**Schroders**  
Assessing risk in multi-asset strategies  
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**Executive Summary**

The multi-asset landscape has exploded in recent years with a wide range of strategies and approaches now available to investors. While balanced funds once had this domain largely to themselves, multi-asset now extends across a plethora of "objective based" approaches (commonly named as "target", "total", "absolute" and "real" return strategies), risk parity, thematic (such as income focussed), as well as sub categories that include more nuanced alternative risk premium (ARP) approaches. In short, anything that straddles multiple asset classes can fall within the broader multi-asset umbrella. However, the approaches taken in managing each of these approaches varies considerably.

In this paper, we provide a framework to help our own thinking and also to provide investors with a basis to assess the risks and appropriateness of multi-asset strategies as a solution (either in whole or in part) to their investment objectives. This framework breaks the different approaches down into their major contributing risk factors, providing an assessment in both absolute and relative terms as to what’s driving these strategies and what investors should look for and need to understand.

We do not draw any conclusions about the merits of one approach over another as in large part this will depend on what investors are seeking to achieve, the risks already inherent in their portfolio and their own philosophical preferences. We do conclude though that there remains no free lunch.

1. **Framing Objectives**

The starting point for most investors is usually somewhere on the Markowitz (risk / return) efficient frontier to capture the benefits of equity / bond diversification. Most tend to aim for growth type returns but without the same degree of volatility as equities. This frames the desired outcome around CPI + 4-6% / Cash + 3-5% with volatility around 8-10%. The problem with the traditional construction of this portfolio (often built around an equity heavy Strategic Asset Allocation (SAA) of 60% equity and 40% bond) is the absolute dominance of the return path by the volatility of the equity component of the portfolio.

Particularly post the heavy drawdowns experienced by these portfolios in 2008, but extending back to the prior technology-driven market declines over 2000-02, investors having been searching for ways to diversify their risk away from equity beta without reducing their overall (growth oriented) return outcomes embedded within their investment plan assumptions.

The objectives that most investors arrive at look something like:

- **Returns:** Inflation + 4-6%, Cash + 3-5% over rolling three to five year periods
- **Risk - Volatility:** a level of volatility significantly lower than equity and preferably lower than an equity heavy (60%) SAA portfolio. Volatility from 5 – 10% p.a is often suitable.
- **Risk – Drawdown:** a significant reduction in the incidence and magnitude of drawdowns compared to the ~50% seen with equity and ~30-35% seen with SAA portfolios. Maximum drawdowns of no more than 15-20% would be desirable – anything under 10% would be considered outstanding.

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1 We use the term ‘objective based’ as our description of those investment strategies that focus on achieving a particular outcome, rather than a return around an arbitrary benchmark (whether asset class based or a strategic asset allocation as in the case of the standard balanced approach). At their core though is the same underlying investment objective – the delivery of solid positive returns over time within a particular set of risk parameters.
2. No Free Lunch

If achieving equity like returns with much lower than equity risk was possible, surely everyone would structure their portfolios in this manner. Given there are no free lunches in competitive investment markets we need to look closely at the assumptions behind portfolios that target these objectives.

The first and most common assumption is alpha - manager skill. The ability to deliver superior investment returns at lower risk due to idiosyncratic decisions made by the portfolio managers. This is part of the answer, but not a very satisfactory one – if for no other reason than alpha is zero sum. For every manager who can deliver positive alpha there is another (or another group) who has a similar expectation of superior performance but actually does much worse than the benchmark.

The second and more durable assumption is non-equity risk. A 60/40 portfolio may be dominated by equity beta risk but that is not to say that equity beta is the only risk investors can assume. Investors can magnify the bond beta risk in their portfolios, increase risk to identified factors (such as size, value, quality, momentum, minimum volatility, carry etc), add leverage risk to their portfolio or increase counterparty risk, liquidity risk or model assumption risk. Indeed much of the burgeoning ‘alternatives’ universe adds a package of these non-equity risks to an investment portfolio.

There are no free lunches and by wanting a portfolio that still delivers CPI + 4-6% / Cash + 3-5% returns and diversifying away from equity beta risk, investors need to acknowledge they are still taking risk in their portfolio albeit in a different and potentially more complex and less transparent form.

