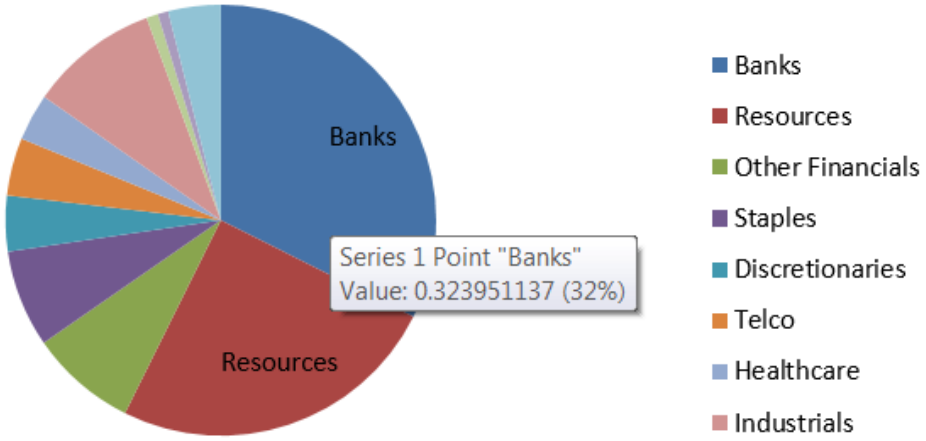


Sources: Bloomberg, Axioma. As at 30 June 2014

Sector concentration

Banks make up 33% of the total risk of the Australian market[3] – the dominant economic driver of which is unemployment and housing prices in Australia. Resources make up 25%, the dominant economic driver being China's demand for things Australia can dig out of the ground. The remaining sectors are very small in comparison. In other words, more than 56% of the Australian market's risk comes from these two major economic drivers. What about other sources of return like technological advancement, global developed market growth, changing demographics? These sectors are represented in the Australian market, but they are smaller (Figure 3).

Figure 3: S&P/ASX 300 Index – contribution to risk from sectors



Sources: Bloomberg, Axioma. As at 30 June 2014.

Drivers of return

Over the three years to 30 June 2014, the total return for the Australian market was almost 33%[4]. Two thirds of that total return came from the six companies discussed here[5].

So – why does it matter that the Australian market is concentrated?

THE TYPICAL BALANCED FUND, EQUITY HOME BIAS, AND RISK CONTRIBUTION

A balanced fund is the most common structure for an accumulation phase investor with a long time horizon, a moderate appetite for risk, reasonable growth aspirations and minimal liquidity requirements. The average allocation of superannuation funds in Australia is 60% growth assets and 40% defensive assets.[6] Equities equate to approximately 46% of the portfolio, of which approximately 24% is Australian equities.[6]

In Australia, the home country bias exists for numerous reasons that are well understood, not limited to the tax system (ie. franking credits) and currency risk from international investing. Rather than attempt to change home country bias, incorporating and adapting this investment thinking can improve the client experience.

Analysing the risk properties of a balanced fund is an interesting exercise. Almost 100% of the volatility risk in a balanced fund comes from equities.[7] In fact, analysing the contribution to risk from individual investments in the entire average balanced portfolio shows that roughly a quarter of the volatility is driven by the six companies.[8]

CAN ACTIVE MANAGEMENT HELP REDUCE CONCENTRATION IN AUSTRALIAN EQUITIES?

It is arguable that in Australia, there is a culture of focusing on a fund manager's reputation as a good stock picker, with suitability of investment strategy a secondary consideration. However, as shown in Figure 4, the largest six companies in the ASX300 feature in almost all Australian equity managers' top 10 holdings. As Figure 4 shows, the largest active Australian managers aren't much less concentrated than the Australian equity market.

