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Investment Performance, Asset Allocation, and Expenses of Large Superannuation Funds

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EXECUTIVE SUMMARY

This study examines the investment performance, asset allocation, fees, investment expenses and taxes of large corporate, industry, public sector and retail superannuation funds from 1 July 2001 to 30 June 2006.

The large superannuation trustees subject to APRA supervision can be broadly divided into not-for-profit trustees and retail trustees. On the one hand, not-for-profit trustees represent corporate, public sector and industry funds, and on the other hand, retail funds are typically part of larger banking, insurance or funds management groups. These trustees face identical statutory requirements: to look after their members' best interests. They also have access to similar expertise in funds management and administration.

However, prior studies by APRA and others have found persistently lower net returns for retail funds relative to corporate, industry and public sector funds.[1]

Under the auspices of the Council of Financial Regulators, APRA undertook to investigate the reasons for this finding. As such, this study further explores potential drivers for return differences.

Differences in net returns between any two superannuation funds or groups of superannuation funds have four possible explanations: asset allocation, investment performance relative to asset allocation benchmarks, expenses (including fees), and taxes. APRA surveyed trustees to gather more detailed data on funds than was available in the standard APRA data collection. This survey enabled APRA to examine returns for each of the four candidate causes of difference in return.

This study examines average superannuation fund performance across the four sectors, and the components of these returns on a comparable basis. To focus on comparable returns, we examine the returns of a particular investment option for each fund, in addition to the total fund return. We use the default investment option for each fund as this investment option represents the return that a fund member would earn if she did not make an active choice.[2] Next we use asset allocation information to calculate a benchmark for each investment option and focus our comparisons on

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[1] Prior studies by APRA include Coleman, Esho and Wong (2006), and APRA (2007). Langford, Faff, Marissetty (2006) examined superannuation choice and compared the performance of balanced/multi-sector retail funds against the investments of major industry funds. Using a variety of performance models they found that retail funds have lower returns and higher expenses than the industry funds' investments. Drew (2003) examines retail and wholesale funds and finds retail funds under-perform a multifactor benchmark, whereas wholesale funds have no under-performance. He also finds that the average management expense ratio of retail funds is higher than wholesale funds.

[2] Funds without a default investment option reported data based on the investment option with the most assets.

performance relative to this benchmark. We decompose the net returns of the default investment options into four components: (1) asset allocation; (2) investment manager skill in security selection and active investing; (3) costs and (4) taxes, and examine these components in turn.

We also repeat this exercise using a common representative investor for all funds with a focus on fees charged to investors and net returns.

Our main findings about the drivers of returns are as follows:

First, there are very few statistically significant differences in returns between corporate, public sector, and industry funds. Retail funds, by contrast, sometimes displayed significant differences when compared to the other fund types. In this paper, we are often able to simplify an analysis of difference to "not-for-profit vs. retail", rather than an examination of each of the four fund types, because the three not-for-profit fund types are statistically nearly indistinguishable over the five year survey period.

Second, for the investment option provided by each fund, one-quarter of the retail funds had conservative asset allocations, whereas almost all not-for-profit funds provided us with an investment option that is a balanced option tilted towards growth assets. Despite this difference in asset allocation, benchmark returns over the data period are not statistically different across fund types.

Third, in examining gross return performance relative to passive benchmarks in order to detect whether there are differences in investment manager skill, we find that for some funds embedded expenses and taxes are included in reported gross performance. Controlling for embedded expenses and taxes we find no statistically significant difference in investment manger skill across fund types.

Fourth, we find significantly lower average net returns relative to the benchmark for balanced and growth retail default investment options compared to other fund types, which implies that higher expenses and taxes, explicit and embedded, are the main component of average net return differences in balanced and growth investment options across fund types.

Fifth, in order to control for differences in average account balance across funds, we examine the performance of a representative investor with $50,000 invested in each of the default investment options, and the fees that this investor would be charged.[3] Using the performance of the representative investor the relative rankings of the fund types do not change.

This study has carefully examined the components of superannuation fund returns. The emphasis has been to use methodology that puts all funds in

[3] The fees charged to members may differ from the expenses incurred by the fund and reported to APRA in accounting performance data.

the sample on a level playing field by using one investment option for each fund and the asset allocation of that investment option.

The results show that for balanced/growth style investment options, default investment options of large retail funds have earned lower net returns relative to comparable investment options from the not-for-profit sector over the study period, and these lower net returns are not due to differing account balances or differing asset allocation.

The evidence indicates that part of the net retail under-performance is due to embedded fees that are already incorporated by the investment vehicles used by these funds at the gross return level, rather than poor investment manager skill. Retail fund expenses, explicit and embedded, lower the net earnings of the retail sector relative to the not-for-profit sector.

INTRODUCTION

In the past two decades, there has been rapid growth in the assets and participation rate of Australian workers in superannuation. Over the next few decades, private savings will become materially more important in supporting post retirement income, compared to government transfer payments.

At the same time, there has been a substantial shift away from defined benefit funds to accumulation funds. In 1982, more than 82 per cent of superannuation fund members had defined benefit coverage, albeit within the context of much narrower superannuation membership. By 2006 more than 97 per cent of members had all or some of their superannuation in accumulation funds (APRA, 2007). In contrast with defined benefit funds, where employers bear the investment risk, in accumulation funds the investment risk is shifted to members, who may lack the knowledge, experience or inclination to look after their own interests. Australian superannuation law reflects this risk by requiring trustees to act in the members' interest.

Under the *Superannuation Industry (Supervision) Act 1993(SIS)*, superannuation trustees should "exercise, in relation to all matters, …the same degree of care, skill and diligence as an ordinary prudent person would exercise in dealing with property of another for whom the person felt morally bound to provide". Furthermore, SIS requires that "…the trustee's duties and powers are performed and exercised in the best interests of beneficiaries". These requirements, from section 52 of SIS, are based upon but extend the legal responsibilities more broadly applicable to any trustee. In addition, SIS imposes many superannuation-specific requirements, among which (again from section 52) trustees must "…formulate and give effect to an investment strategy that has regard to the whole of the circumstances of the entity".

A central aim of superannuation is to generate fund returns that will allow members to meet long-term retirement income goals. Apparently small, but long term differences in net fund returns can produce very large differences in post retirement income prospects for members of these funds. Investment performance in the superannuation sector is determined in the first instance by the investment strategies, including asset allocation, formed by the trustees of the superannuation funds, and the cost effectiveness of these strategies.

This study investigates the drivers of long-term superannuation performance using a new comprehensive data set collected by APRA through a mandatory survey of large superannuation funds.

We classify regulated superannuation entities with greater than four members into corporate, public sector, industry, and retail segments. The standard APRA definitions of the fund types are as follows. Corporate funds are established for the benefit of employees of a particular entity or a group of related entities, with joint member and employer control. Industry funds

generally provide for employees working in the same industry. Some industry funds, however, cover a variety of industries and an increasing number are public offer entities allowing the funds to accept members of the public at large, including the self employed. Public sector funds provide benefits for Government employees. Retail funds offer superannuation products to the public on a commercial basis.

Evidence has been accumulating in recent years that there exist systematic differences in investment returns between different types of superannuation funds. Several studies (e.g., Coleman, Esho and Wong, 2006, APRA, 2007, Drew, 2003, Langford, Faff, Marisetty, 2006) have found that retail funds tend to earn lower net returns on average than other fund types.

METHODOLOGY

APRA's findings in the past have been based on the performance of a fund as a whole, which captures the weighted average performance of the various investment options that a fund offers. By measuring performance of the total fund, APRA is indirectly assessing trustees' performance, particularly in relation to SIS Section 52 duties, in constructing an investment strategy for the entire fund.

This study examines fund performance at the investment option level, using for analysis either the default investment option if it exists, or the investment option with the most assets, for large superannuation funds[4]. By focusing on the default investment option we are capturing the net performance that a fund member would earn using the trustee's asset allocation and management approach, while the largest investment option captures a large portion of investors when a default option does not exist. Our methodology, based on measuring performance relative to a benchmark, helps to control for any differences that may arise from the non-default investment options and default investment options included in this study.

There are two potential differences between performance at the total fund level and at the investment option level. First, it is possible that different funds have member bases with systematically different risk and return preferences, or different average member balances; default investment options may have more comparable member bases. Second, total fund performance does not differentiate for products that may create variations in returns, such as cash management trusts, allocated pensions and

[4] This study uses the same definition for default option as used in APRA's annual statistical collections, where superannuation funds report the asset allocation of a default investment option. APRA received five queries from funds relating to a fund having difficulty in identifying a default option, and all five funds were instructed to provide data on the investment option with the most assets.

annuities, whereas default investment options are simply accumulation products.

As a further control to aid comparison, APRA collected information on the asset allocation of the default investment option over the five year period 2001 to 2006. We construct a benchmark for the default investment option for each fund using asset allocation information. This allows us to examine how important the role of asset allocation choices is in explaining performance across different funds and fund types. We are able to focus on performance relative to this benchmark, rather than the overall performance level, and disaggregate returns into the components due to asset allocation, investment manager skill, fees and taxes.

APRA also asked superannuation funds to provide data on the performance of a representative investor with a $50,000 balance in their default investment option, and thus we are able to compare the performance of the same account balance across all fund types. By focusing on a representative investor, we can compare directly how funds perform while controlling for the average account balance.

The details of how returns are calculated are contained in Appendix 1.

Statistical significance of differences in performance across groups

Throughout the paper we compare gross and net performance across fund types. To determine whether differences are significant we employ an independent two-sample *t*-test (for unequal sample sizes and unequal variances) to test whether the average of returns within a fund-type differs from the average of returns for all other fund types. The use of *t*-statistics requires that the underlying distribution is normally distributed.[5]

We report both *t*-statistics and the corresponding *p*-values[6] to indicate the significance level of our results. For a normal distribution a *t*-statistic with absolute value greater than 1.65 corresponds to a p-value of 0.10 and indicates that there is less than ten per cent likelihood that the fund type return is the same as the return for the other fund types. A *t*-statistic greater than 1.96 (*p-value* = 0.05) indicates the likelihood is less than five per cent and t-statistic greater than 2.58 (*p-value* = 0.01) indicates the likelihood is less than one per cent. The most accepted convention is to require significance at the five per cent level before any conclusion of difference is drawn. Where the sample size is not large enough for the t-test to be valid we do not report *t*-statistics.

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[5] We tested for normality using the Jarque-Bera, Shapiro-Wilk test and Kolmogorov-Smirnov test and could not reject the null hypothesis of normality for gross returns, net returns and benchmark returns for each of the fund type groups.

[6] The *p*-value represents the probability of rejecting a true null hypothesis, where the null hypothesis is that there is no difference in the relevant average value of the particular fund type in comparison to the relevant average value of all other fund types.

THE SUPERANNUATION PERFORMANCE SURVEY

In 2005-2006 over 60 per cent of Australian superannuation assets were administered by trustees comprising four major fund types: corporate, industry, public sector, and retail. At 30 June 2006 Australian superannuation assets totalled $917.8 billion, of which $654.1 billion were administered by these four fund types. Much of the remaining assets were invested in self managed superannuation funds, which are funds with one to four members without a third party trustee. Self-managed funds are not APRA-regulated and are not examined in this study.

This study uses a cohort of large superannuation funds, which had assets under management in excess of $200 million at 30 June 2005.

Sample selection

The superannuation data sets used in this study are derived from a compulsory investment performance survey administered by APRA to large superannuation funds.

In preparing the survey, APRA engaged an experienced industry consultant to help draft the first version. This version was tested on 15 funds in 2005. The final survey version was streamlined and made easier to complete as a result of this consultation and preliminary version testing. The funds completing the preliminary version also completed the final version.

Based on information provided in both statistical and licensing returns to APRA for June 2005, 197 funds were identified as being eligible to participate in the survey. Our data collection required funds to provide more detailed data than already supplied to APRA during annual and quarterly reporting. A blank copy of the survey data tables is given in Appendix 7.

Given that the data period ends in June 2006, recent changes in the superannuation industry are not captured in this study. In particular our results do not reflect the impact of super fund choice which has potentially altered the competitive landscape of the superannuation industry.

Of the 197 funds surveyed, seven were in the process of winding up and did not complete the survey. An additional 24 funds were unable to provide data.

From the 166 funds that submitted survey data we created our sample set using complete data from 90 funds. Throughout the paper these 90 funds are referred to as “sample entities”. The reduction from 166 to 90 funds occurred as follows:

- Defined benefit funds were excluded from the investment performance survey, leaving 155 funds[7];
- Only 108 of the funds could provide accounting earnings for the five-year period, either because they had not been in operation for the entire time, or due to data limitations; and
- Only 90 of the remaining funds could provide quarterly asset allocation information for a default investment option over a five year period.

Appendix 2 provides further information on the sample construction. As outlined in Appendix 2, the funds excluded and included in our analyses for this paper exhibit very similar overall returns, so we are confident that the inferences we draw from the 90 funds with complete data are extendible to larger APRA regulated superannuation funds as a group.

It is important to note that by construction our data only includes funds that were still in operation by June 2006, rather than all funds that were operating at the start of our data collection period, June 2001. This means that the sample does not include observations from funds that later disappeared due to wind-ups or mergers.[8] The sample only covers surviving funds and to the extent (if any) that wound-up or merged funds had lower performance during this time period, our average returns may be biased upwards.[9]

The time period covered by the survey is the five years from 1 July 2001 to 30 June 2006. The data include quarterly asset allocation of a default investment option; quarterly asset allocation of the total fund; annual performance of a default investment option; annual performance of the total fund; annual performance of a representative investor; fees of a representative investor; monthly unit prices and crediting rates.

Descriptive statistics of the data

The sample of superannuation funds used in this study comprises 32.2 per cent of the assets managed by the four major fund types: $210.7 versus $654.1 billion, and 38.9 per cent of the assets managed by funds with more than $200 million in assets. Further descriptive statistics of the sample

[7] Funds with both defined benefit and defined contribution components (identified as hybrid funds) were instructed to complete the survey for the default investment option in the defined contribution component of the fund.

