TAA – icing on the cake

How tactical asset allocation sweetens returns

Superannuation fund trustees and their investment managers seek constantly to prise extra returns from their assets through refined techniques. JOHN SEARS argues that in the growing trend to change from balanced fund management to sector specialists, TAA is often overlooked.

A great cake has more than one ingredient. To lift its taste and make it something special, other ingredients must be added to the mix. Similarly, there is more to the investment return of a superannuation fund than just the benchmark asset mix. Rather, the return is made up of several components: the basic return determined by its long-term structure or benchmark, and the additional ingredients of stock selection and tactical asset allocation (TAA).

What is the relative importance of TAA to a fund’s return? We analysed the five-year performance history of 22 large Australian balanced superannuation funds and found that while the basic mix or benchmark determines the bulk of the fund’s return, TAA does make a significant contribution. For the chosen sample, TAA added up to 1.1% per annum to a superannuation fund’s benchmark return.

A super fund’s performance has two main drivers:
- The strategic or benchmark return derived from the long-term structure or benchmark of the fund. The overall asset benchmark might be 60% equities, 25% fixed interest, 10% property and 5% cash.
- The active return attributable to active management decisions. Active return is itself made up of TAA, stock selection and a third ingredient, interaction.

These characteristics are illustrated in Figure 1.

Tactical asset allocation (TAA): This involves moving away from the asset benchmark weights in order to capitalise on outperforming sectors or markets. Using tactical asset allocation, a fund tilts into assets that are expected to perform relatively well and away from those expected to perform relatively poorly.

Security selection (SS): Security selection is undertaken within an asset class. It encompasses holding more of those stocks expected to outperform and fewer of those expected to underperform; for example, holding 5% less of BHP than its weight in the All-Ordinaries index.

Interaction: This can best be described as a combination of stock

John Sears is with the investment strategy and economics team, AMP Asset Management Australia Ltd.
It is the effect of stock selection on the difference between the tactical asset weight and the benchmark asset weight. So, for example, it measures the value of being underweight a relatively poorly performing asset class but overweight a stock in that asset class doing relatively well.

**METHODOLOGY**

To establish the relative importance of the components of a superfund's return we selected a specific framework based primarily on analysis undertaken by Brinson, Hood and Beebower (BHB) in their 1986 paper "Determinants of Portfolio Performance".1

BHB uses the econometric measure "R squared" in regression analysis to quantify the key influences on historic performance. In this analysis the value R squared, alternatively known as the coefficient of determination, measures the significance of the relationship between two variables. For example, it can be used to measure how useful changes in the TAA return are at explaining changes in the total active return. This example is shown in Figure 2.

Figure 2 shows the scatter plot of AMP's balanced fund TAA returns (X) against the fund's total active returns (Y). Calculating the straight line which best fits the scatter plot, we find that the R squared is equal to 0.75. As this is considered to be a relatively high figure (being closer to 1), we can surmise that TAA is significant in explaining the behaviour of active return.

The R squared figure is calculated by creating four time series of return for each of the 22 super funds. These are:

1. The benchmark return.
2. The benchmark return plus the TAA return.
3. The benchmark return plus the stock selection return.
4. The total or actual return of the fund.

The first three series are each correlated against the fourth and the correlation coefficients are squared to provide the R squared or the measure of the relative importance of each return component. The individual fund's components are then arithmetically averaged to obtain an overall significance measure of each component.

These components are represented schematically in the Brinson Hood and Beebower framework in Table 1.