Figure 4: Active Australian equity fund managers – Top 10 holdings

	Median weight (%)	Min Weight (%)	Max Weight (%)	S&P/ASX 300 Weight (%)
BHP Billiton	7.5	3.6	11.3	8.5
Commonwealth Bank	6.7	3	9.9	9.6
Westpac	8.2	4.2	10.1	7.8
ANZ Bank	6.9	3.4	8.6	6.7
National Australia Bank[9]	7.25	3.8	8.6	5.7
Telstra[10]	5.6	2.0	8.4	4.8
Total	40.8	25.8	45.0	43.2

Sources: Morningstar. As at 30 June 2014. Active Australian equity managers were selected based on largest funds under management and include Fidelity Worldwide Investment, Perpetual, Schroders, Ausbil Investment Management, Dimensional Fund Advisors, Colonial First State Global Asset Management, Perennial Investment Partners, Tyndall Investment Management, BT Investment Management.

DOES CONCENTRATION MATTER?

With a long enough investment horizon, and no need to drawdown on assets, it may not matter much whether investment returns are dominated by a few companies - there is a reason why index funds are attractive. Over the long horizon, index funds allow investors to achieve equity returns (with very low fees) and take the stress out of selecting active managers or stocks. Over long horizons, they have been proven to generate the required returns. There is also evidence in the Australian market that active management can generate returns above the market return.[11] So what is the problem?

What if the investor's horizon is shorter and regular drawdowns on the asset are required, and there are no longer regular contributions? Dollar cost averaging into an asset doesn't apply when an investor is no longer in the accumulation phase. Even if their allocation to equities is reduced, the contribution to risk coming from a small number of stocks will still be substantial. Equity risk will still dominate their portfolio. As the investor changes, can their portfolio's objective be adjusted and constructed in tune with how the investor's wealth objective is shifting?

WHAT IT FEELS LIKE TO LOSE MONEY

If an investor invested for a six or seven year period in the Australian equity market on 31 December 2006, what would that have felt like? It depends on how closely they watched their investment, and whether they needed to access that investment during the subsequent five-year period.

Take, for example, a young investor in the accumulation phase with a 30-year time horizon who didn't take much notice of their superannuation balance. Such an investor, starting with a balance of $100,000 and receiving a return matching that of of the S&P/ASX 300 Index from 31 December 2006, would have finsihed with $106,090 after six years, and $126,965 after 7 years.[12] It's not a terrible result and probably wouldn't raise any investment concerns.

However, what if the investor required the invested capital sooner? For example, what if the investor was nearing retirement or had already retired. How would their investment experience varied through that period?

Figure 5: Investor psychology 2006 to 2011

Date	Investment value	Possible investor feeling
31 Dec 2006	$100,000	I should have enough to retire in about 18 months.
30 Sep 2007	$119,412	Investing is easy. The market just goes up. Maybe I'll retire a few months early.
31 Dec 2007	$116,224	A small correction. That's ok – I'm told equity markets are risky.
31 Mar 2008	$99,240	Its ok, I still have the amount I started with.
30 Sep 2008	$87,075	Equities were supposed to give strong returns. Looks like I can't retire after all.
31 Mar 2009	$69,671	I'd better get out of this market before all my money is gone.
30 Sep 2009	$94,484	This is a bit better, but I should sell now in case the market goes down again.
31 Mar 2011	$102,635	I've recovered my initial investment. Maybe equities are ok after all.
30 Sep 2011	$86,817	Here we go again – I'm not enjoying this at all. I'd be better off with my cash under the mattress.

Source: Bloomberg, using S&P/ASX 300 Index returns.

The aim of active management is to outperform the market and therefore, in various market conditions, assist with investors' emotions with superior returns. However, between November 2007 and February 2009, when the Australian equity market return was -48%, some 85% of active Australian equity managers reported returns lower than -40%[13]. During the European sovereign debt crisis in 2011, the size of the market drawdown was -15% and across the 155 different managed funds that reported in the same survey, the median manager return was the same. In fact, only 10 of the managed funds included in the survey had draw downs during that period of lower than 10%.

Why didn't active management help during these market crises?