3. A framework for considering objective based strategies and their risks

In order to better understand the risks investors are exposed to – specifically in relation to the plethora of multi-asset strategies available, we have constructed a simple framework to compare different approaches. We consider six primary risks that investors take in their portfolios and whilst no framework will be perfect (or universally agreed) we think this provides a useful starting point to understand how outcome oriented multi-asset strategies approach the achievement of “growth” type returns, without the dependence on equity beta.

This framework should ensure investors are better positioned to do two things. Firstly, if the risks of each strategy are better understood, an investor can better assess the merits of including these strategies in their overall portfolio and understand how they may complement or diversify other strategies or risks they currently carry. Secondly, the skills required to manage these risks are different and manager assessment should rightly focus on the competence of the manager in those areas where strategy risk loading is highest.

Risks to an investment portfolio included in our framework:

1. Equity Beta Risk
2. Bond Beta Risk
3. Factor Risk
4. Alpha Risk
5. Leverage Risk
6. Complexity Risk

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2 Equity Beta Risk - this is the risk that dominates traditional portfolios and despite becoming unfashionable equity beta is still the largest and most long term proven risk premia available at very low cost to all investors.

3 Bond Beta Risk - declining interest rates for 35 years and equity diversification benefits have made bond beta the most desirable portfolio diversifiers for modern investors. Recent history hides the fact that bond beta or duration risk is still something investors need to be compensated for taking.

4 Factor Risk - as investor understanding of returns has improved, the decomposition of returns above beta into factor returns and alpha returns has been well documented. Risk factors such as size, value, quality, momentum and low volatility can be specifically targeted in a portfolio.

5 Alpha Risk - in many cases, this is the X factor. The elusive skill an entire active management industry is built upon. Whilst hedge funds have long been the pure expression of alpha as a driver of returns there is not an active strategy that doesn’t rely on skill in some form - beta management, relative value trades, factor management or security selection - to deliver excess risk adjusted returns to the portfolio.

6 Leverage Risk - leverage takes two forms. The simplest is a net leveraged portfolio where $100 of net assets underpins more than $100 of net long market exposure. The other is when positions are added to a portfolio to increase the gross exposure, but the net long exposure remains equal to or less than net asset value (NAV). This is achieved by going long one asset and short another so the portfolio is not net longer by more than its NAV. In the context of this analysis, assumptions around leverage extend to the underlying strategies in which the multi-asset strategies invest.

7 Complexity Risk - there are a range of other risks important to a portfolio but in many cases are not individually as meaningful as the 5 highlighted. Risks such as counterparty risk (introduced through the use of Over The Counter - OTC - derivatives), liquidity risk, asset pricing risk, agency risk (particularly where performance fees are present), regulatory risk, key person rather than process risk and model assumption risk (black box or opacity to the underlying return generator). The combination and interaction of these risks can create complexity risk to the overall portfolio.
We use radar / spider web style charts to show how strategies load on each of these risk factors. The simple 60/40 equity/bond portfolio is shown in figure (1) to highlight the dependence upon equity and bond betas. It should be noted here that these charts are intended to be illustrative rather than quantitatively scaled. We concede that the exact positioning of different factors on each vector may be debatable (hence the bands), but we believe there is less room to debate the relative positioning across strategies.

3.1 60/40 Portfolio

If, for example we consider a standard balanced strategy with a fixed (60/40) SAA, it would map to this framework in the following way. Equity beta is the dominant risk (around 90% of the variation in returns through time comes from equity beta), whilst bond beta is relatively moderate. Factor risk is overwhelmed by broad equity beta and the contribution from alpha (from Tactical Asset Allocation or security selection) is positive but moderate in the context of the overall outcomes. Leverage is generally limited to gross leverage within fixed income assets to manage duration / curve positions or leverage in underlying strategies (such as the inclusion of long/short positions) and as the purest and most traditional of the multi-asset strategies has limited complexity.

