How Young Australians Make Their Superannuation Decisions

Tahlia Parrish

December 2010

How Young Australians Make Their Superannuation Decisions

Summary of 2010 Honours Dissertation

Tahlia Parrish

Supervised by:

Associate Professor Sarath Delpachitra

Flinders Business School

Flinders University of South Australia

Disclaimer

Acknowledgement

Abstract

Australia's superannuation industry is an essential part of the three pillar retirement incomes policy with Pillars 2 and 3 comprising mandatory and voluntary contributions. The contributors to superannuation schemes have significant control over their retirement assets with most having the choice of selecting a fund and their preferred investment option(s). However, many Australians remain disengaged from their superannuation plans and seem unaware of how their funds are performing. This study examined the best ways to present financial information to help young Australians make optimal decisions regarding their superannuation.

Surveys were used to present financial information on superannuation using four different models, experimenting with the display of fee, risk and return information. The overall results of the study highlight a number of interesting findings. First, where fee information was displayed affected fund selection as well as the reason for choosing the fund. Second, risk labels such as 'medium risk' or 'high risk' seemed to be more commonly relied upon than risk expressed as years of negative returns (risk probabilities). Third, employers appeared to be highly influential in fund selection. Finally, age seemed not to influence the fund or investment option selection. These findings have implications for regulators, fund managers, employers and superannuation fund members.

Introduction

Australia has a 'three pillar' approach to retirement savings. The first pillar comprises the age pension. The second pillar represents the mandatory contributions an employer is required to pay into a superannuation fund nominated by the employee. The third pillar covers voluntary contributions made by the member. These three pillars are designed to provide a steady source of income for all Australians to maintain their basic standards of living; in addition, it is a system where retirement incomes can be improved (Australia's Future Tax System 2009).

Australia's superannuation system has shifted from one where the government took responsibility for retirement income to one where it is the individuals' responsibility to ensure they have adequate savings. The superannuation industry has also seen a significant shift from defined benefit[1] to defined contribution[2] funds. The combination of these two factors has shifted the responsibility of saving for retirement and managing the risk associated with this to the individual. As a result, many superannuation fund members are facing complex financial decisions, and many do not have the necessary skills to execute them (Brown, Gallery and Gallery 2002).

Although a self-managed superannuation fund option is available, many Australians opt for an APRA regulated superannuation fund as the investment vehicle for their retirement savings. Australians have significant control of their superannuation: members are able to choose their desired fund and most funds provide them with a choice of investment options. This means contributors to super funds are faced with complex and difficult financial decisions, the effects of which could significantly alter their post-retirement incomes. This is especially true of young Australians who either have just entered the workforce or have yet to enter the workforce. They are expected to make important planning decisions concerning superannuation at the beginning of their careers.

---

[1] Defined benefit plans provide the employee with a retirement income based on the employee's salary and years of service. The retirement income is known in advance. The employer bears the risk of ensuring they are able to pay the income stream to the employee upon retirement.
[2] Defined contribution plans provide the employee with a retirement income based on contributions made by the employer into a fund nominated by the employee. The retirement income depends on the employer contributions and on the investment performance of the fund.

Greater choice is traditionally associated with greater overall utility under rational choice theory (Fear 2008). However, behavioural finance has revealed investors are not always rational in their decision making.

Behavioural finance studies have highlighted common pitfalls investors fall into when making financial decisions. These include bounded rationality, bounded self-control, framing effects, relying on heuristics, choice overload, extremeness aversion and loss aversion.

Rationality is bound by a person's ability to master complex issues when faced with decisions. Superannuation decisions involve comparing hundreds of different funds, options and contribution rates and often involve the analysis of performance, fee and expense, and risk data. Thaler and Benartzi (2002) found that, when asked to choose a preferred portfolio, 62% of respondents in their study chose the median portfolio to the portfolio the respondents had originally designed. The authors suggested investors failed to adequately diversify their portfolios and/or failed to select a portfolio on the efficient frontier.

When selecting a fund, investors tend to respond more strongly to returns and tend to ignore risk. Further, once invested in a fund, individuals appear less sensitive to returns and do not seem to react by withdrawing their funds if risk increases (Harless and Peterson 1998).

Rationality is again bound by an individual's lack of self-control or willpower. Thus, while individuals may know it is important to save for retirement, they may not save as they do not want to forgo consumption now. Bateman (2006) found that, while 82% of respondents agreed it is important to save for retirement, 6% felt prepared for retirement.

The way choices are framed can influence an individual's decision. According to Tversky and Kahneman (1986) individuals do not appear to convert all options and outcomes into a common framework, making them choose differently depending on the way in which a decision or outcome is framed. They also suggested that responses to losses are more extreme than responses to gains: loss aversion. Additionally, transparency of information and options appears to affect an individual's ability to identify dominant options.

When faced with complex financial decisions, investors may rely on a heuristic: this is a mental shortcut that helps solve a problem (Fear 2008; Sunstein and Thaler 2003). This is demonstrated by the majority of respondents in a study preferring the fund manager's portfolio over their own self-designed portfolio (Thaler and Benartzi 2002). Another example of investors relying on a heuristic is the selection of the default option as investors assume this is the best option (as it has been created by the fund manager) (Fear 2008; Beshears et al. 2007). However, as the best option depends on the individual, the default option may not be the best choice for all individuals.

When selecting a superannuation fund, investors face a wide range of choices and choice can lead to fewer decisions being made. In a study of participation rates in pension plans in the US, Iyengar, Jiang and Huberman (2003) found the highest participation rate occurred when employees had two funds to select from. For every ten funds added to select from, the participation rate fell by 1.5 to 2%. Further, Agnew and Szykman (2005) found respondents with above average financial knowledge were more satisfied with their decision when choosing from fewer options that were well defined.

Extremeness aversion refers to the tendency of consumers to choose an option which is not at the extreme end of a scale. Thus when choosing a portfolio, investors may be influenced by other irrelevant options (Thaler and Benartzi 2002; Hedesstrom, Svedsater and Garling 2004).

Financial literacy, needed for making complex superannuation decisions, appears to be low. Basic concepts such as the time value of money, interest and inflation are not widely understood (Lusardi and Mitchell 2009). Understanding and knowledge of superannuation is poor (Beal and Delpachitra 2004) and members have been found to have difficulty with reading and understanding their superannuation statements (Worthington 2008). Financial knowledge is influential in retirement planning, with those with advanced financial knowledge being more likely to be ready for retirement than those with lower levels of financial literacy (Lusardi and Mitchell 2009).