BENCHMARKING AND PORTFOLIO CONSTRUCTION

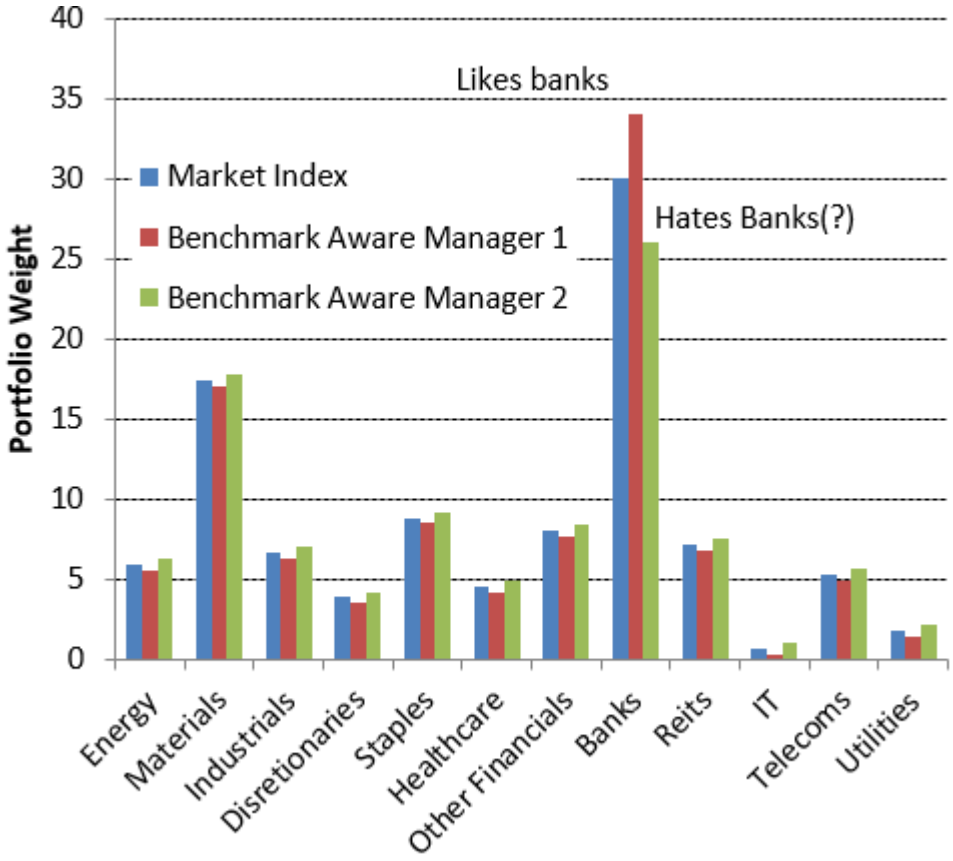
Within a multi-asset class portfolio, and when combining multiple managed funds, performance of the Australian equities allocation will most likely be evaluated versus a broad market capitalisation-weighted index such as the S&P/ASX 200 or S&P/ASX 300. Each manager will have a performance target for their portfolio versus a relevant index. Investment committees will meet periodically (monthly, or quarterly or more) to review the success of their investments. Periods of underperformance versus benchmark will be scrutinised and the selection of individual managers will be questioned. If a manager doesn't meet its performance objectives, it may be fired. If the managers selected by the investment committee don't outperform as a whole, the investment committee may also be fired.

With this structure, business and career risk are heightened around underperforming the performance benchmark. Investment managers and investment committees become afraid of underperforming the benchmark. It is therefore natural that equity portfolios are constructed to minimise the likelihood of underperforming the benchmark. Portfolios will be constructed to minimise the likelihood of underperforming the benchmark. Regardless of how much active risk a manager can take, every position in the portfolio will be assessed relative to the weight in the performance benchmark index. If a manager has a negative view of banks, it can express that view in the portfolio by weighting banks lower than the performance benchmark. The conviction of their view will be represented by the size of the deviation in positioning between the portfolio and the performance benchmark index.

