The Australian cash management industry – Adding value and reducing risk, but at what cost to returns?

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Research Development Unit

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Jenny Diggle can be contacted as follows:
Phone: 03 9925 5618
Email: jenny.diggle@rmit.edu.au
Abstract

The traditional use of cash in the professional managed funds arena has been to increase or reduce the overall risk of the portfolio by altering the amount of cash kept in the portfolio. Modern financial markets provide two alternatives for selecting a cash-like security – directly into low risk securities such as a short term bank bill or the overnight cash market; or indirectly into a managed fund that specialises in the use of short term interest rate securities. This paper seeks to define the use of cash as an asset class by professional funds managers and compares the returns generated over time by these fund managers to a direct investment in three “risk free” interest rate securities – overnight cash, a 180 day bank bill and a medium term Commonwealth Government bond over the period January 1993 to July 1999. The findings question the use of specialist niche fund mangers by the wholesale investment industry in Australia.
Introduction

Modern portfolio theory tells investors to diversify their investments across the major asset groups of equities, property and fixed interest if they are to reduce risk and maximise returns from investing. This is equally true for the retail investor as it is for the wholesale funds manager. Investors are encouraged to move away from the low risk cash for the more risky, yet higher returning, asset classes. Cash is a very low risk investment, where the return is usually the lowest, and because of this low return, investors are encouraged to keep minimal amounts of investment capital in cash.

In the competitive global funds management industry, every asset class must work for the manager and maximise returns - cash is no exception. The returns on cash are considered to be the “do nothing” benchmark return of investing. That is, the returns on cash or cash-like securities are considered to have the lowest expected return from investing, given the low risk nature of a cash investment. There is an implication that a cash investment is “risk free”. Capon (1994) identified a trend in the United States to make cash work for the investors. The trend, which began in 1987, has seen a growing number of cash-based investment funds in the US. This trend has also emerged in Australia. Whilst Capon’s analysis was anecdotal, involving interviews of market participants, and purely observational, it provides an interesting insight to the workings of funds managers and the use of all assets under management, including cash.

Capon (1994) identifies that the market view that holding cash in a funds manager’s balanced portfolio will reduce returns and therefore the competitiveness of the fund, appears to be incorrect when looking at the returns generated by cash-based short term investment funds (Stifs) in the US. Capon interviewed large funds managers in the US, UK and Europe and questioned the breakdown of their returns from short term investments in interest rate products, comparing these returns and methods to those achieved and undertaken by specialist short term interest rate and cash portfolio funds managers in the US and Europe.
As clients of asset managers expect low returns from cash investments, professional funds managers have tended to ignore the active management of cash as an asset class and have been inclined to passively “sweep” left over cash funds into short term deposit accounts. However, this attitude appears to be changing towards one that all asset classes must perform if they are to be included in a portfolio, hence there has been an increased use of active management techniques for cash investments (Capon, 1994).

According to the professional funds managers interviewed by Capon, the key to obtaining enhanced returns is in “layering” or “laddering” a cash portfolio, spreading the maturity and risk of the cash portfolio along the short term yield curve (i.e investing into debt securities that are less than one year to maturity) and between specialist cash fund managers. In addition, Capon notes there is a need for a benchmark cash portfolio so clients can measure market returns against manager’s returns. According to Capon, professional funds managers who continue to manage their cash portfolio passively do so at the risk of losing return and therefore clients.

What is not clear from Capon’s article is exactly what securities constitute a “cash-based managed fund” and do these managed funds outperform cash only returns for no additional risk? The plan of this paper is as follows. The first section of the data analysis identifies whether investing in these cash-based managed funds provide the investor with higher than expected returns from direct investing, and is an indirect investment in a cash-based fund worth the fees charged? It also reviews whether using the cash-based managed funds could be part of a true risk reduction investment strategy. A direct investment benchmark is established to determine whether investing in the Australian cash managed funds enhance the returns and reduce the risk of a portfolio of assets. The paper then identifies if increasing the frequency of re-investing enhances the returns.
Data Analysis

To measure the returns of cash managed funds in Australia, monthly price data was collected from MorningStar on those funds categorised as “Cash” or “Cash Management Trusts”. Of the 62 funds listed on the database in the category of “Cash Funds”, 17 had data available for the period January 1993 to July 1999. These 17 funds were then analysed for the monthly returns, standard deviation and annualised holding period returns (HPR). The nature of reporting for managed funds in Australia is to represent any income on interest as a part of the unit price, thereby negating the need to compound the holding period return of the funds in this analysis.

