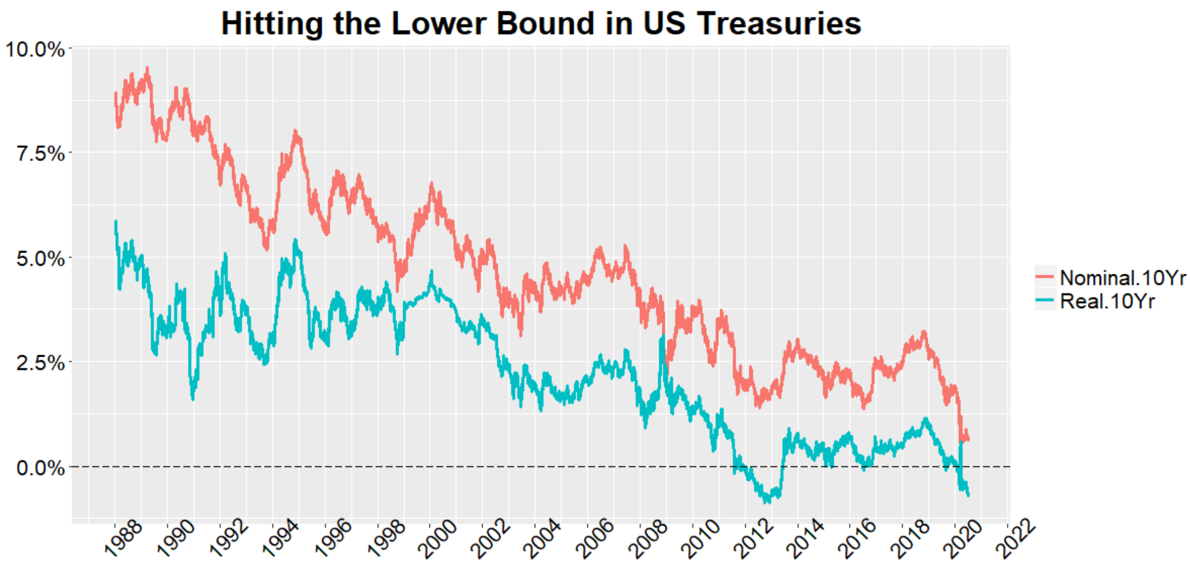
Build Robust Solutions or Suffer the Consequence of Financial Repression

The growing case for derivative overlay

The stages of grief end with acceptance.

Most investment professionals have come to terms with the realisation that financial repression has eliminated the ability of government bonds, given near zero interest rates; to provide ballast within a traditional portfolio.

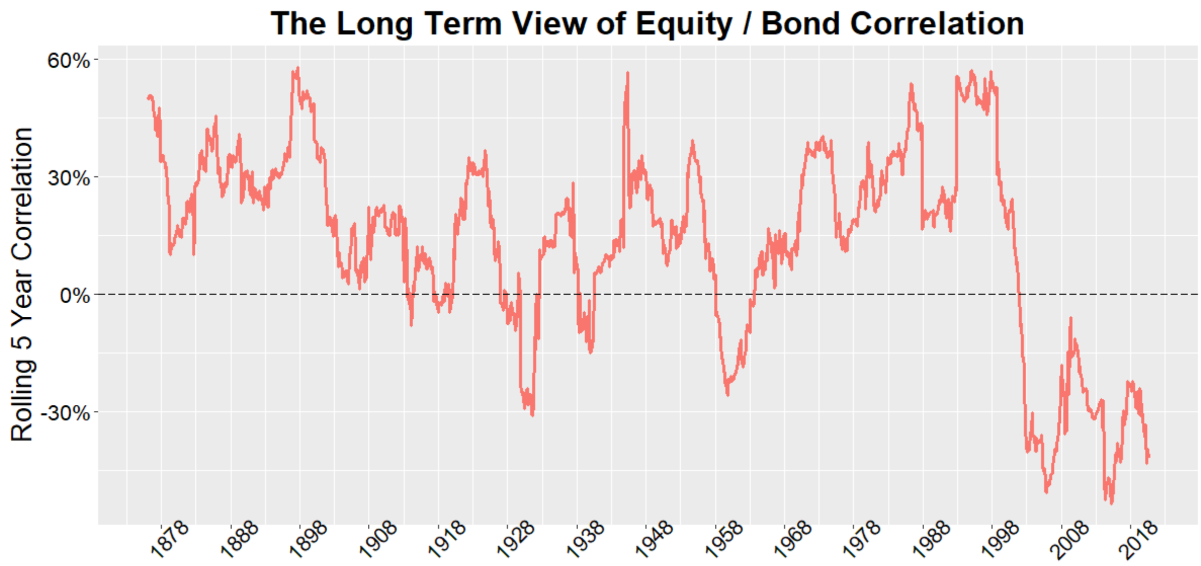
Below shows the 30-year bull market in bonds as the long-term trend in rates have marched to zero.



