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Niblock, S., Sinnewe, E., & Heng, P. (2017). A review of superannuation fund performance studies: empirical evidence from Australia – 2000 to 2014. *Accounting Research Journal*, 30(2), 224–240.

<https://doi.org/10.1108/ARJ-03-2015-0026>

Document Version: Accepted

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Published Version: <https://doi.org/10.1108/ARJ-03-2015-0026>

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# **A review of superannuation fund performance studies: Empirical evidence from Australia - 2000 to 2014**

## **Abstract**

**Purpose:** The purpose of this paper is to showcase empirical findings in the literature relating to Australian superannuation fund performance in the pre-reform period, from 2000 to 2014.

**Design/methodology/approach:** We synthesize Australian superannuation performance studies in an attempt to identify empirical approaches employed in the academic literature, showcase findings and uncover themes for future research.

**Originality/value:** It is expected that superannuation fund performance will be subject to heightened scrutiny to assess the effectiveness of recent legislative changes resulting from the Stronger Super reform and other public inquiries. This study provides a timely, substantive and informative review of empirical findings pertaining to Australian superannuation performance in the pre-reform period to assist researchers looking to conduct further empirical research on this topic.

**Findings:** The review highlights the following findings in the literature: 1) actively managed ‘retail’ superannuation funds appear to underperform passive index and/or portfolio approaches; 2) high management fees and preference for liquid, less growth-orientated assets may be further undermining performance. It also reveals the need for future research to assess whether the recent government inquiries and the related reformative measures have achieved the desired effect of improving the Australian superannuation system. We therefore identify three areas of investigation that will cater for this research need: (1) the fund performance of not-for-profit fund and SMSFs; (2) the efficiency of super funds; and (3) the appropriateness of wholesale fund benchmarks. **Key words:** Australia, funds, fund management, fund performance, superannuation.

**Paper classification:** Literature review

## 1 Introduction

Like many pension systems around the world, the Australian superannuation system aims to meet basic retirement needs, simplify investment choices, and promote economic growth. Since the introduction of the compulsory superannuation scheme in 1992, Australian retirement savings have grown significantly with compulsory superannuation contributions representing an increasingly large proportion of funds under management. The scheme has also successfully channelled large amounts of savings into the economy, enabling the investment community to raise much needed capital (Liu, 2013).

Australian superannuation fund performance is a subject of national interest, as evident from several government inquiries (e.g., the Cooper Super System Review, the Default Super Review of the Productivity Commission, the Murray Financial System Inquiry, etc.). However, empirical evidence pertaining to superannuation fund performance remains limited. Although Allen, Brailsford, Bird and Faff (2003) reviewed the academic literature on fund performance persistence in the UK, the US and Australia; similar studies have not been undertaken since in the Australian context. In addition, the Allen et al. (2003) review only includes one empirical study that explicitly examines superannuation fund performance. Due to the economic significance and ever changing dynamics of superannuation, a greater understanding of fund performance is required. Thus, an opportunity to provide a review of the recent literature presents.

The aim of our paper is to review empirical research pertaining to Australian superannuation fund performance from 2000 to 2014.<sup>1</sup> Specifically, we attempt to identify empirical approaches employed in the literature, showcase findings and uncover avenues for future research. The study provides a timely, substantive and informative review of the academic literature and may assist researchers looking to assess the effectiveness of the recent legislative changes (Stronger Super

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<sup>1</sup> The recent government inquiries are mainly based upon submissions by independent industry research bodies such as SuperRatings and Rice-Warner, which employ relative nominal fund performance measures. Our review therefore allows us to complement this body of research.

Reform) and recommended changes (Default Super Review and the Murray Financial System Inquiry).

In order to understand superannuation performance, Section 2 of this paper introduces the superannuation context in Australia. With a market capitalization of AUD \$2 trillion, compulsory superannuation is an important pillar of the Australian retirement system (APRA, 2015). However, the lack of accountability, comparability, and transparency discovered within superannuation funds has been questioned most notably in the Cooper Super System Review (2010), which resulted in the implementation of the Stronger Super Reform. One of the regulatory reforms under the Strong Super Reform umbrella is the ‘*MySuper*’ initiative, which was established to address these issues by imposing obligations on fund providers to reconfigure their default investment strategies in accordance with new regulatory requirements. Notwithstanding these policy reforms, high superannuation fees, low financial literacy, lack of member participation in growing retirement savings, and low fund performance compared to international counterparts still remain.