The literature identifies four main drivers of a selection of superannuation fund: performance, fees, length of time invested and security. Investment performance is consistently found to be one of the most important factors when making a decision about superannuation (Clark-Murphy and Gerrans 2004; Clark-Murphy, Gerrans and Speelman 2009; Clare 2010). However, according to Langford, Faff and Marisetty (2006) upon an examination of cash flows, past performance was not found to be a statistically significant factor in explaining cash flows into funds. They also found when employers had the responsibility of choosing which superannuation fund for employees' contributions, choice of fund appeared to be very sensitive to fees. However, when employees are responsible for choosing a fund, fees are not a significant driver of investment choice (Langford, Faff and Marisetty 2006; Evans and Tan 2007). Based on a study examining attitudes to own superannuation funds, Clare (2010) demonstrated that fees were the second most important feature of a superannuation fund, and high fees were one of the reasons respondents gave when dissatisfied with their superannuation fund. Furthermore, stability and security were found to be the next two important features of a superannuation fund after performance and fees.

Young investors may be vulnerable to factors leading them away from rational choices as they may not possess the level of financial experience or knowledge of older generations. Bounded self-control may be more apparent given that they are further from retirement. Due to the increased length to retirement, hyperbolic discounting and loss aversion may be more prominent among younger individuals (Gallery and Gallery 2005). The effects of this are apparent in a study focusing on the under 40s in which Bateman (2006) found 82% of respondents agreed it was important to save for retirement, yet only 6% felt prepared and 32% felt some degree of preparedness. There was a stronger focus on short term financial goals, particularly accommodation, rather than on retirement planning (Bateman 2006).

The literature suggests financial literacy and knowledge of superannuation are lower for younger individuals compared to older individuals (Lusardi, Mitchell and Curto 2009). These are essential in allowing individuals to make decisions that will maximise their post-retirement incomes (Agnew and Szykman 2005; Worthington 2008).

The literature highlights the difficulties that individuals face when making retirement decisions but it does not adequately explore how individuals can overcome these difficulties. Furthermore, few studies have examined young Australians (who are particularly vulnerable to both failing to making active superannuation decisions and falling into behavioural finance patterns when they do make superannuation decisions) and their retirement decision making. Investigating how young Australians make choices concerning their superannuation is important as they are facing complex and significant decisions, often for the first time. The problem addressed in this research is how can key financial information on superannuation be presented to assist members in making optimal decisions regarding superannuation?

In order to address the problem, three sub-research questions were developed as follows:

RQ 1: Which factors influence young Australians in their choice of superannuation fund and investment options?

This question examines fund characteristics that young Australians feel are important when selecting a fund. It also looks at how young Australians currently choose a superannuation fund, and whether age or gender impacts on the selection of funds.

RQ 2: To what extent do variations in labelling investment options, and being invested in an investment option, impact on the option young Australians select?

The literature drew attention to the fact young Australians may be particularly susceptible to irrational decision making as they may not have the knowledge and experience of older generations. This question investigates the effect of labelling an option as the default option. It also examines the effect of being currently invested in an investment option when making an active decision.

RQ 3: To what extent does the presentation of fee, risk and return information determine the funds young Australians choose?

The literature highlighted that the way in which options are presented affects final decisions. This question experiments with different ways of presenting financial

information to examine which presentation method leads to the dominant option being chosen more frequently.

Methodology

The survey instruments were designed to examine three areas: how respondents chose their current fund (including which characteristics are important in fund selection), how respondents reacted to labelling an option as 'default', and how respondents used financial information to select both a fund and an investment option.

Four survey instruments were used to collect data. Survey one contains all of the information in Figure 1 in the main body of the page. Survey two has the same layout as survey one; however, gross returns, fees and the risk (as a percentage) are given in bold type under each fund. This is to make comparing funds easier and to make the dominant option(s) more transparent. Survey three places fee information in the footnotes. This is still on the same page but is in smaller type. Survey four places fee information in an appendix at the back of the survey with instructions in bold that fee information can be found at the end of the survey.

All surveys collected demographic information and information on how respondents selected their current fund. The surveys also asked respondents to rank the importance of eight find characteristics: low fees, easy to join, recommended by peers, recommended by a financial planner, performance (returns), wide choice of investment options, simple to use, and stability of fund.

Respondents were asked to select an investment option based on very simple risk and return data. This question served two purposes: first it gave an insight as to which investment options young Australians preferred and second it tested the strength of the labelling an investment option as the default option. Additionally, survey one and survey two assumed the respondent was already invested in the default option, where as in surveys three and four the respondent is not already invested in one of the options. This is to test whether there is an increased propensity to remain in the default option when making an active decision.

Finally, respondents were asked to rank four funds, A to D, from most preferred to least preferred. Each fund had different expected returns, risk, asset allocation and fees. The time horizon was constant for all four funds. Figure 1 provides a summary of the information presented.

Fund A is designed to be the dominant option with the highest expected return and one of the lower risks. This is taking into account the fees charged per year if no switches or withdrawals are made.

Fund B is designed to be the least attractive fund with the lowest returns and second highest risk. All other funds dominate Fund B in terms of returns, risk or both.

Fund C has the second lowest returns but it also offers the lowest risk. This fund may be (rationally) chosen by those who are very risk averse.

Fund D is dominated by Fund A as both have the same expected net return but fund D is riskier. This fund would be ranked second by those who are not extremely risk averse.

Figure 1: Fund information

Characteristic	highest	second highest	third highest	lowest
Gross (expected) returns above inflation	D (4.25%)	A (4.00%)	C (3.50%)	B (3.25%)
Fees on expected returns	B ($569)	D ($550)	C ($335)	A ($300)
Net (expected) returns	A ($5685.6)	D ($5669)	C ($5152)	B ($4656)
Risk (probability of negative returns	D (43%)	B (35%)	A (34%)	C (27%)
Risk labels	D & A	Both 'high risk'	B 'Medium-high risk'	C 'Medium risk'

The surveys were designed to test whether placing fee information in different places in the document induced respondents to respond to it differently. The fund options were designed to test this aspect further. For example: Fund D provides the highest expected gross return and the highest risk. Fund A provides the second highest gross return and third highest risk. If respondents choose Fund D over Fund A, they have not taken into account fees as the net return of both funds is equal. Fund C could still be chosen by those who are very risk averse. Fund B is

dominated in terms of gross return, net return and risk thus there is no reason for choosing it.