[8] This contrasts with APRA (2007) which calculates return on assets on a year-by-year basis as well as the whole ten year period, and hence includes funds that were in existence in any given year.

[9] Preliminary analysis indicates that the return on assets for non-surviving funds is not consistently lower than surviving funds, and thus survivorship bias does not appear to be a large concern.

superannuation funds as well as their breakdown by fund type are given in Appendix 2.

The average assets under management are $2.3 billion. Industry and retail funds have the most member accounts, and the average account balance is $60,900 across the whole sample. The corporate and public sector funds have the highest average account balance, $99,000 and $93,000 respectively, followed by retail with $68,000 and industry funds have the lowest average balance of $26,000.

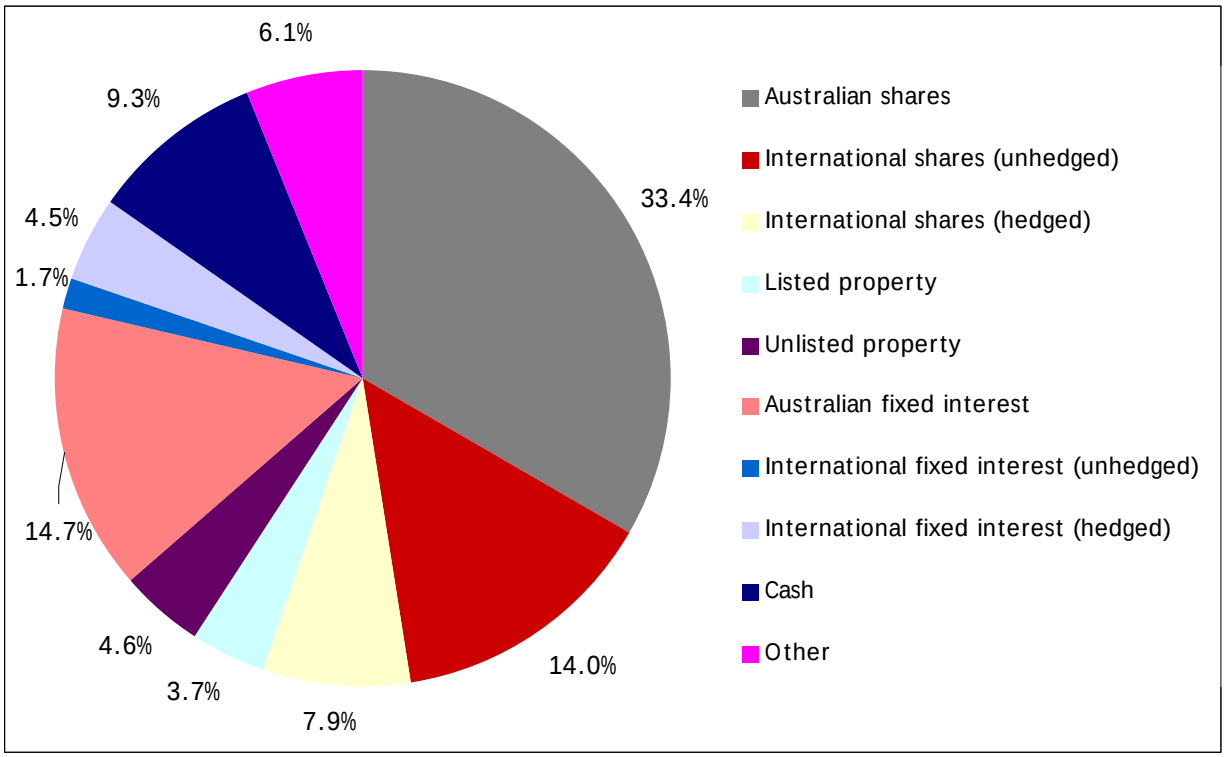
The assets in the aggregated default options account for 61.8 per cent of the aggregate assets of the funds in the survey.

Asset allocation

Figure 1 shows that the average asset allocation for default investment options is a growth-oriented balanced asset allocation with 55.4 per cent in equities including Australian equities, international (unhedged) equities and international (hedged) equities; 8.4 per cent in property, listed and unlisted; 30.2 per cent in cash and fixed income, Australian, international (unhedged) and international (hedged); and 6.1 per cent in other assets.

Figure 1: Average asset allocation for the default investment option of sample entities

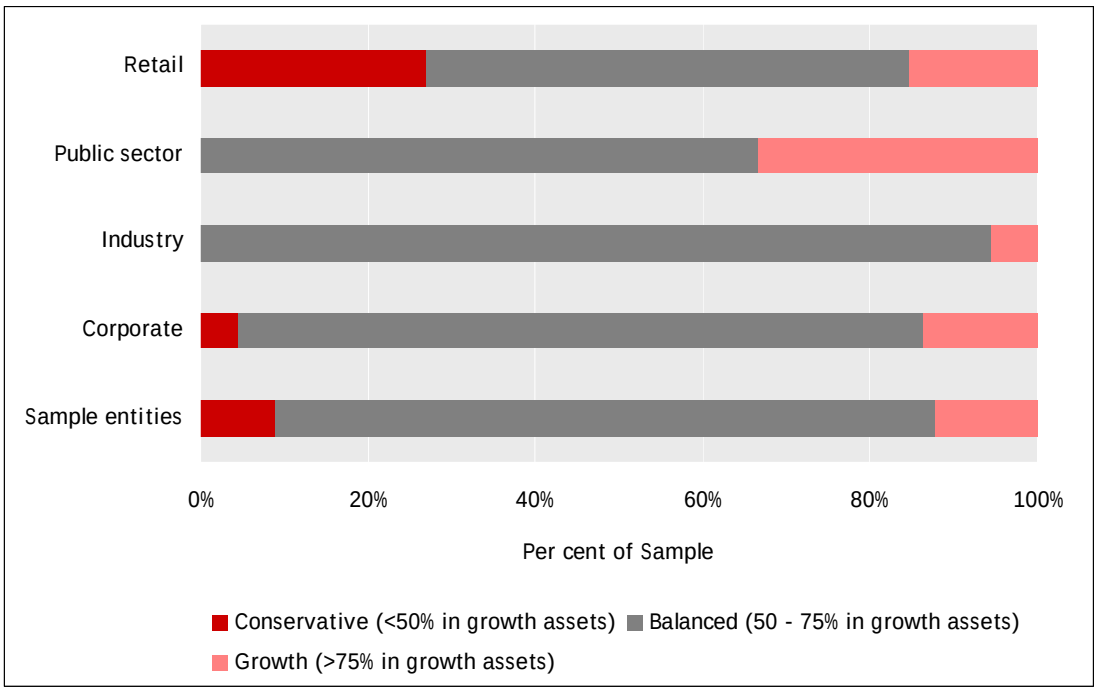
July 2001 - June 2006



To examine the variation in asset allocation across the sample we use three broad asset allocation categories based on the proportion invested in growth assets. Growth assets are defined as: Australian shares, international shares (hedged and unhedged), and listed and unlisted property. We define a balanced asset allocation to be one with 50 to 75 per cent in these growth assets; a conservative asset allocation has less than 50 per cent in growth assets and a growth asset allocation has more than 75 per cent in these asset classes.

Figure 2 shows that 78.9 per cent of the sample can be categorised as balanced, with a further 12.2 per cent growth. Only 8.9 per cent of the sample of default investment options falls into our conservative category. The sector with the most funds with conservative asset allocations is the retail sector, with 26.9 per cent of the funds having less than 50 per cent allocated to growth assets.

Figure 2: Distribution of asset allocation across sample: conservative, balanced and growth investment options
July 2001 - June 2006



Across the fund types (Table 1) we see a consistent pattern of a balanced asset allocation mix, although there is some variation in percentages allocated to each asset class. After excluding the seven funds with conservative default options from the retail sample, the remaining retail funds have similar asset allocation to the not-for-profit funds.

Table 1: Asset allocation for the default investment option by functional classification (%)
July 2001 - June 2006

	Sample entities	Corporate	Industry	Public sector	Retail	Retail (excl conservative options)
Australian shares	33.4	35.0	34.6	34.7	30.3	38.5
International shares (unhedged)	14.0	15.8	15.5	23.5	8.3	10.2
International shares (hedged)	7.9	9.2	6.4	2.4	10.1	13.9
Listed property	3.7	3.8	2.9	3.4	4.9	6.3
Unlisted property	4.6	4.9	7.0	5.7	0.8	1.0
Australian fixed interest	14.7	14.4	12.4	15.7	18.0	14.5
International fixed interest (unhedged)	1.7	1.2	2.5	0.4	1.4	1.9
International fixed interest (hedged)	4.5	6.8	4.0	5.6	2.8	3.8
Cash	9.3	5.7	6.6	2.5	17.5	8.0
Other	6.1	3.2	8.0	6.1	5.8	2.0
Number of entities	90	22	36	6	26	19

A further examination of the trends in asset allocation shows that it is reasonably stable through time (presented in more detail in Appendix 3). From 2001 to 2006, the average allocations to cash and Australian fixed interest have declined, while allocations to hedged international listed equities and other investments (e.g., infrastructure, hedge funds, unlisted equity, etc.) have increased.

ASSET ALLOCATION AND INVESTMENT PERFORMANCE

In order to investigate the investment performance of the default investment option of each superannuation fund in the sample, we construct a benchmark using investment indices to represent each asset class and the asset allocation weights of the fund's portfolio. The performance of the benchmark will reflect the performance due to asset allocation decisions. Benchmark returns are gross of tax and fees.

We will see variation in benchmark returns to the degree that funds have different default options. In the subsequent sections we will further examine whether a fund out-performs or under-performs its benchmark which will be determined by the investment managers' skills, investment expenses and taxes paid.

Calculating a benchmark return

Performance benchmarks for each asset class are chosen from representative indices (see Appendix 4 for details). Table 2 shows the annualised percentage returns and volatilities for each asset class over the period using these indices.

The one asset class that lacks a close benchmark is the "other" category which may represent a variety of investments. We have used the cash rate as a benchmark, despite our awareness that investments that fall into this category may not be cash-type investments at all. Without further detail on this asset class we do not have a more accurate benchmark. Later in this paper we analyse the impact of using the Australian shares index as an alternative benchmark for the "other" category. This alternative benchmark may not be more accurate, but it does generate a higher hurdle for performance.[10]

[10] In the pilot study survey of 15 funds we attempted to collect disaggregated data from the "other" category. Funds were not able to reliably provide this information so we did not disaggregate this category in the full survey.

Table 2: Asset class benchmark indices[a]

	Returns (%)					Five-year returns[b] (%)	Volatility[c] (%)
	Jun-02	Jun-03	Jun-04	Jun-05	Jun-06	2002-2006	
Australian shares	-4.7	-1.7	21.6	26.4	23.9	12.3	12.3
International shares (unhedged)	-24.1	-17.6	20.1	-1.2	20	-2.3	15.7
International shares (hedged)	-19.3	-6.2	20.2	9.8	15	2.8	17.8
Listed property	14.9	12.1	17.2	18.1	18	16.1	7.1
Unlisted property	9.9	11.1	11.9	13.4	17.2	12.7	1.5
Australian fixed interest	6.2	9.8	2.3	7.8	3.4	5.9	2.8
International fixed interest (unhedged)	2.9	-2.5	1.4	-1.5	2	0.5	9.4
International fixed interest (hedged)	7.7	12.2	3.1	12.3	0.9	7.1	3.4
Cash	4.7	5	5.3	5.6	5.8	5.3	0.2
Other (Cash Benchmark used)	4.7	5	5.3	5.6	5.8	5.3	0.2

[a] Source: Refer to Table A4 for complete details.
[b] Annualised geometric average of quarterly returns.
[c] Annualised standard deviation of quarterly returns.

To the extent that any five year period can be called "usual" in investment terms, 2001 to 2006 was unusual. The first two years of this period were adverse for equity investment performance, and the final three years of the period were beneficial with Australian shares returning above 20 per cent per annum on average. International shares heavily under-performed Australian shares, notably on an unhedged basis, while unlisted property under-performed listed property. "Other" assets included investments such as private equity and venture capital which likely out-performed listed shares during the survey period. The results in this study should be read in the context of these major investment trends, which are unlikely to be repeated in precisely this way in the future.

During this period, the Australian Dollar strongly appreciated against other currencies, as shown in Table 3. This means that unhedged international investments tended to perform relatively poorly.

Table 3: Exchange rates of the Australian dollar (AUD)

	June 2002	June 2003	June 2004	June 2005	June 2006
AUD against:					
United States dollar (USD)[c]	0.564	0.668	0.693	0.76	0.743
Trade weighted index (TWI)[d]	52.3	59.4	59.1	64.5	62.2

[c] Source: Australian Taxation Office, Foreign exchange rates, End of financial year rates.
[d] Source: Reserve Bank of Australia, Statistics, Historical exchange rates.

From the quarterly asset allocation data and passive index returns, we calculate benchmark returns and benchmark volatilities. This determines the return that a fund could achieve if it had no expenses, taxes or transactions. Table 4 presents some distributional statistics for the default option benchmark returns and volatilities.

Table 4: Benchmark annualised returns classified by fund style

July 2001 - June 2006

	Sample Entities	Conservative	Balanced	Growth
Return (%)				
Mean	7.7	6.1	7.8	8.0
Median	7.6	5.5	7.7	7.5
Lower quartile	7.1	5.2	7.2	7.1
Upper quartile	8.4	7.4	8.7	8.0
Volatility (%)				
Mean	7.0	2.3	7.2	9.4
Median	7.3	1.6	7.2	8.7
Lower quartile	6.3	0.5	6.4	8.5
Upper quartile	8.2	4.5	7.9	10.3
Sharpe Ratio	0.34	0.14	0.38	0.28
Number of entities	90	8	71	11

		Conservative	Balanced	Growth
Benchmark Return	t statistic	*	1.63	*
	p value	*	0.12	*
Volatility	t statistic	*	0.86	*
	p value	*	0.40	*
Sharpe Ratio	t statistic	*	3.21	*
	p value	*	0.00	*

* Indicates the sample size is too small for meaningful calculation of t-statistics.