Section 3 provides a synoptic account of the empirical superannuation fund performance literature. Of the 50+ studies written on superannuation since 2000, we identify 17 that empirically examine the investment performance of superannuation funds.<sup>2</sup> While the majority of these studies use data for retail superannuation funds, studies in later years increasingly provide insights into the performance of not-for-profit funds. Similarly, there is a notable shift over time from examining pure equity funds to multi-sector funds with an emphasis on default ‘balanced’ investment strategies. Although these studies share a common theme, they differ in terms of time period, data source, fund type, sample size, and performance measure employed. Yet, despite these differences, they seem to reach similar conclusions. Namely, actively managed ‘retail’ superannuation funds underperform passive index and/or portfolio approaches, and that

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<sup>2</sup> This sample excludes studies that simulate targeted wealth outcomes.

high management fees and preference for liquid, less growth-orientated assets may be undermining this performance despite recent policy reforms.

Section 4 presents directions for future empirical superannuation performance research. Areas such as not-for-profit and small fund performance, along with the application of alternative methodological approaches and benchmark index appropriateness, remain under-researched in Australia. Section 5 summarizes key findings and questions the management of Australian superannuation funds.

## **2 Overview of the Australian superannuation industry**

Australia's multi-pillar pension system consisting of the age pension, mandatory superannuation guarantee scheme, and other long-term private savings is one of the leading pension systems in the world, ranking second only to Denmark (Mercer, 2013). In particular, the existence of privately managed occupational pension funds (superannuation funds) is believed to be a cornerstone of the national economic blueprint for funding Australians' well-being in retirement (Sy and Liu, 2009). With a market capitalization of AUD \$2 trillion and almost 90 percent of the working population covered by superannuation in 2013, Australia has become one of the highest coverage of private pension countries in the world (APRA, 2015; ABS, 2012, p. 98; OECD, 2013, p. 91).

In contrast to pension funding in the United States, the compulsory superannuation guarantee scheme introduced by the Keating government in 1992 requires employers to pay a proportion of their employees' wages into a superannuation fund (Drew and Stanford, 2001). The superannuation funds industry itself is legislated by the Superannuation Industry (Supervision) Act 1993, which replaced the Occupational Superannuation Standard Act of 1987, requiring fund trustees to adopt investment strategies in the best interests of their members (section 52[f]). At present, the scheme requires employers to contribute a minimum of 9.5 percent on top of their

employees' salaries/wages, with this rate expected to increase gradually to 12 percent by 2025 (Keegan *et al.*, 2013, p. 9).

Since induction of the scheme, superannuation assets under management (AUM) have quadrupled from approximately AUD \$480 billion in 1992 to AUD \$2 trillion in September 2015 (APRA, 2015).. This rise of superannuation assets directly contributes to Australia's economic growth by stimulating domestic and international capital market investments, the banking sector, and infrastructure spending (RBA, 2014).

APRA (2015) statistics cluster the superannuation funds industry into four main fund types (with >4 member): (1) public sector funds; (2) corporate funds; (3) industry funds; and (4) retail funds. The most common type of small superannuation funds (i.e. <4 members) is the self-managed fund (SMSF), which is regulated by the ATO (APRA, 2015). Except for retail funds, all superannuation funds are structured as not-for-profit. Table 1 below illustrates specific details of the superannuation funds industry. By September 2015, SMSFs and retail funds have become the first and second largest funds, respectively. Both fund types combined account for 62 percent of the total superannuation AUM. 49% percent of total superannuation AUM (AUD \$650 billion) are invested in Equities, being the largest contributor to managed funds (APRA, 2015).<sup>3</sup> Notably, SMSFs have grown at an impressive rate, increasing from less than AUD \$143 billion in September 2004 to over AUD \$576 billion in September 2015 (APRA, 2004; APRA, 2015).

*Table 1 here*

Over the past twenty years, the superannuation industry has shifted from single-employer defined benefit funds, in which retirement wealth is 'promised' or known *a priori*, to defined contribution funds, where members bear all the systematic risks associated with financial market investments (Chant, Mohankumar and Warren, 2014). Thus, the superannuation scheme operates

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<sup>3</sup> This 49 percent asset allocation in investment capital and private equities is notably higher than the OECD average of 14 percent (OECD, 2013).

under the implicit assumption that members bear an active interest in managing their retirement savings. Yet, over 80 percent of the working population do *not* actively manage their super, with most of these accounts falling under default ‘balanced’ investment options (Iskra, 2012).<sup>4</sup>

This could be due to system complexity and/or members’ lack of financial literacy/awareness (Cooper, 2010). Following concerns over these issues and the losses experienced in the aftermath of the GFC<sup>5</sup>, a major review of the management and performance of superannuation accounts was commissioned (Ahmadi Pirshahid, Kaidonis and Rudkin, 2013).<sup>6</sup> Amongst other initiatives such as *SuperStream* and measures aimed at SMSFs and governance-related issues, the Cooper Review (2010) endorsed a cost effective product called *MySuper* in recognition of the limitation of default options relative to individual investors’ circumstances and the high level of management fees and charges incurred across the Australian superannuation industry (Iskra, 2012). By 1 July 2017, trustees are required to transfer all accrued default superannuation amounts to an authorised *MySuper* product (Howard, 2012).