The formula used for the annualised HPR of the managed funds was:

\[
HPR = \left( \frac{SP - PP}{PP} \right)^{12} \frac{n}{n} \times 12
\]

where:

- \( SP \) = Sale Price (or end market value)
- \( PP \) = Purchase Price (or start market value)
- \( n \) = number of periods (77)

The results are shown in Table 1, a monthly performance and risk table for the period January 1993 to July 1999, where the funds have been ranked according to their annualised holding period returns.
<table>
<thead>
<tr>
<th>Fund Name</th>
<th>Fund Type</th>
<th>Ranking</th>
<th>SD</th>
<th>HPR</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFM Investment</td>
<td>Cash Trust</td>
<td>1</td>
<td>0.1062</td>
<td>6.43%</td>
</tr>
<tr>
<td>Were Securities</td>
<td>Cash Trust</td>
<td>2</td>
<td>0.0944</td>
<td>6.10%</td>
</tr>
<tr>
<td>Merrill Lynch</td>
<td>Cash Management Trust</td>
<td>3</td>
<td>0.0952</td>
<td>5.96%</td>
</tr>
<tr>
<td>AXA Trustees</td>
<td>Common Fund</td>
<td>4</td>
<td>0.0958</td>
<td>5.89%</td>
</tr>
<tr>
<td>Tower Trust</td>
<td>Cash Dep Fund</td>
<td>5</td>
<td>0.0995</td>
<td>5.87%</td>
</tr>
<tr>
<td>Col First State</td>
<td>Premier Cash Management Trust</td>
<td>6</td>
<td>0.0881</td>
<td>5.87%</td>
</tr>
<tr>
<td>Nat Aust Trustee</td>
<td>at call common fund</td>
<td>7</td>
<td>0.0968</td>
<td>5.86%</td>
</tr>
<tr>
<td>Westpac Money</td>
<td>Market Fund</td>
<td>8</td>
<td>0.1034</td>
<td>5.85%</td>
</tr>
<tr>
<td>County Lifestyle</td>
<td>Cash Management Trust</td>
<td>9</td>
<td>0.0959</td>
<td>5.83%</td>
</tr>
<tr>
<td>Perpetual</td>
<td>Cash Management Fund</td>
<td>10</td>
<td>0.0962</td>
<td>5.78%</td>
</tr>
<tr>
<td>Executor Trustee</td>
<td>Common Fund 20</td>
<td>11</td>
<td>0.0999</td>
<td>5.78%</td>
</tr>
<tr>
<td>ANZ</td>
<td>V2 Plus</td>
<td>12</td>
<td>0.0926</td>
<td>5.71%</td>
</tr>
<tr>
<td>BT</td>
<td>Cash Management</td>
<td>13</td>
<td>0.0941</td>
<td>5.70%</td>
</tr>
<tr>
<td>AXA NMFM</td>
<td>Man Investment funds</td>
<td>14</td>
<td>0.0968</td>
<td>5.69%</td>
</tr>
<tr>
<td>Rothschild</td>
<td>5 arrows Cash Management Trust</td>
<td>15</td>
<td>0.0974</td>
<td>5.61%</td>
</tr>
<tr>
<td>Col First State</td>
<td>Cash Management Trust</td>
<td>16</td>
<td>0.0980</td>
<td>5.60%</td>
</tr>
<tr>
<td>Macquarie</td>
<td>Cash Management Trust</td>
<td>17</td>
<td>0.0949</td>
<td>5.57%</td>
</tr>
</tbody>
</table>
The spread of returns over the 17 funds is 0.86%. Whilst not a large number, if this
difference had been maintained 6 monthly for the 7.5 annual periods, the cumulative
difference would have been 8.93%, a more significant underperformance for those in
the bottom ranking funds. The DFM Investment cash fund is the highest returning
fund, and as expected, has the highest standard deviation.

