



Portfolio Report FY 2019: Statistical Analysis

The Rosevalley Behavioural Finance Funds

The Rosevalley Behavioural Finance Funds are high-conviction funds that take the theoretical and empirical evidence developed over the past 30 years in Behavioural Finance, and systematically build portfolios from these learnings. The portfolios are constructed on a benchmark-unaware basis, but performance is compared to the ASX-200 accumulation index.

Summary

Welcome to this special edition of the Rosevalley Portfolio report. This edition is fully dedicated to examining the performance of the portfolios for the year to June 2019. The conclusions we can draw after almost one year of trading (with considerable pride and satisfaction) are:

- The gross performance was in line with the long-term backtested historical performance.
- The monthly and annual volatility were in line with the long-term backtest as well.
- The difference between modelled and realized net performance was small, suggesting the backtest assumption for the gross-net gap are appropriate.
- Finally (and somewhat speculatively), if we extrapolate the performance to the full year, the Rosevalley portfolios would have ranked number 1, 3 and 22 in the recent Mercer survey of 130+ Australian equity funds.

The tracked funds

As a primer for those who may not be as familiar with the Rosevalley funds: Rosevalley funds are constructed using learnings coming out of Behavioural Finance (BF) as it has been developed over the past 30 years or so. Behavioural Finance's approach to markets differs from the Efficient Markets Hypothesis (EMH) in that EMH is based on the standard economic assumption that human beings are rational, profit-maximising economic actors, while BF takes actually observed human behaviour as its starting point. There is a large body of theoretical and empirical research that underpins things like "confirmation bias", "mental accounting", "prospect theory", "loss aversion", etc.

¹ Due to its small size, the 10/0 portfolio has a staggered bi-monthly rebalancing of half the portfolio each month.

Rosevalley has been able to map how these human biases impact trading behaviour and therefore asset prices and construct systematic portfolios around these learnings. We have combined this research with our academic learnings and 20+ years of industry experience to develop our investment process and portfolio construction.

There are three portfolios we have been running since early FY19. All three portfolios are based on exactly the same model and differ only in their chosen market exposure. The three portfolios are:

- Rosevalley 13/3: a 130/30 portfolio with 13 longs and 3 shorts as its base
- Rosevalley 15/5: a 150/50 portfolio with 15 longs and 5 shorts as its base
- Rosevalley 10/0: a long-only portfolio with 10 longs as its base

For all three portfolios this additional information holds true:

- Staggered quarterly rebalancing of one third of the portfolio each month¹. As a result, the portfolios can hold more than the base number of stocks at any given point in time.
- Portfolio manager's overlay: the portfolio manager applies a measure of discretion on the final stock list. This discretion is used as little as possible and is driven by three main factors:
 - Avoiding excessive sector concentration
 - Corporate actions: e.g. if a takeover offer has been lodged and the stock has moved close to the offer price, there is little upside left and the stock won't be put in the portfolio
 - Lack of availability of stock to borrow

Size of the funds

None of the funds are commercially available (yet), and we are currently in the phase of building a track record. We do

have a number of seed investors that have underwritten the strategy. We have documented performance for the following three portfolios:

Portfolio	Inception	Type	Money invested
Rosevalley 13/3	1/10/2018	Paper portfolio	\$350,000
Rosevalley 15/5	14/8/2018	Traded	\$110,000
Rosevalley 10/0	1/8/2018	Traded	\$10,000

Gross vs Net return

As mentioned before, the portfolios are rebalanced monthly. Specifically, after market close on the last day of each month, the composition of the portfolio for the next month is calculated. With this in mind, we can define "Gross return" as: the total return for the calculated portfolio as measured from month-end to month-end. Following this, there are three drivers of the difference between net and gross return:

- We won't be able to buy/sell the stocks at the month-end closing price, but rather will have to buy/sell at the prevailing price during the first day(s) of the month.
- We will have to pay trading commission and stock borrow cost.
- While the model will define the stock weights in percent-of-portfolio terms, in reality we have to trade in whole number of stocks. Therefore (particularly for the smaller portfolios), the actual stock weights might differ slightly from the model weights.