As conservative funds have less exposure to the high return and high volatility asset classes such as equities and property, these funds have a lower average benchmark return (6.1 per cent) and lower volatility (2.3 per cent) than both the balanced and growth investment options: balanced investment options have an average benchmark return of 7.8 per cent and volatility of 7.2 per cent, while growth investment options have an average benchmark return of 8.0 per cent and volatility of 9.4 per cent. Although there are not enough conservative options to perform statistical tests, the quartile cut-offs for return and volatility of conservative funds relative to balanced funds shows how different the return and risk attributes are.

The average benchmark return to growth funds is not significantly higher than the benchmark return for balanced funds, but the volatility is higher. One way to measure the combined effect of both return and risk is to combine the benchmark return and volatility into a Sharpe ratio,[11] which measures the return per unit of risk. Funds with higher Sharpe ratios are

[11] The Sharpe ratio is calculated as (return – risk-free return) / (standard deviation of returns). We use the cash benchmark as the risk-free return.

regarded as having superior performance as investors are compensated with higher returns for each unit of risk. In our sample of default investment options, benchmark returns for balanced investment options have a statistically significantly higher Sharpe ratio (*p-value*=0.00) than the benchmark returns for growth and conservative investment options which suggests that over this time period, on average, balanced investment options provided better risk/return combinations.

The retail sector has more funds with conservative default options than the not-for-profit sector, and in Table 5 we calculate benchmark returns by fund type, reporting two results for retail funds: including or excluding the conservative default options.

Table 5: Distribution of default option benchmark annualised returns
July 2001 - June 2006

	Sample Entities	Corporate	Industry	Public sector	Retail	Retail (excl conservative options)
Return (%)						
Mean	7.7	7.7	7.9	7.1	7.5	8.1
Median	7.6	7.6	7.9	7.4	7.5	7.9
Lower quartile	7.1	7.0	7.5	6.6	6.6	7.1
Upper quartile	8.4	8.0	8.6	7.5	8.6	8.9
Volatility (%)						
Mean	7.0	7.7	6.9	7.6	6.5	8.1
Median	7.3	7.8	7.0	8.1	7.4	7.8
Lower quartile	6.3	7.0	6.2	6.7	4.7	7.1
Upper quartile	8.2	8.4	7.7	8.4	8.3	8.8
Sharpe Ratio	0.34	0.33	0.41	0.26	0.28	0.36
Number of entities	90	22	36	6	26	19

Comparing the benchmark returns across different fund types, there was a 100 basis point difference by fund type in benchmark gross returns, from 7.1 per cent for public sector funds to 8.1 per cent for retail funds, excluding the conservative default options. We formally test for significant differences in benchmark returns in Table 6, and the t-statistics and p-values demonstrate that benchmark returns are not different across fund types[12].

[12] T-statistics measuring the difference between public sector funds and the rest of the sample are not reliable as the sample size of six public sector funds is too small to draw reliable inferences.

Table 6: Significance tests for differences of default option benchmark annualised returns
July 2001 - June 2006

Including conservative options		**Corporate**	**Industry**	**Public sector**	**Retail**
Benchmark Return	*t statistic*	0.01	1.66	*	-0.73
	p value	0.99	0.10	*	0.47
Volatility	*t statistic*	2.23	-0.35	*	-1.17
	p value	0.03	0.73	*	0.25
Sharpe Ratio	*t statistic*	-0.48	2.68	*	-1.6
	p value	0.64	0.01	*	0.12
Excluding conservative options		**Corporate**	**Industry**	**Public sector**	**Retail**
Benchmark Return	*t statistic*	-0.72	0.55	*	0.97
	p value	0.47	0.58	*	0.34
Volatility	*t statistic*	1.53	-3.36	*	1.89
	p value	0.13	0.00	*	0.07
Sharpe Ratio	*t statistic*	-1.32	2.17	*	-0.16
	p value	0.19	0.03	*	0.87

* Indicates the sample size is too small for meaningful calculation of t-statistics.

Although there are some differences in underlying asset allocations between fund types, these differences are not large enough to distinguish the returns of retail funds from not-for-profit funds simply on the basis of asset allocation.

When we exclude the conservative retail default options in order to make the samples more comparable we are also reducing the differences in asset allocation across fund types. We find that the average benchmark return for retail funds is higher than for not-for-profit funds, but not significantly so (*p-value* = 0.34).

This implies that although asset allocation is an important factor in creating a portfolio, there are not significant differences in gross returns based on asset allocation of default options between the retail and not-for-profit fund types.

In addition, as the difference between net returns and gross returns are expenses and taxes (asset allocation is the same for both net and gross return), for asset allocation to be a major driver of the average *net* performance differences across fund types, we would need to find that asset allocation explained performance differences across fund types at the *gross* return level. Thus we do not have enough statistical evidence to assert that asset allocation is a major driver for the average overall net performance differences across fund types.

We will need to examine other components of returns to gain an understanding of what causes cross-sectional variation in net returns: expenses, taxes or investment selection decisions within asset classes.

Looking at volatility, we see that corporate funds have significantly higher volatility than other fund types (*p-value*=0.03), however this difference disappears when conservative default options are excluded, as we are excluding the low volatility conservative retail funds.

For the balanced/growth investment options, industry funds have lower volatility (*p-value* = 0.00), and combining the benchmark return and volatility into a Sharpe ratio, shows that industry funds have a statistically significantly higher Sharpe ratio (*p-value* = 0.03 compared to other funds excluding conservative options) while the Sharpe ratios for other sectors are comparable. This means that the over our sample time period, the default investment options for industry funds provided investors with an asset allocation that generated a superior return/risk combination: the average gross return earned relative to the volatility of returns was higher for industry default investment options than other fund types.

INVESTMENT PERFORMANCE OF THE DEFAULT INVESTMENT OPTION

We do not have evidence that the average asset allocation explains variation in benchmark returns, except for the conservative default options. The observed differences in the average fund net return must come from other sources, and in this section, we investigate how fund manager skill, expenses and taxes may explain differences in net returns. For this purpose, we use performance data from the survey which provides annual observations on the default option's gross investment earnings, total expenses, investment taxes and net inflows.

The gross and net returns are related by the following identity:

Gross return = Net return + Tax + Expenses.

In Table 7, gross and net default option returns reported. Returns are calculated as geometric average returns.

Table 7: Gross, net, and benchmark returns plus taxes and expenses for the default option
July 2001 - June 2006

	Sample Entities	Corporate	Industry	Public sector	Retail	Retail (excl conservative options)
All entities						
Average (%):						
Gross return	7.6	7.5	8.4	8.0	6.4	6.3
Expenses	1.0	0.7	1.3	1.4	0.9	0.8
Taxes	0.6	0.6	0.8	0.6	0.2	0.2
Net return	6.0	6.3	6.3	6.1	5.3	5.3
Benchmark return	7.7	7.7	7.9	7.1	7.5	8.1
Difference in (%):						
Gross and benchmark returns	-0.1	-0.2	0.5	0.9	-1.2	-1.8
Net and benchmark returns	-1.7	-1.4	-1.6	-1.1	-2.2	-2.8
Gross and net returns	1.6	1.2	2.1	2.0	1.1	0.9
Number of entities	90	22	36	6	26	19

Gross return versus benchmark return

The overall average gross return is 7.6 per cent per annum (Table 7), lower than the corresponding average benchmark return of 7.7 per cent. At the aggregate level, this result appears to reflect a highly efficient industry which earns close to the benchmark. This aggregate outcome may be misleading, as there are material differences between gross and benchmark returns generated by some fund types.

Across the fund types, Table 8 shows that the gross return for industry funds, as well as the gross return adjusted for benchmark return, are significantly higher than other fund types and for retail funds both the gross return and gross return adjusted for the benchmark return are significantly lower. It is more meaningful to compare the average gross return after

controlling for the average benchmark return, as this captures how each default option performed given its asset allocation.

Table 8: Significance tests for differences in gross returns across fund types

Including conservative options		**Corporate**	**Industry**	**Public sector**	**Retail**
Gross Return	*t statistic*	-0.19	4.1	*	-3.45
	p value	0.85	0.00	*	0.00
Gross - Benchmark	*t statistic*	-0.19	2.87	*	-2.82
	p value	0.85	0.01	*	0.01
Excluding conservative options		**Corporate**	**Industry**	**Public sector**	**Retail**
Gross Return	*t statistic*	-0.61	3.93	*	-3.23
	p value	0.54	0.00	*	0.00
Gross - Benchmark	*t statistic*	-0.08	3.36	*	-3.91
	p value	0.93	0.00	*	0.00

* Indicates the sample size is too small for meaningful calculation of t-statistics.

The difference between the average gross return and benchmark return could be due to several factors. The first factor is the fund manager's skill. In actively managing the portfolio, funds will typically hold a portfolio of securities different from the passive benchmark index. Depending on a portfolio manager's performance in selecting individual securities within asset classes and in timing the market, these active investment decisions can result in a fund's over or under-performance relative to the benchmark. The second factor is transaction costs. Due to active trading, funds incur transactions costs, which do not impact the passive index returns. Unlike management skill, which can have either a positive or negative effect on returns, transaction costs detract from returns and would result in gross returns being lower than benchmark returns, other things being equal. Yet another caveat for interpreting gross return figures and for comparing them across superannuation fund types is that for some fund operating structures these returns may already include some embedded fees and investment taxes[13]. In such cases – which are most typical of retail funds – these fees and taxes would not be reported separately, resulting in a lower reported gross return.

[13] For instance, when superannuation funds invest with life insurance companies or through pooled superannuation trust (PST) structures, the fees and taxes are paid by the respective life insurance company or PST on behalf of the superannuation fund. Eventually, the respective life insurers or PSTs report back to the superannuation funds their investment returns, which could already be net of fees and investment taxes.

To explain the difference in investment performance relative to average benchmark for the various fund types, we are left with two broad choices. First, the retail fund returns reported to APRA in this survey very likely have embedded expenses and taxes in the "gross" return figure. Strong support for this interpretation flows from the fact that nine of the funds used in this survey reported identical net and gross returns. Second, retail fund trustees may have consistently selected fund managers who under-performed relative to fund managers selected by not-for-profit trustees.

To determine which reason provides the better explanation, we exclude the nine funds that reported identical gross and net earnings from the sample. By doing this we are removing the impact of embedded expenses, and are isolating differences in manager skill. Table 9 repeats Table 7 for this new sample. The results change materially, and the t-statistics are lower.

Table 9: Gross returns excluding nine funds that reported gross returns equal to net returns

	Sample Entities	Corporate	Industry	Public sector	Retail	Retail (excl conservative options)
All entities						
Average (%):						
Gross return	7.8	7.7	8.4	8.0	7.0	7.1
Benchmark return	7.7	7.7	7.9	7.1	7.4	7.9
Difference in (%):						
Gross and benchmark returns	0.2	0.0	0.5	0.9	-0.4	-0.9
Number of entities	81	20	35	6	20	14
t statistic for fund type						
Gross return	*t*-statistic	-0.74	3.05	*	-2.38	*
	p-value	0.46	0.00	*	0.03	*
Gross - Benchmark	*t*-statistic	-0.92	1.72	*	-1.64	*
	p-value	0.36	0.09	*	0.11	*

* Indicates the sample size is too small for meaningful calculation of t-statistics.

In Table 9 the average gross return for retail funds is 7.0 per cent, compared with 6.4 per cent in Table 7, and the difference between the gross return and benchmark is only -0.4 per cent, rather than -1.2 per cent, and is no longer statistically significantly lower than other fund types (*p-value*=0.11). Similarly for corporate funds, excluding the two funds that reported identical gross and net returns raises the gross return to 7.7 per cent rather than 7.5 per cent, resulting in the average gross return being equal to the benchmark return.

For industry funds, the positive difference between the gross return and benchmark is 0.5 per cent (unchanged from Table 7) and is not significantly higher than other fund types (*p-value*=0.09), which suggests that the apparent investment manager skill found for industry funds in Table 7 was due to the inclusion of those funds with embedded fees and hence lower gross returns in the comparison across fund types.

Our interpretation of the above material is that there is not a significant difference in investment manager skill across fund types. The substantial majority of retail gross under-performance relative to the benchmark lies in embedded costs, not in poor investment manager skill. APRA's experience as an official statistical agency for superannuation collections suggest that many funds and particularly retail funds report returns from third party fund managers net of expenses and tax, which may contribute to the lower gross performance relative to a passive benchmark for retail funds.

Another important consideration in measuring gross performance relative to the benchmark return is the influence of our choice of the cash rate for the "other asset" benchmark. Although we do not have enough detail on the types of investments included in this "other asset" category to determine a more appropriate benchmark, we examine the impact of choosing Australian equities as the benchmark for "other assets" instead. This is an arbitrary alternative, which we choose because it is a benchmark with a higher return, thus providing a higher hurdle for the gross return to out-perform.

Table 10: Gross returns excluding nine funds that reported gross returns equal to net returns, using Australian equities as benchmark index for "other" assets

	Sample Entities	Corporate	Industry	Public sector	Retail	Retail (excl conservative options)
Average (%):						
Gross return	7.8	7.7	8.4	8.0	7.0	7.1
Benchmark return (Cash)	7.7	7.7	7.9	7.1	7.4	7.9
Benchmark return (Australian shares)	8.2	8.0	8.5	7.8	7.9	8.1
Difference in (%):						
Gross and benchmark returns (Cash)	0.1	0.0	0.5	0.9	-0.4	-0.9
Gross and benchmark returns (Australian shares)	-0.4	-0.3	-0.1	0.2	-0.9	-1.1
Number of entities	81	20	35	6	20	14

Gross - Benchmark (Australian shares)		Corporate	Industry	Public sector	Retail
Including conservative options	*t statistic*	0.21	1.35	*	-1.96
	p value	0.83	0.18	*	0.06
Excluding conservative options	*t statistic*	0.11	1.31	*	*
	p value	0.91	0.20	*	*

* Indicates the sample size is too small for meaningful calculation of t-statistics.