An additional ranking was undertaken to identify funds managers in terms of the
standard deviation of the returns, or the risk taken to achieve the returns generated.
The results are shown in Table 2, a monthly performance and risk table for the period
January 1993 to July 1999, where the funds have been ranked according to their
standard deviation.

\[ (1 + 0.086/7.5)^{7.5} - 1 = 0.0893 \]
## Table 2: Performance & Risk Table – lowest to highest risk, January 1993 to July 1999

<table>
<thead>
<tr>
<th>Name</th>
<th>Fund Type</th>
<th>Return</th>
<th>SD</th>
<th>HPR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Col First State</td>
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</tr>
<tr>
<td>Perpetual</td>
<td>CM Fund</td>
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<td>0.0962</td>
<td>5.78%</td>
</tr>
<tr>
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<td>0.0999</td>
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<td>Cash Trust</td>
<td>1</td>
<td>0.1062</td>
<td>6.43%</td>
</tr>
</tbody>
</table>
Given the low risk nature of a cash investment, diversifying investors choosing a cash fund manager would be looking for a lower standard deviation, and to such an investor, the lower the standard deviation the better the performance measure of the manager. The fund with the lowest standard deviation over the period is not the fund with the lowest annualised return. The Macquarie Cash Trust ranked 17th in returns (the lowest during the period), but now ranks 5th in risk profile. Again there is very little spread between the funds in terms of their volatility of returns (1.81%). The funds seem to compete well against each other.

Therefore, in order to determine the appropriateness of the level of risk the funds managers are incorporating into their “risk free” cash portfolios, we need to compare the returns against a risk-related benchmark. This comparison needs to have an element of a “do nothing” strategy or a relatively passive strategy e.g. a buy and hold strategy or a short term rollover strategy.

To provide this risk related benchmark, the yields were collected on comparable single interest rate investment vehicles – an Australian Commonwealth Government Security (CGS), being a 13% semi-annual coupon bond maturing on the 15th of July, 2000; the Reserve Bank of Australia’s official 11 am cash interest rate; and the 180 day Bank Bill Swap Reference Rate, used to set the floating rate component of semi-annual swaps between banks.

These securities were chosen as a being representative of either risk free investing in the professional market, or the “do nothing” scenario of buying a bond and holding it until maturity. A passive investor will roll into the same security type once it matures i.e. it has no additional credit risk, time risks or liquidity risks.

The mean returns, the standard deviation and the compound holding period returns were calculated for all three interest rate products. Compounding of returns on these
securities would enable a comparison to the funds manager’s unit prices over the period, which, as mentioned before, reflect the re-investment of interest earned over the period.

The basic formulas used to determine the direct investments returns was to annualise holding period returns from 6 monthly compounding investments, based on $10,000 invested in each security type. The formula used for the compounding annualised HPR of the CGS, official cash\textsuperscript{2} and the BBSW 108-day bank bill interest rate securities was:

\[
\text{HPR} = \left( \left( \frac{(SP - PP) + C + C_i}{PP} \right) \right)^{\frac{2}{n}} - 1
\]

where:

- \(SP\) = Sale Price (or end market value)
- \(PP\) = Purchase Price (or start market value)
- \(C\) = Coupon income
- \(C_i\) = Interest on Coupon income

(calculated at the BBSW 180 day rate)

\(n\) = number of semi annual periods (13)

The results are shown in Table 3, and include annualised returns and risk measures for the period January 1993 to July 1999.