In an examination of the strategic asset allocation of *MySuper* products, Chant *et al.* (2014) find that most *MySuper* providers allocate more than 70 percent of their portfolios to growth assets, exceeding Australian Securities and Investment Commission’s (ASIC’s) recommendation (i.e., 70% growth assets and 30% defensive assets) (Basu and Drew, 2010). In addition, equities are still regarded as the dominant asset class in terms of weighting and influence over performance of Australia’s retirement savings with 27 percent and 25 percent allocated towards domestic shares and international shares, respectively (Chant, Mohankumar and Warren, 2014). *MySuper* portfolios also include a variety of growth asset classes such as infrastructure, private equity, hedge funds, commodities, global growth properties (both listed and unlisted),

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<sup>4</sup> Default investment options differ significantly across fund providers but they are commonly offered in the form of a diversified ‘balanced’ option (Drew and Stanford, 2003).

<sup>5</sup> The industry endured substantial real losses of 26.70 percent in 2008, which was the second worst investment performance of pension funds in comparison with other OECD countries (OECD, 2009).

<sup>6</sup> A short-term financial crisis, like the GFC of 2008/09, should not be taken as a decisive ground to reject the benefits of longer-term superannuation performance (Allen Consulting Group, 2009). Workers accumulate superannuation savings throughout their working life; hence, it is appropriate to appraise the outcome of this form of investment over a similar period (Industry Super Australia, 2014).

international inflation-linked bonds, currency hedging, and other alternative securities (Chant, Mohankumar and Warren, 2014).<sup>7</sup>

It has been yet to be shown whether the *MySuper* initiative will deliver desired retirement savings outcomes, especially since superannuation fund performance to date has largely been unsatisfactory. For example, Long (2010) observes that the annual compounded net return of superannuation funds between 1997 and 2009 was 3.04 percent, which is only just above the inflation rate (2.80%) and lower than bank term deposits (4.50%) during the period. Further, the underperformance by superannuation fund managers could not be attributed solely to the downturn of the Australian stock market since an investment in the All Ordinaries index offered 6.60 percent, on average, during the period; thus, highlighting the impact of poor choices and/or high management fees associated with superannuation investments (Sy, 2011). In fact, Minifie (2014) shows that in an international comparison of superannuation fees Australia comes second only to Mexico (i.e. Australian superannuation fees are the second highest worldwide). The Minifie (2014) report also highlights that superannuation funds with the highest fees exhibit the lowest performance. These findings support the development of efficiency measures in response to the Murray Financial System Inquiry.

Given the economic significance of superannuation investment in Australia and relatively poor results achieved over the last decade, superannuation fund performance has become the focus of a number of empirical academic studies. The findings of these studies are presented in the following section.

### **3 How does the performance of Australian superannuation funds measure up?**

The academic literature on investment performance of superannuation funds spans back to 2000, with only a few studies conducted prior to this (see Allen *et al.* 2003). According to Table 2 below, the data used in these studies date back as early as 1988, with the most recent

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<sup>7</sup> Alternative asset classes are responsible for approximately 20 percent of the growth assets invested in superannuation (Chant, Mohankumar and Warren, 2014).



observations pertaining to 2012. Most studies use monthly data sourced from Morningstar. While a number of studies also employ Australian Prudential Regulatory Authority (APRA) data, the frequency of this data is limited to quarterly and/or annual observations. As mentioned previously, there is a marked shift in fund type studies over time. Early studies focused on retail funds but academic attention is gradually shifting to not-for-profit funds. Further, there is a substantial improvement in data quality since the last review by Allen *et al.* (2003), with 54 percent of all sample studies using data that is free from survivorship bias.

*Table 2 here*

We structure the review of the literature with regards to the performance measurement method used into three main categories: (1) simple performance measures; (2) multifactor benchmark models; and (3) conditional and market timing models. We use this categorisation to structure the discussion of a number of papers within each of these areas.