Replacing the cash rate by Australian equities for "other assets" would have increased the portfolio benchmark return by 0.5 per cent for all funds overall, with an incrementally higher effect on industry and public sector funds as these fund types on average have a greater allocation to this asset class (0.2 per cent for corporate funds, 0.5 per cent for retail funds, 0.6 per cent for industry funds and 0.7 per cent for public sector funds).

Comparing gross returns to this higher benchmark we conclude that industry funds do not out-perform this benchmark.

The study period consists of two sub-periods (see Appendix 5 for more details): in 2002-2003 equities delivered poor returns and in 2004-2006 equity performance was strong. As the equity asset classes account for more than half of superannuation investments, these sub-periods present an opportunity for a natural experiment and an interesting comparison of the behaviour of the variables during the favourable versus unfavourable equity market conditions. Over and under-performance does not appear to be related to market conditions, as the default options out-performed in 2002 but under-performed in 2003 and likewise under-performed in 2004 and out-performed in 2005 and 2006.

Taxes and expenses

From Table 7, reported expenses are 1.0 per cent of assets and taxes are 0.6 per cent.

Table 11: Significance tests for differences in expenses and taxes across fund types

Including conservative options		**Corporate**	**Industry**	**Public sector**	**Retail**
Expenses	*t statistic*	-3.50	2.54	*	-1.04
	p value	0.00	0.01	*	0.30
Taxes	*t statistic*	0.20	3.26	*	-5.04
	p value	0.84	0.00	*	0.00
Excluding conservative options		**Corporate**	**Industry**	**Public sector**	**Retail**
Expenses	*t statistic*	-0.61	3.93	*	-3.23
	p value	0.54	0.00	*	0.00
Taxes	*t statistic*	-0.08	3.36	*	-3.91
	p value	0.93	0.00	*	0.00

* Indicates the sample size is too small for meaningful calculation of t-statistics.

As noted above, reported expenses and taxes understate the cost as some expenses and taxes are already embedded into the gross return, particularly for retail funds. We include statistical tests of differences in reported expenses and taxes in Table 11, but caution against drawing conclusions as this table does not include embedded expenses and taxes. The significance tests are indicating significant differences in expense and tax reporting to APRA for this survey, not significant differences in the expenses and taxes themselves.

In Appendix 5, we examine performance on a yearly basis and as expected, investment taxes are higher during the years of favourable investment returns. The 2004 to 2006 average tax portion of the annual return for the whole sample is 0.8 per cent, while the 2002 to 2003 average is 0.3 per cent. This pattern of lower investment taxes during bad equity investment years holds throughout all fund types, and retail funds report noticeable negative average tax figures in 2002 and 2003. Investment expenses as a

proportion of assets are slightly lower by the end of the period for industry and retail funds.

Net return versus benchmark

After including expenses and taxes, Table 7 also shows the overall average net return for the sample is 6.0 per cent per annum from 2001 to 2006, which is 1.7 per cent per annum lower than the pre-tax, pre-expenses benchmark return.[14]

As noted above, the composition of the "drag" from gross to net returns is difficult to report accurately. We can state, however, that for the funds reporting in this sample, the aggregate drag from investment under/over-performance, costs, and taxes is 1.7 per cent per annum. If this number holds across the superannuation industry, then the roughly $1 trillion in Australian superannuation assets is generating approximately $17 billion in annual drag from the frictional costs of investment, administration and taxation.

Table 12: Significance tests of net performance

Including conservative options		**Corporate**	**Industry**	**Public sector**	**Retail**
Net Return	*t statistic*	1.05	1.41	*	-2.15
	p value	0.30	0.16	*	0.04
Net - Benchmark	*t statistic*	0.85	0.45	*	-1.64
	p value	0.40	0.65	*	0.11
Excluding conservative options		**Corporate**	**Industry**	**Public sector**	**Retail**
Net Return	*t statistic*	0.52	1.29	*	-1.69
	p value	0.61	0.20	*	0.10
Net - Benchmark	*t statistic*	0.86	1.00	*	-2.89
	p value	0.39	0.32	*	0.00

* Indicates the sample size is too small for meaningful calculation of t-statistics.

The most relevant measure of performance is the net return relative to the benchmark return, to control for asset allocation differences and focus our attention on the component of returns due to costs: both explicit and embedded expenses and taxes.

[14] In APRA's 10 Years of Superannuation (2007) report, the five year equally-weighted arithmetic average net ROA was 5.5 per cent. All prudentially-regulated entities with $100 million or more were included in this calculation, and the calculation included all investment options for each fund, not only the default investment option.

All fund types under-perform their benchmarks on average on a net return basis, which is unsurprising given that the benchmarks incur no expenses and taxes, and real life funds incur both.

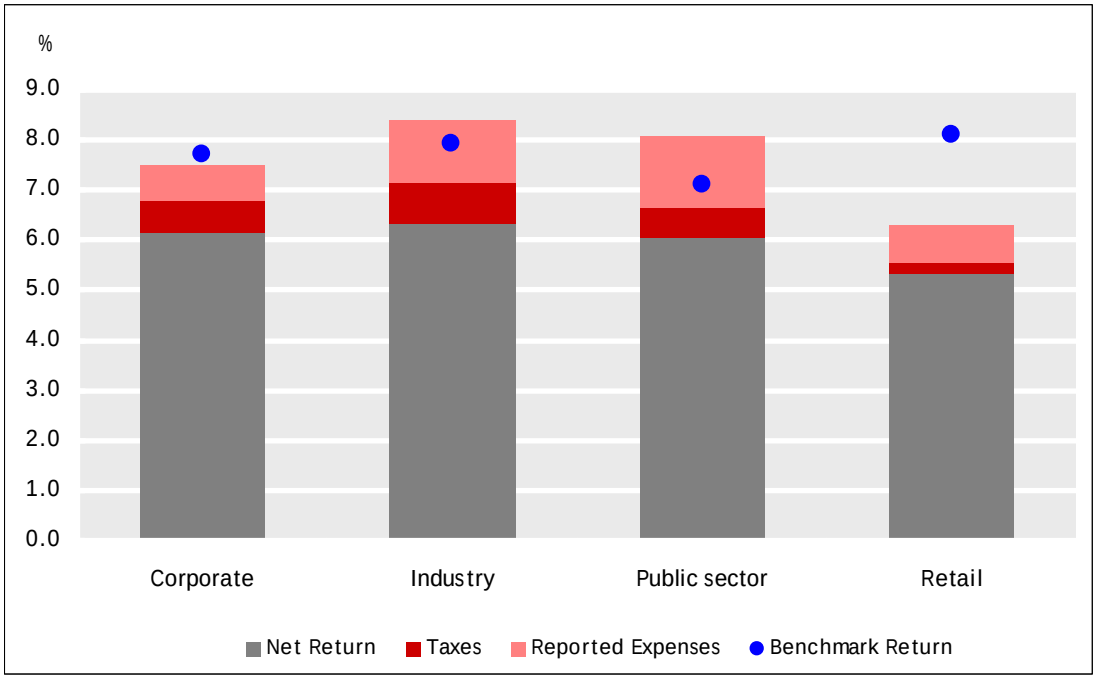
Focusing on statistical significance, we find no difference in average net returns relative to benchmarks for corporate or industry funds. The interpretation of the results for retail funds depends on whether we include conservative investment options or not. Including the conservative investment options, we find no significant under-performance for retail funds on a net basis (*p-value* = 0.11). However, when the conservative default options are excluded from the retail sample, the balanced and growth retail funds clearly under-perform the not-for-profit sector on a net basis and relative to their benchmarks (*p-value* = 0.00). As the net return relative to benchmark is capturing the component of returns due to costs, this suggests that for balanced/growth retail funds, expenses and/or taxes (explicit and embedded) are greater than for other fund types.

Figure 4 summarises the data in Table 7 and shows the average performance for balanced and growth default investment options by fund type. The dots represent the benchmark returns from Table 6 and the columns depict the gross return and its components. The average net return for each trustee type is shown by the grey column, and then added on top of this are the average tax cost (in red) and expenses (in pink).

From Figure 4, it is clear that the benchmark returns are very similar across fund types, but the gross return is significantly lower than the benchmark for retail default investment options, which is attributable to embedded expenses and taxes. The explicit expenses and taxes are lowest for retail default investment options but the overall net performance is still lowest for retail default investment options.

Figure 4: Return breakdown and benchmark return for balanced and growth default options

July 2001 - June 2006



Summary: Explaining differences in performance across corporate, industry, public sector and retail funds

Overall, including information about asset allocation helps us to evaluate performance across funds more accurately.

From our examination of the four components of net returns for default investment options we found it was important to include asset allocation as the return and risk characteristics of the funds with conservative investment options are different to growth and balanced investment options.

On average we find no difference in the average benchmark return across corporate, industry, public sector and retail default investment options which implies that we cannot reject the hypothesis that asset allocation is not a significant explanation for average return differences across fund types.

Second, investment manager skill, captured by the gross return relative to the benchmark, is not significantly different across fund types. Also we found that several investment options reported fees embedded into their reported "gross" returns.

Third, we find significantly lower average net returns relative to the benchmark for balanced and growth retail default investment options compared to other fund types, which implies that higher expenses and taxes, explicit and embedded, are the main component of average net

return differences in balanced and growth investment options across fund types.

For the sample including conservative investment options we can conclude that although net returns are significantly different across fund types, when we focus on the components of returns, there is no difference in average returns. However, as seven of the eight conservative investment options are retail funds, the inclusion of conservative investment options will impact the average return for retail funds more than other fund types.

The majority of the sample, 82 out of 90 funds, provided a balanced/growth investment option, and across these investment options we find that expenses and taxes, both embedded and explicit, are the only significant contributing factor to return differences across fund types. Thus, from 2002 through 2006, superannuation funds were selecting similar asset allocations, using investment managers with similar skills, but the costs involved with this was significantly greater for retail funds on average.

Although the analysis in this paper focuses on the performance of default investment options rather than whole funds, Appendix 6 provides details on the performance at the total fund level. The results at the whole fund level are unchanged: retail funds significantly under-perform not-for-profit funds.

INVESTMENT PERFORMANCE OF A REPRESENTATIVE SUPERANNUATION INVESTOR

We now move from fund level analysis of the default option to examining returns for an investor with a $50,000 starting balance, when this investor is notionally a member of each of the funds in this survey.[15] By focusing on the returns experience of the same investor across all funds, we control for the effects of the account balance.

Also, with this analysis of a representative investor, we can capture the reported (smoothed) earnings, not just the accounting earnings of the fund which were the focus of the last section, and the fees charged to investors in addition to the accounting expenses of the fund.

In the survey, APRA specified the representative investor as follows. The investor is assumed to open an account on 1 July 2001 with a $50,000 balance. Then the investor makes additional annual $5,000 contributions on the first of July in 2002 through 2005. All investments flow into the fund's default option. Two different investment structures were examined in order to capture differences in fee structures charged on different investors: an investor who invests directly as well as an investor who invests via an employer or corporate sub-fund in a Master Trust.[16] For industry and public sector funds, this difference is not relevant. There was no meaningful difference in ongoing fees for the two investment structures in the retail and corporate sectors either (see Table 13 below). Thus, we only report the returns calculated for the directly investing representative investor.

It is important to note that returns for representative investors will differ from the investment earnings of the fund because representative investor returns are calculated from unit prices and crediting rates, not fund earnings. The reason that this will affect the earnings that are allocated to investor accounts is because crediting rates are often smoothed over multi-year periods and hence do not reflect the current year's fund earnings. Because of this, we cannot compare representative investor earnings with benchmark returns.

For example, the stock market had high returns in 2000 and 2001, which are not included in our sample but may be included in smoothed crediting rates, followed by low returns in 2002 and 2003. The crediting rates for 2002 and

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[15] Although the choice of $50,000 is somewhat arbitrary, we select this balance because The Australian Securities and Investments Commission also use $50,000 as an example balance on the FIDO website and in their Managed Funds Calculator.

[16] The distinction between fees charged under these two investment structures was included after feedback from the funds in the pilot survey. Several funds informed APRA that in order to provide information on fees charged they needed clarity on whether an individual was investing directly or via an employer Master Trust structure.

2003 will be higher than the actual earnings in those years as reserves from the earlier high-return period are included in the crediting rate.

In our sample of 90 funds, 49 funds used crediting rates, 38 reported unit prices and three switched from crediting rates to unit pricing midway through the time period.

Returns for the representative investor data are given in Table 13 for the whole five-year period and for each financial year. The five-year returns are geometric average returns.

Table 13: Representative investor returns (%)

	Jun-02	Jun-03	Jun-04	Jun-05	Jun-06	2002-2006
Sample Entities						
Default option net return	-3.4	-1.3	11.4	11.8	12.9	6.0
Representative investor net return (n=90)	-1.9	0.6	11.7	12.2	13.0	6.9
Representative investor net return, excl conservative funds (n=82)	-2.5	0.4	12.2	12.6	13.8	7.0
By functional classification						
Corporate						
Default option net return	-2.6	-1.7	11.3	12.0	13.8	6.3
Representative investor net return (n=22)	-1.6	0.5	12.0	13.0	14.2	7.3
Industry						
Default option net return	-3.2	-1.3	11.8	12.2	13.5	6.3
Representative investor net return (n=36)	-1.5	0.9	12.0	12.5	13.6	7.3
Public Sector						
Default option net return	-3.6	-0.8	11.5	11.7	12.8	6.1
Representative investor net return (n=6)	-2.7	1.6	11.9	12.8	12.5	7.0
Retail						
Default option net return	-4.3	-1.0	11.0	11.0	11.4	5.3
Representative investor net return (n=26)	-2.7	-0.1	11.1	11.2	11.3	5.9
Representative investor net return, excl conservative funds (n=19)	-5.2	-1.0	12.5	12.4	13.9	6.2

The overall average annual return for the representative investor is 6.9 per cent or 7.0 per cent excluding the conservative default investment options. This is 90, or 100, basis points higher than the corresponding figure for the default investment option, which demonstrates the impact of smoothing, particularly due to the poor returns of 2002 and 2003.[17]

[17] Of the 49 funds using crediting rates, 17 used annual crediting throughout the time period, 18 used monthly crediting and 14 switched from annual to monthly after 2003. Thus in 2004 to 2006 the representative investor returns are closer to accounting earnings as there is less returns smoothing.