The study approached Flinders University students as respondents. Course leaders across all disciplines assisted in data collection by allowing surveys to be distributed and completed during lecture time. Students were also canvassed on campus. This allowed data to be collected from a range of disciplines and ages. Respondents were requested to either hand in the completed surveys or to mail their responses via a self-addressed envelope.

Data collection occurred on campus over a three week period from 27 August to 17 September 2010. Some mailed responses were received in the following weeks. While a target of 300 responses was set, data collection continued beyond this target until the 17 September 2010. In total, 580 surveys were distributed and 421 surveys were collected, giving a response rate of 73%. Of those returned, 367 were considered suitable for analysis, giving a rejection rate of 13%. To be considered suitable for analysis, both the demographic information and the fund ranking question were required to be completed. Many of the surveys not suitable for analysis were deemed so as the fund option question had not been completed. This demonstrates the difficulty many faced when asked to select a fund.

Results

Sample

The ages of the respondents ranged from 17 to 56, though 92% fell into the 18 to 30 age category. The majority (71%) of respondents were employed and 73% were members of a superannuation fund. Respondents came from a wide range of study disciplines across the university and 87.6% of respondents had no experience with a business or finance related topic.

Research question one

As presented above, an overwhelming majority chose their fund through their employer (82%). The fund selected by the employer is highly influential on the fund selected by the employee. 4.5% chose their fund themselves and 12.5% relied

on the advice of their parent/guardian or financial planner. The remaining 1% selected 'other'.

Further, respondents were asked to rank eight fund characteristics from one to eight with one being most important and eight being least important. Low fees were the most important fund characteristic for 32.4% of respondents. In addition, 21.3% and 16.8% of respondents ranked this second and third most important respectively. Over 70% of respondents ranked low fees in the first three characteristics of most importance. Performance (returns) was the second most important characteristic, with 61% of respondents ranking performance in the first three characteristics of most importance. Stability of fund was the third most important characteristic, with 54.7% of respondents ranking this in the first three characteristics of most importance. This gives an insight as to what members consider important when selecting a superannuation fund. Figure 2 shows the characteristics respondents chose as most important.

Figure 2: Characteristics respondents ranked as most important
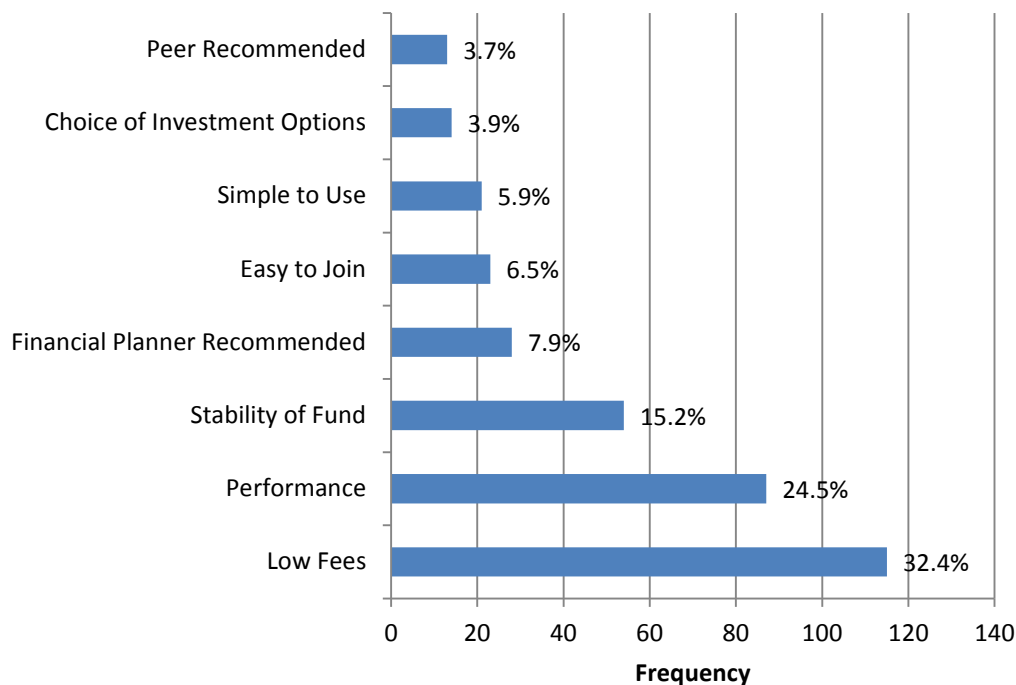
The least important two fund characteristics, ranked eighth by respondents, were 'recommended by peers' (34.9%) and 'wide choice of investment options' (19%).

Respondents were asked to select an investment option from a choice of six. Each had different risk/return characteristics and each was labelled differently. The three most popular investment options by far were Aggressive growth (27.8%), Stable (25.8%) and Growth (25.3%). The next two most popular were Conservative balanced (9.2%) and Capital guaranteed (7.8%). Only 4.2% selected the default option. This is not surprising as it was dominated by other options in terms of risk and expected return. Figure 3 shows the investment option choices presented to participants and their selections.

Figure 3: Investment options

Investment option	Expected gross return per year above CPI	Number of years return is expect to be negative	Option selection
Aggressive growth	6%	4 out of 12	27.8%
Stable	2%	1 or 2 out of 10	25.8%
Growth	4%	3 out of 10	25.3%
Conservative balanced	2.5%	3 out of 12	9.2%
Capital guaranteed	1%	0	7.8%
Balanced (default)	3%	3 out of 10	4.2%

This does show a slight reliance on an option being labelled as 'default' as there was no rational reason for selecting this option based on the information presented.

Cross-tabulations were used to test for relationships between variables. In particular, the selection of investment option was cross-tabulated with age groups (17 to 21; 22 to 30; over 30), gender, superannuation membership, characteristics rankings, and finally a control question used to test their ability to identify the dominant option.

The control question was used whereby participants were given three options to choose from, with one dominating the other two in terms of risk and return. This was used to test how easily respondents could identify dominant options given very simple financial information. 85.2% of respondents were able to select the dominant option in this question.