Bias against banks?

Figure 6 illustrates the example of two active equity managers' different view of Australian banks and the impact on their portfolio positioning[14]. It highlights how benchmark-relative constraints don't allow portfolios to be much less concentrated than the market portfolio. The manager with a poor outlook for banks will give them an underweight position in the portfolio. The smallest possible weight in the portfolio will be driven by the portfolio constraints on sector positioning or on tracking error limits or targets. In this example, even if the manager has maximum conviction on banks underperforming the rest of the market, it still must hold a quarter of the portfolio in that sector.

Figure 6: For and against banks – a portfolio positioning comparison



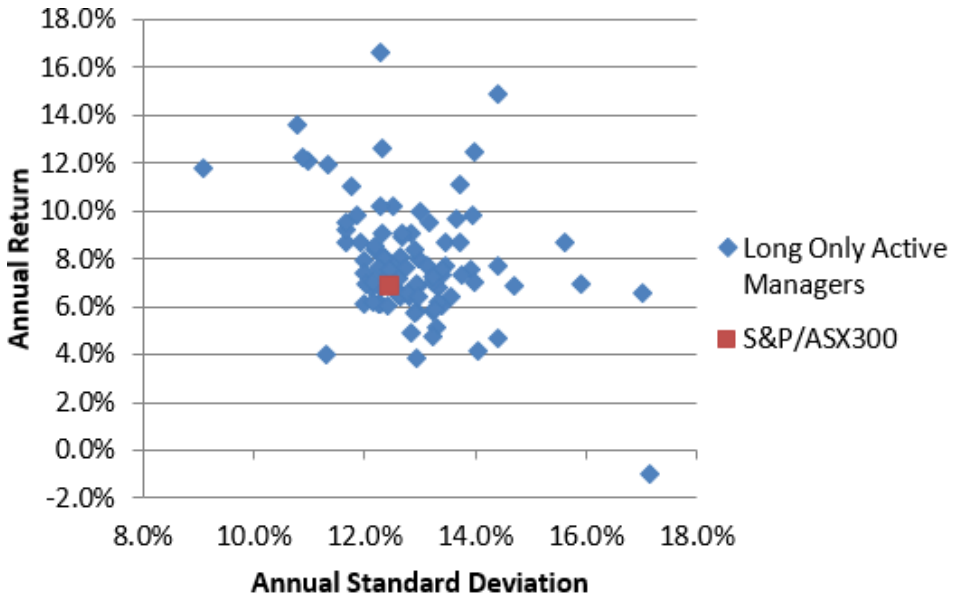
Source: State Street Global Advisors. For illustration purposes only. Not based on actual portfolios.

RISK TAKING AND ACTIVE MANAGEMENT

Figure 7 presents the range of results achieved by active Australian equity managers via a scatter chart of total return versus standard deviation of total returns. Survivorship bias would give an expectation that the group of managers represented outperform the market index on average before fees by approximately 1% per annum. There is a clear and large cluster of results around the market return, and more managers taking greater risk. More specifically:

- 60 out of the 94 managers showed a risk and return within 2% of that of the market. Most were offering portfolios with returns relatively close to the market.
- 58 out of 94 managers showed higher standard deviation of returns compared to the market. In order to generate higher returns, managers were seeking to do so with higher total risk than the market index.

Figure 7: Return and risk



Source: Mercer Insight Survey, four years ending 31 December 2013 for 94 active Australian equity fund managers.

Are these strategies suitable for all Australian equity investors? In practice, it's rare that investors gain the average return. Investors contribute and drawdown on their invested assets at different times and stages of the economic or market cycle, and therefore get varying outcomes.

Equity portfolios can be created to have return characteristics less sensitive to the path dependency of their investment.

LINKING EQUITY PORTFOLIO CONSTRUCTION WITH INVESTOR OBJECTIVES

The implied objective of investors invested in active Australian equity strategies could be described as being "to outperform the market, but don't be too different from the market". A technical way of saying the same thing is"maximise the information ratio".