The representative investor analysis gives us the ability to control the starting account balance and contribution history of an investor, but it shows the net under-performance of retail funds (see Table 14) regardless of whether or not conservative default options are included. This result suggests that the net under-performance is not due to differences in investor balances.

Table 14: Significance test for differences in representative investor net returns across fund types (%)

	Corporate	Industry	Public sector	Retail
t statistic including conservative funds	1.92	1.73	*	-3.06
p value	0.06	0.09	*	0.00
t statistic excluding conservative funds	1.23	1.25	*	-2.54
p value	0.22	0.22	*	0.01

* Indicates the sample size is too small for meaningful calculation of t-statistics.

Representative investor fees

Unlike the data gathered at fund level in the regular APRA statistical data collections, in this study we have better information on fees and taxes at the representative investor level. In the survey the indicative fees were specified as either a percentage or a dollar balance (or both) in the following categories: entry fee, annual planner fee, annual administration fee, cash management account and other fees. To compare the overall effect of these fees, we calculate the total dollar fee charged on a balance of $50,000. Some funds may charge their members an exit fee when they leave the fund. By comparing representative investors' closing and exit balances from the survey, inferences can be made regarding the magnitude of exit fees.

Table 15 shows average fees by fund type and fee category. We highlight the fees charged under both investment structures: a representative investor investing directly in the fund and a representative investor investing via an employer or corporate sub fund in a Master Trust.

Across fund types, retail funds are the only sector represented in each fee category. With the exception of two corporate funds reporting entry fees, no non-retail funds show either annual planner fees or entry fees.

Table 15: Average fees for an investor with a $50,000 account balance
July 2001 - June 2006

	Sample Entities	Corporate	Industry	Public sector	Retail
Individual Representative Investor Fees ($)					
Annual fee	602	316	305	649	1222
Entry fee	169	9	0	0	563
Exit fee	52	41	25	7	108
Employer Master Trust Representative Investor Fees ($)					
Annual fee	597	311	312	649	1190
Entry fee	137	9	0	0	452
Exit fee	35	41	26	7	46

The annual fees are on average four times higher for retail funds than the annual fees charged by industry and corporate funds. This is regardless of whether the investor is directly investing or investing via a Master Trust. This difference is due in part to a greater reliance on percentage fees by retail funds relative to not-for-profit funds as well as retail funds having higher percentage fees. For the two annual fee categories that are common across all fund types (administrative fees and other fees) 85 per cent of retail funds charge a percentage fee and 50 per cent charge a flat fee, whereas for the not-for-profit funds 65 per cent charge a percentage fee and 81 per cent charge a flat fee. The average percentage annual fee charged by a retail fund is 2.1 per cent compared to an average percentage annual fee of 0.7 per cent in the not-for-profit sector.

Entry and exit fees charged by retail funds are somewhat lower when an investor uses a Master Trust vehicle, but as these fees only impact investors one time, the more important fees are the ongoing charges, which do not materially change.

Table 15 also presents analysis of the exit fees for the representative investor. The majority of the funds in the sample report do not charge their members exit fees. Of the remaining funds, about half charge fixed dollar exit fees and the other half charge non-fixed dollar exit fee. The average exit fee for retail funds is twice as high as the sample average.

In further considering the fee material presented on representative investors, we examined the reported financial planner fees for retail funds (Table 16). Other fund types did not report any financial planner fees.

Table 16: Retail funds and financial planners

	Number of entities	Average entry fee	Average ongoing fee
Entry fee only	7	$967	963 ($0 for planner)
Annual planner fee only	3	$0	$2101 ($218 for planner)
Entry and annual planner fee	6	$1,313	$1596 ($298 for planner)
No entry or annual planner fee	10	0	$914 ($0 for planner)

Among the 26 retail funds reporting in this survey, six reported that they charged both entry and annual fees for planners; seven reported that they charged only an entry fee; three only an annual fee; and 10 neither an entry nor an annual fee. The retail funds reporting financial planner fees have higher annual fees overall compared to those retail funds that did not report planner fees.

The representative investor analysis reinforces our results on the default option. By examining how the same investor would perform in the different fund types, we have shown that the difference in performance across fund types is not related to different account balances. In addition, the representative investor analysis provides a clearer picture of the difference in fees that investors in retail funds face compared with the cost of investing in other fund types.

AGGREGATE VS. FUND LEVEL DATA

The preceding analysis makes it clear that for default investment options of large superannuation funds, the net returns (after tax and expenses) of retail funds are consistently lower than not-for-profit funds during the 2001 to 2006 period. This is perhaps an unsurprising result at the aggregate level given that retail funds incur higher distribution costs than not-for-profit funds and, in addition, need to set fees which provide a return on shareholder capital. This overall result does, however, raise the question: is it the case that all or nearly all retail funds under-perform all not-for-profit funds?

The simple answer to this question is "no". For confidentiality reasons APRA is unable to provide information from this survey at the individual fund level. We are able to disclose that a small number of retail funds generated returns which are comparable to or exceed the not-for-profit average, and a small number of not-for-profit funds generated returns which were considerably lower than the survey sample average.

SUMMARY OF FINDINGS

Since 2003, APRA has undertaken a considerable research program to examine superannuation trustee practice. Initial work in this area demonstrated a material and evidently continuing net return under-performance by retail trustees compared to other prudentially regulated fund types. This result has been consistently replicated in studies external to APRA.

All trustees face the same statutory duties under the *Superannuation Industry (Supervision) Act 1993* to act in the members' interest, and to form an investment strategy for the fund. However, there are many different approaches to fulfilling these duties. Some trustees emphasise member choice of investment rather than offering a handful of prescribed funds; varying reliance in in-house or out-sourced management can affect the fees; passive versus active investing strategies can affect taxes and transactions costs; varying reliance on financial planners can affect the distribution costs of funds; retail funds often set trustee fees which allow for a return on the shareholder capital of the financial sponsors.

In the five years of this study, retail trustees using balanced or growth investment strategies for default investment options on average generated significantly lower net returns than returns generated by not-for-profit trustees using balanced/growth investment strategies. This finding is consistent with APRA's 13 years of statistical returns from 1995 through 2008. Although some retail funds earn relatively high net returns, and some not-for-profit funds earn relatively low net returns, on average, balanced and growth retail funds consistently earn less on a net basis than not-for-profit funds.

In this study we have extended our analyses beyond APRA's statistical collections, to a more detailed data set. This data allows us to analyse return differences arising from differing asset allocations, investment manager skill, and expenses.

Possibly our most substantial finding is that at least during the survey period, asset allocation, on average, explained essentially none of the return differences between trustee types. However, one quarter of retail funds in our sample did provide investment options with substantially more conservative investment styles to other funds, which leads us to examine net returns both including and excluding this group due to the different return and risk characteristics of these conservative investment options.

A small group of funds reported gross returns with embedded expenses and taxes, which we find significantly influences average gross returns across fund types. However, after controlling for these embedded expenses and taxes, we find similar manager skill on average across all fund types.

For balanced and growth investment options, which have comparable asset allocations, our results indicate the significant difference in net returns across fund types is a factor of expenses and taxes. Most retail fund under-performance flows from the higher costs retail trustees impose on their members, via several fee types.

These findings for retail funds hold for balanced and growth default options, for the whole fund, and for representative investors.

As for the not-for-profit fund trustees, there was little statistical difference found in performance across the corporate, public sector, and industry segments. Although these three sectors display differences in their governance arrangements, they seem to generate similar net returns at the aggregate level.

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APPENDIX 1: CALCULATING RETURNS

The simple question of calculating the rate of return for a fund requires some clarification. In this study we wish to concentrate on the returns that an investor has earned over the five years from 2001 to 2006. This is by nature a backwards-looking approach which entails that a geometric average return is the appropriate measure of returns:

$$r_{geom} = \left[(1+r_1)(1+r_2)(1+r_3)(1+r_4)(1+r_5)\right]^{1/5} - 1$$

Geometric average returns take into account the effect of compounding returns and is the most accurate measure of actual earnings. By contrast an alternative measure could be the arithmetic average return:

$$r_{arith} = \frac{r_1 + r_2 + r_3 + r_4 + r_5}{5}$$

which is a forward looking measure that calculates the expected return that a fund will earn in future periods. It is not an accurate measure of compounded returns that have been earned.

The relationship between geometric average returns and arithmetic average returns is:

$$r_{geom} = r_{arith} - \tfrac{1}{2}\sigma^2$$

where σ^2 is the variance of returns. Thus, as returns fluctuate from period to period, the geometric average is, by definition, lower than the arithmetic average return.

Another complicating issue for measuring returns is that superannuation funds can hold some earnings in an investment fluctuation reserve and smooth returns over an arbitrary, sometimes multi-year, period. These smoothed returns are reported to investors as crediting rates. An alternative to reporting crediting rates is to use unit pricing for investor accounts. Smoothing is not typically done for unit prices as these are recalculated on a more frequent basis. Our representative investor returns are based on crediting rates or unit prices and thus may include smoothing effects, whereas the benchmark returns and gross/net earnings are not smoothed. This difference means we cannot directly compare the representative investor returns with the gross/net returns.

A final explanatory note about returns calculation is that our definition of returns in this study differs from the return on assets (ROA) used in the APRA superannuation statistics bulletins. Rather than using ROA that measures earnings divided by average assets, gross and net returns are calculated according to the following formula[18]:

[18] Note that this definition of return is consistent with Coleman, Esho and Wong (2003).

$$\text{Return} = \frac{\text{Earnings}}{\text{Starting balance + net contributions}}$$

Using the annual performance data to calculate gross and net returns, where we measure contributions by net inflows (see Appendix 7 for detailed definitions of each variable), this formula becomes:

$$\text{Return}_{\text{Gross/net}} = \frac{\text{Earnings}_{\text{Gross/net}}}{\text{Beginning assets} + \frac{1}{2} \times \text{Net inflows}}$$

In this formula, inflows into the fund are assumed to be continuous throughout the year, and thus we use the average net inflow in the denominator, ½ x net inflow. Given that most contributions are from fortnightly or monthly pay periods, it is reasonable to assume that the contributions are evenly distributed over the year.

For the representative investor, the $5,000 contributions occur at the start of the period and earnings are credited on an annual basis. Thus representative investor returns are calculated as:

$$\text{Return} = \frac{\text{Earnings}}{\text{Starting balance + contributions}}$$

The reason for using this definition of returns rather than ROA is because the geometric average return incorporates the effects of compounding. We are focusing on the earnings rate for a given investment, while average assets include the earnings in the denominator rather than simply the investment.

APPENDIX 2: SAMPLE SELECTION AND DESCRIPTIVE STATISTICS OF SAMPLE

We received data from 166 funds but only used complete data from 90 funds in the sample.

Table A1: Data requirements and sample selection

	All entities	Corporate	Industry	Public sector	Retail
Original Sample	197	45	56	16	80
wound up	7	4	1	0	2
unable to provide data	24	1	2	0	21
defined benefit	11	5	2	3	1
less than 5 years of earnings	47	12	7	6	22
less than 5 years of asset allocatior	18	1	8	1	8
Final Sample	97	26	37	6	28
Per cent of Original Sample	49%	58%	66%	38%	35%

Given the shrinkage of funds from the original 197 to the 90 subject to detailed review, it is necessary to consider how this shrinkage may have affected our results. APRA is able to estimate this effect by looking at our statistical data collections for the same period, for the same funds.

Table A2: Comparison of total assets and return on assets (ROA) for funds included and excluded from the sample[19]

	All entities	Aggregate Assets ($B)	Average Assets ($B)	Average 5 yr ROA
Not-for-profit, included funds	64	116.0	1.8	5.67%
Not-for-profit, excluded funds	45	139.0	3.1	5.73%
Not-for-profit, no data	8	3.8	0.5	4.88%
For-profit, included funds	26	94.7	3.6	5.12%
For-profit, excluded funds	31	151.9	4.9	4.97%
For-profit, no data	23	35.947	1.562	4.58%

From Table A2, it can be seen that the funds that provided no data were smaller on average, and although the mean return on assets (ROA) is lower, it is not statistically significantly lower using a t-test (p=0.20 for retail funds, p=0.14 for not-for-profit funds). For the 45 not-for-profit funds and 31 retail funds that were excluded from the sample due to data limitations, the average five year ROA is not statistically different to the included funds (p=0.80 for not-for-profit funds, p=0.71 for retail funds). Thus, we do not believe that our results will be impacted by focusing only on those funds that provided us with complete data.

For the 90 funds included in the sample, Table A3 provides some descriptive statistics about fund size and member accounts.

[19] Data for Table A2 is from APRA's annual statistical data collections for 2002 to 2006.