Source: Bloomberg, Perennial Solutions Group. Note prior to 1999 real yields are calculated as nominal yields minus the 3-year trailing average of US CPI, after 1999 real yields are calculated as nominal yields minus 10-year

Compounding upon the effect of zero rate policy, is the potential of bonds and equities reverting to a more normal and higher correlation in their returns. As we may be ending a 20-30 year 'golden era' for bonds, investment managers should not be fooled by recency bias and instead prepare portfolios to be more robust for a new paradigm.

Below highlights the rolling 5-year correlation of equity and bond markets. Over the longer timeframe, negative equity and bond correlation has been the exception, not the norm. Given current rates and market structure, there should be an expectation that the equity and bond correlation will be tested.



Source: GFD, UBS, Perennial Solutions Group. Shows rolling 5 year correlation of monthly S&P 500 total returns to monthly

Simple Math

A 50/50 (equity/fixed income) portfolio, with current US 10 Year treasury duration, requires approximately a 1% drop-in interest rates to offset a 10% fall in equities.

At the start of 2020, US 10-year treasury rates were 1.92%. Following central bank intervention to arrest market falls in the first quarter of 2020, rates are now approximately at .65% (august 24, 2020). Given a likely zero bound limitation for bond yields, bonds cannot provide significant capital return and investors within traditional portfolios are exposed to significantly higher risk than just a few short months ago.

As central banks globally are already at or near zero, the ability to aggressively cut rates to buffer equity portfolios no longer exists as in the Tech Wreck, GFC and 1st quarter of 2020.

Unless you are banking upon deep negative interest rates, financial repression has nullified the effectiveness of fixed income as the cornerstone defensive asset allocation. Instead, bonds are more likely to act like cash, albeit with more interest rate risk if rates were to rise from these historically low levels.

In a naive demonstration of a 50% stock and 50% bond portfolio, if bonds returned +20% in a crisis where equity market fell -30%, the overall portfolio would suffer by -5%. However, if bonds were limited to returning +5% in this scenario, the portfolio would suffer a -12.5% loss.

As current rates limit any potential capital gains in the next market sell-off, investment managers will need to find alternative ways to replace the historical protection from bonds or simply wear higher levels of portfolio risk.

In the above demonstration, to maintain the same risk profile, the equity portion of the portfolio would need to be substantially reduced to approximately a 30/70 portfolio to provide a similar drawdown as the first scenario (-5%).

The prospect of holding 70% of a portfolio at close to zero interest rates would dramatically decrease the expected rate of return and significantly impact most retirement plans. Clearly, innovative ideas are needed.

Robust Solutions are Available:

Institutional investment portfolios in Australia have gravitated to credit, infrastructure, and other alternatives in recent years as the expected diversification benefit from government bonds have diminished.

Growing concerns for rate normalisation and the potential increase in correlation between stocks and bonds has added to the strong demand for a growing set of alternative assets and trading strategies. To meet this demand, funds have incurred higher fees, added complexity and illiquidity as trade-offs.

However, as we have seen in all systemic events, including the first quarter of 2020; many of these alternative assets will act more like equity, failing to provide meaningful diversification benefits for a portfolio in acute periods.

As a traditional portfolio's liquid defensive countertrend allocation historically delivered from government bonds is no longer available and the over-reliance on diversification alone has proven feeble in severe tail risk market environments, fiduciaries seeking to maintain significant exposure to growth assets will need more robust solutions to provide prudent risk management.

Derivative Overlay

More robust solutions are found in capital efficient strategies designed to explicitly manage the risks within the portfolio.

Portfolio overlay solutions typically include option-based strategies customised for budget and level of protection from equity market falls. With a relatively small investment, portfolios can regain potentially large convexity in falling markets.

Further, derivative overlay solutions provide an influx of cash liquidity to a portfolio as markets fall, allowing investment teams to take advantage of lower prices or mitigate other liquidity demands.

A common misconception among investment professionals and stakeholders is that the cost of protecting a portfolio with options is high. However, an option-based strategy can be constructed with a relatively small budget and provide an overall higher compounded average rate of return.

The net results over a market cycle should be used to gauge the cost/benefit of any portfolio allocation.