But how likely is it that the information ratio will satisfy an investor's investment objective?

Investors' objectives are likely to be something like "Grow my assets and don't lose my money" or "I need enough to retire on". Equities are often used for the "grow my assets" part of that statement – but, the "don't lose my money" part is assumed by other asset classes such as cash and fixed income.

If both of those objectives can be built into equity portfolios, a key factor to some investors will be total portfolio risk, not risk relative to the benchmark (tracking error). With this in

mind, the equity portfolio construction objective function expressed previously – "Maximise (return – tracking error)" – becomes "Maximise (return – total risk)".

LINKING EQUITY PORTFOLIO CONSTRUCTION WITH INVESTOR OBJECTIVES

Step 1: Stock selection

Find companies best suited to the investor's profile. The basis for selecting companies varies greatly depending on the respective investment philosophy. Use a broad investment universe to maximise the opportunities. Select on a diversified array of metrics and form expected returns for every stock. More specifically, consider valuation, quality of the balance sheet and earnings, strong cash flow, dividends (include franking credits), outlook for earnings, evidence of sustainable growth and cash flow generation.

Step 2: Estimate risk

Estimate the risk associated with each company, and grouped company characteristics. Companies exhibit stock specific risk and risk associated with their exposure to different characteristics, such as what industry they are in, or fundamental risk factors including size, liquidity, volatility, value, momentum, leverage and market sensitivity.

The time period over which risk is assessed will impact how quickly estimates of risk change when conditions change but will also impact portfolio turnover. The shorter the estimation period, the more quickly that risk estimates will change with market conditions, but the higher the turnover of the portfolio will be, increasing transaction costs and not necessarily improving portfolio returns. Finding a suitable balance between these is important.

Step 3: Start with a clean sheet of paper

Remove any references to benchmark index weights as a basis for portfolio construction. Rather, use constraints that enforce total portfolio diversification such as maximum absolute position limits, or maximum absolute exposure to sectors, industries or any other common grouping of companies. This will mean that only stocks that are best suited to the investor will end up in their portfolio. There will be nothing in the portfolio that doesn't serve a purpose.

Portfolio constraints are also a balancing act. Take individual stock position limits, as an example. If individual positions are limited to a small amount (eg. 1% of the portfolio) this will result in a very diversified portfolio but the degree to which conviction in the most preferred holdings can be expressed in the portfolio will be limited. The portfolio would include at least 100 companies (approximately one third of the universe). In a universe as small the ASX300 Index, the portfolio would not reflect the best companies available.

Conversely, if there were no limit to individual positions, it is possible that a small number of large stock positions could contradict the level of concentration being sought. Large positions in single companies create higher stock specific risk which, while not a negative, needs to be understood and managed.

Step 4: Construct the portfolio

Build a portfolio that will provide the greatest risk-adjusted return, using the inputs from steps 1 and 2. A systematic optimisation process can determine the portfolio and stock weights that will create the greatest risk-adjusted returns. It will explicitly create a portfolio using the objective function:

Maximise (return – total risk – transaction costs)