No statistically significant relationship was found between the respondents' age and their selection of an investment option, shown by a P value of 0.650.[3] Even when age groups were split into those under 30 and those over 30, there was no statistically significant relationship between the age group and the investment option selected, shown by a P value of 0.375. This could be due to the small representation of respondents over 30.

Similarly, no significant relationships were found between gender or superannuation membership and the investment option selected at the 5% significance level, shown by P values of 0.054 and 0.171 respectively.

As the investment option question provides an option label, expected return and a risk measure, cross-tabulations were run only for the fund characteristics 'returns' and 'stability of fund'. The identification of these characteristics as most important in fund selection was cross-tabulated against investment option selection. Neither characteristic showed a statistically significant relationship with investment option selection at the 5% level. The P value for the 'returns' and investment option was P= 0.150 and for the 'stability of fund' and investment option was P=0.168.

This suggests other factors such as risk tolerance are at play when investors choose their investment option. Risk tolerances were not tested in this research. Age and selection of investment option showed no statistically significant relationship which is surprisingly given the common thought that younger investors will choose higher risk options and will become more risk averse as they become older.

In summary, employers are highly influential in which fund young Australians select. Further, labelling an investment option as 'default' influences the selection of this option slightly. Finally, no relationship was found between age and gender and the selection of an investment option.

Research question two

The default option was the least attractive option for any level of risk tolerance as the growth investment option provided higher expected returns for the same level

---

[3] Cross-tabulation tables of the statistically not significant relationships can be found in Appendix A.

of risk. However, fifteen respondents chose the default option. Thus, only 4.2% of the respondents relied on the 'default' label when making their decision. This suggests that when actively deciding on an investment option, labelling an option as 'default' only has a slight effect on its selection.

There was no significant relationship observed at the 5% level between the respondents' investment choice and whether they were already invested in the default option, as shown by a P value of 0.227. It is important to note this cross-tabulation tested the propensity to remain in the default option when faced with making an active decision, and in a circumstance whereby the default option was clearly dominated by other options.

Research question three

Respondents were provided with information about four funds and asked to rank the funds in order from most preferred to least preferred. As the information presentation differed according to the survey given, the results are discussed according to survey type. Figure 4 summarises the funds the respondents ranked first, by survey tranche.

Figure 4: Fund rankings by survey type

	A	B	C	D
Survey One	11.2%	34.8%	43.8%	10.1%
Survey Two	20.7%	14.1%	53.3%	12.0%
Survey Three	12.1%	18.7%	60.4%	8.8%
Survey Four	13.7%	25.3%	55.8%	5.3%

It can be seen from Figure 4 that there are differences in the respondents' preferences and survey type.

The analysis begins with cross-tabulations of where the fee information was displayed and which fund the respondent ranked first. It then narrows down the effect of changing where fees are displayed by examining how Fund A and Fund D were ranked respective to each other. Finally, it examines the qualitative reasons provided by respondents.

Cross-tabulation tables were constructed for two variables: where the fee information appeared and funds' rankings. At the 5% significance level, there is a relationship between where fee data are presented and which fund the respondents chose. This is shown in Figure 5.

The cross-tabulation in Figure 5 shows mixed relationships. For example, it is clear in survey two, where the effects of fees are already calculated, respondents chose Fund A more than expected and Fund B less than expected. This is logical as Fund A dominated Fund B. However, Fund D was chosen less than expected when fee information was not in the main text. This is surprising, given Fund D only becomes the less attractive option when fees are factored in. Though there is a statistically significant relationship, it is difficult to establish the direction of this from the cross-tabulation in Figure 5. This could be due to the large number of respondents ranking Fund C first.

In order to explore any possible relationship between "where fee information is displayed" and "rankings", those responses listing Fund A ahead of Fund D were cross tabulated with the survey type. On the face of it, there is no dominant choice between A and D as Fund A has slightly lower expected returns and risk. However, taking fees into account makes Fund A the dominant choice. Cross-tabulation of these two variables found a statistically significant relationship at the 5% level, shown by a P value of 0.050, yet the cross-tabulation table does not show clearly the direction of this relationship (see Figure 6). It is expected that where fee data are in the text (survey one and two), there would be a higher count of those who ranked Fund A over Fund D, and vice versa. However, Figure 6 shows respondents were more likely to rank A over D for surveys two and four.

Figure 5: How fee information was presented cross-tabulated with the fund the
respondents ranked first

Cross-tabulation							
			Fund ranked first				
			A	B	C	D	Total
Survey Type	1	Count	10.0	31.0	39.0	9.0	89.0
		Expected Count	12.9	20.6	47.5	8.0	89.0
		Residual	-2.9	10.4	-8.5	1.0	
	2	Count	19.0	13.0	49.0	11.0	92.0
		Expected Count	13.3	21.3	49.1	8.3	92.0
		Residual	**5.7**	**-8.3**	-.1	2.7	
	3	Count	11.0	17.0	55.0	8.0	91.0
		Expected Count	13.1	21.1	48.6	8.2	91.0
		Residual	-2.1	-4.1	6.4	**-.2**	
	4	Count	13.0	24.0	53.0	5.0	95.0
		Expected Count	13.7	22.0	50.7	8.5	95.0
		Residual	-.7	2.0	2.3	**-3.5**	
Total		Count	53.0	85.0	196.0	33.0	367.0
		Expected Count	53.0	85.0	**196.0**	33.0	367.0

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	17.89[a]	9	.036
Likelihood Ratio	17.78	9	.038
N of Valid Cases	367		
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.00.			

Symmetric Measures[a]			
		Value	Approx. Sig.
Nominal by Nominal	Cramer's V	.127	.036
N of Valid Cases		367	
a. Correlation statistics are available for numeric data only.			

Figure 6: How fee information was presented cross-tabulated with ranking Fund A ahead of Fund D

Cross-tabulation			Ranked A before D		
			Yes	No	Total
Survey type	1	Count	54.0	35.0	89.0
		Expected Count	60.9	28.1	89.0
		Residual	-6.9	6.9	
	2	Count	67.0	25.0	92.0
		Expected Count	62.9	29.1	92.0
		Residual	**4.1**	-4.1	
	3	Count	57.0	34.0	91.0
		Expected Count	62.2	28.8	91.0
		Residual	-5.2	5.2	
	4	Count	73.0	22.0	95.0
		Expected Count	65.0	30.0	95.0
		Residual	**8.0**	-8.0	
Total		Count	251.0	116.0	367.0
		Expected Count	251.0	116.0	367.0

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.82[a]	3	.050
Likelihood Ratio	7.90	3	.048
N of Valid Cases	367		
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 28.13.			