Table A3: Descriptive statistics of the sample entities

Year end June 2006

	Sample entities	Corporate	Industry	Public sector	Retail
Total assets ($ million)					
Mean	2,325	1,007	2,221	2,114	3,631
Median	954	619	949	2,520	1,725
Lower quartile	433	302	431	532	695
Upper quartile	2,693	956	2,476	3,343	4,294
Default option assets ($ million)					
Mean	1,201	510	1,902	1,186	818
Median	516	348	790	1,005	495
Lower quartile	261	185	409	218	180
Upper quartile	1,159	795	2,110	1,434	736
Default option as a proportion of total assets (%)					
Mean	61.8	64.0	84.2	49.6	31.9
Median	68.6	69.0	92.6	41.1	26.6
Lower quartile	32.6	37.6	78.9	39.1	17.1
Upper quartile	93.0	93.0	97.0	41.6	44.0
Number of member accounts ('000)					
Mean	108	11	172	46	117
Median	32	9	81	40	34
Lower quartile	9	3	30	12	15
Upper quartile	111	12	166	82	156
Average account balance ('$000)					
Mean	60.9	99.4	26.2	93.3	68.9
Median	37.4	86.6	16.1	46.3	46.1
Lower quartile	15.8	60.6	10.8	34.2	21.1
Upper quartile	92.3	127.3	29.7	202.4	128.7
Number of entities	90	22	36	6	26

APPENDIX 3: TRENDS IN DEFAULT OPTION ASSET ALLOCATION

Table A4: Asset allocation for the default investment option by year (%)

	June 2002	June 2003	June 2004	June 2005	June 2006
Australian listed equities	33.6	33.2	33.0	33.1	32.0
International listed equities (unhedged)	13.7	13.9	14.6	13.8	14.0
International listed equities (hedged)	6.9	7.5	8.4	8.7	9.5
Australian listed property	4.0	4.1	3.7	3.4	3.3
Australian direct property	4.8	4.9	4.7	4.4	4.3
Australian fixed interest	16.1	15.7	14.0	13.5	12.8
International fixed interest	2.1	1.7	1.5	1.4	1.5
International fixed interest (hedged)	4.0	5.0	4.3	4.7	4.5
Cash	9.7	9.0	9.2	10.3	9.7
Other	5.1	4.9	6.4	6.7	8.2

APPENDIX 4: BENCHMARK INDICES

Table A5: Performance benchmark indices for asset classes

Abreviation	Asset class	Benchmark index	Source
AS	Australian listed equities	S&P/ASX 200 Merged Accumulation Index	Bloomberg
OSH	International listed equities (hedged)	MSCI TR Net World Ex-Australia Local	Bloomberg
OS	International listed equities (unhedged)	MSCI TR Net World Ex-Australia $A	Bloomberg
P	Australian listed property	S&P/ASX 200 Property Merged Accumulation Index	Bloomberg
PD	Australian direct property	Australian Mercer Unlisted Property Funds Index Pre-Tax	Mercer Investment Consulting
AFI	Australian fixed interest	UBS Composite Bond Index All Maturities	Bloomberg
OFI	International fixed interest	JP Morgan World ex-Aust $A	Bloomberg
OFIH	International fixed interest (hedged)	JP Morgan World ex-Aust Hedged (traded)	Bloomberg
C	Cash	UBS Bank Bill Index	Bloomberg
O	Other (for example: Hedge funds)	UBS Bank Bill Index	Bloomberg

1. **Cash**
   The UBS Bank Bill Index is a monitor of the Australian money market. It was created to serve as a performance benchmark representing a passively managed short term money market portfolio.

2. **Australian Bonds**
   The UBS Australian Composite Bond Index is a capital accumulation index that includes all securities in the Treasury, Semi-Government and Credit indices. The return of the Composite index will be the market value weighted return of each sector.

3. **International** Bonds (Hedged)
   JP Morgan World Ex-Australia Government Bond Index hedged in Australian dollars.

4. **International** Bonds (Unhedged)
   JP Morgan World Ex-Australia Government Bond Index in US dollars converted into Australian dollars using USD/AUD exchange rate.

5. **Australian Shares**
   S&P/ASX 200 Merged Accumulation Index.

Designed to be the primary gauge for the Australian equity market, the S&P/ASX 200 index measures the performance of the 200 largest index-eligible stocks listed on the ASX by float-adjusted market capitalization. Representative, liquid and tradable, it is widely considered Australia's pre-eminent benchmark index. The index is float-adjusted, covering approximately 80% of Australian equity market capitalization. It is recognized as an investable benchmark in Australia, and it can be used as the basis for index products and trading tools. The S&P/ASX 200 addresses the needs of investment managers who require a portfolio benchmark and index characterized by sufficient size and liquidity. It serves this dual purpose by offering the representation of a broad benchmark index while maintaining the liquidity characteristics of narrower indices. This unique combination makes the S&P/ASX 200 ideal for portfolio management and index replication. The weighting of constituents in the S&P/ASX 200 is determined by the float-adjusted market capitalization assigned to each security by the Index Committee.

Source: Standard & Poor's.

6. **International Shares - Unhedged**
   MSCI World Ex-AustraliaTotal Net Return Index in USD.

   Morgan Stanley Capital International equity index in US Dollars converted into Australian dollars using USD/AUD exchange rate.

7. **International Shares - Hedged**
   MSCI World Ex-AustraliaTotal Net Return Index in Local Currency.

   Morgan Stanley Capital International equity index - developed markets in local currency.

8. **Listed Property**
   S&P/ASX 200 Property Merged Accumulation Index.

9. **Unlisted Property**
   Australian Mercer Unlisted Property Funds Index.

   The monthly Mercer Unlisted Property Funds Index is the market benchmark for direct property. Each page of the survey lists the current value of the Index compared to its value 12 months previous. Mercer includes the pre-tax and post-tax value of the Index for each month of the year, plus the amount it has moved on the previous month, by percentage. Investors should note that the Index covers unlisted and direct property, or funds that invest chiefly in private commercial property. Source: mercer.surveys@mercer.com,

   http://www.mercerhr.com.au/summary.jhtml?idContent=1164675#unlisted

APPENDIX 5: YEAR-BY-YEAR DEFAULT OPTION RETURNS

Table A6: Benchmark returns, returns taxes and expenses for the default option, including conservative options

	June 2002	June 2003	June 2004	June 2005	June 2006
All entities					
Average (%):					
Gross return	-2.2	0.1	13.4	13.5	14.8
Expenses	1.0	1.0	1.1	1.0	1.0
Taxes	0.2	0.3	0.9	0.7	0.9
Net return	-3.4	-1.3	11.4	11.8	12.9
Benchmark return	-2.9	0.7	14.2	13.0	14.9
Difference in (%):					
Gross and benchmark returns	0.6	-0.6	-0.8	0.4	-0.2
Net and benchmark returns	-0.5	-2.0	-2.8	-1.3	-2.0
Gross and net returns	1.1	1.3	1.9	1.7	1.9
Number of entities	90	90	90	90	90
By functional classification					
Corporate					
Average (%):					
Gross return	-1.8	-0.6	13.0	13.3	15.3
Expenses	0.6	0.6	0.7	0.7	0.6
Taxes	0.3	0.4	0.9	0.6	0.9
Net return	-2.6	-1.7	11.3	12.0	13.8
Benchmark return	-3.9	0.2	14.9	13.4	15.5
Difference in (%):					
Gross and benchmark returns	2.1	-0.9	-1.9	-0.2	-0.2
Net and benchmark returns	1.2	-1.9	-3.5	-1.5	-1.7
Gross and net returns	0.9	1.0	1.7	1.3	1.5
Number of entities	22	22	22	22	22
Industry					
Average (%):					
Gross return	-1.5	0.6	14.2	14.4	15.8
Expenses	1.3	1.3	1.3	1.2	1.1
Taxes	0.3	0.6	1.1	1.0	1.2
Net return	-3.2	-1.3	11.8	12.2	13.5
Benchmark return	-2.8	0.6	14.4	13.1	15.7
Difference in (%):					
Gross and benchmark returns	1.3	0.0	-0.2	1.2	0.1
Net and benchmark returns	-0.4	-1.9	-2.6	-0.9	-2.2
Gross and net returns	1.7	1.9	2.4	2.1	2.3
Number of entities	36	36	36	36	36
Public sector					
Average (%):					
Gross return	-3.0	0.3	14.0	14.4	16.1
Expenses	0.6	0.7	1.7	1.9	2.3
Taxes	0.0	0.4	0.8	0.8	1.0
Net return	-3.6	-0.8	11.5	11.7	12.8
Benchmark return	-5.0	-0.9	15.0	12.4	16.0
Difference in (%):					
Gross and benchmark returns	2.1	1.2	-1.0	2.0	0.1
Net and benchmark returns	1.4	0.1	-3.5	-0.7	-3.2
Gross and net returns	0.6	1.1	2.5	2.7	3.3
Number of entities	6	6	6	6	6
Retail					
Average (%):					
Gross return	-3.5	-0.1	12.4	12.2	12.6
Expenses	0.9	0.9	0.9	0.8	0.8
Taxes	-0.1	-0.1	0.5	0.4	0.4
Net return	-4.3	-1.0	11.0	11.0	11.4
Benchmark return	-1.7	1.6	13.1	12.8	13.1
Difference in (%):					
Gross and benchmark returns	-1.8	-1.8	-0.7	-0.6	-0.5
Net and benchmark returns	-2.6	-2.6	-2.1	-1.8	-1.8
Gross and net returns	0.8	0.8	1.4	1.2	1.2
Number of entities	26	26	26	26	26

Table A7: Benchmark returns, returns taxes and expenses for the default option, excluding conservative options

	June 2002	June 2003	June 2004	June 2005	June 2006
All entities					
Average (%):					
Gross return	-2.7	-0.1	13.6	13.8	15.3
Expenses	1.0	1.0	1.1	1.0	1.0
Taxes	0.2	0.4	0.9	0.7	0.9
Net return	-3.9	-1.4	11.6	12.0	13.4
Benchmark return	-3.5	0.3	14.9	13.5	15.6
Difference in (%):					
Gross and benchmark returns	0.7	-0.4	-1.3	0.2	-0.3
Net and benchmark returns	-0.4	-1.8	-3.3	-1.5	-2.3
Gross and net returns	1.1	1.3	2.0	1.8	1.9
Number of entities	82	82	82	82	82
By functional classification					
Corporate					
Average (%):					
Gross return	-1.8	-0.6	13.0	13.3	15.3
Expenses	0.6	0.6	0.7	0.7	0.6
Taxes	0.3	0.4	0.9	0.6	0.9
Net return	-2.6	-1.7	11.3	12.0	13.8
Benchmark return	-3.9	0.2	14.9	13.4	15.5
Difference in (%):					
Gross and benchmark returns	2.1	-0.9	-1.9	-0.2	-0.2
Net and benchmark returns	1.2	-1.9	-3.5	-1.5	-1.7
Gross and net returns	0.9	1.0	1.7	1.3	1.5
Number of entities	22	22	22	22	22
Industry					
Average (%):					
Gross return	-1.5	0.6	14.2	14.4	15.8
Expenses	1.3	1.3	1.3	1.2	1.1
Taxes	0.3	0.6	1.1	1.0	1.2
Net return	-3.2	-1.3	11.8	12.2	13.5
Benchmark return	-2.8	0.6	14.4	13.1	15.7
Difference in (%):					
Gross and benchmark returns	1.3	0.0	-0.2	1.2	0.1
Net and benchmark returns	-0.4	-1.9	-2.6	-0.9	-2.2
Gross and net returns	1.7	1.9	2.4	2.1	2.3
Number of entities	36	36	36	36	36
Public sector					
Average (%):					
Gross return	-3.0	0.3	14.0	14.4	16.1
Expenses	0.6	0.7	1.7	1.9	2.3
Taxes	0.0	0.4	0.8	0.8	1.0
Net return	-3.6	-0.8	11.5	11.7	12.8
Benchmark return	-5.0	-0.9	15.0	12.4	16.0
Difference in (%):					
Gross and benchmark returns	2.1	1.2	-1.0	2.0	0.1
Net and benchmark returns	1.4	0.1	-3.5	-0.7	-3.2
Gross and net returns	0.6	1.1	2.5	2.7	3.3
Number of entities	6	6	6	6	6
Retail					
Average (%):					
Gross return	-5.7	-0.7	12.7	13.0	14.1
Expenses	0.7	0.7	0.8	0.7	0.8
Taxes	-0.1	0.0	0.3	0.4	0.4
Net return	-6.3	-1.3	11.5	11.8	12.9
Benchmark return	-3.7	0.4	15.6	14.6	15.4
Difference in (%):					
Gross and benchmark returns	-2.0	-1.1	-2.9	-1.7	-1.3
Net and benchmark returns	-2.6	-1.7	-4.1	-2.8	-2.5
Gross and net returns	0.6	0.7	1.2	1.2	1.2
Number of entities	19	19	19	19	19

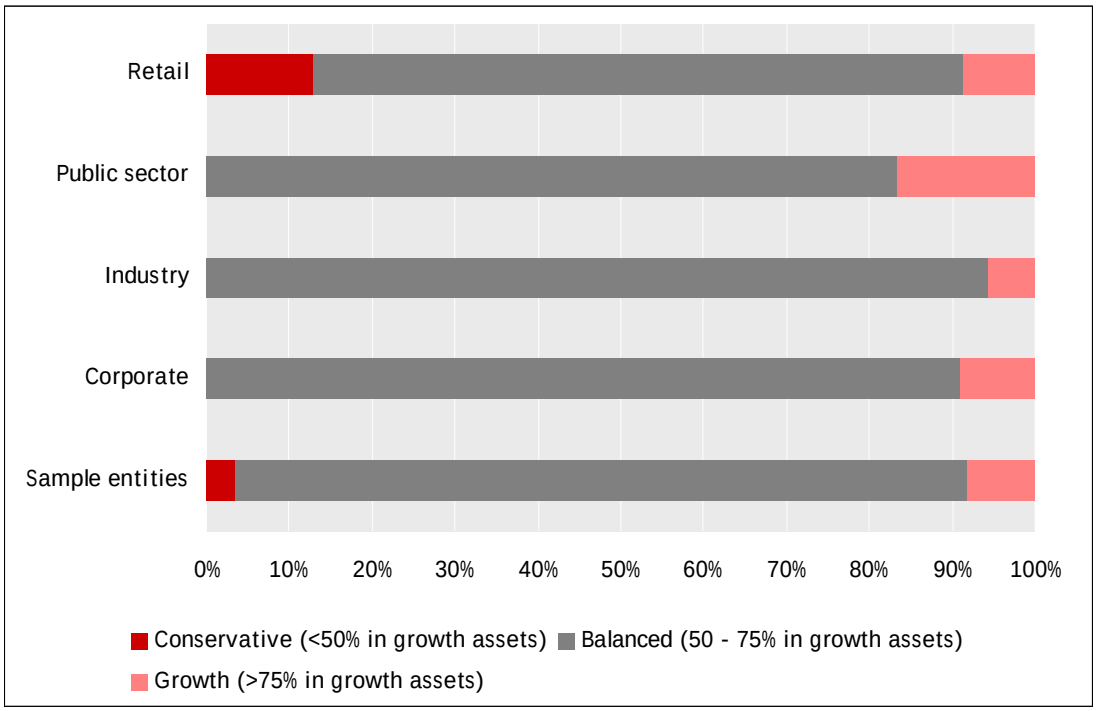
APPENDIX 6: PERFORMANCE OF THE TOTAL FUND

We also collected asset allocation and investment performance data for the fund as a whole, and it is useful to compare our results for the default investment option to performance for the whole fund.