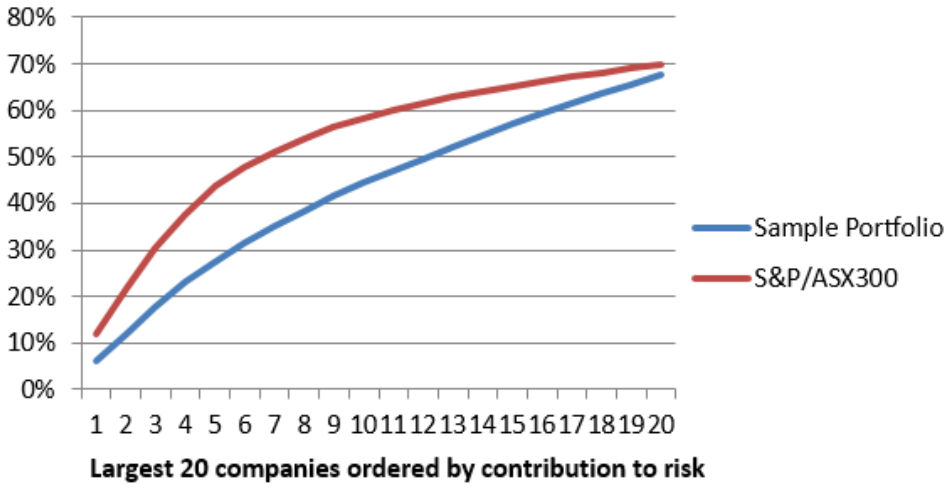
Estimating transaction costs of trading to the target portfolio is often discussed as an afterthought to the portfolio construction process. It is however, critical to understand how much it will cost the portfolio to trade companies with differing liquidity. Trading $1 million of Telstra shares can be done with virtually no market impact, so transaction costs are almost limited to the explicit brokerage and any timing delay of making a trading decision. At the other end of the spectrum, a company such as Red Fork Energy may only average $200,000 traded value per day[15]. Trying to establish (or liquidate) a $1 million position could cost substantially more, both in impact costs and timing costs. Such a stock would require a much higher expected return to get into the portfolio in the first place, if transaction costs are incorporated into portfolio construction.

WHAT MIGHT THE PORTFOLIO LOOK LIKE?

How the target portfolio looks is best summarised by what it doesn't look like – i.e. the benchmark index. The analysis and description below relates to an Australian equity portfolio, Portfolio X, generated using the above methodology.

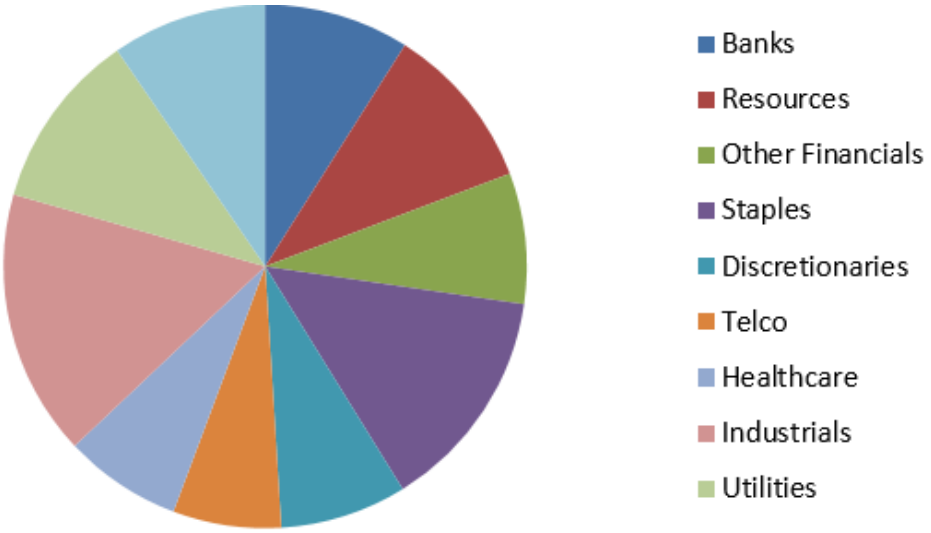
- Sum of the total weigh of Portfolio X in the six largest stocks in the market[16] is 13% by weight and 15% by contribution to risk, compared with the S&P/ASX 300 Index's 43% and 48% respectively.
- Sum of the weight of the six largest stocks in the portfolio is 30% by weight, 31% by contribution to risk.
- In Portfolio X, the contribution to risk coming from banks and resources no longer dominates. Instead, sources of risk are spread across different sectors, and different sources of return.

Figure 8: Cumulative contribution to total risk by stock



Sources: Bloomberg, SSgA. As at 30 June 2014.