### 3.1 Simple performance measures

A comprehensive review of large superannuation funds is offered by Ellis *et al.* (2008). Distinguishing between retail and not-for-profit funds (i.e., corporate, industry and public sector funds), Ellis *et al.* examine the differences in net returns between these two groups. Their sample consists of 90 funds, which completed the APRA investment performance survey on 30 June 2006, including quarterly returns from 2001 to 2006. Their findings show that retail funds exhibit significantly lower net returns compared to not-for-profit funds. On face value, discrepancies in asset allocation strategies between these two fund groups appear to have contributed to this result. They also show that a large proportion of retail funds adopt a conservative asset allocation approach. For instance, less than 50 percent of assets are allocated to growth assets in retail funds, while the majority of not-for-profit funds assume a balanced asset allocation position with between 50-75 percent of assets allocated to growth assets. Yet, it

is shown that retail fund underperformance is attributable to embedded expenses and taxes, while explicit expenses for retail funds are at the lower end compared to other fund types.

By contrast, Sy (2010) examines the demographics, performance, and costs of small APRA funds. He finds that the small APRA funds in his sample exhibit a net contribution outflow, which is consistent with the demographic profile of SMSFs, i.e., mostly mature-aged workers with sufficient capital. As the result of small fund investors' preference for Australian shares over other securities, this sector has outperformed large superannuation funds by 0.90 percent on an annual raw return basis, mainly as a result of lower operating expenses. It is assumed that these lower operating costs are driving growth in small superannuation funds.

Even though it appears that asset allocation appears to play a subordinate role to fees in explaining performance differentials, fee variations may exist as a result of asset allocation strategies, such as holding illiquid versus liquid assets. This hypothesis was further investigated by Cummings and Ellis (2011) who observed differences in average holding periods and holdings in illiquid assets (such as unlisted property) between retail and not-for-profit funds. Their results show that not-for-profit funds hold more illiquid assets, on average, than retail funds. Illiquid asset holdings, as well as longer asset holding periods of not-for-profit funds, are shown to be associated with higher risk-adjusted returns but *not* for retail funds. This finding is consistent with the liquidity premia observed in stock markets (Pastor and Stambaugh, 2003), suggesting that an allocation to illiquid assets bears higher risks and therefore, higher returns.

### 3.2 Multi-factor benchmark models

Given that most superannuation funds are diversified across a number of asset classes (i.e., Australian and international shares, property, fixed income, and cash), multi-factor benchmark models such as the ones employed by Elton *et al.* (1996); Gruber (1996), and Malkiel (1995) are assumed to improve estimation of out- or under-performance compared to the capital asset pricing model (CAPM) (Fama and French, 1992; Malkiel and Xu, 1997; Drew and

Veeraraghavan, 2002). Using the Malkiel (1995) model, for example, Drew and Stanford (2001) measure investment managers' risk-adjusted investment performance for a standardised sample of retail funds holding 80 percent of their assets in Australian equities and 20 percent in domestic fixed interest. One improvement of the Malkiel (1995) model over the Gruber (1996) model is that it allows partition of the asset benchmark into a value and growth component.

Employing the ASX Frank Russell Value and Growth indices as benchmarks for value and growth and assuming a management fee of 33 basis points per annum and no entry fees for a passive strategy, Drew and Stanford (2001) show that passive asset selection provides superior risk-adjusted returns compared to high cost active asset selection (with an estimated management fee of 186 basis points and a 4% entry load). In line with the efficient market hypothesis (EMH), several studies (see e.g., Drew *et al.*, 2002; Drew and Stanford, 2003) confirm that a passive approach outperforms active asset management as a result of lower expenses. This is further evidenced in a comparison of wholesale funds with retail funds, in which it is expected that wholesale funds outperform retail funds owing to lower fees as a result of economies of scale. Indeed, Drew and Stanford (2003) shows that retail funds but *not* wholesale funds underperform the multifactor benchmark. This finding provides further support for the claim that higher expenses in the retail fund sector lead to underperformance.

This evidence questions the viability of the heavily populated retail superannuation sector. Yet, the constant supply of fund member contributions seems to allow these funds to persist. Most recently, Basu and Andrews (2014) found that default 'balanced' options (which most fund members end up in as they fail to actively choose their investment style) significantly underperforms their passive asset benchmark as a result of the active management approach taken. Further, the higher expenses in retail funds seem to be unjustified based on the observation that retail fund fees are negatively associated with fund performance. This is in contrast to not-for-profit funds, which generate higher returns with increasing fees.

Yet, where do these higher fees in the retail superannuation fund industry come from? Using quarterly return data for 225 superannuation funds managing 68 percent of superannuation fund assets, Coleman *et al.* (2006) show that complex governance structures underlying these funds lead to agency cost, which in turn cause higher fees. Using annual data provided by APRA from 1996 to 2002, their main finding suggests that agency costs are greater for retail funds as a result of non-representative trustee boards and potential conflicts of interest between board members. This compares to not-for-profit funds which are overseen by representative trustee boards. They further argue that excessive agency costs may result in customer churning and/or related party transactions at non-market rates.