---

\textsuperscript{2} A $10,000 cash security was assumed to be invested at the overnight cash rate for 6 months, where the interest earned was added to the initial capital and compounded.
Table 3: Six monthly yields and prices
January 1993 to July 1999

<table>
<thead>
<tr>
<th>Security</th>
<th>Date</th>
<th>CGS 15/07/2000 %</th>
<th>Price Per $100 15/07/2000</th>
<th>Official Cash 11am %</th>
<th>180 days BBSW Reference Rate %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15/01/1993</td>
<td>8.79</td>
<td>122.771</td>
<td>5.70</td>
<td>5.950</td>
</tr>
<tr>
<td></td>
<td>15/07/1993</td>
<td>6.89</td>
<td>133.486</td>
<td>5.20</td>
<td>5.010</td>
</tr>
<tr>
<td></td>
<td>15/01/1994</td>
<td>6.33</td>
<td>135.096</td>
<td>4.70</td>
<td>4.840</td>
</tr>
<tr>
<td></td>
<td>15/07/1994</td>
<td>9.02</td>
<td>118.136</td>
<td>4.70</td>
<td>5.870</td>
</tr>
<tr>
<td></td>
<td>15/01/1995</td>
<td>10.38</td>
<td>110.774</td>
<td>7.40</td>
<td>9.138</td>
</tr>
<tr>
<td></td>
<td>15/07/1995</td>
<td>8.16</td>
<td>119.550</td>
<td>7.40</td>
<td>7.435</td>
</tr>
<tr>
<td></td>
<td>15/01/1996</td>
<td>7.76</td>
<td>119.588</td>
<td>7.45</td>
<td>7.423</td>
</tr>
<tr>
<td></td>
<td>15/07/1996</td>
<td>8.34</td>
<td>115.578</td>
<td>7.45</td>
<td>7.703</td>
</tr>
<tr>
<td></td>
<td>15/01/1997</td>
<td>6.57</td>
<td>119.817</td>
<td>6.05</td>
<td>5.698</td>
</tr>
<tr>
<td></td>
<td>15/07/1997</td>
<td>5.80</td>
<td>119.567</td>
<td>5.45</td>
<td>5.165</td>
</tr>
<tr>
<td></td>
<td>15/01/1998</td>
<td>4.96</td>
<td>118.687</td>
<td>5.01</td>
<td>4.990</td>
</tr>
<tr>
<td></td>
<td>15/07/1998</td>
<td>5.17</td>
<td>114.698</td>
<td>4.99</td>
<td>5.230</td>
</tr>
<tr>
<td></td>
<td>15/01/1999</td>
<td>4.73</td>
<td>111.841</td>
<td>4.74</td>
<td>4.845</td>
</tr>
<tr>
<td></td>
<td>15/07/1999</td>
<td>4.69</td>
<td>108.027</td>
<td>4.76</td>
<td>5.067</td>
</tr>
</tbody>
</table>

| Mean     | 6.97%      | 5.79%          | 6.03%                     |
| SD       | 1.81       | 1.14           | 1.35                      |

HPR 3 14.19% 7.57% 7.92%

3 The source of the Bond, 11am Cash and BBSW 180 day rate is the Australian Financial Review.
4 Bond Prices calculated using the RBA Bond Pricing formula, incorporating actual/actual days per period and semi-annual coupon payments.
These direct investment results were then compared to the cash managed funds (Table 4.1 - annualised return rankings (top five managed funds only); and Table 4.2 standard deviation rankings (top five managed funds only)).

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>SD</th>
<th>HPR</th>
</tr>
</thead>
<tbody>
<tr>
<td>CGS</td>
<td>13% 15/07/2000</td>
<td>1.8081</td>
<td>14.61%</td>
</tr>
<tr>
<td>BBSW</td>
<td>180 days</td>
<td>1.3523</td>
<td>7.92%</td>
</tr>
<tr>
<td>Cash</td>
<td>11am</td>
<td>1.1443</td>
<td>7.54%</td>
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<td>0.0995</td>
<td>5.87%</td>
</tr>
</tbody>
</table>

5 Formula for HPR = (((SP-PP)+C+Ci)/PP)/n x 2, where n = 13

6 Coupon re-invested at the 180 day Bank Bill Swap Reference Rate. Re-investment dates altered to cash flow dates i.e. to be the 15th of July and January, whether a trading day or not.
Table 4.2: Summary of Risk Rankings (standard deviation of yields)

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>SD</th>
<th>HPR</th>
</tr>
</thead>
<tbody>
<tr>
<td>CGS</td>
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<td>1.8081</td>
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<td>Col First State</td>
<td>CMT</td>
<td>0.0980</td>
<td>5.60%</td>
</tr>
</tbody>
</table>