It is unclear how fees affected fund selection from the cross-tabulation in Figure 6. This is surprising given that over 70% of respondents ranked low fees in the first three characteristics of most importance. To examine which factor(s) respondents did rely on, the written responses were analysed.

Written responses to the question 'why did you choose your most preferred fund?' were analysed and five main themes were identified: fees, risk, asset mix, returns, guessed/did not know. This question elicited slightly fewer responses as only 311 of the respondents (out of 367) gave their reasons. Responses were coded according to the factors respondents stated. The five main themes captured 90% of the responses given. Remaining responses were coded as 'other'. Some

respondents quoted only one reason for choosing their most preferred fund whereas others provided a list of factors.

Respondents quoted risk in three ways: as risk, as the risk-label and as the risk of negative returns (as probabilities or years). Of those who provided a qualitative response, 69.8% quoted risk as a factor in their decision making. The slight majority of respondents (38%) stated "risk" as a reason for fund selection but did not state which piece of risk information they used. 31.8% of respondents were specific about how they used risk, with risk labels used more commonly than risk probabilities/number of negative years. 18.6% of responses quoted risk labels and 13.5% quoted risk probabilities/number of negative years in their responses.

Risk was the most frequently cited reason for choosing a fund, with 69.8% of respondents citing this factor. Returns were the second most frequent factor given at 31.2%. Only 24.8% quoted fees as a factor in their decision making. This is surprising given that 34.2% identified this as the most important factor when choosing a fund. There was no statistically significant relationship between ranking fees as most important and providing fees as a basis for fund choice, shown by a P value of 0.362. Asset mix was stated as a reason for fund selection by 16.4% of those who gave a written response, while 9.6% gave a reason outside of the reasons discussed here, falling into the category of 'other'. 5.1% admitted their decision was a guess or that they did not know why they chose a particular fund.

Interestingly, there are statistically significant relationships at the 5% level between how the information was presented and the factors respondents gave as the reason they chose their most preferred fund. The relationship between "where fee information was presented" and whether respondents quoted this as a factor in their decision making was statistically significant, with a P value of 0.000 and a Cramer's V of 0.393. Figure 7 shows these results. It is interesting to note that when fee information was presented with the rest of the fund information as in Surveys 1 and 2, the actual count of those who quoted fees as a factor is much higher than the expected count. Similarly, when fee information was put in the footnotes or in the appendix, the actual count was well below the expected count.

Figure 7: How fee information was presented cross-tabulated with whether respondents stated fees in their written response.

Cross-tabulation			Stated fees as a factor		
			Yes	No	Total
Where fee information was presented	Survey 1	Count	29.0	46.0	75.0
		Expected Count	18.6	56.4	75.0
		Residual	**10.4**	-10.4	
	Survey 2	Count	35.0	43.0	78.0
		Expected Count	19.3	58.7	78.0
		Residual	**15.7**	-15.7	
	Survey 3	Count	6.0	73.0	79.0
		Expected Count	19.6	59.4	79.0
		Residual	**-13.6**	13.6	
	Survey 4	Count	7.0	72.0	79.0
		Expected Count	19.6	59.4	79.0
		Residual	**-12.6**	12.6	
Total		Count	77.0	234.0	311.0
		Expected Count	77.0	234.0	311.0

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	47.94[a]	3	.000
Likelihood Ratio	50.97	3	.000
N of Valid Cases	311		
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 18.57.			

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Cramer's V	.393	.000
N of Valid Cases		311	

Statistically significant relationships between how risk and fee information was presented and citing risk probabilities in the qualitative responses were found at the 5% level, shown by a P value of 0.039. In survey two, the probability of having a year of negative returns was given in bold print, making it easier for respondents to compare risks across funds. The relationship between how risk and fee information was presented and those who gave risk as the number of years a fund made a negative return as a reason has a very low association, shown by a Cramer's V of 0.164. These results are shown in Figure 8. In Survey two, where risk probabilities were given, respondents were more prone to use this as a factor; this is seen by the actual count (18) exceeding the expected count (10.5).

Figure 8: How risk and fee information was presented cross-tabulated with risk (probabilities) in written response

Cross-tabulation			Quoted Risk Probability		
			No	Yes	Total
How fee and risk information was presented	Survey one	Count	67.0	8.0	75.0
		Expected Count	64.9	10.1	75.0
		Residual	2.1	-2.1	
	Survey two	Count	60.0	**18.0**	78.0
		Expected Count	67.5	**10.5**	78.0
		Residual	-7.5	**7.5**	
	Survey three	Count	72.0	7.0	79.0
		Expected Count	68.3	10.7	79.0
		Residual	3.7	-3.7	
	Survey four	Count	70.0	9.0	79.0
		Expected Count	68.3	10.7	79.0
		Residual	1.7	-1.7	
Total		Count	269.0	42.0	311.0
		Expected Count	269.0	42.0	311.0

Chi-Square Tests	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.40[a]	3	.039
Likelihood Ratio	7.71	3	.052
N of Valid Cases	311		
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 10.13.			

Symmetric Measures		Value	Approx. Sig.
Nominal by Nominal	Cramer's V	.164	.039
N of Valid Cases		311	

Interestingly, how respondents described "risk" differed depending on the survey. There is a statistically significant relationship at the 5% level between how fee and risk information is presented and how (if at all) respondents described risk. This is shown by a P value of 0.028 (Figure 9). Respondents in surveys one and two were more likely to be clear in their definition of risk than those in surveys three and four, as seen by comparing residual values. This is especially clear for survey two where risk probabilities were emphasised and clearly given.

Figure 9: How fee and risk information is presented and how (if at all) respondents quoted risk.