By contrast, Bateman and Thorp (2007) studying delegated investment management in Australian not-for-profit superannuation funds find that more complexity, as a result of investment decentralisation, can lead to higher risk-adjusted returns. Their results show that trustee boards that delegate investment to 13 or more managers perform better than funds with fewer delegates. Yet, none of the funds in their sample outperform a standard-class benchmark index. However, it is unclear to what extent these gains to mandated investment are diluted by the higher expense of engaging and administering large and complex portfolios.

Bilson *et al.* (2005) also employ a multi-factor benchmark model to assess performance persistence also known as ‘hot-hand’ or ‘cold-hand’ phenomenon and compare the results of the Gruber (1996) multi-factor benchmark model with alternative performance measurement methods such as using raw returns and the Carhart (1997) four-factor model. In addition, they partition their sample of 7,355 superannuation funds sourced from the Plan for Life database by investment strategy resulting in two groups: managed growth and managed stable. Performance appears to be persistent over a three-year horizon based on raw returns and the Carhart (1997) four-factor model but only for managed growth funds over the observed sample period of 36 quarters from 1991 to 2000. Performance persistence, however, vanishes under the Gruber (1996) specification suggesting that performance persistence is an artefact of performance model

choice. Additional evidence corroborates that past performance does *not* appear to be indicative of future performance (Drew *et al.*, 2002; Allen *et al.*, 2003).

### 3.3 Conditional and market timing models

As an alternative to using multi-factor benchmark models that compare performance to a hypothetical portfolio of no transaction costs, performance can also be conditional on a number of state variables to explain fund performance. This approach has been pioneered by Ferson and Schadt (1996) in that conditional fund performance relates to a number of public information variables, such as lagged one-month Treasury note yield, lagged dividend yield, lagged slope of the term structure, lagged corporate bond spread, and dummy variables for seasonal effects. These models are usually tested in combination with the Treynor and Mazuy (1966) and Henriksson and Merton (1981) models to test for market timing skill, as well as micro-stock selection skill.

The Treynor and Mazuy (1966) model measures market timing by entering an additional squared term in CAPM, whereas the beta on the squared term measures market timing. The logic behind this approach is that fund managers who can time the market will increase their exposure to systematic risk when market returns are high and decrease their exposure to systematic risk when market returns are expected to be low, which will result in a curvilinear relationship of fund returns with market betas. This implies that if the beta coefficient of the squared term is positive, fund managers exhibit market timing skills. The Henriksson and Merton (1981) model, by contrast, assumes that fund managers have two betas: one for bear markets and one for bull markets. The second beta drops out when the risk-free rate exceeds market returns (i.e., in bear markets) and thus measures the differential performance only when the market outperforms the risk free rate. Thus, if the second beta is significantly positive, managers are assumed to have superior market timing skill.

For example, Langford *et al.* (2006) used the Ferson and Schadt (1996), Treynor and Mazuy (1966), and Henriksson and Merton (1981) models to examine whether the introduction of free superannuation choice (as proxied by a sample of 257 retail funds) compared to no-choice (as proxied by a 47 wholesale funds) situations prior to July 2005 produces better performance for superannuation fund members. The monthly return data was sourced from ASSIRT beginning 1993 until 2005 and compared the performance of balanced/multi-sector retail funds against the investments of major wholesale funds. Their findings show that while fund managers for both types of funds have no market timing skills (regardless of the performance measurement model employed), wholesale funds show stock selection skill in the form of significantly positive alphas in each model specification. They also found that employer-imposed superannuation funds perform better than fund-member chosen superannuation investment vehicles.

This finding echoes the chorus from the multifactor-benchmark studies that retail funds are *not* a good choice due to inferior performance. This stands in contrast to a study conducted by Gallagher (2001), which shows that wholesale funds do *not* exhibit superior stock selection or market timing skill based on a sample consisting of 16 wholesale sample funds provided by Towers Perrin Australia from 1991 to 1998. (Gallagher, 2001, p. 59) concludes that '[w]hile funds are generally more successful in their security selection strategies than market timing, both components of performance do not provide investors with both positive and statistically significant risk-adjusted returns'.

On the other hand, Holmes and Faff (2004) reveal that the verdict on market timing and selection skill of Australian retail funds is mixed. They extend on the standard market timing and stock selection models to investigate inter-period stability, seasonality and market asymmetry. In addition to observing seasonality effects for end of financial year period (i.e., June/July), as well as finding stable performance over time and across different market conditions, their sample of 198 retail funds provides some evidence for the stock selection skill of retail fund managers but also for perverse timing skill.

#### **4 Direction for future Australian superannuation performance research**

From the literature examined here, we identified three main areas of future research that are expected to be fruitful in terms of practical implications, innovative contribution to the research field and taking into consideration feasibility that may be limited due to data access limitations (see Table 3).