Analysis of Returns and Risk

Quite clearly, managed funds generate a lower risk as measured by the standard deviation of the variability of the annualised returns. However, it should be noted that these fund managers’ returns do not include any management fees. The Commonwealth Government bond, with the coupon income re-invested at the 180 day BBSW rate, provides the highest annualised return for the period. However, as expected, the CGS also generates the highest standard deviation and risk of variability of returns than either the overnight cash market, the 180-day BBSW market or the managed funds investment, given the coupon was 13% semi annual and the range of interest rates over the period for cash was approximately 4.0% to 7.50%.

The findings of this analysis are consistent with Jahnke’s (1998) comments on “digestible” asset allocations. Jahnke (1998) identified the trend in asset allocation
towards decision making based on the risk profile of the Trustees managing a fund rather than dividing a fund’s capital into assets based on expected return. Funds managers utilise an asset allocation strategy that is relatively passive - setting portfolio weightings and allowing the manager scope to a certain degree around those weightings using minimum and maximum percentage holdings. The weightings are chosen as the result of modelling on expected returns based on past returns. Jahnke notes that this method avoids tactical asset allocation and timing issues. “While this may be good advice for the individual interested in a long-term career running the company’s pension fund, it does not necessarily lead to the right asset allocation solution for the pension fund” (Jahnke, 1998, p 9).

An asset allocation policy that is politically acceptable to the client and understandable by the client may not lead to the right asset allocation solution for the fund. From the analysis above, it would appear that Australian cash funds managers underperform in order to meet an asset allocation strategy that suits the investor profile into the fund, but at the cost of returns.

**Minimum Expected Returns**

It may be seen that this analysis is somewhat superficial as there is a comparison between a 7-year bond and “cash” funds. A typical cash fund only hold securities less than one year in maturity, therefore the return generated by the bond would not be available to the fund manager. Whilst using an investment in the bond as the example of the ultimate buy and hold strategy for the period under analysis, a more meaningful comparison to determine the minimum expected return from these funds over the period January 1993 to July 1999 would be to calculate the weighted average returns on a portfolio using an optimal mix of overnight cash and 180-day bank bills.
Table 5 identifies a mixture of the weighted returns from the 7-year bond, a 180-day bank bill and cash portfolios, and a simple 50:50 split between 11am cash and 180-day bank bills.

<table>
<thead>
<tr>
<th>Cash</th>
<th>Bank Bills</th>
<th>Bonds</th>
<th>HPR</th>
</tr>
</thead>
<tbody>
<tr>
<td>33.33%</td>
<td>33.33%</td>
<td>33.33%</td>
<td>8.23%</td>
</tr>
<tr>
<td>50.00%</td>
<td>30.00%</td>
<td>20.00%</td>
<td>7.94%</td>
</tr>
<tr>
<td>60.00%</td>
<td>20.00%</td>
<td>20.00%</td>
<td>7.88%</td>
</tr>
<tr>
<td>70.00%</td>
<td>20.00%</td>
<td>10.00%</td>
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</tr>
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<td>50.00%</td>
<td>50.00%</td>
<td>0.00%</td>
<td>7.64%</td>
</tr>
</tbody>
</table>

The lowest returning portfolio, a straight 50:50 split between 11am cash and a rolling 180-day bank bill, still outperforms the highest performing managed fund for the same period (DFM Investment Cash Trust – 6.43%).

A potential limitation to this approach that may be effecting the comparison between the professional cash fund managers and the direct investment is that the comparison to the 11 am official cash rate does not reflect the rates available to wholesale investors, as this rate in Australia is only accessible to the banking sector in the wholesale markets. Equally, the earlier comparison to the 11am cash market was on a six monthly rate, assumed to be re-invested at that same rate for the entire six months. In actuality, the overnight rate in the open markets of Australia can and does change more rapidly than every six months.
To determine whether the frequency of the re-investment, and to determine whether the rates of return for 11am cash are more variable than the annualised six monthly returns, an analysis of monthly overnight (11 am cash) rates between January 1993 and July 1999 was undertaken. The source of this data was Morningstar, who’s 11am “at call” rate is the common rate available to wholesale fund managers.