Cross-tabulation						
			Clarity in the risk factor used			
			Unclear	Clear	Did not rely on risk	Total
How fee and risk information was presented	Survey one	Count	23.0	26.0	26.0	75.0
		Expected Count	28.9	23.4	22.7	75.0
		Residual	-5.9	**2.6**	3.3	
	Survey two	Count	22.0	31.0	25.0	78.0
		Expected Count	30.1	24.3	23.6	78.0
		Residual	-8.1	**6.7**	1.4	
	Survey three	Count	34.0	19.0	26.0	79.0
		Expected Count	30.5	24.6	23.9	79.0
		Residual	3.5	**-5.6**	2.1	
	Survey four	Count	41.0	21.0	17.0	79.0
		Expected Count	30.5	24.6	23.9	79.0
		Residual	10.5	**-3.6**	-6.9	
Total		Count	120.0	97.0	94.0	311.0
		Expected Count	120.0	97.0	94.0	311.0

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.13[a]	6	.028
Likelihood Ratio	14.25	6	.027
N of Valid Cases	311		
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 22.67.			

The written responses were studied to discover which factor they mentioned first in their reasoning, as this is likely the one they relied on most. A low, statistically significant relationship was found between this and how fee and risk information was presented at the 1% level, shown by a P value of 0.000 and Cramer's V of 0.221 (Figure 10). It is clear that, where fees appeared in the main body of financial information, they were quoted more frequently than when they appeared in the footnotes or appendix as seen by the residual values. Similarly, returns were quoted first more frequently in survey two where gross returns were stated in bold. Respondents were more likely to quote other reasons first in surveys three and four. This could be due to less information being provided in the text on which to base their decision. Interestingly, risk was also more frequently cited as the first reason

in surveys three and four. Again, this could be due to the limited information in the text.

Figure 10: Factor listed first cross-tabulated with how fee and risk information was presented.

Cross-tabulation									
			Factor listed first in analysis						
			Fees	Risk	Asset mix	Returns	Guess/Do not know	Other	Total
How fee and risk information is presented	Survey one	Count	18.0	32.0	6.0	9.0	2.0	8.0	75.0
		Expected Count	9.2	35.5	6.8	9.9	2.4	11.3	75.0
		Residual	**8.8**	-3.5	-.8	-.9	-.4	-3.3	
	Survey two	Count	16.0	28.0	5.0	18.0	2.0	9.0	78.0
		Expected Count	9.5	36.9	7.0	10.3	2.5	11.8	78.0
		Residual	**6.5**	-8.9	-2.0	**7.7**	-.5	-2.8	
	Survey three	Count	2.0	40.0	10.0	9.0	2.0	16.0	79.0
		Expected Count	9.7	37.3	7.1	10.4	2.5	11.9	79.0
		Residual	-7.7	**2.7**	2.9	-1.4	-.5	**4.1**	
	Survey four	Count	2.0	47.0	7.0	5.0	4.0	14.0	79.0
		Expected Count	9.7	37.3	7.1	10.4	2.5	11.9	79.0
		Residual	-7.7	**9.7**	-.1	-5.4	1.5	**2.1**	
Total		Count	38.0	147.0	28.0	41.0	10.0	47.0	311.0
		Expected Count	38.0	147.0	28.0	41.0	10.0	47.0	311.0

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	45.426[a]	15	.000
Likelihood Ratio	48.150	15	.000
N of Valid Cases	311		
a. 4 cells (16.7%) have expected count less than 5. The minimum expected count is 2.41.			

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Cramer's V	.221	.000
N of Valid Cases		311	

The directions of the relationships tested in Figure 10 were clearer when the qualitative responses were analysed compared to the analysis of fund rankings. This shows that the presentation of fee and risk information has a significant impact on how individuals make their decisions. However, it has a less clear impact on fund selection. This could be attributed to low levels of financial literacy. Respondents seemed to realise that taking fees, risk and returns into

account was important, yet they failed to use the information effectively. This is demonstrated further by the sheer number of respondents who ranked B, the least attractive option, in their first two fund choices (63.8%).

Furthermore, risk labels were more heavily relied upon than risk probabilities and years of negative returns. This reliance is especially concerning, given that risk labels are given by fund managers and are not always comparable across different funds.

Implications

The research experimented with different ways of presenting key financial information about superannuation funds. This has important practical applications in understanding how the presentation of information affects how individuals make superannuation decisions. This research exposes the ways in which the manipulation of information can help individuals make optimal superannuation decisions and maximise their retirement incomes.

This research has implications for regulators, fund managers, employers and for young Australians selecting a superannuation fund. The superannuation system needs to promote the maximisation of retirement incomes for its members. This research has highlighted the difficulties young Australians face when selecting a fund as many do not have the financial literacy to be able to interpret superannuation information effectively. It has demonstrated that individuals are more likely to take into account fee and risk information when it is displayed with other financial information. The presentation of this information is at its most effective when it is made comparable among funds. Further, risk labels are used more readily than risk probabilities unless probabilities are calculated and are also made comparable across funds. This research highlights the need to make complex financial information comparable across funds. It also highlights the need to make the effects of fees on gross returns transparent. This could be promoted by regulators.

The results also suggest that there is a role for fund managers to ensure the information they display is both accurate and useable by the average superannuation member. This research has shown individuals are more likely to

rely on risk labels when risk probabilities are not calculated. Fund managers need to ensure they are accurately labelling the risk of the investment options. Providing risk probabilities would also enable individuals to match more closely their risk preference to a fund and option. Information provided by a fund needs to be useable. This research has shown that calculating the effects of fees on gross returns had the largest effect on whether fees were considered in the decision making process.

There is also a role for employers as they highly influence the fund of which an employee becomes a member. Employers have a responsibility to ensure they select a good quality fund as the default fund. They should ensure the fund is competitive in terms of both returns and fees. They should especially consider the default options of these funds as those who are placed in a default fund are likely to be placed in the default investment option. Previous research by Langford, Faff and Marisetty (2006) appeared to find employers were highly sensitive to superannuation fund fees and suggested employers were efficient at choosing a low cost industry fund.

Last but not least, superannuation members (both present and future) need to use information given in a comprehensive way. This involves a comparison of expected net returns weighted against risk. Fees can significantly reduce post retirement incomes and members analysing expected returns need to consider these. Risk labels should provide a guide only, and risk probabilities provide a more accurate way of comparing risk across funds.