*Table 3 here*

While there has been various studies carried out on retail superannuation funds, researchers are becoming increasingly interested in the investment performance of not-for-profit funds. Yet, the descriptive nature of these studies demonstrates that the empirical literature on not-for-profit funds is undeveloped. Evidently, this is because of limited data availability for these funds. For example, none of the multifactor benchmark models or market timing and conditional performance models have been applied to a sample of not-for profit funds. Similarly, it has yet to be shown whether the existence (or non-existence) of performance persistence also applies to the not-for-profit fund sector. In addition, only one study of note has examined the investment performance of small superannuation funds, which is another area of substantial economic importance that is under-researched. We expect that research into the investment strategies of not-for-profit and SMSFs to generate great interest especially in the light of the recommendations issued by the Productivity Commission Inquiry (2012) and the Murray Financial System Review (2014), which are likely to increase competitive pressure for industry superannuation funds. Yet, for comparability it is likely that researchers will adopt research designs that are fairly common limiting any new insights to be gained for the field of research. In addition, data availability may become an issue especially for SMSFs.

Alternative methodological approaches also have merit in expanding our understanding of performance in the superannuation fund industry. For example, Milind (2011) uses data envelopment analysis to investigate the efficiency of a sample of retail superannuation funds from 2005 to 2009. Efficiency scores are derived from using member contributions and

operating expenses as inputs and annual net asset value of the fund and benefits paid as outputs. On a comparison with previous studies in this area (Barrientos and Boussofiane, 2005; Barros and Garcia, 2006; Barros *et al.*, 2008), Milind (2011) found that the efficiency of retail superannuation funds to be low. In addition, efficiency appears to be positively associated with fund size, suggesting that economies of scale could be achieved by consolidating the number of small retail funds in Australia. Such an approach could be extended into examining of the effect of the Stronger Super Reform on the net changes in efficiency of the superannuation industry over time. Further examining the determinants of fund efficiency will be of interest to policy makers given that the Productivity Commission has been tasked “to develop and release criteria to assess the efficiency and competitiveness of the superannuation system” (Australian Treasury, 2015). While data frequency may not be an issue for estimating efficiency scores, the availability of more meaningful input and output measures may limit the informative value of the findings.

Another fruitful area of research is the consideration of benchmark index appropriateness. Benchmark index selection by mutual funds has been subject to some academic consideration (Grinblatt and Titman, 1989; Brown *et al.*, 1992; Grinblatt and Titman, 1994; Tierney and Bailey, 1995; Daniel *et al.*, 1997). Frost (2004) argues that if fund managers do not report their portfolio holdings on a regular basis and benchmark index selection is not scrutinized by market regulators, managers will simply choose indexes that are biased towards overstating the return performance of their funds; thereby, misrepresenting the fund’s investment objectives, style, risk characteristics, and/or performance. For example, Elton *et al.* (2003) suggest that despite a broad range of United States style indexes, funds managers appear to self-designate benchmark indexes that are misaligned from their investment styles. In line with this finding, Sensoy (2009) discovered that a third of United States equity fund managers choose benchmark indexes that are *not* consistent with the style characteristics of their funds.

As part of the Cooper Review (2010), it has been recommended to introduce investment return targets for each investment strategy as an annual percentage rate above inflation. Yet, it is



not clear why an inflation target may be an appropriate return benchmark especially considering that the majority of AUM is invested in equities. Appropriate benchmark selection should therefore also be scrutinized in the Australian superannuation fund context. Appropriate benchmark selection in for wholesale superannuation funds will be of particular interest. However, such an approach requires careful consideration of the quite complex fund structures found in the Australian superannuation fund industry and will require more frequent data provided on a product-by-product basis.

An alternative consideration that future research may wish to address in this final area is the issue of benchmarks misrepresenting a ‘true’ proxy for the market. For example, Cremers *et al.* (2013) show that large passive benchmark indexes (such as the S&P 500 and Russell 1000) are commonly employed by United States funds managers, and can demonstrate large alphas and exposure to systematic risk factors. Similarly, Costa and Jakob (2006, 2010) and Costa, Jakob and Niblock (2011) found that the Carhart (1997) four-factor model is *not* sufficient as a stand-alone metric of United States equity mutual fund performance, and suggest that manager performance should be adjusted relative to the alpha of the benchmark index over the same period. This line of research offers a natural extension to the multi-factor benchmark literature discussed previously.