Table 6 lists the average six-monthly RBA official 11 am cash rates, the six-monthly Morningstar 11 am cash rates, and the monthly Morningstar 11 am cash rates, and identifies the standard deviation, plus the annualised holding period returns for the period. The highest and lowest rate for each data source is identified.

<table>
<thead>
<tr>
<th>Table 6</th>
<th>Jan 1993 - July 1999</th>
<th>Six Monthly Returns</th>
<th>Monthly returns</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Official 11 am Cash Rate</td>
<td>Morningstar 11 am Call Rate</td>
<td>Morningstar 11 am Call Rate</td>
</tr>
<tr>
<td>Average Rate of Return</td>
<td>5.79%</td>
<td>5.67%</td>
<td>5.69%</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.1443</td>
<td>1.1064</td>
<td>1.0544</td>
</tr>
<tr>
<td>Annualised HPR</td>
<td>7.54%</td>
<td>6.10%</td>
<td>6.86%</td>
</tr>
<tr>
<td>Highest</td>
<td>7.45%</td>
<td>7.25%</td>
<td>7.32%</td>
</tr>
<tr>
<td>Lowest</td>
<td>4.70%</td>
<td>4.65%</td>
<td>4.60%</td>
</tr>
</tbody>
</table>

Increasing the frequency of the rollover added to the returns from direct investing in 11am Cash, and lowered the standard deviation.

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7 (the number of compounding periods for the six monthly returns was 13, the number of compounding periods for the monthly returns was 78)
Conclusions

This analysis has shown that in Australia during the period of 1993 to mid-1999, the use of the lower risk interest rate securities (overnight cash, bank bills and medium term bonds) would provide the professional investor with an enhanced return, but at a higher risk than that generated by a cash-based managed fund. Overnight cash provides the lowest risk of the three low-risk alternatives chosen, and a higher return than any of the cash-based managed funds analysed. However, the risk of investing in cash is not as low as the risk from investing in a managed fund over the same period.

It would appear from this analysis that cash fund managers in Australia are using a passive fund management technique that avoids tactical allocation and timing issues (Jahnke, 1998). They are using an asset allocation policy that is understandable and acceptable to the client – in a balanced portfolio of diversified assets, the investors are expecting a low standard deviation from a low risk investment like cash. Contrary to Capon’s (1994) statements, a layered or laddered cash portfolio that has in its mix a direct investment in the securities available from the short term yield curve (i.e. less than one year to maturity) would outperform a portfolio that blends direct investing and indirect investing through managed funds.

For the retail investor the results of this analysis are disappointing. Managed funds do not outperform the returns generated by direct investment in wholesale interest rate securities. This is without considering the effect of entry, exit and ongoing management fees, and without the effect of taxation. The fund managers do not take on the same risk as that expected from investing in bonds, bank bills and overnight cash. However, this analysis does show that the fund managers are keeping to a low risk strategy for their cash portfolios, which is consistent with the use of these funds in a low risk portfolio or for those investors with a low risk tolerance. Therefore, using the Australian cash-based managed funds can be part of a true risk reduction investment strategy in a diversified portfolio.
For the wholesale investor, in particular those who are already outsourcing their short
term interest rate investment management and are paying performance fees to other
managers, this research indicates that a better return may be had from employing a
single short-term cash manager who takes a passive buy and hold strategy to cash
management, or actively pursues the returns from the 11am wholesale market. The
reduction in fees, and the associated agency costs from using external organisations,
may cover the costs of having your own employee investing in short term interest rate
assets.

**Additional research into this area would be to:**

- analyse the indirect and direct returns against a published cash index over the same
  period

- review the Australian yield curves over the period to have a better understanding of
  the volatility of the interest markets in Australia over this period

- calculate an optimal cash portfolio to use as a benchmark for comparison of fund
  managers

- further investigate the asset allocation of the cash-based funds analysed to assist in
determining the optimal asset mix for these funds

- undertake a comparison to the other main assets classes to confirm the low risk
  nature of the direct and indirect investing in short term interest rate securities over the
  same period
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