Appendix A: Cross-tabulation tables

Research Question One

Age cross-tabulated with the investment option question

Age and Investment option Cross-tabulation									
			Investment Option						Total
			Stable	Aggressive growth	Capital guaranteed	Growth	Conservative balanced	Balanced (default)	
Age	17 to 21	Count	62.0	66.0	20.0	63.0	20.0	8.0	239.0
		Expected Count	61.3	66.7	18.9	59.9	22.2	10.1	239.0
		Residual	.7	-.7	1.1	3.1	-2.2	-2.1	
	22 to 30	Count	24.0	25.0	4.0	20.0	10.0	4.0	87.0
		Expected Count	22.3	24.3	6.9	21.8	8.1	3.7	87.0
		Residual	1.7	.7	-2.9	-1.8	1.9	.3	
	Over 30	Count	5.0	8.0	4.0	6.0	3.0	3.0	29.0
		Expected Count	7.4	8.1	2.3	7.3	2.7	1.2	29.0
		Residual	-2.4	-.1	1.7	-1.3	.3	1.8	
Total		Count	91.0	99.0	28.0	89.0	33.0	15.0	355.0
		Expected Count	91.0	99.0	28.0	89.0	33.0	15.0	355.0

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.785[a]	10	.650
Likelihood Ratio	7.137	10	.712
N of Valid Cases	355		
a. 4 cells (22.2%) have expected count less than 5. The minimum expected count is 1.23.			

Age split into under and over 30 cross-tabulated with the investment option question

Age and Investment option Cross-tabulation			Investment Option						Total
			Stable	Aggressive growth	Capital guaranteed	Growth	Conservative balanced	Balanced (default)	
Age	Over 30	Count	5.0	8.0	4.0	6.0	3.0	3.0	29.0
		Expected Count	7.4	8.1	2.3	7.3	2.7	1.2	29.0
		Residual	-2.4	-.1	1.7	-1.3	.3	1.8	
	Under 30	Count	86.0	91.0	24.0	83.0	30.0	12.0	326.0
		Expected Count	83.6	90.9	25.7	81.7	30.3	13.8	326.0
		Residual	2.4	.1	-1.7	1.3	-.3	-1.8	
Total		Count	91.0	99.0	28.0	89.0	33.0	15.0	355.0
		Expected Count	91.0	99.0	28.0	89.0	33.0	15.0	355.0

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.343[a]	5	.375
Likelihood Ratio	4.490	5	.481
N of Valid Cases	355		
a. 3 cells (25.0%) have expected count less than 5. The minimum expected count is 1.23.			

Gender cross-tabulated with the investment option question

Gender and Investment option Cross-tabulation			Investment Option						Total
			Stable	Aggressive growth	Capital guaranteed	Growth	Conservative balanced	Balanced (default)	
Gender	Male	Count	42.0	54.0	13.0	36.0	8.0	6.0	159.0
		Expected Count	41.4	43.6	12.5	40.1	14.7	6.7	159.0
		Residual	.6	10.4	.5	-4.1	-6.7	-.7	
	Female	Count	51.0	44.0	15.0	54.0	25.0	9.0	198.0
		Expected Count	51.6	54.4	15.5	49.9	18.3	8.3	198.0
		Residual	-.6	-10.4	-.5	4.1	6.7	.7	
Total		Count	93.0	98.0	28.0	90.0	33.0	15.0	357.0
		Expected Count	93.0	98.0	28.0	90.0	33.0	15.0	357.0

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.861[a]	5	.054
Likelihood Ratio	11.190	5	.048
N of Valid Cases	357		
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.68.			

Members of superannuation funds cross-tabulated with the investment option question

Superannuation members and Investment option Cross-tabulation			Investment Option						
			Stable	Aggressive growth	Capital Guaranteed	Growth	Conservative balanced	Balanced (default)	Total
Superannuation membership	Members of a fund	Count	68.0	73.0	23.0	70.0	23.0	7.0	264.0
		Expected Count	68.4	73.5	20.6	66.2	24.3	11.0	264.0
		Residual	-.4	-.5	2.4	3.8	-1.3	-4.0	
	Not members of a fund	Count	25.0	27.0	5.0	20.0	10.0	8.0	95.0
		Expected Count	24.6	26.5	7.4	23.8	8.7	4.0	95.0
		Residual	.4	.5	-2.4	-3.8	1.3	4.0	
Total		Count	93.0	100.0	28.0	90.0	33.0	15.0	359.0
		Expected Count	93.0	100.0	28.0	90.0	33.0	15.0	359.0

Chi-Square Tests	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.736[a]	5	.171
Likelihood Ratio	7.133	5	.211
N of Valid Cases	359		
a. 1 cells (8.3%) have expected count less than 5. The minimum expected count is 3.97.			

Ranking of returns as most important cross-tabulated with investment option question

Returns ranked first and Investment option Cross-tabulation			Investment Option						
			Stable	Aggressive growth	Capital guaranteed	Growth	Conservative balanced	Balanced (default)	Total
Fund characteristics rankings	Ranked returns first	Count	21.0	34.0	4.0	18.0	6.0	4.0	87.0
		Expected Count	22.4	24.7	6.7	21.9	8.0	3.2	87.0
		Residual	-1.4	9.3	-2.7	-3.9	-2.0	.8	
	Did not rank returns first	Count	69.0	65.0	23.0	70.0	26.0	9.0	262.0
		Expected Count	67.6	74.3	20.3	66.1	24.0	9.8	262.0
		Residual	1.4	-9.3	2.7	3.9	2.0	-.8	
Total		Count	90.0	99.0	27	88	32	13	349
		Expected Count	90.0	99.0	27.0	88.0	32.0	13.0	349.0

Chi-Square Tests	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.118[a]	5	.150
Likelihood Ratio	8.046	5	.154
N of Valid Cases	349		
a. 1 cells (8.3%) have expected count less than 5. The minimum expected count is 3.24.			

Ranking of stability as most important cross-tabulated with the selection of an investment option

Ranked stability first and Investment option Cross-tabulation									
			Investment Option						Total
			Stable	Aggressive growth	Capital guaranteed	Growth	Conservative balanced	Balanced (default)	
Fund characteristic ranking	Ranked stability first	Count	21.0	10.0	4.0	11.0	5.0	1.0	52.0
		Expected Count	13.4	14.8	4.0	13.1	4.8	1.9	52.0
		Residual	7.6	-4.8	.0	-2.1	.2	-.9	
	Did not rank stability first	Count	69.0	89.0	23.0	77.0	27.0	12.0	297.0
		Expected Count	76.6	84.2	23.0	74.9	27.2	11.1	297.0
		Residual	-7.6	4.8	.0	2.1	-.2	.9	
Total		Count	90.0	99.0	27.0	88.0	32.0	13.0	349.0
		Expected Count	90.0	99.0	27.0	88.0	32.0	13.0	349.0

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.792[a]	5	.168
Likelihood Ratio	7.488	5	.187
N of Valid Cases	349		
a. 3 cells (25.0%) have expected count less than 5. The minimum expected count is 1.94.			