Figure 1: Indicative risk loading for a 60 / 40 Traditional Portfolio

3.2. Unconstrained Asset Allocation

The simplest way to reduce dependence upon equity beta is to construct a portfolio away from the equity beta heavy benchmark. Unconstrained asset allocation approaches not only change the asset weighting over time in far wider ranges but also includes a wider range of assets and markets that can be used – although mostly in long only form. The decision making that determines these weights by definition requires skill to add value – including through active asset allocation (alpha risk) but tends to have more moderate exposure to factor, leverage and complexity risks. We’d also note here that broad market beta risks (both equity and bond) can vary considerably through time. We would include the Schroder Real Return strategy and the Schroder Global Target Return strategy in this classification.
3.3 Risk Parity

Risk parity approaches are built around the principle of equal risk weighting and look to reduce equity beta and increase risk of other assets (bonds, commodities). While risk parity strategies vary in approach, construction and purity, the overarching characteristic is the leveraging up of low risk assets (mainly bonds) to a particular risk objective. Both gross and net leverage in these strategies can be considerable. For risk parity strategies that utilise (say) commodities, we would incorporate this under factor risk for simplicity.
3.4 Relative Value dependent (RV)

These strategies look to use a wide range of diversifying long and short positions (across markets rather than individual securities) to generate returns with minimal equity beta risk. This of course relies heavily on skill given many of these trades have no embedded risk premium although they have the advantage of being implemented through exchange traded futures contracts. Unlike hedge funds, there is often a high level of portfolio transparency into the positions the portfolio holds. Gross leverage can be high but in net terms leverage tends to be more modest.

Figure 4: Indicative risk loading for a Relative Value dependent (RV) Strategy

3.5 Alternative Risk Premium (ARP)

These strategies use long risk premium and short market positions (leverage) to capture excess returns through the factor risk identified in markets – factors such as size, value, quality, minimum volatility, carry and momentum. Due to a lack of exchange traded futures available to hold the long factor position many of these trades require over the counter (OTC) implementation in order to lever the factor returns which introduces complexity risk to the portfolio.

Figure 5: Indicative risk loading for an Alternative Risk Premium (ARP) Strategy
4. Cross strategy analysis & Conclusions

When we map these strategies on our risk framework (figure 6) we can see how they load the portfolio with different rather than less risk.

When considering managers in each group, despite their potential diversification across different sources of risk, we still think of a hierarchy of primary and secondary risks for each strategy. For simplicity, in figure 6 we have grouped equity and bond beta risks together as market risk premium (MRP), alpha and factors together and leverage and complexity together. This illustration conveys how each strategy loads on each risk and as a result highlights how the investment process for each MA strategy manager needs to specialise in the area of primary risk contribution.

Figure 6: Indicative risk loading for a MA Strategies compared

Using this framework also allows investors to drill into any two dimensions for more detail on how the risk is used. The example, figure 7 shows equity beta (Y axis) relative to leverage (X axis) and not only the positioning of each strategy group but also the detail as to how leverage is used within the fund. This also means we can express the dynamic nature and show how, for example, unconstrained asset allocation strategies have an equity beta that can move from looking very similar to a 60 / 40 portfolio to looking like a more conservative 30 / 70 portfolio – and not only everything in between, but potentially even outside this range as well.

Figure 7: Comparing risk attributes – Equity Beta vs Fund Leverage
5. Conclusions

While the objectives are typically similar, the approaches taken to achieve them vary enormously across the multi-asset universe. This variation is both structural (as we’ve discussed and described above) in terms of the broad approach and underlying risk loading as well as idiosyncratic in the sense even with the broader style clusters, approaches vary enormously. This is born out in the diversity of return outcomes achieved in 2016 across the multi-asset universe.

Figure 8: Multi-asset funds in Australia\(^8\) – 2016 Returns & Volatility

This framework also highlights how important it is to understand the drivers of risk as the relative comfort of a broader market index is no longer available. There is no “neutral” / “riskless” portfolio, nor, in our view, is there a neat, generic methodology to assess manager performance. Clearly meeting the objective is a good start but the question of how (ie. was it aligned with style and commensurate risk budget) will be equally important.

Risk is typically thought about in volatility terms and primarily driven off broad market beta. Where the risk that matters is downside risk / risk of loss (as is typically the case with many of the strategies outlined above – the exception being the balanced fund), it is important to note that this can be triggered from any of these factors with leverage and complexity typically magnifying this effect.

Understanding these factors is also important in terms of broader portfolio construction where multi-asset portfolios are utilised as a diversifying growth driver. This is particularly important given the increased use of multi-asset strategies in both institutional and individual client portfolios, and as such, the need to diversify by manager, style and approach.