First, Figure A1 summarises the asset allocation of the total fund, by categorising the asset allocation as conservative, balanced or growth. Overall, 88.5 per cent of all funds have a balanced asset allocation across all investment options, and only 3.5 per cent are conservative. The conservative funds are all retail funds, comprising 13 per cent of the retail sample. Thus it will be important to control for asset allocation when comparing returns.

Figure A1: Asset allocation styles for the total fund

July 2001 – June 2006



The returns for the total fund show a similar pattern to the default option. The benchmark return for public sector funds is statistically significantly different to other fund types (t=-3.66), though this is unreliable given the small sample size. Industry funds significantly out-perform their benchmark on a gross return basis (t=2.85), while the gross returns of retail funds statistically significantly under-perform their benchmarks (t=-4.72).

Table A8: Benchmark returns, returns taxes and expenses for the whole fund

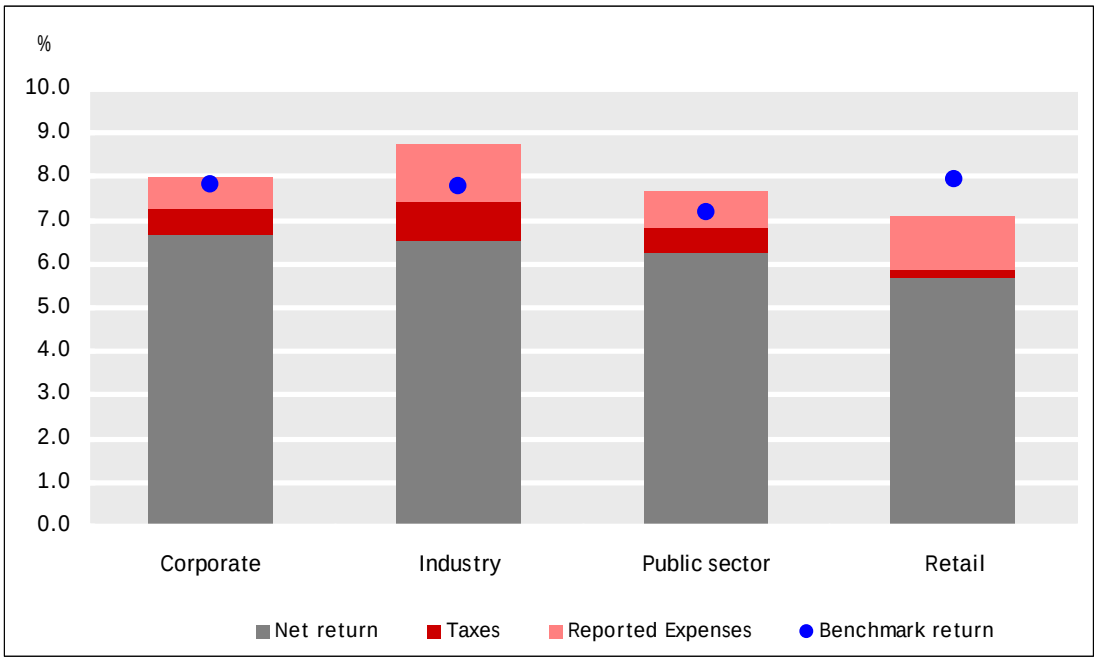
	Sample Entities	Corporate	Industry	Public sector	Retail
All entities					
Average (%):					
Gross return	8.0	8.0	8.7	7.6	7.1
Expenses	1.1	0.7	1.3	0.8	1.2
Taxes	0.6	0.6	0.9	0.6	0.2
Net return	6.3	6.7	6.5	6.3	5.7
Benchmark return	7.8	7.8	7.8	7.2	7.9
Difference in (%):					
Gross and benchmark returns	0.3	0.2	0.9	0.4	-0.8
Net and benchmark returns	-1.5	-1.1	-1.3	-0.9	-2.3
Gross and net returns	1.7	1.3	2.2	1.4	1.4
Number of entities	87	22	36	6	23

t statistic for sample entities versus fund type		Corporate	Industry	Public sector	Retail
Benchmark return	*t-statistic*	0.15	0.00	-3.66	0.69
	p-value	0.88	1.00	0.00	0.50
Gross return	*t-statistic*	-0.20	2.70	-1.02	-3.59
	p-value	0.84	0.01	0.33	0.00
Gross - Benchmark	*t-statistic*	-0.35	2.85	0.26	-4.72
	p-value	0.73	0.01	0.79	0.00
Net return	*t-statistic*	1.36	0.73	-0.19	-2.24
	p-value	0.18	0.47	0.85	0.03
Net - Benchmark	*t-statistic*	1.30	0.79	1.51	-3.25
	p-value	0.20	0.44	0.16	0.00

After including expenses and taxes, the under-performance of retail funds on the total fund level relative to their benchmark is significantly lower than the relative performance of other fund types relative to their benchmark returns (t=-3.25). The performance of all other fund types relative to their benchmark is not significantly different.

Thus, when all investment options are included, retail funds have the lowest performance relative to their benchmark (see Figure A2). This suggests that the impact of investment manager skill, expenses and taxes may be as strong for non-default investment options as for default investment options.

Figure A2: Benchmark returns, expenses, fees and net returns for the total fund



APPENDIX 7: SUPERANNUATION INVESTMENT PERFORMANCE SURVEY

Under the auspices of the Council of Financial Regulators, APRA has undertaken a research project to analyse the investment performance, conduct of trustee duties and the business relationships of large Australian superannuation funds. Two surveys were developed: The trustee governance survey and superannuation performance survey. The findings of the first survey, which examines superannuation fund governance, are reported in a separate article, APRA (2008). The superannuation performance survey forms the basis of the present article.

The questionnaires were initially developed with input from the industry. They were tested and updated following the analysis of a pilot questionnaire of 15 funds conducted in 2005. The questionnaires were subsequently redesigned with further industry input and comments from the Australian Treasury. They were then checked in consultation with various industry representative bodies and other government agencies in 2006.

A sample blank copy of the superannuation performance questionnaire is included in this appendix.

Australian Prudential Regulation Authority

Superannuation Investment Performance Survey
Data Submission Instructions

All information provided will remain strictly confidential and, consistent with APRA's statutory obligations, will not be disclosed or made available to parties outside of APRA, Treasury, the Reserve Bank of Australia or the Australian Securities and Investments Commission on a basis that allows identification of individual entities or persons.

There are 9 tables in separate worksheets (with grey tabs).

Table 1: General Information
Table 2: Asset Allocation of Option
Table 3: Asset Allocation of Total Fund
Table 4: Financial Performance of Option
Table 5: Financial Performance of Fund
Table 6: Representative Investor A
Table 7: Representative Investor B
Table 8: Unit Price / Crediting Rate
Table 9: Data Comments

Table 1 must be filled in completely. Quarterly data is required for Tables 2 and 3, annual data is required for Tables 4 to 7 and monthly data is required for Table 8. The worksheet for Table 9 named "Data Comments" is optional and is there for you to make any comments, which you feel are necessary to clarify the data submission.

It is important that you understand that this workbook has the sole purpose of data collection, much like a set of forms. We would appreciate if you

Do not add or remove worksheets

Do not add or remove rows and columns in each worksheet

Do not rename worksheets

Do not rename labels of the tables

Do not make any notes or comments in the data worksheets; please use the "Data Comments" worksheet.

Do not indicate that you are unable to provide the data requested in certain places; please simply leave the cell(s) blank

Please confine yourself to entering data in the coloured cells, which are unprotected.

If you need to do calculations with your input, please create your own separate workbook for the purpose, by copying table structures from this submission workbook, if necessary. You may copy and paste your final results into each data submission table, using "Paste Special..." and selecting "Values". It is important that you enter ONLY VALUES into the cells, because formula and macro links may be broken, when you send this data workbook.

Before your data submission can be accepted, you are required to validate the data using a Visual Basic "Add-In" program supplied with this workbook. The data validation consists of procedures, applied in order, to check that

Structural integrity of the workbook has not been compromised (eg data tables have designated labels and are in the expected locations).

Sufficent data has been submitted.

Data types are correct: blue cells are expected to have numeric data, whereas yellow cells can have text or numeric data.

Numerical data is internally consistent, in correct units, and satisfies certain equations, as required.

Redundant data, built-in for data validation purposes, is consistent.

While we require that you submit all the data we have asked for, there may be circumstances where it is inappropriate for you to do so. In such cases, you must contact us (see below) and we may permit a reduced submission and adjust the data validation requirements. At the very least, we require you to submit one of the following MINIMUM sets of data tables:

Minimum Set 1	Minimum Set 2
Table 1: General Information	**Table 1: General Information**
Table 2: Asset Allocation of Option	**Table 3: Asset Allocation of Total Fund**
Table 4: Financial Performance of Option	**Table 5: Financial Performance of Fund**
Table 6: Representative Investor A	**Table 6: Representative Investor A**

Please provide data for every year your fund was in operation to 30 June 2005. If you are uanble to provide data for at least the last 3 years please leave the partcular data sheet blank. Do not attempt to delete or rename the unfilled worksheet. Please make any comments you need to make in the "Data Comments" sheet provided.

To validate your data using the "Add-In" supplied with this workbook, you need to make sure that:

The "Add-In" program, SurveyDataValidation.xla is in the same directory as this workbook, and

You have enabled the use of add-ins. If you have not already done so, go to Tools, Macros, Security and in the "Trusted Sources" tab, select "Trust all installed add-ins and templates".

You are expected to take any necessary action to amend your submission until the data has been validated. Once this is completed, an email with a copy of this workbook file as an attachment will be automatically created for you to send. Select "OK" or "Yes" to any pop up internet security dialog seeking your permission to send. Should you proceed, a record of your email can be found in the "Sent Items" folder of your Email program and you will be sent an email receipt acknowledging your submission to APRA within 1 to 3 days. If you deny permission to send, the submission will not be sent.

Should you have any difficulties with this submission, relating to either data issues or technology issues, please contact one of the following

Dr Wilson Sy, Principal Researcher
Wilson.Sy@apra.gov.au
(02) 9210 3507

Mr Christopher Inman, Research Analyst
Chris.Inman@apra.gov.au
(02) 9210 3577

TABLE 1 - GENERAL INFORMATION

Superannuation fund name:	
Contact person name for this submission:	
Contact person phone number:	
Contact person email address:	
Australian Business Number (ABN):	
Number of financial years the fund has reported to APRA:	
Current total asset of the fund (thousands of dollars):	
Current number of fund members:	

For which of the following tables are you submitting data for this survey?

General Information	
Asset Allocation of Option	
Asset Allocation of Total Fund	
Financial Performance of Option	
Financial Performance of Fund	
Representative Investor A	
Representative Investor B	
Unit Price - Crediting Rate	
Data Comments	

TABLE 2 - ASSET ALLOCATION of the DEFAULT INVESTMENT OPTION*

Name of the Investment Option											
Units	Thousands of dollars										
	Cash Instruments	Australian Fixed Interest	International Fixed Interest (unhedged)	International Fixed Interest (hedged)	Australian Listed Equities	International Listed Equities (unhedged)	International Listed Equities (hedged)	Australian Listed Property	Australian Direct Property	Other (incl hedge funds, unlisted equities etc.)	Total Investments
30-Jun-2001											
30-Sep-2001											
31-Dec-2001											
31-Mar-2002											
30-Jun-2002											
30-Sep-2002											
31-Dec-2002											
31-Mar-2003											
30-Jun-2003											
30-Sep-2003											
31-Dec-2003											
31-Mar-2004											
30-Jun-2004											
30-Sep-2004											
31-Dec-2004											
31-Mar-2005											
30-Jun-2005											
30-Sep-2005											
31-Dec-2005											
31-Mar-2006											
30-Jun-2006											

Explanatory Notes
Please submit quarterly data for the major asset classes (in thousands of dollars). The values should be taken at quarter end (last trading day of the month). Holdings in unit trusts should be disaggregated if necessary and placed in the most appropriate columns.
The investment option selected for data provision should be the same throughout this submission (that is for Tables 1, 2, 4, 6, 7 and 8).
*If there is no single default option, select the investment option with largest assets.
When referring to "hedged", it refers to currency hedged.
Total Investments should be the summation of the preceding columns for the specified year.

TABLE 3 - ASSET ALLOCATION of the TOTAL FUND

Units	Thousands of dollars										
	Cash Instruments	Australian Fixed Interest	International Fixed Interest (unhedged)	International Fixed Interest (hedged)	Australian Listed Equities	International Listed Equities (unhedged)	International Listed Equities (hedged)	Australian Listed Property	Australian Direct Property	Other (incl hedge funds, unlisted equities etc.)	Total Assets
30-Jun-2001											
30-Sep-2001											
31-Dec-2001											
31-Mar-2002											
30-Jun-2002											
30-Sep-2002											
31-Dec-2002											
31-Mar-2003											
30-Jun-2003											
30-Sep-2003											
31-Dec-2003											
31-Mar-2004											
30-Jun-2004											
30-Sep-2004											
31-Dec-2004											
31-Mar-2005											
30-Jun-2005											
30-Sep-2005											
31-Dec-2005											
31-Mar-2006											
30-Jun-2006											

Explanatory Notes
Please submit quarterly data for the major asset classes (in thousands of dollars). The values should be taken at quarter end (last trading day of the month).
The total fund refers to the Superannuation Fund offerring the investment option.