Figure 9: Contribution to risk from sectors – Portfolio X



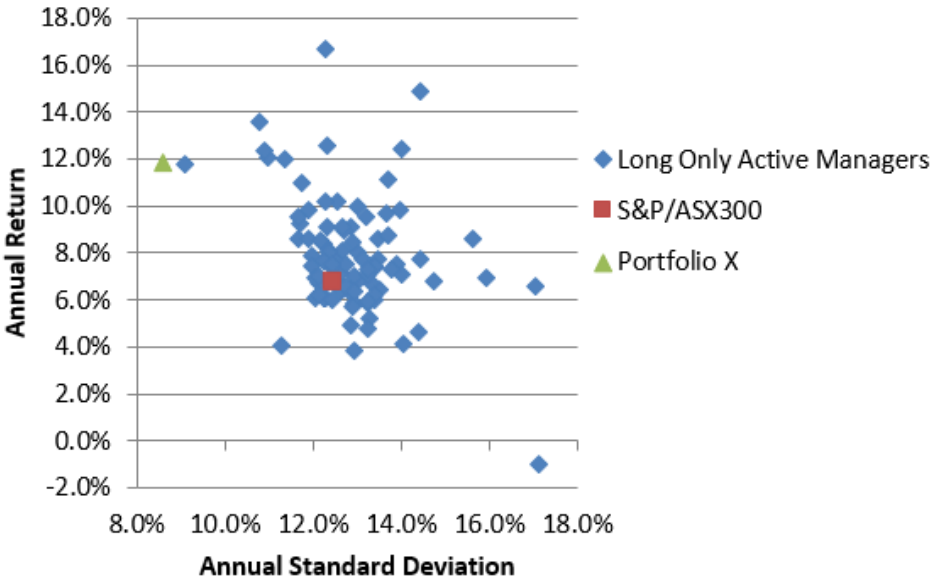
Source: SSgA, Factset, Aximoa. As of 30 June 2014.

Figure 10: Other characteristics

Aggregate Characteristics	Portfolio X	S&P/ASX 300
Price to Book Value	2.0	1.9
Dividend Yield	4.7%	4.3%
Active share[17]	0.62	-
Total Estimated Risk[18]	8.7%	10.4%
Weight in Top 50	64%	83%
Weight in Next 100	24%	13%
Weight in 300 ex top 150	12%	7.8

Source: SSgA, Factset, Axioma. As at 30 June 2014

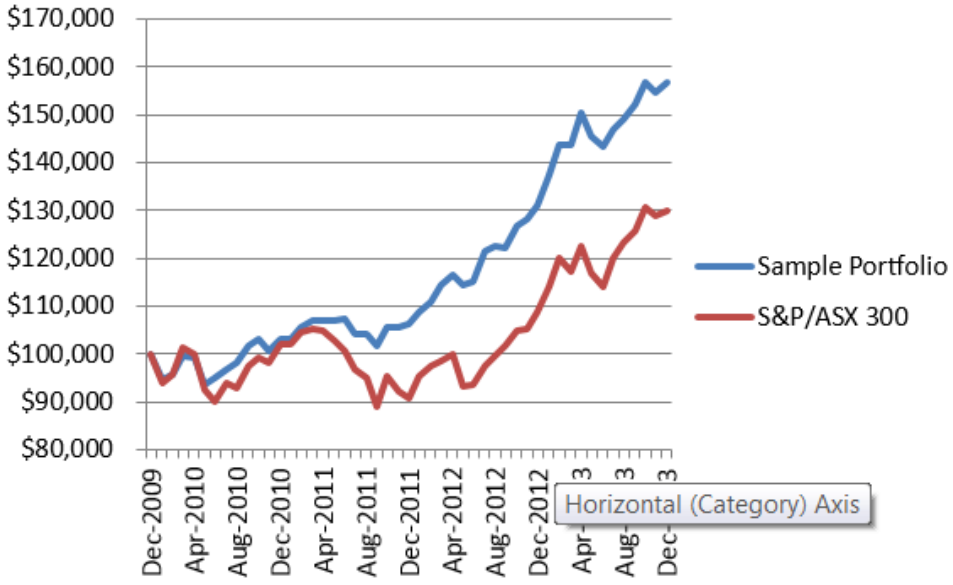
Figure 11: Historical returns – manager comparison



Sources: Mercer Insight Survey, Bloomberg, SSgA. Total risk and total return over a four-year period ending 31 December 2013.