APPENDIX: Where does the Schroder Real Return Fund sit?

The Schroder Real Return strategy is managed using our objective based investment process. In the context of the framework described in this paper it would fit most closely with the “Unconstrained Asset Allocation” approach. Our primary belief that underpins this strategy is that beta management is the single most important driver of returns and risk over time, and, that a relatively unconstrained approach to managing asset allocation over time is essential.

It is also important to recognise that there is more to the strategy than simply asset allocation amongst key market betas. Factor exposure (both explicit and implicit), stock selection alpha at both a headline portfolio and sub-strategy level, moderate gross leverage (implicit in relative value trades) - albeit no net leverage, are all important contributors to overall portfolio outcomes and have been implemented to varying degrees since inception of the strategy in October 2008.

Figure 1 shows the difference between broad asset allocation (Portfolio - Capital Weights) and the breadth of underlying exposures (Portfolio - Risk Weights). The latter reflects contributions to gross portfolio volatility including currency positions, relative value trades as well as active stock selection at the underlying strategy level.

**Figure 1: Schroder Real Return Fund Capital vs Risk Weights – 31 Dec 2016**

Viewing the portfolio in this way is a much more accurate reflection of the breadth of activity within the portfolio as well as highlighting a “naïve” asset allocation perspective does not truly reflect the risk exposures within the portfolio. This is why a more nuanced understanding of portfolio characteristics is required to fully understand multi-asset portfolios.

Figure 2 (below) highlights the aggregated risk exposures of the Schroder Real Return strategy to provide some empirical data to map onto the framework outlined in the main body of this paper.

**Figure 2: Aggregated Risk Exposures and Portfolio Beta**

<table>
<thead>
<tr>
<th>% of Total Risk</th>
<th>Dec-16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity</td>
<td>39.9%</td>
</tr>
<tr>
<td>Bond</td>
<td>14.5%</td>
</tr>
<tr>
<td>FX</td>
<td>17.0%</td>
</tr>
<tr>
<td>Stock Selection Alpha</td>
<td>12.5%</td>
</tr>
<tr>
<td>Relative Value and Overlays</td>
<td>16.1%</td>
</tr>
<tr>
<td>Gross Leverage</td>
<td>28.2%</td>
</tr>
<tr>
<td>Net Leverage</td>
<td>0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Beta 3 Yrs to Dec-16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity</td>
</tr>
<tr>
<td>Bond</td>
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</table>
It is important to note that the allocation between these risks is not however static. At the time of our strategy inception in late 2008 equity and credit beta was very attractive in our view and the portfolio used much of its risk budget on equity (and equity like) risk. Beyond 2014 the situation was very different. With equity risk increasingly unattractive the portfolio risk budget was subsequently more diversified across other risks.

Figure 3 (below) shows how this looks in the framework outlined in the paper noted.

**Figure 3: Indicative risk loading for the Schroder Real Return (CPI+5%) Fund**

The rationale behind the scaling is as follows:

- Actual equity and bond beta compared to a 60/40 balanced fund SAA;
- Factor risk is low albeit potential some alpha risk is arguably factor risk.
- Alpha risk includes stock selection alpha, relative value trades plus asset allocation which is dominant in this strategy;
- Leverage is low as no net leverage and very modest gross leverage via RV trades;
- Complexity is also low given use of traditional assets, daily pricing, limited use of OTC derivatives and utilising a transparent process.

Figure 4 provides a point of comparison, showing the assessment but this time for the Schroder Balanced Fund. The most obvious difference is in terms of equity beta (RRF 0.2 vs SBF 0.5) and in bond beta risk (RRF 0.3 vs SBF 0.2).

**Figure 4: Indicative risk loading for the Schroder Balanced Fund**
Conclusion

Multi-asset strategies available to investors vary enormously. Decomposing these strategies into their risk is a useful way to assess them. With respect to the Schroder Real Return strategy, this framework highlights:

– the relatively moderate equity beta of the portfolio (0.3 or less);
– that factor and alpha risk are important, although not dominant;
– leverage is limited (and only on a gross basis);
– the degree of complexity embedded in the strategy is on relative scale moderate.