## **5 Conclusion**

Compulsory superannuation is an important pillar of the retirement system, representing an increasingly large proportion of funds under management in Australia. The rapid growth and importance of the superannuation industry has placed the performance of superannuation funds firmly in the spotlight in recent times. However, while there is a plethora of literature on the performance of investment funds (particularly equity funds), relatively few empirical studies have been conducted on the performance of Australian superannuation funds. For instance, of the 50+ academic papers reviewed in this study, only a third concern Australian superannuation fund

performance. The remaining papers relate to mutual fund performance, international pension funds or other matters related to superannuation funds.

Taken together, the previous empirical evidence reviewed in this study suggests that actively managed ‘retail’ superannuation funds appear to underperform passive index and/or portfolio approaches, and that high management fees and preference for liquid, less growth-orientated assets may be undermining this performance despite recent policy reforms. We assessed areas for further research with reference to their practical impact, novel contribution to the field of research and feasibility. As such, we identified the empirical examination of not-for-profit and small fund (i.e., SMSF) performance as an area of high impact, but which is highly depend on data availability. By comparison, the application of alternative methodological approaches is less restricted in terms of feasibility with moderate practical and theoretical relevance, while benchmark index appropriateness also remains under-researched perhaps because it is not (yet) an area of interest for policy makers but can add interesting theoretical insights when investigating benchmark reporting by wholesale funds.

Numerous issues regarding the management of Australian superannuation funds remain however. For instance, mutual funds are heavily scrutinized by regulators and investors regarding fund performance (Bateman, 2003). In essence, superannuation funds are similar to mutual funds in that their objective is to generate returns above a nominated benchmark for their investors; yet, it is unclear whether superannuation funds encounter the same scrutiny (Brown, Gallery and Gallery, 2002). Superannuation funds managers have a responsibility to ‘know thy client’ and provide products and services which meet the demands of diverse membership groups, particularly when charging fees that resemble those of their mutual fund counterparts (Drew and Stanford, 2001, 2003). Again, it is questionable whether this is occurring under current Australian regulatory settings.

Australian superannuation funds managers appear to lack the same incentive structures as mutual fund managers due to the large pool of funds available, less competition, and supportive

regulation surrounding retirement funds. For example, if a mutual funds manager consistently underperforms they lose investors and deter future capital. The success and longevity of their fund ultimately comes down to performance, for which the manager is held accountable (Clark-Murphy and Gerrans, 2001). This is not the case for superannuation funds managers, who seem to remain in business regardless of their performance. This misalignment of incentives makes it difficult to hold superannuation funds managers to account for their investment actions and performance, which can potentially lead to agency problems (Brown, Gallery and Gallery, 2002).

Consequently, it appears that bold assumptions are being made by superannuation funds managers about how members require their compulsory contributions managed over their working lives (Clark-Murphy and Gerrans, 2001). This could perhaps be due to manager overconfidence, a lack of awareness regarding members' retirement goals and/or negligence. Or could it be that superannuation funds are paying too much for active fund management approaches associated with outsourcing fund management?<sup>8</sup> If this is the case, the business of managing superannuation funds is an extremely lucrative proposition for those involved. On the other hand, if an active management fee equivalency is being charged for management which is inherently passive, this must also be questioned.

To meet the risk-return requirements and retirement savings goals of all superannuation members, more passive investment strategies may be needed to complement the strategies currently employed by fund managers. If passive investment approaches consistently outperform more active approaches in a superannuation investment context then management styles (and fees) need to reflect this.

The lack of information and transparency for superannuation fund members pertaining to their investments' performance is also concerning. Information regarding superannuation fund

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<sup>8</sup> While this may hold true for retail fund management, it has to be borne in mind that this is not the case for not-for-profit funds.

activity, products, services, education, fees, and performance needs to be reported more clearly to members (Langford, Faff and Marisetty, 2006). While the *MySuper* initiative as part of the Stronger Super Reform alleviates some of these concerns, as it comprises a more uniform and transparent set of default products for people who do not actively choose their fund, some of the transparency issues remain. For example, is the management/operation of the fund outsourced to a larger investment house? What is the breakdown of all management fees charged? Do management fees allow managers to provide ‘one-on-one’ tailored investment advice?

Another issue is that the majority of investors do not show an active interest in their superannuation investments, particularly younger investors who feel superannuation is something they need to worry about only when approaching retirement (Clare, 2006). Because of this phenomenon, superannuation accounts are often neglected over time. A further problem is when investors with limited awareness and/or financial knowledge are placed into default allocations, such as balanced assets, by superannuation fund providers upon account opening (and without explanation of the risk-return trade-off and/or discussing the appropriateness of such allocation in meeting retirement goals).

