



INVESTMENT MANAGEMENT INSIGHTS FOR PROFESSIONAL FINANCIAL ADVISERS AND THEIR CLIENTS

WHY ROBUST PORTFOLIOS DELIVER BETTER RESULTS AND KEEP INVESTORS ON TRACK

A portfolio built through robust optimisation can deliver one-third higher returns at substantially lower risk than a typical 60:40 growth-defensive portfolio, according to a new Innova analysis.

But the key reason for building stronger portfolios has as much to do with investor behaviour as it does with returns. All too often, periods of extreme volatility or negative returns can prompt investors to make value-destroying decisions – and in subsequent rebounds, we see investors entering equity markets after they have rallied, displaying performance chasing behaviour which can also be devastating to their performance.

Robust optimisation helps counter the forces that prompt irrational behaviour because it incorporates the limits and uncertainty in forecasting asset class returns, producing smoother returns.

Portfolios based on modern portfolio theory (or mean-variance optimisation) assume forecasts are perfect. The result is portfolios constructed with the assets which are predicted to deliver the maximum expected return for a given level of risk. Unfortunately, they tend to break more often under real-world conditions because asset class forecasts are far from perfect.

Robust optimisation builds in a greater margin for error in forecasts, creating a more diverse portfolio, although one that still contains assets that deliver the required level of long-term returns. These types of portfolios may not deliver the predicted theoretical maximum return for a given level of risk, but they are better able to stand unexpected downturns or volatile conditions.

In our **July Portfolio Insights article** we highlighted that using a simple 2-factor short term model can improve portfolio outcomes. Given we highlighted above that Robust optimisation incorporates a greater margin for error in forecasts, it can be used in a two-step fashion: 1. using Long term forecasts, and 2. Incorporating short term forecasts that reduce the error in long term forecasts even more.

Below we have compared a number of portfolio techniques – simply using long term (LT) forecasts under this robust framework offers superior returns with similar drawdown. If we then add in short term (ST) forecasts to further reduce the error in LT forecasts, we can see it incrementally improves performance even more.

The maximum drawdown for a robust portfolio (optimisation using LT forecasts plus a 0.5 weight to ST) is -13.72 per cent compared to a 60:40 portfolio's -32.87 per cent in the long-term back tested analysis below. The predicted return was also higher at 8.84 per cent versus 6.73 per cent.

FIGURE 1: ROBUST PORTFOLIOS ARE STRONGER

	Return	Risk	Max Drawdown
6040	6.73%	8.67%	-32.87%
Equal Weight Portfolio	7.59%	7.48%	-29.20%
Robust Optimisation using Historical Returns	7.61%	9.14%	-31.17%
Robust Optimisation using LT Forecast Returns	7.78%	7.73%	-30.26%
Robust Optimisation LT Returns +0.025 ST Returns	8.46%	7.77%	-24.09%
Robust Optimisation LT Returns +0.1 ST Returns	8.50%	7.81%	-24.17%
Robust Optimisation LT Returns +0.25 ST Returns	8.77%	7.21%	-17.13%
Robust Optimisation LT Returns +0.5 ST Returns	8.84%	7.33%	-13.72%

Source: Innova analysis. The back test spans from May 1995 to end of April 2022, for historical return parameters, we have used an expanding window of average return with the initial period using 5 years. Indices included in the back test are Cash, Australian Equity, United States Equity, United Kingdom equity, German Equity, Japanese Equity, Australian Sovereign Bonds, United States Sovereign Bonds, High Yield, US REITS, Australian Corporate Bonds, United States Corporate Bonds, Managed Futures, Indian Equity. All return data were collected from Bloomberg and when this is not available, FRED data is used from the bank of St Louis. Portfolio risk constraint are targeted at 8% which is in line with the realized volatility of a 6040 portfolio or balanced portfolio. All return includes transaction cost.

The impact of equity market volatility isn't always appreciated. It's true that long-term equity returns are **attractive**, but it doesn't matter if an investor can't get past the short-term. And in the short-term, momentum (driven by the herding behavioural bias) plays a strong role in determining forward 12-month equity returns. Incorporating some ST forecasts into your LT forecasts and modelling can dampen this variability providing a more consistent result.

Over the long-term, the underlying fundamentals exert a greater influence, which is why longer-term forecasts tend to be more accurate, however ST forecasts can help control for short term risk. Long-term valuations also tend to revert to the mean.

There are times when it is more attractive to invest in an asset such as equities and other times when it is not (such as when prices have run strongly, and valuations are stretched). Unfortunately, these times are counter-intuitive to the behavioural biases that drive investors.

PORTFOLIO CONSTRUCTION: BETTER INVESTMENT OUTCOMES, BETTER INVESTOR BEHAVIOUR

Smoother, more predictable investment returns generated through stronger portfolio construction is crucial to manage investor behaviour.

A recent **academic analysis** of a large industry fund's member switching behaviour confirms it¹. More than 13,200 investors who switched during COVID lost an average of 5.6 per cent of their portfolio, while more than 7,200 who switched outside of COVID lost an average of 0.8 per cent.

It shows investors consistently making bad investment switching decisions, but the analysis also reveals why.

"Our analysis supplies evidence that many members who switch appear to be reacting to market movements (return chasing) and switching at inopportune times," the paper found.

¹Butt, A., Khemka, G., Lim, W., Warren, G., & Wu, S. (2023, August 11). Investment Option Switching Behaviour and Impact for Pension Fund Members Around the COVID Pandemic. Retrieved from: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4537938

“Evidence includes a strong skew towards defensive switches during the COVID period and a tilt towards growth switches during other periods when equity markets were rising; as well as the observation that switching intensity increases as markets approach a turning point.”

Most of the investors in the study would not have had an adviser to guide them. But knowing this is the typical way investors respond to market pressure, financial advisers can:

- Prepare to be more engaged with clients to manage their emotions and behaviours when facing extreme market volatility.
- Reduce investor potential stress by investing their assets in more robust portfolios that reduce the likelihood of extreme market volatility.

Investment is about taking risk, but intelligent risk, to achieve goals. It requires humility in forecasting and acknowledging that investors are all susceptible to behavioural biases that can derail their goals. Maintaining a more consistent return path for them will help reduce the tendency to suffer from behavioural biases, as well as managing the sequence of returns which can be very important to pre-retirees and retirees.

Robust optimisation is one way to build stronger portfolios that can help keep investors heading in the right direction.



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Dan Miles is the Managing Director & Co-Chief Investment Officer of Innova Asset Management. Innova is a boutique risk-focused portfolio manager that has been managing client portfolios since 2010. Innova was founded on the principles of providing robust and research-intensive insights to help investors meet their financial goals. The firm focuses on managing the multi-faceted nature of investment risks for clients.

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