In reference to the trajectory of returns, would Portfolio X assist investors to "grow assets" as well as "not lose money"? The Euro debt crisis of 2011 allows a test of whether Portfolio X would assist with downside protection in market downturns. While the market fell 15% during the peak to trough, Portfolio X fell less than 5%. Explicit management of total risk coming from individual companies and the portfolio overall assisted during a period of market dislocation and heightened volatility.

Figure 12: Growth of $100,000



Sources: SSgA, Bloomberg. Four years ending 31 December 2014.

CONCLUSION

In addition to maximising returns, building an explicit objective of managing total volatility into a portfolio can result in return characteristics that line up more explicitly with the investor's investment objectives, such as "don't lose money". Rather than building portfolios with the benchmark index as the starting point, an alternative approach that selects stocks on both their return and total risk characteristics and ignores the benchmark is recommended as the starting point for portfolio construction. Don't hang investors' return outcomes on four banks, a miner and a telecommunications company. Seek better diversified portfolios that will help manage the investor's return and risk.

ENDNOTES

1. As a proportion of the S&P/ASX 300 index, the total risk contribution from the six largest companies, BHP, CBA, Westpac, National Australia Bank, ANZ and Telstra, using Axioma MH Fundamental risk model was 48% as at 30 June 2014.

2. Using Axioma MH Fundamental model.

3. As measured by Axioma MH Fundamental model as at 30 June 2014, using the S&P/ASX300 Index.

4. Bloomberg. Total return of the S&P/ASX 300 accumulation index was 32.9% between 30 June 2011 and 30 June 2014.

5. Factset. The largest six companies contributed 21.6% of the 32.9% return of the S&P/ASX300 Index during the period.

6. APRA, Superannuation Fund-level profiles and financial performance as at 30 June 2013.

7. Barclays Point risk analysis on SSgA Passive Balanced Trust with 70/30 growth/defensive split as at 25 July 2014.

8. 48% of Australian equity portfolio, multiplied by 26% divided by 60% allocation to growth assets, multiplied by 115% extra volatility from Australian equities over other equities, according to Barclays Point Global Risk Model as at 25 July 2014.

9. One of the nine managers did not have NAB in its top 10 holdings.

10. Two of the nine managers did not have TLS in their top 10 holdings.

11. Analysing returns from the Mercer Insight Survey of managed funds shows outperformance by the average Australian equity manager over a four-year period ending 31 December 2013 of 1.1% per annum before fees. Long-short and index funds have been excluded. This result contains survivorship bias.

12. Index returns sourced from Bloomberg.

13. Mercer Insight Survey of Australian equity managers. Long-only active managers selected for illustration for 125 managers in total.

14. This is a fictional example for illustrative purposes only.

15. Bloomberg. During June 2014, Red Fork Energy averaged $217,080 traded value per day.

16. BHP, CBA, Westpac, NAB, ANZ, Telstra.

17. Sum of the absolute value of active weights versus the benchmark, divided by two.

18. Standard deviation of return predicted using Axioma MH Fundamental Risk Model.

Olivia is Head of Active Quantitative Equities Asia-Pacific for State Street Global Advisors. She is responsible for investment management and research for Australian and Pacific ex-Japan active equity portfolios. Prior to joining SSgA in 2011, she spent eight years at GMO as a senior portfolio manager in the Australian Equities group, responsible for portfolio management across all Australian strategies. She has also worked as a portfolio manager for Colonial First State Global Asset Management and Commonwealth Investment Management.