**THE DATA**

Importantly, we needed a broad mix of superannuation funds with a reasonable data history. The data required included the monthly asset mix of each fund and the monthly sector return for each of the fund's asset classes. Where a sector return was missing and the asset class had an insignificant weighting in the fund, the relevant index return was used instead as a proxy. However, if the asset had a significant weight, the fund was not included in the analysis. For

---

1. *Brinson, Hood and Beebower (1986)*, "Determinants of Portfolio Performance."
ANOTHER QUESTION

"TAA - icing on the cake" (TIC), applies the return attribution framework of Brinson, Hood & Beebower (BHB), to Australian balanced superannuation funds. The paper supports BHB's finding that most of the variation in an investment fund's return can be attributed to the strategic asset mix. TIC also found that large Australian balanced superannuation fund managers had, during the study period, generally added value though TAA and subtracted value through stock selection.

However, William Jahnke in his 1997 article "The Asset Allocation Hoax" (Journal of Financial Planning, February, pp.109-13) criticises the BHB paper and states that "both the study's conclusions and the interpretation of those conclusions are wrong".

I would dispute this and suggest Jahnke merely draws additional conclusions from the paper for investors and trustees to consider.

Jahnke argues that the important question for investors is the cause of the differences between the returns of the 91 funds in BHB's study, not the cause of the variation in the quarterly return of each fund. That is, Jahnke wants to know the cause of the divergence between the maximum annualised 10-year return of 13.40% and the minimum of 5.85%. BHB asks what drives a return up in one quarter and down in the next.

I would suggest that the conclusions of both BHB and TIC are valid and it is merely a different issue being addressed, not the wrong issue. The difference is essentially one of time-series versus cross-sectional analysis. BHB and TIC provide the return attribution for any one fund; ie, why a fund's return one year will be 5% and the next year 20%. Jahnke is more concerned with why Fund A has an annualised holding period return of x% and Fund B an annualised holding period return of y%.

This comes down to two questions, equally important, for investors and trustees:
• What will be the structure of the fund [time-series]?
• Who will manage the fund [cross-sectional]?

The overall structure of the fund is important for achieving the investment objectives of the investor/trustee - eg, will the fund achieve AWE growth + 2% over a five-year period?

Deciding who will manage the fund is important in determining if that objective is likely to be met.

The method Jahnke chooses to calculate the cross-sectional return attribution is statistically inferior. Jahnke takes the ratio of the strategic asset allocation (SAA) return spread to the total return spread as the proportion of return explained by the SAA mix, eg, the minimum annualised holding period return in the BHB study is 5.85% and the maximum 13.40%, a spread of 7.55%. The spread between the minimum SAA return and the maximum is then calculated at 1.1%, (10.47% - 9.47%), ie, the ratio is 1.1% / 7.55% = 14.6%. Therefore, the amount of variation in the holding period returns explained by variation in SAA is only 14.6%. This is not surprising, given that BHB uses as the SAA mix the average of the funds' sector weights (these are very similar across the funds). The main cause of variation stems from the differences in active returns.

A statistically superior method would be to take the series of all 91 funds' SAA returns and correlate them against their total returns, squaring to provide the R2 or explained variation.

Applying this methodology to the Australian balanced fund data used in TIC provides the results shown in the table.

<table>
<thead>
<tr>
<th>Against total return</th>
<th>SAA</th>
<th>TAA</th>
<th>Stock selection</th>
<th>Interaction</th>
<th>Active return</th>
</tr>
</thead>
<tbody>
<tr>
<td>R²</td>
<td>5%</td>
<td>1%</td>
<td>61%</td>
<td>4%</td>
<td>71%</td>
</tr>
<tr>
<td>Against active return</td>
<td>TAA</td>
<td>Stock selection</td>
<td>Interaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>17%</td>
<td>77%</td>
<td>1%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As was detailed in TIC, the most volatile component of return was stock selection, accounting for 61% of the variation between the top and bottom fund returns. Within the active return component, TAA remain significant at 17%.

What does this tell us? It appears Australian fund managers are relatively more aggressive in their stock selection than in their TAA. It is also possible that the balanced managers were generally more successful in TAA than stock selection. This would account for TAA making a generally positive contribution with less likelihood of a negative return, while the average stock selection return was negative.