For example, most institutional portfolios hold a value tilt within their equity allocations. This tilt may present significant cost or drag over specific periods, yet portfolio managers recognise over a longer period it is logical for fundamental value to provide outperformance and maintain their philosophy regardless of a short-term cost.

Option based strategies are more advantageous in that the budget or investment outlay is known and fixed ahead of time.

Prudent portfolio management should allow a portfolio to maximise long term compound rates of return by avoiding large drawdowns. As the cornerstone allocation of bonds is no longer as defensive, option-based strategies can be the replacement in the portfolio that is not reliant upon secular growth.

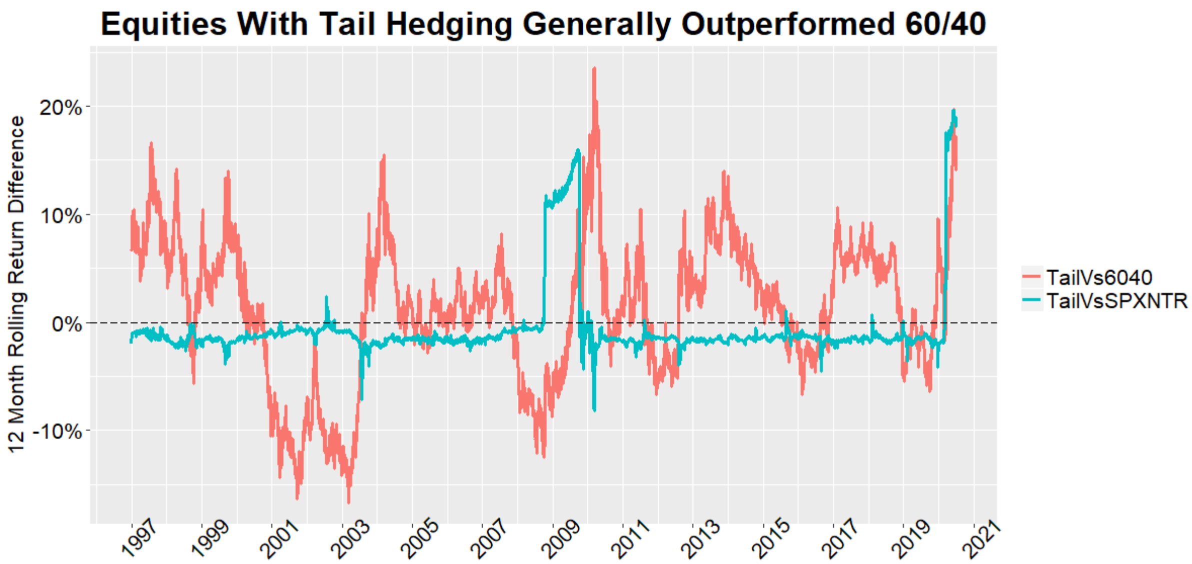
Relative to holding high levels of cash or bonds, low cost tail risk solutions with their explicit protection and high levels of convexity are capital efficient allowing portfolios to maintain current or higher levels of growth allocations.

Below utilising Perennial Solutions Groups' quantitative options testing platform, we show the simulated results comparing the performance of a 100% equity portfolio (SPXNTR), a 60/40 (SPXNTR/US10YrTreasuries) balanced portfolio and an Equity + Tail strategy (98.5% SPXNTR +1.5% annual budget to an option strategy)[i] for the period of January 1996 through June 2020.

This analysis demonstrates how a relatively low-cost systematic Equity + Tail strategy compared to a 60/40 portfolio.

Importantly, the demonstration highlights a simple Equity + Tail strategy outperformed on a return basis both the 60/40 and 100% equity portfolios over the entire period.

The Equity + Tail strategy has generally outperformed the 60/40 portfolio in most periods, excepting for the period between 2000-2003 and 2007-2008 where the central bank had large leeway to substantially cut interest rates. Notably, in the most recent crisis where rates started from a lower nominal level; the tail risk solution was able to outperform substantially.



Source: Bloomberg, OptionMetrics, Perennial Solutions Group. Tail strategy invests in S&P 500 net total return combined with medium tenor far out-of-the-money puts, 1.5% premium spend pa, with a simple rule for monetisation

Within this analysis, we have purposely depicted a naïve rules-based option strategy. In practice, strategies can be customised to meet a fund's given risk and premium budgets. Further, depending upon an investment team's philosophy, performance can be enhanced with the addition of rules-based improvements, or active/discretionary inputs.

Table 1 below provides performance results from January 1996 through June 2020 for the above comparisons.