Research Question Two

Previous investment in the default option cross tabulated with investment option selection

Survey type and Investment option Cross-tabulation			Investment Option						Total
			Stable	Aggressive growth	Capital guaranteed	Growth	Conservative balanced	Balanced (default)	
Survey type	Already invested in the default option	Count	42.0	48.0	20.0	46.0	14.0	7.0	177
		Expected Count	45.7	49.2	13.8	44.7	16.2	7.4	177.0
		Residual	-3.7	-1.2	6.2	1.3	-2.2	-.4	
	Not already invested in the default option	Count	51.0	52.0	8.0	45.0	19.0	8.0	183.0
		Expected Count	47.3	50.8	14.2	46.3	16.8	7.6	183.0
		Residual	3.7	1.2	-6.2	-1.3	2.2	.4	
Total		Count	93.0	100.0	28.0	91.0	33.0	15.0	360.0
		Expected Count	93.0	100.0	28.0	91.0	33.0	15.0	360.0

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.911[a]	5	.227
Likelihood Ratio	7.084	5	.214
N of Valid Cases	360		
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.38.			

Research Question Three

Ranking of low fees as most important fund characteristic cross-tabulated with whether fees were stated in fund selection

Ranked fees first cross-tabulated with whether fees stated fees in decision making					
			Stated fees in decision making		
			Yes	No	Total
Ranked low fees as most important	Yes	Count	26.0	66.0	92.0
		Expected Count	22.8	69.2	92.0
		Residual	3.2	-3.2	
	No	Count	49.0	161.0	210.0
		Expected Count	52.2	157.8	210.0
		Residual	-3.2	3.2	
Total		Count	75.0	227.0	302.0
		Expected Count	75.0	227.0	302.0

Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.832[a]	1	.362		
Continuity Correction[b]	.589	1	.443		
Likelihood Ratio	.819	1	.365		
Fisher's Exact Test				.387	.220
N of Valid Cases	302				
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 22.85.					
b. Computed only for a 2x2 table					

References

Agnew, J. and Szykman, L., 2005, "Asset allocation and information overload: the influence of information display, asset choice and investor experience" *The Journal of Behavioural Finance*, vol. 6, no. 2, pp. 57-70.

Australia's Future Tax System, 2009, "The retirement income system: report on strategic issues" Canberra, Australia: Commonwealth of Australia. http://taxreview.treasury.gov.au/content/downloads/retirement_income_report_stategic_issues/retirement_income_report_20090515.pdf

Bateman, H., 2006, "Saving the future: Can the under-40s afford to grow old?" JASSA, vol. 2, pp. 22–23.

Beal, D. and Delpachitra, S, 2004, "Community understanding of superannuation" *Agenda*, vol. 11, no. 2, pp. 127-142.

Beshears, J., Choi, J., Laibson, D. and Madrian, B., 2007, "The importance of default options for retirement savings outcomes: evidence from the United States" *NBER Working Paper Series*, No. 12009.

Brown, K., Gallery, G. and Gallery, N., 2002, "Informed superannuation choice: constraints and policy resolutions"*, Economic Analysis and Policy*, vol 32, no. 1, pp. 71-90.

Clare, R., 2010, "Member attitudes to own superannuation fund and investment returns", *Association of Superannuation Funds Australia (ASFA)*, March 2010.

Clark-Murphy, M. and Gerrans, P., 2004, "Apparently contradictory superannuation choices among younger fund members: a misunderstanding of risk?", *Economic Papers*, vol. 23, no. 2, pp. 101-113.

Clark-Murphy, M., Gerrans, P. and Speelman, C., 2009, "Return chasing as a driver in individual retirement savings investment choices: evidence from Australia", *Journal of Family and Economic Issues*, vol. 30, no. 1, pp. 4-19.

Evans, J. and Tan, K., 2007, "Drivers of investment choice: some evidence from Australian superannuation participants", *JASSA*, vol. 4, summer 2006.

Fear, J., 2008, "Choice Overload: Australians coping with financial decisions", *The Australian Institute*, discussion paper 99.

Gallery, G., Gallery, N., 2005, "Paradox of choice in a mandatory pension savings system: challenges for Australian retirement income policy", *Policy & Politics*, vol. 33, no. 3, pp. 519-532.

Harless, D. and Peterson, S., 1998, "Investor behaviour and the persistence of poorly-performing mutual funds", *Journal of Economic Behaviour & Organization*, vol. 37, no. 3, pp. 257-276.

Hedesstrom, T., Svedsater, H. and Garling, T., 2004, "Identifying heuristic choice rules in the Swedish premium pension scheme", *The Journal of Behavioural Finance,* vol. 5, no. 1, pp. 32-42.

Iyengar, S., Jiang, W. and Huberman, G., 2003, "How much choice is too much?: Contributions to 401(k) retirement plans", *Pension Research Council Working Paper.*

Langford, B., Faff, R. and Marisetty, V., 2006, "On the choice of superannuation fund in Australia", *Journal of Financial Services Research,* vol. 29, no. 3, pp. 255-279.

Lusardi, A. and Mitchell, O. 2009, "How ordinary consumers make complex economic decisions: financial literacy and retirement readiness", *NBER Working Paper no. w15350.*

Lusardi, A., Mitchell, O. and Curto, V., 2009, "Financial literacy among the young: evidence and implications for consumer policy", *Insurance and Risk Management Working Paper.*

Sunstein, C. and Thaler, R., 2003, "Libertarian paternalism is not an oxymoron", *The University of Chicago Law Review,* vol. 70, no. 4, pp. 1159-1202.

Thaler, R. and Benartzi, S., 2002, "How much is investor autonomy worth?", *The Journal of Finance,* vol. 57, no. 4, pp. 1593-1616.

Tversky, A. and Kahneman, D., 1986, "Rational choice and the framing of decisions", *The Journal of Business,* vol. 59, no. 4, pt. 2: The Behavioural Foundations of Economic Theory, pp. 251-278.

Worthington, A., 2008, "Knowledge and perceptions of superannuation in Australia", *Journal of Consumer Policy,* vol. 31, no. 3, pp. 349-368.