It is logical that the SAA R2 is relatively low, as the 22 funds in the study are drawn from a similar universe, large/medium equity balanced funds, which would have similar benchmark mixes.

The conclusions drawn from "TAA - icing on the cake" remain valid. TAA is an important contributor to active return in an investment fund and should be included as part of the investment strategy. Jahnke's question confirms that trustees must not only decide carefully on the structure of their fund but also on who manages it. — John Sears
example, a fund which generally had a low exposure to direct property but did not provide a return history for that sector would have been included, but if a fund’s historic Australian equity sector returns were unavailable it would have been excluded.

The five-year sample period we chose, from June 1992 to June 1997, proved an interesting one. It was not only marked by strong returns in both equity and bond markets but also by the bond-market crash of 1994. It was generally a period of relatively high correlation and low volatility in financial markets. This implies a greater degree of difficulty in achieving excess returns from both market timing and stock selection, as there is less advantage to be gained from moving away from the benchmark.

Using monthly data from the 22 large Australian super funds combined with the BHB methodology, a time series for each of the above quadrants was created.

A fifth return series, the benchmark return plus interaction effect, was also calculated. These returns are shown in Table 2.

If we focus on the average return column for fund returns and compare the benchmark return (12.77%) with the actual return (12.94%), it is apparent that a large proportion of the returns can be attributed to the benchmark asset mix. If we narrow the focus to the active component of the return, TAA and the interaction effect both added to the overall return while stock selection’s effect was negative.

The total active average return component (+0.17%) is relatively small. However, the variation from the minimum (-2.10%) to the maximum (+2.44%) is quite high at 4.54%. Therefore active return is potentially an important component of total fund return. But how important? While the above calculations show the actual contribution to performance, they do not show their relative importance.

This must be calculated using the R squared measure defined earlier.

### IMPORTANCE OF ACTIVE RETURN INGREDIENTS

To measure the relative importance of each return component to the active return, a further set of return series was calculated.

1. The return from TAA
2. The return from stock selection.
3. The return from the interaction effect.
4. The total active return (the fund’s total return less the benchmark return).

Continued on page 34
description of activities, explanation of objectives, corporate responsibility, financial performance, graphs and charts, risk and outlook, user-friendliness, value-creation strategies, credits to producers, employee figures and presentation of a glossary.

Australian company reports were found to be relatively short. Compared with US and Canadian reports, Australian reports paid more attention to explaining the companies' objectives, activities and financial performance. Australian reports appeared less user-friendly than US reports and used fewer explanatory graphs and charts than Canadian reports. It appeared that Australian reports could improve their discussions of the company's risk and outlook, and its corporate responsibility. In giving credit to the people who helped produce the reports, providing a glossary and disclosing employee numbers, US and Canadian reports are ahead of Australian reports.

**IMPLICATIONS**

What are the implications for trustees?

The results indicate that TAA is indeed the icing on the cake. Australian super funds have, on average, achieved an extra layer of returns from TAA and have demonstrated the ability to gain up to an additional 1.12% of return if TAA is included as part of the investment strategy. TAA should be considered an important component of a diversified superannuation fund.

**NOTES**


2. Data is sourced from InTech Asset Consulting, Mercer Investment Consulting and Super CMS (Rainmaker Aust. Pty Ltd).

**REFERENCES**


**The JASSA Prize**

All original articles published in JASSA are eligible for the JASSA Prize, awarded annually for the article judged as making the best contribution to the securities industry. As well as the major JASSA Prize of $1,000, there are up to three merit awards, each of a Mont Blanc Meisterstuck fountain pen.

**A service for JASSA contributors**

**JASSA REPRINTS**

Authors may now order reprints of their articles as published in JASSA.

For details of costs and quantities, contact the publisher at: The Custom Publishing Group Pty. Ltd. 3 Montague St., Balmain NSW 2041

Phone 02 9555 1455 Fax 02 9818 4420