Markowitz portfolio theory suggests that higher risk asset classes should be considered by investors, as risky asset classes are proven to outperform more conservative/defensive asset classes on a risk-adjusted return basis over longer time horizons; thus, providing diversification benefits (Fry, Heaney and McKeown, 2007). If this is the case, under-investment or poor asset allocations may result in a generation of superannuation investors who achieve below-average returns, and therefore retire with insufficient funds. There is also the potential for under-investment in higher risk, innovative business initiatives at both the small-to-medium enterprise (SME) size and corporate levels. This obviously has negative implications for future governments and taxpayers, creating a financial burden on the economy and society in general. Thus, the problem may not be the compulsory superannuation contributions currently made by

employers on behalf of their employees but the lack of understanding in regard to how superannuation members invest such contributions.

Given the rapid growth of superannuation funds, it is imperative that managers employ relevant investment strategies in the pursuit of better risk-adjusted return performance, are more transparent in the way management activities, incentive structures and performance is reported, promote investor awareness/education, and provide quality products/services that meet the demands of fund members and are commensurate with fees charged. Failure to act on these complexities will clearly have long-term consequences for the Australian economy and, more importantly, its retirees.

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Table 1 Superannuation entities as at September 2015

<b>Type of Funds</b>	<b>Total assets (AUD billion)</b>	<b>Number of funds</b>
Corporate	54.1	36
Industry	431.4	43
Public sector	220.1	19
Retail	536.2	147
SMSF	594.1	562,466
Total	\$1,835.9	562,711





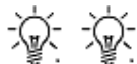

*Source:* Adapted from APRA (2015)– Key Statistics.

Table 2 Superannuation performance literature: 2000 - 2014

Study	Year	Sample period	Sample	Data freq.	Source	Type of Fund/Investment strategy	Performance model/s	Survivorship bias
Sawicki and Ong	2000	1988-1995	97 funds	monthly	Mercer and FPG Res.	Wholesale funds	Treynor and Mazuy (1966) and Ferson and Schadt (1996) model	partly
Drew and Stanford	2001	1991-1999	136 funds	monthly	Morningstar	Australian equity retail funds	Gruber (1996) model	no
Drew <i>et al.</i>	2002	1991-1999	148 funds	monthly	Morningstar	Australian equity retail funds	Malkiel (1995) model	no
Drew and Stanford	2003	1991-1999	148 funds	monthly	Morningstar	Australian equity retail funds	CAPM, Gruber (1996) model	no
Holmes and Faff	2004	1990-1999	125 funds	monthly	Morningstar	Multi-sector retail funds	CAPM, Ferson and Schadt (1996)	adjusted
Bilson <i>et al.</i>	2005	1991-2000	417 funds	quarterly	Plan for Life Pty Ltd	Managed growth and managed stable retail funds	CAPM, Sharpe ratios, Gruber (1996) model; Carhart (1997) model	no
Langford <i>et al.</i>	2006	1991-2005	304 funds	monthly	ASSIRT	Retail and wholesale funds	Ferson and Schadt (1996), Treynor and Mazuy (1966) and Henriksson and Merton (1981) model	no
Coleman <i>et al.</i>	2006	1995-2002	225 funds	quarterly	APRA survey	Corporate, industry, public and retail funds	Information ratio; Jensen alpha	yes
Bateman and Thorp	2007	2002-2004	198 funds	monthly	Rainmaker	Not-for profit funds	Elton <i>et al.</i> (2003) model	n/a
Hallahan <i>et al.</i>	2008	1990-2004	218 funds	monthly	Morningstar	Multi-sector growth retail funds	Brown <i>et al.</i> (1996) model	no
Ellis <i>et al.</i>	2008	2001-2006	90 funds	annual	APRA survey	Default option of large funds (AUM > AUD \$2mil)	Sharpe ratios and benchmark returns	yes
Hallahan and Faff	2009	1990-2001	196 funds	monthly	Morningstar	Multi-sector growth retail funds	Brown <i>et al.</i> (1996) model	no
Sy	2010	2004-2005	6291 funds	annual	APRA	Small APRA funds (1-2 members)	Descriptive only	no
Milind	2011	2005-2009	123 funds	annual	APRA	Retail funds	Production efficiency	no
Cummings and Ellis	2011	2004-2010	146 funds	quarterly	APRA	Not-for-profit and retail funds	Australian CAPM, Worldwide CAPM	no
Liu	2013	2002-2006	100 funds	annual	APRA survey	Corporate, industry and retail funds	Raw returns and Risk-Adjusted Value Added	yes
Basu and Andrews	2014	2004-2012	74 funds	annual	APRA	Corporate, industry and retail funds	Ellis <i>et al.</i> (2008) model	no

Source: Authors' reviews.

Table 3 Prioritization of research areas in terms of practical significance, innovative contribution to the research field and feasibility

Research area	Impact	Novelty	Feasibility
Not-for-profit fund and SMSF performance			
Superannuation funds efficiency			
Fund performance benchmarking	