While the performance of Equity + Tail solution has higher risk measured by drawdown and volatility than the 60/40 fund, the Tail Solution outperformed the 60/40 portfolio by 106 bp p.a. This outperformance provides additional budget for increasing the option strategy investment allocation, adding another strategy, reducing equity or a combination of the above.

Further, there are two important considerations of the comparison of 60/40 fund and the Tail solution.

1st - the period tested is arguably the best period in history for bond performance, performance we have outlined above as being impossible to repeat at current rates.

2nd - an option overlay is explicit risk management and not dependent upon correlations to perform.

Table1

Metric	SPXNTR	60/40	Tail
Return	8.20%	7.32%	8.38%
Volatility	19.54%	11.11%	17.62%
Down Vol	14.07%	7.86%	12.48%
Up Vol	13.56%	7.85%	12.44%
Down / Up Vol	103.78%	100.15%	100.33%
Return / Volatility	41.98%	65.88%	47.55%
Sortino	58.30%	93.10%	67.13%
SI Max Ddown	-55.71%	-33.82%	-48.40%
SI ReturnRel	0.00%	-0.89%	0.17%
SI VolRel	0.00%	-8.44%	-1.92%
SI Max DdownRel	0.00%	21.89%	7.31%
SI Calmar	14.73%	21.63%	17.31%
Mean Qtle4 Ret	-14.00%	-5.30%	-12.32%
Mean Qtle3 Ret	7.11%	6.38%	7.61%
Mean Qtle2 Ret	18.95%	12.05%	17.59%
Mean Qtle1 Ret	29.12%	19.03%	27.40%

Source: Bloomberg, OptionMetrics, Perennial Solutions Group. Tail strategy invests in S&P 500 net total return combined with medium tenor far out-of-the-money puts, 1.5% premium spend pa, with a simple rule

A Tale of Two Drawdowns

As we have demonstrated, portfolios relying upon bonds to balance portfolio risk in periods of stress is diminished due to financial repression. This is clear in the examination of two recent systemic events.

The graph below Illustrates the performance of the three tested strategies through the Global Financial Crisis in 2008/2009. The ability of bonds to buffer against equity market falls enabled the

60/40 portfolio to provide the lowest drawdown within this back-test period. However, 10-year US interest rates fell from 4.7% at the beginning of 2007 to 1.97% by December 2008. Additionally, the Tail solution was outperforming 60/40 by the end of the highlighted period (2010).

Source: Bloomberg, OptionMetrics, Perennial Solutions Group. Tail strategy invests in S&P 500 net total return combined with medium tenor far out-of-the-money puts,

However, if rates will be held to the zero range from current levels of 65bp, traditional portfolios will need to find other strategies that provide convexity in a falling equity market.

Below illustrates the performance of the strategies over the recent market Covid 19 crisis in the first quarter of 2020.

The tail risk strategy was able to provide the lowest drawdown over this period. US 10-year rates fell 135bp from the beginning of the period through March.

Given rates have nowhere to go, we suspect outperformance from tail strategies will be the norm in future equity market falls.

Fig. 5

Source: Bloomberg, OptionMetrics, Perennial Solutions Group. Tail strategy invests in S&P 500 net total return combined with medium tenor far out-of-the-money puts,

Time for a New Paradigm

- 60/40 has had a fantastic three decades, predicated on the bull run in US Treasuries and negative equity / bond correlation. This paradigm is under threat
- Increasing allocation to equities, reducing allocation to bonds, and investing the increased returns in option overlay for risk mitigation, is likely to produce superior results. The expected higher level of return from a higher growth allocation can fund explicit downside protection. Its effectiveness can clearly be seen in the relative performance during the Covid-19 drawdown
- Liquidity is a factor we did not explore in this report, but a reminder of its importance was delivered during the Covid-19 drawdown for the Superannuation industry. Holding options effectively provides a mechanism to automatically generate cash during a drawdown, satisfying liquidity needs and providing the opportunity to reinvest at attractive levels
- To address "Sequence of Return" and "Longevity" risk for an increasing demographic of Near and In Retirement superannuation members, innovation in product design that provides more explicit protection for growth exposure will be required. Derivative overlays can provide straight forward protection for existing exposure or utilised to replace physical exposure for more risk controlled outcomes.
- Overlay design is a bespoke process that is tailored to a clients' objective functions. The tail overlay strategy presented in this report was only an example of what can be designed

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[i] Tail Strategy is a rules-based strategy of SP500TR+ rolling 5M 70% puts with a simple monetisation rule, spending 1.5% pa

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The aim of this article is to highlight:

1. The weakness of conventional asset allocation 2. Potential ideas for further review and research.

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