TABLE 4 - FINANCIAL PERFORMANCE of the INVESTMENT OPTION								
Name of the Investment Option								
Units	Thousands of dollars							
Financial Year Ending	Total Assets at the Start of the Period	Gross Investment Earnings	Total Expenses	Investment Taxes	Net Investment Earnings	Net Inflow	Change in Reserves	Total Assets at the End of the Period
30-Jun-2002								
30-Jun-2003								
30-Jun-2004								
30-Jun-2005								
30-Jun-2006								

	Explanatory Notes		
Gross Investment Earnings	Includes realised and unrealised capital gains, dividends, rent, interest and all other investment income before investment and adminstration expenses and before taxes. (excludes inflows and outflows due to contributions and insurance payments and receipts). Referring to APRA annual returns form SRF 200.0, Gross Investment Earning		
	=	Item 10.7	Investment income/distributions after doubtful debt expense
	+	Item 11.3	Total foreign exchange gains/losses (realised and unrealised)
	+	Item 12.11	Total gains/losses on investments (unrealised)
	+	Item 12.11	Total gains/losses on investments (realised)
	+	Item 13.4	Total fees and commission earned by the the fund (eg script lending, underwriting etc.)
	+	Item 14.1	Total other investment income
	+	Item 15.1	Total other income
Total Expenses	Includes all investment and administration expenses. Include expenses associated with investment management, custodians, asset consultants, adminstrators, actuarial services, trustee directors and other operating expenses. Excludes insurance related expenses, benefit payments etc. Referring to APRA annual returns form SRF 200.0, Total Expenses		
	=	Item 17.6	Total investment expenses
	+	Item 18.8	Total operating expenses
Investment Taxes	Taxes paid in relation to investment income, net of rebates, franking and other tax credits. Referring to APRA annual returns form SRF 200.0, Investment Taxes		
	=	Item 20	Tax expense on net operating performance
Net Investment Earnings	**= Gross Investment Earning - Total Expenses - Investment Taxes**		
Net Inflow	Net (non-investment) inflows. Includes all contributions, benefits paid, rollovers, proceeds from insurance policies etc. It is essentially net cashflow, not directly related to investment performance. Please note this quantity should be net of contribution taxes and the tax surcharge. Referring to APRA annual returns form SRF 200.0, Net Inflow		
	=	Item 1.5	Total contributions
	+	Item 2.3	Net rollovers
	-	Item 4.3	Total contribution tax and surcharge
	-	Item 5.11	Total benefit payments
	+	Item 6.3	Total proceeds on insurance policies
	-	Item 9	Net cost of member benefit insurance
Change in Reserves	Refers to changes in reserves that are used to smooth investment earnings. Referring to APRA annual returns form SRF 210.0, Change in Reserves		
	=	Item 14.4	Reserves closing balance
	-	Item 14.1	Reserves opening balance
Total Assets	Referring to APRA annual returns form SRF 210.0, Total Assets		
	=	Item 5	Total assets
Total Assets at the End of the Period	**= Total Assets at the Start of the Period + Net Investment Earnings + Net Inflow**		

TABLE 5 - FINANCIAL PERFORMANCE of the TOTAL FUND

Units	Thousands of dollars							
Financial Year Ending	Total Assets at the Start of the Period	Gross Investment Earning	Total Expenses	Investment Taxes	Net Investment Earning	Net Inflow	Change in Reserves	Total Assets at the End of the Period
30-Jun-2002								
30-Jun-2003								
30-Jun-2004								
30-Jun-2005								
30-Jun-2006								

	Explanatory Notes		
Gross Investment Earnings	Includes realised and unrealised capital gains, dividends, rent, interest and all other investment income before investment and adminstration expenses and before taxes. (excludes inflows and outflows due to contributions and insurance payments and receipts). Referring to APRA annual returns form SRF 200.0, Gross Investment Earning		
	=	Item 10.7	Investment income/distributions after doubtful debt expense
	+	Item 11.3	Total foreign exchange gains/losses (realised and unrealised)
	+	Item 12.11	Total gains/losses on investments (unrealised)
	+	Item 12.11	Total gains/losses on investments (realised)
	+	Item 13.4	Total fees and commission earned by the the fund (eg script lending, underwriting etc.)
	+	Item 14.1	Total other investment income
	+	Item 15.1	Total other income
Total Expenses	Includes all investment and administration expenses. Include expenses associated with investment management, custodians, asset consultants, adminstrators, actuarial services, trustee directors and other operating expenses. Excludes insurance related expenses, benefit payments etc. Referring to APRA annual returns form SRF 200.0, Total Expenses		
	=	Item 17.6	Total investment expenses
	+	Item 18.8	Total operating expenses
Investment Taxes	Taxes paid in relation to investment income, net of rebates, franking and other tax credits. Referring to APRA annual returns form SRF 200.0, Investment Taxes		
	=	Item 20	Tax expense on net operating performance
Net Investment Earnings	**= Gross Investment Earning - Total Expenses - Investment Taxes**		
Net Inflow	Net (non-investment) inflows. Includes all contributions, benefits paid, rollovers, proceeds from insurance policies etc. It is essentially net cashflow, not directly related to investment performance. Please note this quantity should be net of contribution taxes and the tax surcharge. Referring to APRA annual returns form SRF 200.0, Net Inflow		
	=	Item 1.5	Total contributions
	+	Item 2.3	Net rollovers
	-	Item 4.3	Total contribution tax and surcharge
	-	Item 5.11	Total benefit payments
	+	Item 6.3	Total proceeds on insurance policies
	-	Item 9	Net cost of member benefit insurance
Change in Reserves	Refers to changes in reserves that are used to smooth investment earnings. Referring to APRA annual returns form SRF 210.0, Change in Reserves		
	=	Item 14.4	Reserves closing balance
	-	Item 14.1	Reserves opening balance
Total Assets	Referring to APRA annual returns form SRF 210.0, Total Assets		
	=	Item 5	Total assets
Total Assets at the End of the Period	**= Total Assets at the Start of the Period + Net Investment Earnings + Net Inflow**		

TABLE 6 - REPRESENTATIVE INVESTOR "A"

Representative Investor "A" is an individual, retail investor, who has invested in the Investment Option of the fund.

Name of Investment Option		
Units	dollars	
Representative Investor "A"		
Starting Date Balance	30-Jun-2001	$50,000
Annual Contributions	Paid at the beginning of each subsequent year	$5,000
Insurance	Assume no insurance is provided	0%
Taxes	Assume zero taxes on contributions	0%

Fee Estimates/Assumptions		
Fee Type	Value Used	
	% of Balance	Dollar
Entry Fee	0.0000	$0
Annual Planner Fee	0.0000	$0
Annual Administration Fee	0.0000	$0
Other Fees	0.0000	$0
Cash Management Account	0.0000	$0

Please note this table must be completely filled; put a zero where the fee does not apply.

Item	Explanatory Notes
Entry Fee	If most members enter the fund through a financial planner, then assume this member enters through a financial planner and apply the average origination fee.
Annual Planner Fee	If a planner is used, then apply the average ongoing fee at each year end.
Annual Administration Fee	Apply the average annual administration fee for investors matching the criteria of the Representative Investor.
Other Fees	If any other fees are applied (eg dollar per week or investment management fees which are not reported as Administration Fees), then assume the average fee appropriate to the representative investor.
Cash Management Account	If your fund requires a cash management account (from which fees are deducted), please report the fee charged on an average balance of the cash management account (for the representative investor) and average cost (%) to the representative investor on the average balance. Assume the cash managament account is additional to the starting balance.

Date	Opening Balance	Contribution	Earning/Crediting	Other Expenses	Closing Balance	Exit Balance
30-Jun-2001	$50,000	$0				
30-Jun-2002		$5,000		$0		
30-Jun-2003		$5,000		$0		
30-Jun-2004		$5,000		$0		
30-Jun-2005		$5,000		$0		
30-Jun-2006		$0		$0		

Item	Explanatory Notes
Date	For the first row, the date refers to the date the investor first joined the fund and the difference between opening balance and closing balance is essentially the entry fee. For subsequent rows the date is the end date of the period, which is a financial year.
Opening Balance	The Opening Balance should equal the closing balance of the prior period.
Contribution	Contribution is made at the beginning of the financial year.
Earning/Crediting	Earning in a unitised fund is the sum of capital gains in the unit price and any re-invested distributions from the fund, where capital gains are calculated using the redemption unit price. For a non-unitised fund, crediting refers to the appreciation in the account balance at the declared crediting rate.
Other Expenses	Fees that are not accounted for in the unit price nor charged through redemption or cancellation of units.
Closing Balance	The closing balance of each period is assumed to be net of all fees, charges and taxes, but excludes the exit fee (if there is one). **= Opening Balance + Contribution + Earning/Crediting - Other Expenses**
Exit Balance	The exit balance calculates the amount that the member would receive upon exit, net of any exit fee, bid/ask spread, or similar impost.

TABLE 7 - REPRESENTATIVE INVESTOR "B"

Representative Investor "B" is an employee of a corporate entity who has invested in the chosen option through an employer master trust.

Name of Investment Option		
Units	dollars	
Representative Investor "B"		
Starting Date Balance	30-Jun-2001	$50,000
Annual Contributions	Paid at the beginning of each subsequent year	$5,000
Insurance	Assume no insurance is provided	0%
Taxes	Assume zero taxes on contributions	0%

Fee Estimates/Assumptions		
Fee Type	**Value Used**	
	% of Balance	**Dollar**
Entry Fee	0.0000	$0
Annual Planner Fee	0.0000	$0
Annual Administration Fee	0.0000	$0
Other Fees	0.0000	$0
Cash Management Account	0.0000	$0
Please note this table must be completely filled; put a zero where the fee does not apply.		

Item	**Explanatory Notes**
Entry Fee	If most members enter the fund through a financial planner, then assume this member enters through a financial planner and apply the average origination fee.
Annual Planner Fee	If a planner is used, then apply the average ongoing fee at each year end.
Annual Administration Fee	Apply the average annual administration fee for investors matching the criteria of the Representative Investor.
Other Fees	If any other fees are applied (eg dollar per week or investment management fees which are not reported as Administration Fees), then assume the average fee appropriate to the representative investor.
Cash Management Account	If your fund requires a cash management account (from which fees are deducted), please report the fee charged on average balance of the cash management account (for the representative investor) and average cost (%) to the representative investor on the average balance. Assume the cash managament account is additional to the starting balance.

Date	**Opening Balance**	**Contribution**	**Earning/Crediting**	**Other Expenses**	**Closing Balance**	**Exit Balance**
30-Jun-2001	**$50,000**	**$0**				
30-Jun-2002		**$5,000**				
30-Jun-2003		**$5,000**				
30-Jun-2004		**$5,000**				
30-Jun-2005		**$5,000**				
30-Jun-2006		**$0**				

Item	**Explanatory Notes**
Date	For the first row, the date refers to the date the investor first joined the fund and the difference between opening balance and closing balance is essentially the entry fee. For subsequent rows the date is the end date of the period, which is a financial year.
Opening Balance	The Opening Balance should equal the closing balance of the prior period.
Contribution	Contribution is made at the beginning of the financial year.
Earning/Crediting	Earning in a unitised fund is the sum of capital gains in the unit price and any re-invested distributions from the fund, where capital gains are calculated using the redemption unit price. For a non-unitised fund, crediting refers to the appreciation in the account balance at the declared crediting rate.
Other Expenses	Fees that are not accounted for in the unit price nor charged through redemption or cancellation of units.
Closing Balance	The closing balance of each period is assumed to be net of all fees, charges and taxes, but excludes the exit fee (if there is one). **= Opening Balance + Contribution + Earning/Crediting - Other Expenses**
Exit Balance	The exit balance calculates the amount that the member would receive upon exit, net of any exit fee, bid/ask spread, or similar impost.

TABLE 8 - UNIT PRICE (or CREDITING RATE) HISTORY of the INVESTMENT OPTION

Name of the Investment Option			
	Application Price	Redemption Price	Monthly Crediting Rate (%)
30-Jun-2001			
31-Jul-2001			
31-Aug-2001			
30-Sep-2001			
31-Oct-2001			
30-Nov-2001			
31-Dec-2001			
31-Jan-2002			
28-Feb-2002			
31-Mar-2002			
30-Apr-2002			
31-May-2002			
30-Jun-2002			
31-Jul-2002			
31-Aug-2002			
30-Sep-2002			
31-Oct-2002			
30-Nov-2002			
31-Dec-2002			
31-Jan-2003			
28-Feb-2003			
31-Mar-2003			
30-Apr-2003			
31-May-2003			
30-Jun-2003			
31-Jul-2003			
31-Aug-2003			
30-Sep-2003			
31-Oct-2003			
30-Nov-2003			
31-Dec-2003			
31-Jan-2004			
29-Feb-2004			
31-Mar-2004			
30-Apr-2004			
31-May-2004			
30-Jun-2004			
31-Jul-2004			
31-Aug-2004			
30-Sep-2004			
31-Oct-2004			
30-Nov-2004			
31-Dec-2004			
31-Jan-2005			
28-Feb-2005			
31-Mar-2005			
30-Apr-2005			
31-May-2005			
30-Jun-2005			
31-Jul-2005			
31-Aug-2005			
30-Sep-2005			
31-Oct-2005			
30-Nov-2005			
31-Dec-2005			
31-Jan-2006			
28-Feb-2006			
31-Mar-2006			
30-Apr-2006			
31-May-2006			
30-Jun-2006			

Explanatory Notes:

Please submit monthly unit prices (or crediting rates) for the investment option.

Telephone
1300 13 10 60

Email
contactapra@apra.gov.au

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www.apra.gov.au

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GPO Box 9836
in all capital cities
(except Hobart and Darwin)

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