The backtest has made estimates for all three effects (and one of the goals of the current proof-of-concept trading is to test the accuracy of this modelled gross-net gap). Note that the small size of the portfolios has implications for the net performance. Specifically, trading commissions are charged as the larger of a percentage of the size of the trade and a fixed amount. All three portfolios usually hit the fixed amount. As a result, the gross-net gap for these portfolios would be lower if the size were bigger.

Portfolio performance since inception

All three portfolios showed strong performance for the year to June 2019, both absolute and relative to the ASX-200 for the same period.

To June 2019	Inception	Gross return	Net return	ASX-200 over the same period
Rosevalley 13/3	1/10/2018	11.1%	8.3%	9.9%
Rosevalley 15/5	14/8/2018	15.5%	10.2%	9.6%

Rosevalley 10/0	1/8/2018	21.4%	6.4%	10.0%
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Note: The Rosevalley numbers are unaudited

As one would expect, the gap between gross and net increases the smaller the fund size gets.

What if we had traded since the start of the financial year?

Clearly, the answer to the above question relies on the assumptions made in trying to extrapolate the performance for the missing months of the financial year. Combining the actual since-inception performance with the backtest for the missing months, we can construct a proforma full year history. Here are the assumptions we use:

- Start with the gross performance as per the backtest for the missing months.
- Apply the observed gross-net gap over the traded months to the missing month(s).
- We then make one further assumption: we adjust the trading costs portion of the gross-net gap for the two smaller portfolios to the value for the larger portfolio (the 13/3). This will still be a conservative estimate of the trading costs, given that even the larger of the three usually trades at the minimum fixed commission value.

With those assumptions (and the implied caveats) in mind these would have been the full-year performance numbers:

	Proforma FY19 Gross	Proforma FY19 Net	Adjusted Proforma FY19 Net
Rosevalley 13/3	22.4%	21.5%	21.5%
Rosevalley 15/5	16.6%	10.5%	12.0%
Rosevalley 10/0	21.7%	5.4%	17.6%
ASX-200			11.5%

Note: The Rosevalley numbers are unaudited

While all three portfolios show a strong proforma net performance, the 13/3 and 10/0 in particular show very strong numbers.

Comparison to the backtest

We will repeat this exercise once we have a traded history for a full 12-month period, but based on the proforma numbers as described above, here is the comparison with the long-term numbers in the backtest:

	Proforma FY19 Gross	Adjusted Proforma FY19 Net	15-year model Gross	15-year model Net
Rosevalley 13/3	22.4%	21.5%	27.2%	21.9%
Rosevalley 15/5	16.6%	12.0%	21.0%	18.1%
Rosevalley 10/0	21.7%	17.6%	28.4%	21.4%

Note: The Rosevalley numbers are unaudited

As expected, there is some variance compared to the long-term average. However, the differences are well within one standard deviation. In fact, both for the full year, as well as for the individual months, all observations are in line with the statistical parameters of the backtest:

To June 2019	SD from mean – annual	Average monthly absolute SD from mean	Number of monthly returns within 1 SD	Number of monthly returns within 2 SD
Rosevalley 13/3	-0.02	0.95	8/12 (67%)	11/12 (92%)
Rosevalley 15/5	-0.44	0.96	9/12 (75%)	11/12 (92%)
Rosevalley 10/0	-0.03	0.71	8/12 (67%)	11/12 (92%)

Note: The Rosevalley numbers are unaudited

Note that market volatility during the year was unusually high (globally, Oct-Dec 2018 saw one of the largest 3-month corrections since the Great Depression). Many systematic portfolios perform very poorly in such volatile times; therefore, to see that the Rosevalley portfolios performed exactly in line with long-term averages is extremely encouraging.

Comparison to other Australian equity funds

Mercer Australian equities fund managers top-10:

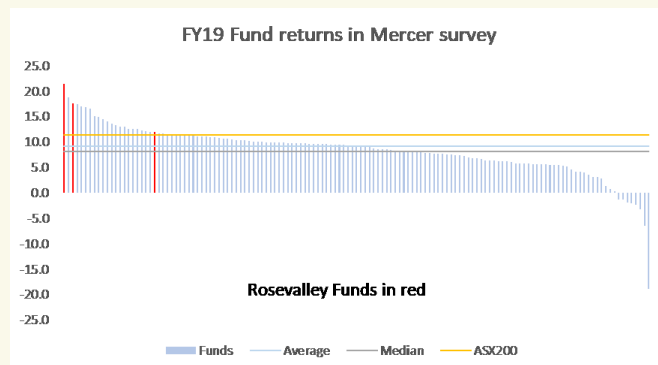
Best performing Australian share funds, year ending June 2019						
Manager/fund	1 year		3-year		5-year	
	%	Rank	%	Rank	%	Rank
Martin Currie Australia Real Income	18.8	1	11.0	99	15.5	5
BlackRock Equitised Long Short	17.5	2	15.5	11	9.1	61
AMP Capital Sustainable Share Fund	17.1	3	13.4	50	9.1	63
Regal Australian Long Short Equity Fund	16.9	4	15.1	14	12.8	12
ECP AM All Cap	16.6	5	14.5	26	-	-
Selector High Conviction Equity Fund	15.1	6	20.8	3	19.2	1
Alphinity Sustainable Share	15.0	7	17.3	5	11.6	17
Aberdeen Australian Equity	14.5	8	-	-	-	-
BlackRock Specialist Australian Equity	14.1	9	14.0	34	9.1	62
Panther Trust Australian Shares	13.6	10	21.5	1	-	-

SOURCE: MERCER

During July, Mercer published its Australian equity funds manager rankings, the findings of which can be summarized as follows:

- The top-performing fund returned 18.8% for the year, with number two coming in at 17.5%.
- The median manager returned 9%, failing to beat the market (in fact, less than 15% of funds beat the market).
- The list included 134 strategies, of which 85 were long-only.
- The worst long-only strategy lost 18.8%.

On the basis of the proforma returns as defined above, the 13/3 and 10/0 portfolios would have taken the number 1 and 3 spots in the list respectively (see table). The third fund, the 15/5, would have come in at a very respectable number 22 (see chart).



Some other comparisons

In discussing funds management performance, a lot of newspaper inches are taken up with discussions of “value vs growth”. Most commentators argue that “value has been out of favour now for almost a decade”, or “low interest rates have worked against value”, or something similar. It should be clear the Rosevalley portfolios don’t neatly fall into any of these categories, given the way they are constructed (separately, we also have some issues with the growth-vs-value debate, but that is a topic for another time). Nevertheless, we do sometimes get feedback that the Rosevalley portfolios are akin to momentum portfolios. While we would readily admit that there is an overlap (but not equality) between Rosevalley’s portfolios and momentum portfolios, we would argue that momentum is an output of BF, and therefore a portfolio based on BF principles (the cause) should outperform one based on momentum (the effect).

Therefore, it is interesting to compare the portfolio returns to the different style-returns available in the market. To this end, we show the returns for the growth-, value- and momentum index as published by S&P:

	Index return	Adjusted Proforma FY19 Net
S&P/ASX 200 Momentum	6.4%	
S&P/ASX 200 Growth	13.9%	
S&P/ASX 200 Value	9.2%	
ASX-200	11.5%	
Rosevalley 13/3		21.5%
Rosevalley 15/5		12.0%
Rosevalley 10/0		17.6%

Source: S&P Dow Jones Indices. Note: The Rosevalley numbers are unaudited

In addition to outperforming the overall index, all three Rosevalley portfolios outperformed all three style-indices.

Conclusion

While we're still not at the full-year mark in terms of proven trading history, we are very close, and extremely encouraged by the results to date. We would, of course, caution against expecting a similar outcome every year. Our backtest shows volatility, both within periods and across periods. Nevertheless, the indications to date are that the funds could compete effectively in the competitive world of Australian funds management!

Rosevalley Funds: The Behavioural Finance Approach

Over the past 30 years Behavioural Finance has emerged as a serious alternative to the Efficient Market Hypothesis. Whereas the Efficient Market Hypothesis starts with the assumption that people (investors) are rational and profit-maximizing, Behavioural Finance builds upon empirical observations of how people actually behave, and goes on to explain securities prices from this principle. Along the development of Behavioural Finance, it has been able to explain many peculiarities that had remained puzzles under the Efficient Market Hypothesis.

Rosevalley Funds portfolios are built around the theoretical and empirical underpinnings of Behavioural Finance, and at heart take advantage of the way human beings behave in the real world.

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